

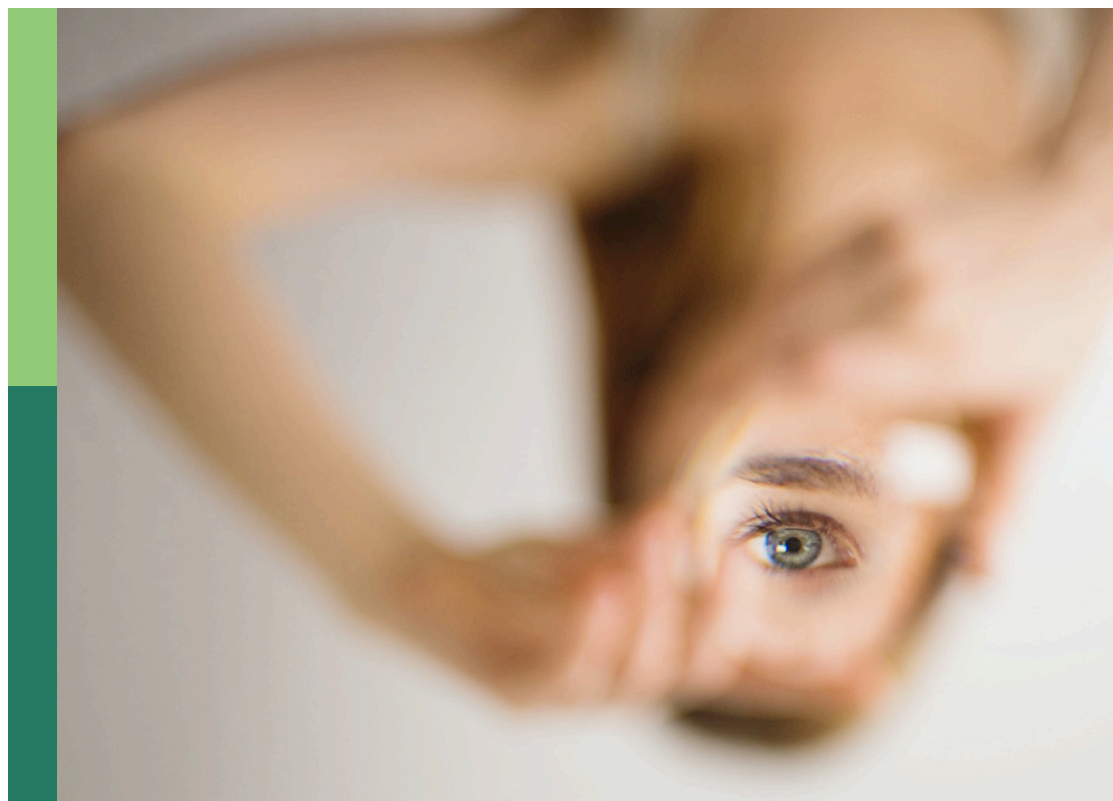
Language, corpora, and technology in applied linguistics

Edited by

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and Geng Qiang

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Language, corpora, and technology in applied linguistics

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Editorial: Language, corpora, and technology in applied linguistics

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Editorial on the Research Topic

[Language, corpora, and technology in applied linguistics](#)

The aim of this Research Topic was to stimulate thinking and research on emergent and important topics across the intersecting domains of applied linguistics, corpus-linguistics, translation and technology and to serve as a showcase for inventive cross-disciplinary deployment of tools and frameworks. This editorial indexes the rich diversity of the contributions made to *Language, corpora, and technology in applied linguistics* which not only extend knowledge in the target disciplines but also offer applications for the practice contexts of researchers, translators and teachers.

In extension of the focus on applied linguistics, a number of featured studies furnish pedagogical insights with the potential to improve instruction and the learning outcomes of learners across academic levels as well as of translation trainees. From the perspective of instruction, researchers offered useful insights from linguistic investigations with applications for the classroom. For instance, in a study based on meta-analysis of Chinese and global studies on the effect of metaphorical instruction on learners' outcomes, [Zhou et al.](#) identified that when teaching features prolonged instruction in metaphors which is integrated with practice, L2 learners are likely to make gains in achieving metaphorical competence. Similarly, an intervention-based study by [Alawerdy and Alalwi](#) used analysis of empirical data from first year Saudi EFL learners at university to showcase the impact of explicit instruction in the use of cohesive devices within essays, offering insights into how the writers' ability to write cohesively can be enhanced. Using comprehension and performance tasks with Arabic speaking children at a Riyadh international school, [Allothman and Alsager](#) investigated their acquisition of L2 spatial deixes. Observing the absence of proximity bias as an anticipated obstacle, the researchers found that the children's comprehension of spatial deixis in English was better than their production of the latter, suggesting the need for teachers take this into account when designing communicative activities. With implications for self-directed learning, an insightful study by [Lyu and Han](#) shows how a data driven approach (making use of a corpus) to bring about improvements helped a Chinese medical in her self-translations of a medical abstract. This approach indicates how other learners can adopt similar strategies (e.g., use of English equivalents for Chinese terms, keywords to identify collocations and utilization of accompanying words to discover contexts) to improve their L2 writing. With classroom interactions serving as a lever to facilitate better learning, a study by [Wei et al.](#) explored how interpersonal meanings between teachers and students are realized through the use of tag questions in British university seminars in BASE corpus. [Wei et al.](#) found that most tag questions are initiated by the teachers and serve to capture the attention of the listeners rather to seek information and that they can also serve as a

means for teacher to retain control of the activities in the session, although the limited ways in which the tag questions are used within the context of class interactions suggest the need to pay greater attention to realizing the full potential of tag questions. In language learning contexts, paying attention to the influence of linguistic background of the learners can help to provide better instruction. In this vein, Song's corpus-based investigation of the mood functions of summing up adverbs found that the pragmatic mechanism of "violation" helped to realize similar functions of the "Hezhe" (合着), "ganqing" (敢情), and "nao le bantian" (闹了半天). These findings suggest the need to pay attention to words with provenance in Chinese dialects, particularly at midway and advanced levels.

Factors such as familiarity, meaning, transparency or decomposability in the context of figurative phrases tend to be considered autonomous. In this context, Alkhamash(a) analyzed data from participants belonging to a variety of language groups to show that the ability of the speakers to guess the meaning of a phrase correctly increases scores in transparency and decomposability, thus flagging the need for closer attention to these factors when designing instruction. Within the context of translation research, Man et al. propose the development of a longitudinal learner translation corpus that can facilitate assessment feedback on translation proficiency with the help of an ecological approach that takes into account spatial and temporal contexts for the texts.

Other contributions demonstrated a more specific linguistic focus, albeit demonstrating variation in the topics, themes and methodologies used to develop the insights. With implications for research on syntactic complexity (a gauge for L2 writer proficiency), a corpus analysis of syntactic complexity evident in the essays of Japanese university EFL writers (NICE corpus), Lyu et al. showed substantial statistical difference in the writings of the L2 writers and those of native writers at the same academic level, thus suggesting the need for researchers to pay closer attention to this factor when taking into account the evolution of L2 writer competence. Cui and Kim explored structural and functional bundle lengths in a self-compiled corpus of student dissertations to show considerable variation in bundle categories (research-oriented, text-oriented and participant-oriented) across 3-, 4-, and 5-word bundles. Stance expression is another area of challenge for L2 writers. Using a corpus-based approach to compare Chinese and American students' rhetorical moves and stance features in 112 dissertation abstracts, Liu et al. found that abstracts by Chinese academic writers tended to focus on presenting their research rather than situating or discussing it. Additionally, stance expressions across the abstracts written by both groups of students demonstrated variation, with Chinese students demonstrating a preference for modal verbs in addition to stance verbs + that clauses to express their position. Serving as an innovative contribution, a study by Wang Q. adopted a cognitive semantic approach integrated with interview data collected from disciplinary researchers to provide insights into how the geo-academic location of academic writers can predict their use of interest markers (e.g., interesting, intriguing, fascinating) to indicate their authorial stance. Based on this finding, enabling academic writers to notice these choices may help them to adapt to the writing conventions of the target and dominant

scholarly community. From a semiotic perspective, Alharbi and Mahzari investigated the pragmatic functions of emojis within a dataset of Arabic tweets, revealing that emojis reflecting sorrow, love, tiredness among others were used prevalently, whereas the functions ranged from reaction, action, modification of tone to softening. These insights can allow for cross-cultural comparison of variations in how semiotic resources are appropriated and used. Exploring corpora comprising US, Chinese and UK media programs, Fu and Ho found that discourse markers such as *so*, *and*, *but* tend to be used the most in American programming which finding has implications for the realization of more effective bilateral communication between media program hosts and guests. Al-Mutairi and Mahzari examined a dataset of messages from computer-mediated communication related to advice-seeking by patients and advice-giving by doctors in the Arab medical context. The study found while the patients tended to ask yes/no questions and elaborate on their medical problems, the doctors made use of discursual strategy dependent on offering clarification/information and direct advice.

A number of research contributions showcased the use of technology-integrated linguistic tools to investigate political, diplomatic and academic discourses. For example, undertaking a corpus-based analysis of political speeches of US presidents, Xu shows how different categories of pragmatic evidentiality in diplomatic discourse helps the orators to demonstrate distance or proximity to their propositions as well as to express their stances toward the topics of their speeches. Investigating the shifts in Chinese diplomatic discourse over the period of 1949–2018 by applying corpus-based discourse analysis, Tian and Li find that the evolution of China's engagement with countries in the world, its cooperation efforts and stride toward international sustainable development are represented in tandem within its discourses. These findings index the expansive potential of corpora in helping to probe and unpack linguistic data across spoken and textual data. Exploring academic discourses, Hu used a discourse-based approach to examine evolutions in American academia's cognitive construction of Confucius institutes (aimed at achieving Sino educational and cultural cooperation across the globe). Hu shows how positive reception in the early years (2004–2013) was succeeded by a cognitive transformation of the institutes as a political agency and swift increase in the closure of the institutes (2014–2017). Zhang, Zhao et al. analyzed the multiple sections mediating the presentation of language policies within a dataset of constitutional texts, revealing that these tended to be discussed the most in the section dilating upon the fundamental rights of the citizen and that the geographical location wherein these texts originated also influenced the distribution of the policies. Using Biber's multi-dimensional (MD) analysis as an analytical lens, Zhang, Afzaal et al. investigated Sino and American diplomatic discourses, revealing that while Chinese discourses are packed with information and independent of context, American discourses are not only context-dependent but also emotive as well as interactional.

The breadth of translation research is evidenced in the diversity of the contributions related to this thematic strand within the Research Topic. Some of the studies focused on the implications of translators' linguistic choices for their translated texts while others focused on the influence of culture, history and background

on. For instance, the incidence of modal verbs which are used to express the speaker's attitudes was investigated within a corpus of Chinese-English government press conference interpretation data by [Zhang and Cheung](#). Their study showed a greater instantiation of modal verbs in English translations when compared with the original Chinese texts, suggesting that the deployment of modal verbs expressive of attitudes in translated texts was due to the desire to achieve specific pragmatic functions. In another example, [Meng and Pan](#) apply corpus-analysis to English translation of Wang Anyi's novel *The Song of Everlasting Sorrow*. They find that translators make conscious stylistic choices when rendering source cultures texts into target culture translations to make these texts comprehensible to audiences accustomed to very different styles. Examining English translations of Mao Zedong's speeches with the help of corpus-based analysis, [Huang and Shi](#) reveal not only idiosyncratic language use but also the evident influence of source language transfer into the target language, expressed in the underuse of the person pronoun and preference for the modal verb *must* rather than *should*. Other studies focused on the translation context, taking into account the impact of historical background and cultural identity. For instance, investigating a self-constructed corpus of six English translations of the Chinese classic *Daxue* by Chinese and international translators, [Wang H.](#) shows that the translational choices made by them are influenced by their cultural identity as well as historical background and motivations to carry out the translations. [Yang et al.](#) show how the use of modal verbs in representative English translations of *Shih chi* is influenced not only by the professional identities of text translators but also by the historical as well as cultural contexts in which they lived and worked. In an innovative study making use of narrative inquiry, [Geng](#) chose to adopt a human-centered approach to explore the experience of five seasoned and senior translators as evident in their self-narratives. The study shows that translators are strongly influenced by their social, political and cultural settings while carrying out their work and that their narratives are structured chronologically with focus on critical incidents in their journey through life and work as translators.

Other studies adopted distinctive theoretical and methodological lens to explore language data, ranging from how poetic texts were adapted into the visual medium to how digital public platforms can reflect the asymmetries of a gender imbalanced society and world. For instance, systemic functional semiotics was used as a heuristic by [Chen and Zhong](#) to compare distribution of process types of language in comic adaptations of Chinese poetry. Their research reveals how poems are rendered into perceptions as well as actions and verbal processes within the comics to facilitate dramatization, development of the storyline as well as visualization of metaphors amongst other functions. Analyzing a self-constructed corpus of 7,000 tweets on @FacesofCovid with the help of social actor representation and corpus linguistics, [Almaghlouth](#) shows how gender asymmetry (reflected in the underrepresentation of female victims) persists even on a public mourning platform established to commemorate the COVID dead from around the world.

The editorial progresses toward its conclusion by focusing on three key studies based on a bibliometric and meta-analytic review of literature. Tackling a sensitive topic, [Peng and Hu](#) performed a bibliometric analysis of COVID-related research

with the help of CiteSpace software. They found that pandemic research reflected a narrow topical focus as well as inadequate attention to discourse-based analyses. In another bibliometric study with implications for trends in metaphor studies within crisis communication, [Alkhamash\(b\)](#) shows how investigations in COVID metaphors tend to be underpinned by Critical Discourse Analysis and span conventional and emerging genres (e.g., social media and multi-modal data). From a more theoretical perspective, [Han et al.](#) undertake a novel review of research publications on Conceptual Metaphor Theory with the help of CiteSpace. They identified keywords indexing predominant themes in the publications, dominant research domains for present research as well as the need for more interdisciplinary research on CMT. Such studies serve an important function, identifying as they do dominant themes and topics as well as under-researched areas so that future researchers can turn their attention to urgent topics, avoid research in already saturated areas as well as pursue epistemic and methodological trajectories which can truly push the frontiers of knowledge in their domains.

Given that technology serves as a key thematic strand in the Research Topic, it is worth noting that many of the contributions make strategic use of technology. Featured studies integrating extended use of technology include the utilization of CiteSpace to enable keyword visualization and cluster analysis in bibliometric and metanalytic studies ([Peng and Hu](#); [Han et al.](#)), #LancsBox corpus processing software to analyze tweets on @FacesofCOVID ([Almaghlouth](#)), Multidimensional Analysis Tagger (MAT) supported analysis of Sino and American political discourse ([Zhang, Afzaal et al.](#)) as well as meta-analysis statistical tool for determining whether metaphorical competence can be taught ([Zhou et al.](#)).

Summing up, this Research Topic evidences the exciting breadth and diversity of linguistic research across the disciplinary spectrum and global contexts. It also speaks to the potential of technology to be integrated into linguistic, corpus and translational research so as to allow for the leveraging of its power to tackle big data, thus enabling the production of meaningful results and findings applicable to wider populations as well as exploration of emergent topics, issues, and challenges.

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A bibliometric analysis of linguistic research on COVID-19

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Research on COVID-19 has drawn the attention of scholars around the world since the outbreak of the pandemic. Several literature reviews of research topics and themes based on scientometric indicators or bibliometric analyses have already been conducted. However, topics and themes in linguistic-specific research on COVID-19 remain under-studied. With the help of the CiteSpace software, the present study reviewed linguistic research published in SSCI and A&HCI journals to address the identified gap in the literature. The overall performance of the documents was described and document co-citations, keyword co-occurrence, and keyword clusters were visualized via CiteSpace. The main topic areas identified in the reviewed studies ranged from the influences of COVID-19 on language education, and speech-language pathology to crisis communication. The results of the study indicate not only that COVID-19-related linguistic research is topically limited but also that insufficient attention has been accorded by linguistic researchers to Conceptual Metaphor Theory, Critical Discourse Analysis, Pragmatics, and Corpus-based discourse analysis in exploring pandemic discourses and texts.

KEYWORDS

COVID-19, linguistics, bibliometric analysis, CiteSpace, hot topics

Introduction

The COVID-19 pandemic has impacted human beings in significant ways, and scientists and researchers have actively responded to the challenges in the post-pandemic era by investigating the phenomenon from the vantage point of their research domains. Since 2020, publications about COVID-19 have proliferated across disciplines. The COVID-19 research literature has also increased in bibliometric and scientometric studies (e.g., [Chahrour et al., 2020](#); [Deng et al., 2020](#); [Colavizza et al., 2021](#)), as well as systematic reviews and meta-analyses of a variety of COVID-19 pandemic-related topics, such as the risk factors for critical and fatal COVID-19 cases ([Zheng et al., 2020](#)) and considerations of whether asthmatic patients are at higher risk of contracting the virus (e.g., [Morais-Almeida et al., 2020](#)).

In response to the pandemic, linguistic researchers have provided multilingual public communication services or other helpful language services ([Shen, 2020](#); [Di Carlo et al., 2022](#)). However, at this juncture, a clear need to map the contributions of the linguistic research community to pandemic literature was in evidence. Hence, the present study reviewed the COVID-19-related literature published in SSCI and A&HCI journals on the Web of Science over the past 2 years to address this need. The study used the CiteSpace bibliometric tool to analyze the current state of linguistic research on

COVID-19. CiteSpace is a tool for performing a visual analytic examination of the academic literature of a discipline, a research field, or both, referred to as a knowledge domain (Chen, 2004, 2006, 2020). A bibliometric analysis is significant for recognizing the expansion of literature in linguistics. It can aid scholars in gaining quantitative insights into the rise of linguistic research on the COVID-19 pandemic, taking into account the social impact of the disease. The findings can identify the frontiers and gaps in the linguistic study on COVID-19 and guide future research.

Previous studies

The COVID-19 pandemic has exercised a disruptive and profound impact on every aspect of human life. Scientific research papers concerning this pandemic have been growing exponentially. We searched publications related to this topic with “COVID” as the topic term in the Web of Science core collection and got 69,591 results¹. To help researchers assess the research trends and topics on this issue, several literature surveys have already been implemented. Based on scientometric indicators or bibliometric analyses, these reviews include a focus on research patterns from publications on COVID-19 (Sahoo and Pandey, 2020), the most productive countries and the international scientific collaboration (Belli et al., 2020), and the current hotspots for the disease and future directions (Zyoud and Al-Jabi, 2020). The majority of these studies, however, have concentrated on the medical elements of COVID-19, while paying little attention to the research in the social sciences.

In this context, a recent review by Liu et al. (2022) based on a scientometric analysis of the performance of social science research on COVID-19, covering the landscape, research fields, and international collaborations, represents a notable departure from the prevalent focus of earlier studies. Representing a linguistic focus, another recent study by Heras-Pedrosa et al. (2022) consisted of a systemic analysis of publications in health communication and COVID-19. It found that, in 2020, concepts related to mental health, mass communication, misinformation, and communication risk were more frequently used, and in the succeeding year (2021), vaccination, infodemic, risk perception, social distancing, and telemedicine were the most prevalent keywords.

Within the linguistic field, literature reviews tend to focus on COVID-19-related language education exist. For instance, Moorhouse and Kohnke (2021) explore the lessons learned from COVID-19, and identify and analyze the primary knowledge produced by the English-language teaching community during the epidemic, also offering recommendations for further research on this particular subject. A systemic literature review of adult online learning during the pandemic by Lu et al.

(2022) compiled and assessed 124 SSCI literature of empirical studies using a systematic literature review and the literature visualization tool CiteSpace. A bibliometric analysis on “E-learning in higher education in COVID-19” by Brika et al. (2022) deployed VOSviewer, CiteSpace, and KnowledgeMatrix Plus to extract networks and bibliometric indicators about keywords, authors, organizations, and countries. The study offered various insights related to higher education. Distance learning, interactive learning, online learning, virtual learning, computer-based learning, digital learning, and blended learning are among the many terms or subfields of e-learning in higher education.

Linguists have made notable contributions to COVID-19 research. However, there is currently no literature review available on the overall state of the field, including topics such as the most active contributors (e.g., countries, institutions, and journals) to research, dominant topic areas in the field, and trends and gaps in linguistic research. To bridge this gap, this study utilized CiteSpace software 6.1 R2 to conduct a systematic review of the present state of linguistic research on COVID-19. Specifically, this study addressed the following questions:

Q1: Which countries, institutions, and journals have contributed the most to the linguistic research on COVID-19?

Q2: What are the active research areas in the linguistic research on COVID-19?

Q3: What are the recent trends and the research gaps in the linguistic research on COVID-19?

Methods

Data collection

As the study was focused on the linguistic field, we searched the Social Science Citation Index (SSCI) and Arts and Humanities Citation Index (A&HCI) available on the Web of Science (WoS) platform. The data were collected through an advanced search. All collected articles/reviews were written in English, and we retrieved the data using the following fields:

1. Topic = (“covid*” OR “*nCoV” OR “SARS-CoV-2” OR “new coronavirus” OR “coronavirus disease 2019” OR “severe acute respiratory syndrome coronavirus-2” OR “novel coronavirus” OR “coronavirus 19”). These terms were only allowed in the title, abstract, or keywords.
2. Time span = 2020–2022
3. Document type = article OR review (the review articles do not include book reviews)
4. (“*”) is a wildcard in WOS that represents any group of characters, including no character.
5. Research area = “linguistics”

Based on the search items listed above, 363 research and review articles were obtained from the Web of Science Core

¹ The search date is 15/05/2022.

Collection on 25 May 2022. Through manual analysis, the documents completely unrelated to linguistic research, as well as conference abstracts, book reviews, correspondence, and other unrelated documents were excluded. To guarantee the recall ratio, this study used the “remove duplicates (WOS)” function in CiteSpace to filter out duplicated studies from the collected data. After the cleaning procedure, the final dataset contained 355 documents.

Instrument

The instrument deployed in this study was CiteSpace 6.1 R2 developed by Chen (2004) as a bibliometric analysis tool (Chen, 2004, 2006, 2017; Chen et al., 2010). The input in this software is a set of bibliographic data files in the field-tagged Institute for Scientific Information Export Format.

In this study, the files were downloaded from the WoS core collection. We chose “full record and cited references” as the record content and the files can be recognized by CiteSpace software directly. When the files are added to the software, they are subjected to the following procedural steps: time slicing, thresholding, modeling, pruning, merging, and mapping (For more details, please see Chen, 2004). The outputs of this software are visualized co-citation networks which is to say that each of the networks is presented in a separate interactive window interface. It can show the evolution of a knowledge field on a citation network, display the overall state of a certain field, and highlight some important documents in the development of a field. The strength of CiteSpace lies in the analysis and visualization of the thematic structures and research hotspots. It can provide us with co-citation networks among references, authors, and countries which is of pivotal importance given the research questions underpinning the present study. Hence, to locate important references, recognize research trends, and pinpoint research hotspots in the linguistic research on COVID-19, co-citation documents and keyword co-occurring analyses were conducted in this study through this software.

Results

Global distribution of articles on COVID-19

The overall distribution characteristics are presented below. Figure 1 displays the number of papers published each month since January 2020 when the World Health Organization formally declared the epidemic a global public health emergency. There was only one article about COVID-19 published in January 2020, whereas the publications show a peak in April 2022 with 30 publications. Overall, the results show that publications on the topic are increasing every month. Therefore,

we might conclude that linguistic researchers have begun to be increasingly interested in COVID-19 linguistic research.

Tables 1, 2, respectively, indicate the top 10 most productive countries and institutions for COVID-19 publications. The USA was ranked as the top country in terms of the number of articles related to linguistic publications on COVID-19, with 111 publications in total, followed by China with 57 articles and England with 47 articles (Table 1). In terms of the number of linguistic research publications on COVID-19, Purdue University ranked as the top contributing institution (16 records), followed by the University of London (10 records) and the State University System of Florida (eight publications).

The 355 articles reviewed in the current study were published in 83 journals. The top 10 most productive journals are listed in Table 3. *System* ranked the top journal in the number of published articles, with 21 publications related to COVID-19, followed by *American Journal of Speech Language Pathology* and *International Journal of Language Communication Disorders*, with 20 and 18 publications, respectively. As we can see in Table 3, most of the top 10 journals are related to language education or speech-language pathology.

Based on the Global Citation Score in the WoS, the top 10 most-cited articles contributing to COVID-19 research are listed in Table 4. MacIntyre et al. (2020) ranked as the most-cited article with 127 citations. This article is published in *System* which is also the most productive journal. The top four articles are all about online language teaching during the COVID-19 period.

Document co-citation analysis

The 355 bibliographic recordings from WoS were visualized and a 1-year time slice was selected for analysis. The size of the node is proportional to the frequency of the cited references. Different colors around nodes represent the frequency of references in different time periods. The labels shown in Figure 2 are all documents with more than three citations, and the connection between nodes shows the co-citation relationship.

The top 50 most cited articles every year were selected. There were 176 individual nodes and 562 links, representing cited articles and co-citation relationships among the whole data set, respectively. The results are illustrated in Figure 2. The results are somewhat different from those obtained from the Global Citation Score in the WoS (Table 4) since the Global Citation Score in the WoS is calculated based on all the citations in WoS, while the document co-citation analysis is based only on the 355 documents retrieved from WoS.

According to the document co-citation analysis, the most co-cited article was written by MacIntyre et al. (2020). This study explores the issue of language teachers' coping mechanisms and their correlates in the context of the distinctive stressors

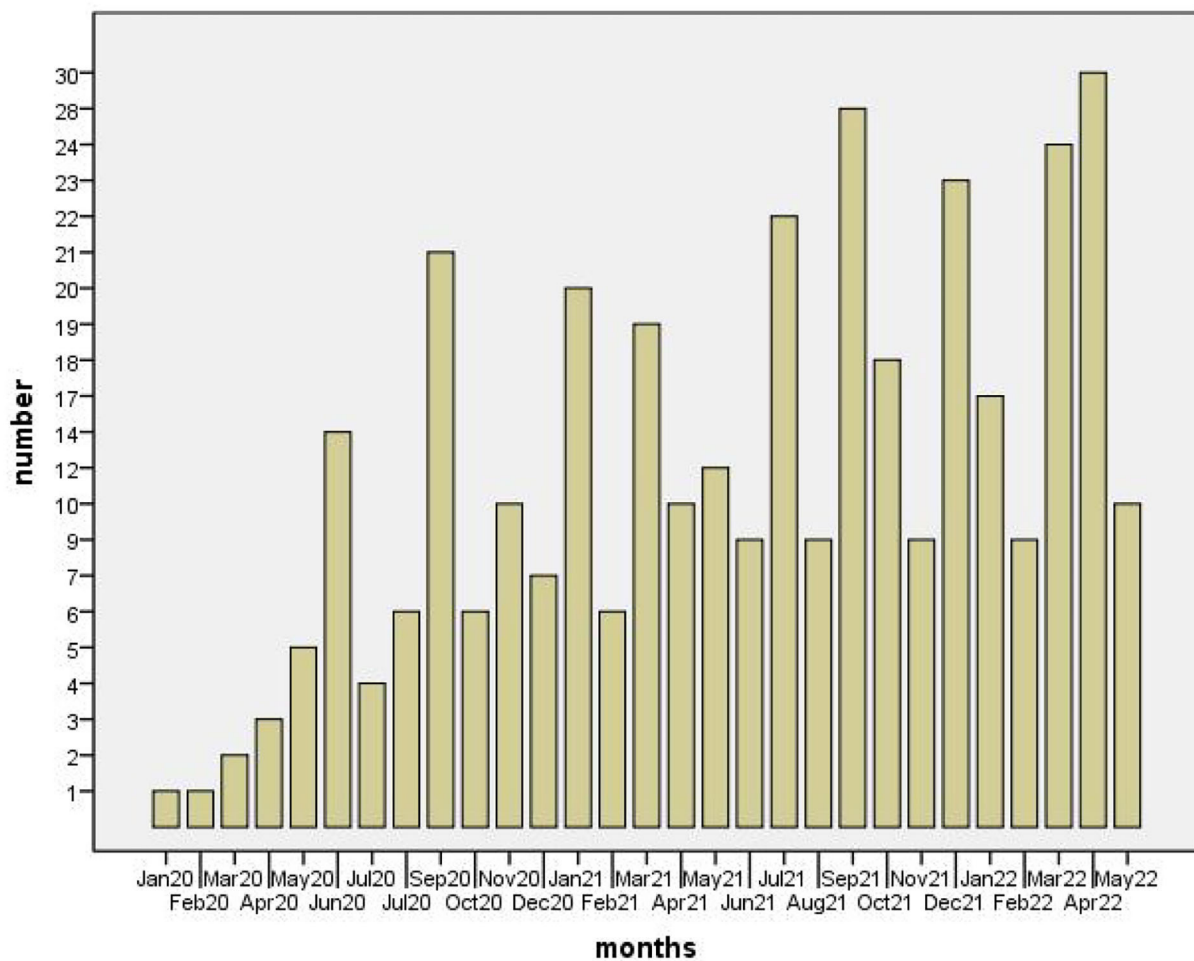


FIGURE 1
Number of articles published by month.

of the COVID-19 pandemic and the educational responses at the global level. It demonstrates how language teachers have faced a variety of challenges as a result of the global response to the COVID-19 outbreak. High levels of stress have been caused by the quick transition to online education, the blending of job and personal life, and the constant worry about personal and familial wellbeing. With the help of a variety of techniques, teachers were found to be dealing as effectively as they could. Coping strategies that are deemed to be more active and approach-oriented, namely ones that more directly addressed the problems brought on by the phenomenon including the emotions evoked, were found to be connected with more favorable outcomes in terms of psychological health and wellbeing. The greater use of avoidant coping mechanisms was linked to worse psychological outcomes. Increased use of avoidant coping, in particular, was linked to higher stress levels and a range of unpleasant feelings (anxiety, anger, sadness, and

loneliness). [MacIntyre et al. \(2020\)](#) also found that a variety of particular techniques were employed by the participants within the approach and avoidant categories of coping, and the majority of them produced outcomes consistent with the category in which they appeared. The multidimensional nature of the stressors required multidimensional coping strategies, but it was obvious that some coping strategies were superior to others. This study by [MacIntyre et al. \(2020\)](#) offers insights into the effectiveness of coping strategies used by language teachers during the crisis and their implications for other stressful events and processes such as school transfers, educational reform, or demanding work periods like the end-of-year exam. [MacIntyre et al. \(2020\)](#) suggest that all pre-service and in-service teacher education programs should incorporate stress management as a fundamental professional competence.

The second most cited article is written by [Gacs et al. \(2020\)](#), which compares the crisis-prompted online language teaching

TABLE 1 Top 10 most productive countries for COVID-19 linguistic research.

Ranking	Country	Records (Freq, total N = 355)
1	USA	111 (31.3%)
2	China	57 (16.1%)
3	England	47 (13.2%)
4	Germany	32 (9.0%)
5	Australia	28 (7.9%)
6	Canada	19 (5.4%)
7	Spain	17 (4.8%)
8	New Zealand	10 (2.8%)
9	Austria	8 (2.2%)
10	Iran	7 (2.0%)
10	Italy	7 (2.0%)

TABLE 2 Top 10 most productive institutions for COVID-19 linguistic research.

Ranking	Institutions	Records
1	Purdue University	16
2	University of London	10
3	State University System of Florida	8
4	Michigan State University	7
4	University College London	6
6	Hong Kong Polytechnic University	5
7	Imperial College London	5
8	Northwestern University	5
9	Ohio State University	5
10	Adam Mickiewicz University	4
10	Columbia University	4
10	Education University of Hong Kong	4

during the COVID-19 era with well-designed and carefully planned online language education. Due to the 2020 pandemic, many institutions were forced to transition away from face-to-face (F2F) teaching to online instruction. The crisis-prompted online language teaching is different from actual planned online language education. This is because in times of pandemic, war, crisis, natural disaster, or extreme weather, neither teachers nor students are prepared for switching over to online education without good technology literacy, access, and infrastructure. Gacs et al. (2020) describe the process of preparing, designing, implementing, and evaluating online language education when adequate time is available and the concessions one has to make as well when adequate time is not a possibility in times of pandemic or in other emergent conditions. This article presents a roadmap for planning, implementing, and evaluating online education in an ideal and crisis contexts.

TABLE 3 Top 10 most prolific journals.

Ranking	Journal	Records
1	System	21
2	American Journal of Speech Language Pathology	20
3	International Journal of Language Communication Disorders	18
4	Multilingual Journal of Cross Cultural and Interlanguage Communication	15
5	Foreign Language Annals	13
5	Linguistics Vanguard	13
5	RELC Journal	13
8	Language Assessment Quarterly	12
8	Metaphor and Symbol	12
10	Journal of Language and Social Psychology	11

The third most cited article conducted by Gao and Zhang (2020) set up a qualitative inquiry to investigate how EFL teachers perceive online instruction in light of their disrupted lesson plans and how EFL teachers teach during the early-stage COVID-19 outbreak developed their information technology literacy. The findings from this study on teachers' perceptions of online instruction during COVID-19 have theoretical ramifications for studies on both teachers' cognitions and online EFL teaching.

It is evident that the three top-cited articles are on the theme of language education. Therefore, it can be concluded that remote online education during a pandemic crisis is the most studied area from the linguistic perspective.

Keyword co-occurrence

In a way, keywords serve as the central summary of articles and serve to convey their major idea and subject matter. The co-occurrence of keywords in an article indicates the degree of closeness between the keywords and the strength of this relationship. According to common perception, the more strongly related two or more terms are, the more often they are likely to appear together. CiteSpace provides a function called Betweenness Centrality to describe the strength. In other words, if a keyword consistently appears alongside other distinct keywords, it is likely that we will see it even if we talk about other related subjects. As a result, the greater the value of Betweenness Centrality a keyword displays, the more significant a keyword is.

TABLE 4 Top 10 most-cited articles contributing to COVID-19 linguistic research.

Citation counts	Author (time)	Title	Journal
127	MacIntyre et al. (2020)	Language teachers' coping strategies during the Covid-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions	System
52	Gacs et al. (2020)	Planned online language education vs. crisis-prompted online language teaching: lessons for the future.	Foreign Language Annals
39	Derakhshan et al. (2021)	Boredom in online classes in the Iranian EFL context: sources and solutions	System
38	Kohnke and Moorhouse (2022) (online time August 2020)	Facilitating synchronous online language learning through Zoom	RELJ Journal
32	Piller et al. (2020)	Linguistic diversity in a time of crisis: Language challenges of the COVID-19 pandemic	Multilingua-Journal of Cross-cultural and Interlanguage Communication
28	Zaga et al. (2020)	Speech-language pathology guidance for tracheostomy during the COVID-19 pandemic: an international multidisciplinary perspective	American Journal of Speech-Language Pathology
22	Bischetti et al. (2021)	Funny but aversive: A large-scale survey of the emotional response to COVID-19 humor in the Italian population during the lockdown	Lingua
22	Marler and Ditton (2021)	"I'm smiling back at you": Exploring the impact of mask wearing on communication	International Journal of Language and Communication Disorders
20	Russell (2020)	Language anxiety and the online learner	Foreign Language Annals
19	Alfadda and Mahdi (2021)	Measuring students' use of zoom application in language course based on the technology acceptance model (TAM)	Journal of Psycholinguistic Research

A keyword co-occurrence analysis was conducted in this study to identify the research fields and dominant topics. A term analysis of words extracted from keywords was conducted to identify the words or phrases co-occurring in at least two distinct articles. Terms with high frequency may be treated as indicators of hotspots in a certain research field (Chen, 2004). The top five high-frequency keywords were language, student, communication, discourse, and teacher. The keyword co-occurrence network is shown in Figure 3, and the keywords with frequencies of more than three are displayed in Table 5.

Cluster interpretations

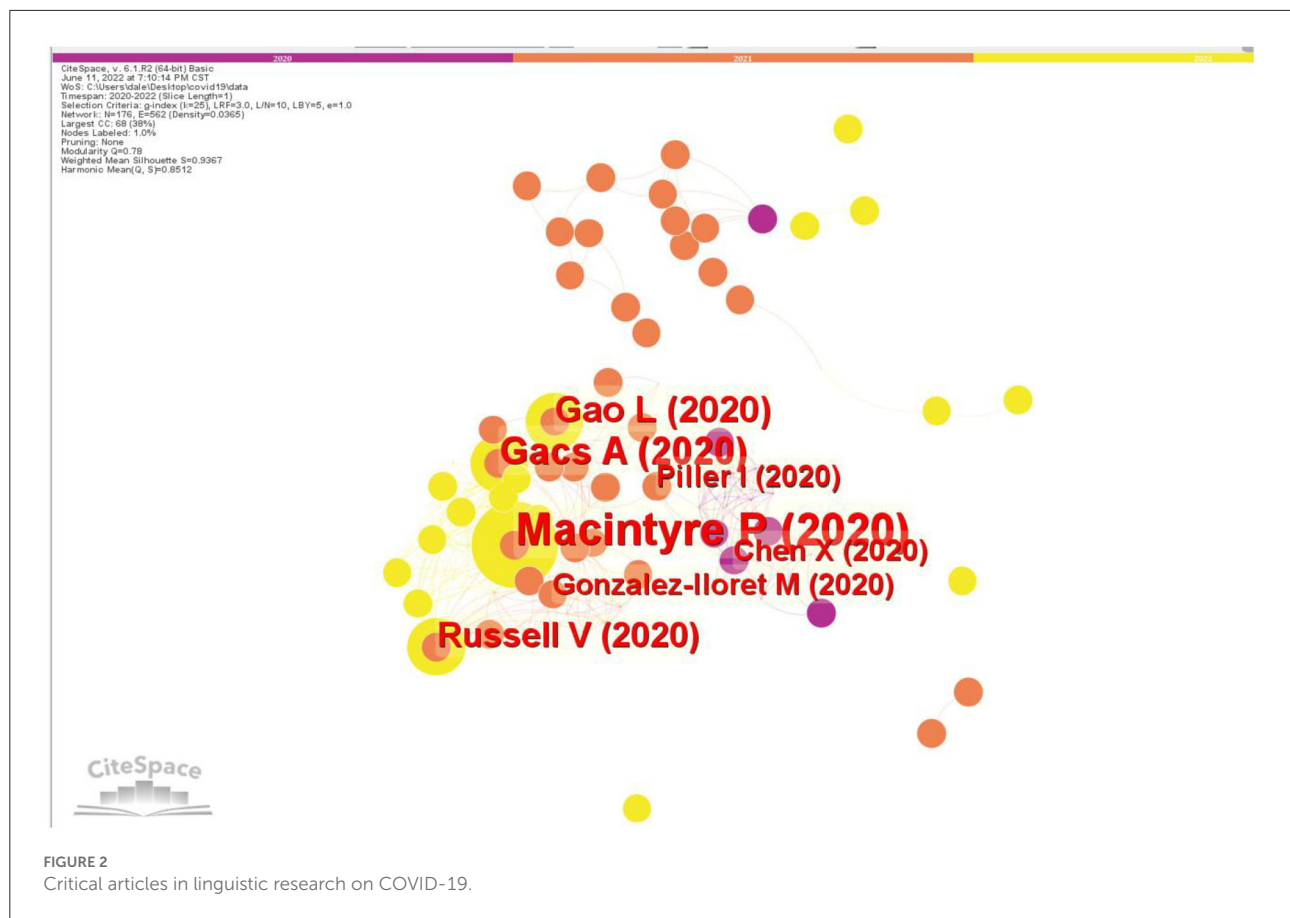
Based on the analysis of the results of keyword co-occurrence, we used CiteSpace to conduct a cluster analysis. The 355 articles generated 20 clusters in total. Labeling clusters with indexing terms and showing clusters by log-likelihood ratio (LLR), Figure 4 shows the eight most important keyword clusters obtained by keyword co-occurrence analysis. Table 6 shows the keywords lists of the seven important clusters in linguistic research on COVID-19. It illustrates an aggregated distribution in which the most colorful areas overlapped,

indicating that these clusters share some basic concepts or information (as suggested by Chen, 2004).

Cluster #0 is labeled as emergence online teaching

Cluster #6 (online learning) and Cluster #7 (distance learning) are closely related to Cluster #0 since both Cluster #6 (online learning) and Cluster #7 (distance learning) fall under the umbrella of online education during a crisis. Emergency online teaching and online/distance learning are clearly shown to be the focus of linguistic research related to COVID-19.

Due to the COVID-19 pandemic, teaching and learning experienced a shift from physical, in-person (or face-to-face) learning environments to virtual, online learning environments. Although online education is well-established, pandemic-initiated online teaching and learning differed from traditional, well-planned online teaching, thus leading to significant difficulties for both language teachers and students. The stakeholders had to quickly adapt to new environments and learning styles while dealing with the pandemic's personal and societal repercussions on their everyday lives and wellbeing (MacIntyre et al., 2020). The online teaching of foreign and



second languages during COVID-19 is referred to as emergency remote teaching (ERT), a term used to describe education temporarily moved online due to unforeseeable events such as natural catastrophes or conflict (Hodges et al., 2020). The difficulties primary school ESOL teachers in the United States encountered as a result of the unexpected instructional adjustments brought on by the COVID-19 epidemic are described by Wong et al. (2022) along with how these difficulties appeared to have impacted the teachers' wellbeing.

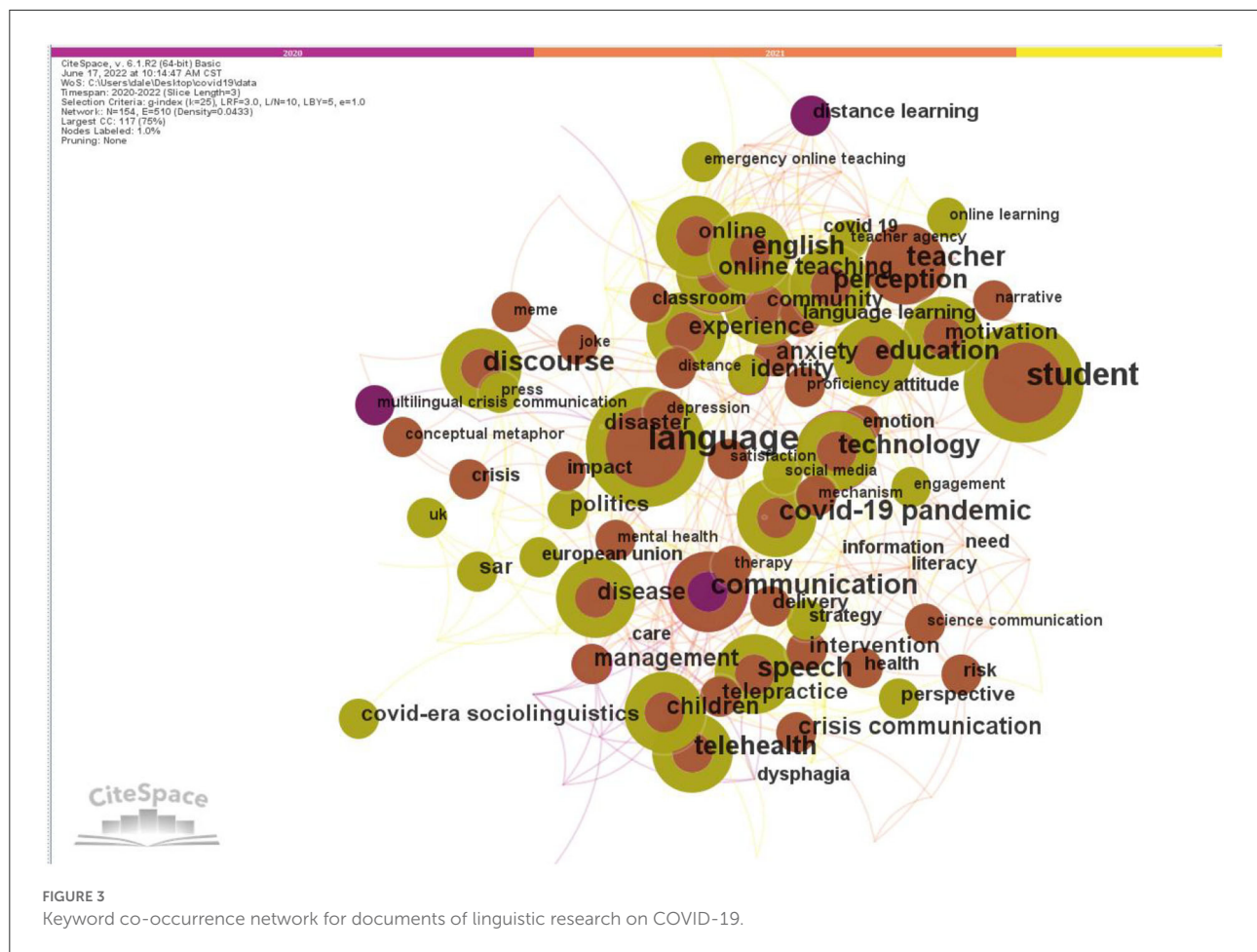
There are problems unique to language education, even if English language teachers and students have faced many of the same difficulties as their peers in other disciplines. For instance, many people view the interaction between students and teachers as a crucial component of language acquisition (Walsh, 2013), whereas interaction works very differently in the online mode (Payne, 2020). Therefore, to encourage and support engagement during online language lessons, teachers need to showcase certain competencies (Cheung, 2021; Moorhouse et al., 2021).

Understandably, the research community has developed a keen interest on how the COVID-19 pandemic has affected language teaching and learning. More attention is directed toward adapting to the COVID-19 pandemic-initiated online education due to the rapid and abrupt switch from classroom

instruction to online learning. For instance, how the students—especially primary pupils—and the teachers adapt to online teaching is the main topic discussed in a special issue of *System* (2022, volume 105). The COVID-19 pandemic also changed the in-person and on-campus testing into placement testing. Ockey (2021) provides an overview of COVID-19's impact on English language university admissions and placement tests.

Cluster #1 is labeled as science communication

During the COVID-19 pandemic period, it has become very crucial for scientists and government politicians to communicate scientific knowledge to the public to limit the spread of COVID-19. Linguistic factors can play an important role in science communication. A study by Schnepf et al. (2021) inquired into whether complex (vs. simple) scientific statements on mask-wearing could lead audiences to distrust the information and its sources, thus obstructing compliance with behavioral measures communicated on evidence-based recommendations. The study found that text complexity affected audiences inclined toward conspiracy theories negatively. Schnepf et al. (2021) provided recommendations for persuading audiences with a high conspiracy mentality, a group known



to be mistrustful of scientific evidence. Janssen et al. (2021) inquired into how the use of lexical hedges (LHs) impacted the trustworthiness ratings of communicators endeavoring to convey the efficacy of mandatory mask-wearing. The study found that scientists were perceived as being more competent and having greater integrity than politicians.

Cluster #2 is labeled as dysphagia

When a society faces a crisis like the COVID-19 pandemic, the impact of COVID-19 on special needs populations, such as people with dysphagia or aphasia or hearing impairments (Cheng and Cheng, 2022; Mathews et al., 2022), assumes greater importance for the linguistic community. A study by Jayes et al. (2022) described how UK Speech and language therapists (SLTs) supported differently abled individuals with communication disabilities to make decisions and participate in mental capacity assessments, best interest decision-making, and advance care planning during the COVID-19 pandemic. Govender et al. (2021) investigated how people with a total laryngectomy (PTL) were impacted by COVID-19. Feldhege et al. (2021) conducted an observational study on changes in language style

and topics in an online Eating Disorder Community at the beginning of the COVID-19 pandemic. Owing to the severity of the pandemic, speech-language pathologists (SLPs) shifted quickly to virtual speech-language services. Thus, telepractice (cluster #4) also becomes one of the important keyword clusters. Telepractice has been used extensively to offer services to people with communication disorders since the global COVID-19 pandemic. Due to physical separation tactics used to contain the COVID-19 outbreak, many SLPs implemented a live, synchronous online distribution of clinical services. However, SLPs have received synchronous telepractice training to equip them for the shift from an in-person service delivery approach. Using synchronous modes of online clinical practice, Knickerbocker et al. (2021) provide an overview of potential causes of phonogenic voice issues among SLPs in telepractice and suggest prospective preventative techniques to maintain ideal vocal health and function.

Cluster #3 is labeled as social media and it is closely related to Cluster #5 (multilingual crisis communication) since social media research is a way to analyze public communication, particularly during a health crisis. Given the physical restrictions during COVID-19, social media platforms enabled individuals

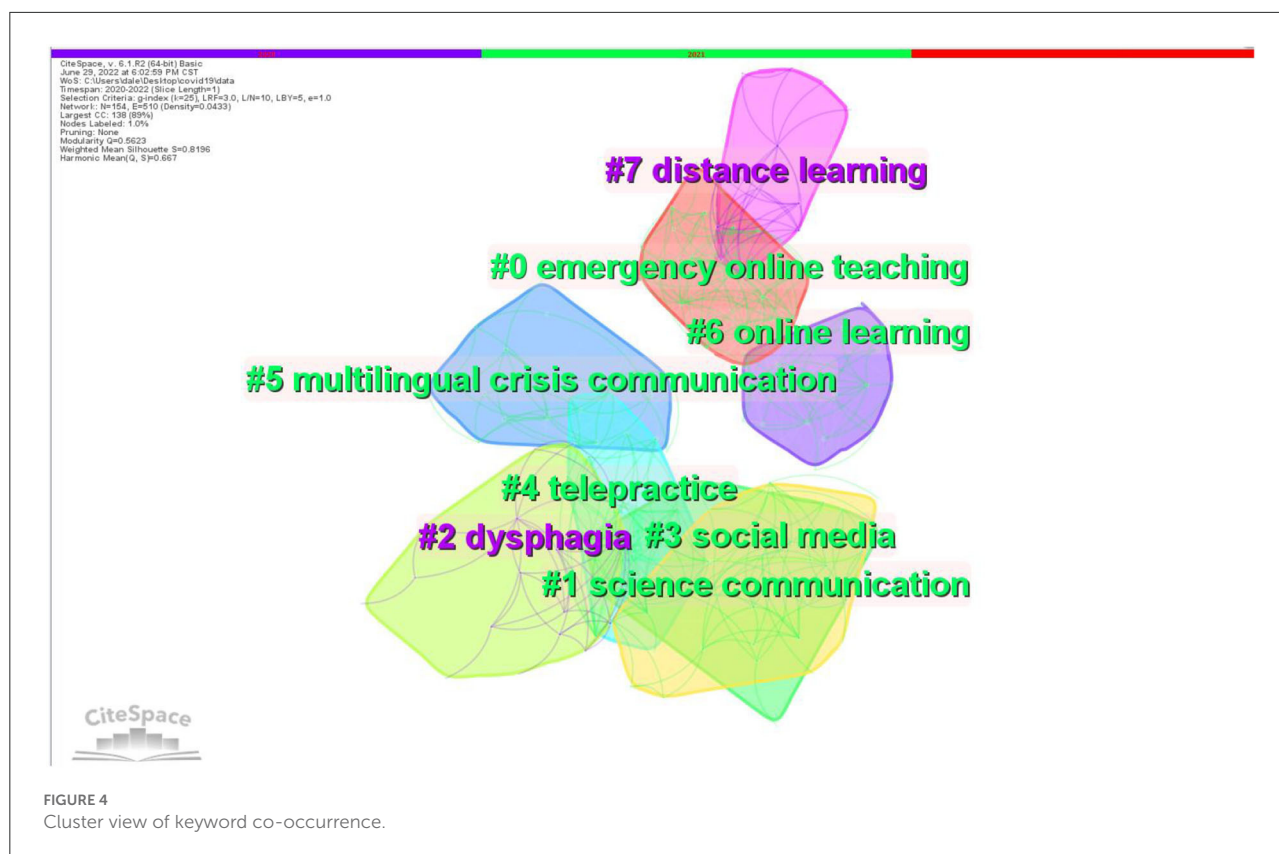
TABLE 5 The co-occurring keywords with high frequency.

Count	Central	Keywords	Count	Central	Keywords	Count	Central	Keywords
19	0.05	Language	6	0.04	Politics	4	0.01	Health
15	0.01	Student	6	0.03	Motivation	4	0.01	Strategy
11	0.18	Communication	6	0.03	Telepractice	3	0.05	Satisfaction
11	0.09	Discourse	6	0.01	Intervention	3	0.05	Therapy
11	0.02	Teacher	6	0.01	Sar	3	0.04	Distance
10	0.08	Speech	6	0.00	COVID-era sociolinguistics	3	0.03	Engagement
10	0.02	COVID-19 pandemic	5	0.09	Delivery	3	0.02	Meme
9	0.13	Technology	5	0.09	Distance learning	3	0.02	Press
9	0.10	Perception	5	0.03	Impact	3	0.01	Joke
9	0.09	Education	5	0.02	Language learning	3	0.01	Mental health
9	0.04	English	5	0.01	Perspective	3	0.01	Online learning
9	0.00	Telehealth	4	0.09	Care	3	0.01	Science communication
8	0.10	Online teaching	4	0.08	Literacy	3	0.01	Social media
8	0.06	Anxiety	4	0.06	Information	3	0.01	Teacher agency
8	0.03	Children	4	0.05	Classroom	3	0.00	Conceptual metaphor
7	0.12	Management	4	0.04	Need	3	0.00	Depression
7	0.10	Identity	4	0.04	Risk	3	0.00	Emergency online teaching
7	0.07	Experience	4	0.03	Attitude	3	0.00	Linguistic landscape
7	0.04	Disease	4	0.03	Emotion	3	0.00	Mechanism
7	0.02	Crisis communication	4	0.02	Crisis	3	0.00	Multilingual crisis communication
6	0.18	Community	4	0.02	Dysphagia	3	0.00	Narrative
6	0.10	Disaster	4	0.02	European union	3	0.00	Proficiency
6	0.05	Online	4	0.01	COVID-19			

to maintain contact and share ideas. Many studies have investigated the performances of various types of social media platforms during the pandemic, such as Twitter (Weidner et al., 2021), Weibo (Ho, 2022; Yao and Bik Ngai, 2022), WhatsApp (Pérez-Sabater, 2021), and YouTube (Breazu and Machin, 2022). Weidner et al. (2021) looked at the characteristics of tweets concerning telepractice via the prism of a well-known framework for using health technology. During the epidemic, there was a surge in telepractice-related tweets. Although several tweets covered ground that is expected in the application of technology, some covered ground that might be particular to speech-language pathology. Yao and Bik Ngai (2022) investigated how People's Daily communicated COVID-19 messages on Weibo. Its findings contribute to the understanding of how public engagement on social media can be augmented via the use of attitudinal messages in health emergencies. Cluster #5 multilingual crisis communication

is mostly studied from the perspective of sociolinguistics. Contributing to the sociolinguistics of crisis communication, Ahmad and Hillman (2021) examined the communication strategies employed by Qatar's government in dealing with the COVID-19 pandemic. While a study by Gallardo-Pauls (2021) proposed a specifically linguistic/discursive model of risk communication, Tu et al. (2021) inquired into how pronouns "we" and "you" affected the likelihood to stay at home differently. In another study, Tian et al. (2021) investigated the role of pronouns in crafting supportive messages and hope appeals and facilitating people to cope with COVID-19.

When a society is faced with a crisis, its language can reflect, reveal, and reinforce societal anarchy and divides. A study by Nagar (2021) examined how minority groups—Muslims and migrant workers—experienced marginalization, oppression, and damage through linguistic mechanisms such



as silence, presuppositions, accommodations, othering, dog-whistling, and poverty.

Implications for future study

As a discipline, linguistics has contributed significantly to the literature on COVID-19. Based on the results obtained from the above descriptive statistics and visualizations *via* Citespace, the study found that linguistic research on COVID-19 hitherto has largely focused on the influences of COVID-19 on language education, speech-language pathology, and crisis communication. Language education is one particular strand of applied linguistics, while speech-language pathology and crisis communication, respectively, comprise interdisciplinary studies of language and pathology, and language and communication.

The present state of linguistic research on COVID-19 reveals that there is a dearth of studies deploying linguistic theories such as Conceptual Metaphor Theory, Critical Discourse Analysis, Pragmatics, and Corpus-based discourse analysis. These theories can serve as important heuristics for exploring COVID-19 discourses. A strand of research from the perspective of these theories has highlighted the problematic nature of COVID-19 discourses.

Following the onset of the COVID-19 pandemic, linguists were concerned about the language regarding COVID-19. The Conceptual Metaphor Theory (Lakoff and Johnson, 1980), as one of the primary theoretical constructs in Cognitive Linguistics, was employed by some scholars to explore the COVID-19 discourse. Through their analysis of the conceptual metaphors in different kinds of COVID-19 discourse, linguistic scholars found that the WAR metaphor dominated the COVID-19 discourse (Bates, 2020; Chapman and Miller, 2020; Isaacs and Priesz, 2021). However, other metaphors such as FIRE remained underexplored concerning the pandemic (Semino, 2021). Although a study by Abdel-Raheem (2021) has explored the multimodal COVID-19 metaphor by examining political cartoons, in general, the multimodal COVID-19 metaphor has not been studied extensively. Further, despite the fact that Preux and Blanco (2021) experimental study explored the influence of the WAR and SPORT domains on emotions and thoughts during the COVID-19 era, the impact of the COVID-19 metaphor on the emotions and mental health of the public has received limited attention.

Critical Discourse Analysis has been deployed by some linguistic researchers. For example, critical discourse analysis was used by Zhang et al. (2021) to compare the reports on COVID-19 and social responsibility expressions in Chinese

TABLE 6 Important clusters of keywords in linguistic research on COVID-19.

Cluster ID	Size	Silhouette	Cluster names (LLR)	Top terms (LSI)	Top terms (LLR, p-level)
#0	21	0.803	Emergence online teaching	Online teaching; emergency online teaching; teacher agency; critical incidents; New Zealand; online education; second language; reflective teaching; digital affordance; foreign languages	Emergency online teaching (11.03, 0.001); teacher agency (11.03, 0.001); online teaching (7.79, 0.01); autoethnography (7.33, 0.01); online education (7.33, 0.01)
#1	19	0.837	Science communication	Science communication; health psychology; corona virus; epistemic trust; COVID-19 discourse; time course; recovery; sentence comprehension; wh movement; agrammatic aphasia	Science communication (12.52, 0.001); hybrid instruction (4.14, 0.05); youth cultures (4.14, 0.05); information (4.14, 0.05); face-to-face instruction (4.14, 0.05)
#2	17	0.864	Dysphagia	Communication; aspiration pneumonia; utility; coordination; water reliability; scale; oropharyngeal dysphagia; validation; severity; dysphagia	Dysphagia (8.45, 0.005); outcm (8.45, 0.005); care (8.45, 0.005); patient (8.45, 0.005); COVID-19 (7.83, 0.01)
#3	17	0.814	Social media	European Union; critical discourse studies; European identities; media discourse; disaster linguistics; climate change; COVID-era sociolinguistics; COVID-19 pandemic; radical right	Social media (7.71, 0.01); European union (7.71, 0.01); climate change (7.71, 0.01); sar (7.71, 0.01); critical discourse studies (7.71, 0.01)
#4	17	0.816	Telepractice	Telepractice; intervention; children; experience; mental health; telehealth; perspective; speech; pathologist; ata practice	Telepractice (22.24, 1.0E-4); speech (13.72, 0.001); intervention (13.72, 0.001); telehealth (13.72, 0.001); children (9.11, 0.005)
#5	16	0.849	Multilingual crisis communication	Multilingual crisis communication; language challenges; intercultural dialogue; emergency linguistics; Chinese public health communication; remote teaching; foreign language teaching; post-secondary classrooms; prek-12 classrooms; covid	Multilingual crisis communication (7.49, 0.01); remote teaching (4, 0.05); pandemic (3.93, 0.05); dark humor (3.73, 0.1); context models (3.73, 0.1)
#6	16	0.675	Online learning	Online learning; foreign language; young learners; parental support; student experience; academic purposes; international students; remote teaching; pathway programs	Online learning (9.19, 0.005); teacher-student interaction (4.58, 0.05); pronouns (4.58, 0.05); social pain (4.58, 0.05); young learners (4.58, 0.05)
#7	12	0.882	Distance learning	Distance learning; online teaching; flexible learning; English language teaching; Philippine state university; teacher training; curriculum design; pre-service language teachers; flexible learning	Distance learning (30.76, 1.0E-4); English language teaching (12.05, 0.001); online teaching (12.05, 0.001); Philippine state university (12.05, 0.001); teacher training (12.05, 0.001)

and American media sources. Based on a case study of U.S. regulations on travel restrictions during the COVID-19 pandemic, [Li and Gong \(2022\)](#) use proximization theory to demonstrate how proximization helps to legitimize health emergency measures. By using a multi-level content analysis technique based on theories of proximization and representation of distant suffering, [Florea and Woelfel \(2022\)](#) investigated the news portrayal of COVID-19 during the year 2020 as proximal vs. remote discourses of suffering. [Forchtner and](#)

[Özvatan, 2022](#) take a step toward the conceptual integration of narrative (genre) into the Discourse-Historical Approach in Critical Discourse Studies. Their study illuminated the far-right populist Alternative for Germany's (AfD) performances of delegitimization of itself/the nation in relation to Europe and legitimization of itself/the nation by articulating two paradigmatic, transnational crises: climate change and COVID-19. [Szabó and Szabó \(2022\)](#) used the discourse dynamics approach to identify the metaphorical terms employed by the

Prime Minister to legitimize the crisis management of the Hungarian government and delegitimize critical commentary external to the European Union.

Drawing on critical discourse analysis and textual analysis, Zhou (2021) conducted an interdisciplinary study of the semiotic work dedicated to legitimating Traditional Chinese Medicine (TCM) treatment of COVID-19 in the social media account of an official TCM institution. While CDA analysis of COVID-19 discourses has been undertaken, more CDA-led studies need to be undertaken, given the complexity of power and inequities interwoven reflected in the texts and discourses pertaining to the pandemic.

Pragmatics research on COVID-19 is another underexplored area. Ogiermann and Bella (2021) analyze signs displayed on the doors of closed businesses in Athens and London during the first lockdown of the COVID-19 pandemic, providing some new insights into the dual function of expressive speech acts discussed in pragmatic theory. Blitvich (2022) explores the connections between face-threat and identity construction in the on/off line nexus by focusing on a stigmatized social identity (Goffman, 1963), a local ethnographically specific, cultural position (Bucholtz and Hall, 2005) attributed to some American women stereotypically middle-aged and white who are positioned by others as Karens. Thus, a woman who is perceived to be acting inappropriately, harshly, or in an entitled manner is categorized as a *Karen*. This incorrect behavior is frequently connected to alleged acts of racism toward minorities. The anti-masker *Karens* also achieved attention during the COVID-19 pandemic. This research offers a multimodal analysis of a sizable corpus, 256 films of persons whose actions and the way they were seen caused them to be positioned as *Karens*, to advance our knowledge of the *Karen* identity. More theories of Pragmatics, such as Relevance Theory, can be employed in the study of COVID-19 discourse.

Corpus-based COVID-19 discourse analysis is also deserving of research attention. Mark Davies has built the Coronavirus Corpus (<https://www.english-corpora.org/corona/>)—an online collection of news articles in English from around the world from January 2020 onwards. The corpus, which was first released in May 2020, currently has about 1,500 million words in size at the cutoff point (16 May 2022), and it continues to grow by three to four million words each day. It can provide vast original discourse data for researchers. For example, based on a 12.3-million-word corpus, Jiang and Hyland (2022) explore keyword nouns and verbs, and frequent noun phrases to understand the central concerns of the public reflected in its news media. In future, more research can be conducted based on the Coronavirus Corpus.

Conclusion

Human life has been greatly affected and disrupted by the COVID-19 pandemic. Scientists and researchers have actively responded to this pandemic by investigating the phenomenon of COVID-19 from the lens offered by their fields of research, and publications relevant to COVID-19 have proliferated rapidly across disciplines since the beginning of 2020. To investigate contributions made by linguistic researchers to pandemic research, the current study carried out a bibliometric analysis of the relevant and available literature. Three hundred and fifty-five bibliometric recordings ranging from January 2020 to May 2022 were collected from WoS, and CiteSpace software was adopted to quantitatively and visually review these papers. The study found that there was continued growth in publications between January 2020 to May 2022. USA was found to be the most productive country in terms of contributions to literature contributing 111 publications pertaining to COVID-19, whereas *System* ranked as the top journal in the number of published articles related to COVID-19 (21 publications). Through the visualizations of keyword co-occurring analysis and cluster interpretation *via* Citespace, the study also found that linguistic research on COVID-19 focused largely on the influences of COVID-19 on language education, speech-language pathology, and crisis communication. However, the present review flags the need for more investigations of COVID-19 texts and discourses deploying the explanatory lens of key linguistics theories such as Conceptual Metaphor Theory, Critical Discourse Analysis, Pragmatics, and Corpus-based Discourse Analysis.

Although within its delineated scope, the present study aspired to be as comprehensive as possible, some limitations were unavoidable. For instance, the study searched documents in the Web of Science alone, not including other data sources such as Scopus, Google Scholar, Index Medicus, or Microsoft Academic Search. Further, only one scientometric tool was employed in this review. Future research may make use of a larger database and different analytical tools.

Nonetheless, this study comprises a pioneering review of linguistic research on COVID-19 and identifies and provides a clear overview of international linguistic research in relation to COVID-19. Hence, it can be used as a useful springboard by linguistic researchers interested in probing COVID-19 discourses and texts through the lens of leading theories in the field, thus not only expanding the topical breadth of linguistic research on the pandemic but also generating valuable insights in areas of pragmatics and metaphor as well as CDA and corpus research. These insights are likely to have theoretical as well as practical implications for the field of linguistics.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

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"The very interesting finding suggests that...": A cognitive frame-based analysis of interest markers by authors' geo-academic location in applied linguistics research articles

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Linguistic expressions of interest instantiated by *interesting*, *intriguing*, and *fascinating* that signal the authorial stance are not uncommon in applied linguistics research articles. Nevertheless, they have received little scholarly attention. This paper, taking a cognitive semantic approach, reports on a study that sought to examine how linguistically expressed interest in applied linguistics research articles is leveraged by researchers' geo-academic location (the Core vs. the Periphery). Drawing on a semantic frame generated for interest markers in academic writing, this study focused on the incidence of the various elements of the Interest frame in the discipline of applied linguistics based on a mixed-methods approach. The corpus-based quantitative analyses found that academic writers' geo-academic location was a robust predictor of authors' overall use of interest markers and some frame elements associated with the Interest frame. Triangulation with the interview data obtained from disciplinary specialists revealed that the observed differences could be attributable to the hierarchical academia featuring periphery-based scholars' unequal access to the knowledge production market and under-representation.

KEYWORDS

linguistic expressions of interest, interest markers, frame semantics, geo-academic location, research article

Introduction

Academic writing generates and disseminates disciplinary knowledge in a specific field of study. Research articles (RAs), as a prestigious academic genre and rhetorically sophisticated artifacts for generating new knowledge and communicating scientific inquiries (Hu and Cao, 2015), are central to academic work and a robust indicator of the

achievements of a certain academic standard. Traditionally, RAs are expected to be objective, faceless, and impersonal and seen as an embodiment of detached reasoning and rationality. However, it has now been regarded as a “privileged form of argument” (Hyland, 2011, p. 193) deployed by academic writers to encode concepts, express authorial attitudes, and interact with or engage the intended audiences to persuade them (Hyland, 2020). As such, attitude markers are essential linguistic resources to achieve writer-reader interaction (Hyland, 2005) because they allow “writers to both take a stand and align themselves with disciplinary-oriented value positions” (Hyland, 2011, p. 199). In applied linguistics RAs, it is quite common to encounter expressions of interest (hereafter interest markers) instantiated by, for example, *interesting*, *intriguing*, and *fascinating*. This emotive response is characterized as a knowledge emotion (Silvia, 2010) because it motivates our epistemic efforts to resolve cognitive incongruence stemming from perceived discrepancies between new information received and prior knowledge (Silvia, 2019). Thus, interest markers, as a sub-type of attitude markers (Hyland, 2005; Hu and Chen, 2019; Chen and Hu, 2020), are inherently associated with knowledge-making practices in academic writing.

Academic writing, although involving a huge number of scholars, publishers, and research/higher education institutions across the globe, are locally situated practices and context-bound (Howells, 2012; Hyland, 2015). Consequently, academic writing is possibly influenced by, for example, the sociocultural environment where scientific communication occurs or even academics’ research institutions that are geographically defined. Researchers in China, for example, share certain experiences of academic training and international publications with researchers elsewhere. However, their attitudes, epistemological beliefs, and academic practices might also be shaped by the norms valued in the local community where they conduct their research or the research conventions of their institutional affiliations. Due to the imbalanced distribution of global academic resources, the Core¹ (e.g., North America/European countries) dominates the production and dissemination of academic knowledge (Kieć, 2017; Larson, 2018). Notably, when institutional policies give more credit to Center-affiliated journals in which English has become unquestionably the language for scientific exchange, this linguistic imperialism (Canagarajah, 2002; Pennycook, 2017; Lillis and Curry, 2018) could influence regional intellectual and epistemological assumptions espoused by scholars in general and discursive practices such as expressing attitudes in particular. Some research has found that scholarly practices acquired in geographically defined research sites could be manifested in the presentation and organization of knowledge with

community-preferred patterns of alignment (Swales, 1996; Yakhontova, 2002; Tight, 2007).

However, to date, there is very limited research on the potential influences of geo-academic locations on academics’ discursive practices, particularly on such impacts brought about by a specific type of authorial attitude, for example, expressing interest in scientific discourse. Given that the epistemic nature of interest markers is inherently connected with knowledge-making in RAs, this study, taking a cognitive semantic approach, set out to examine how the use of interest markers in applied linguistics RAs may be mediated by researchers’ geo-academic locations. This attempt is expected to unveil the possible knowledge-making practices that underpin academic traditions and values in the field of applied linguistics within the global context. Two research questions were proposed to guide the study.

1. Are there any differences in the overall use of interest markers between applied linguistics RAs written by academic writers affiliated with geographically defined research communities?
2. Are there any differences in the use of interest markers between applied linguistics RAs written by academic writers affiliated with geographically defined research communities in terms of the distribution of each frame element category?

Previous research

Interest markers as evaluative resources in academic writing

Linguistic expressions of interest in writing index the writer’s stance toward advanced propositions and, more importantly, the writer’s social presence in discourse. They are part of emotive communication, purporting to interact, engage, or persuade readers strategically. To date, most studies revolving around evaluative resources have been conducted primarily from a metadiscourse perspective (Hyland, 2005) or within the appraisal framework (Martin and White, 2005). The model proposed by Hyland (2005) distinguished between “interactive” (textual) and “interactional” (interpersonal) functions of metadiscourse in a text. Interactive metadiscourse primarily involved the “management of information flow,” whereas interactional metadiscourse was “more personal” (Hyland, 2005, p. 44). In other words, the former concerned with orienting readers with the help of signposts such as frame markers, transition markers, sequencers, and code glosses, while the latter referred to the interaction-oriented expressions of attitudes, hedges, and boosters to engage readers more overtly by evaluating and commenting on the text. Interest markers, in essence, constitute a part of attitude markers and connect with the other types of interactional metadiscourse (i.e., hedges, boosters, and self-mentions) discussed by Hyland (2005). Linguistic evaluative resources manifested in

¹ The Core/Center was initially used to group countries that were geographically and economically advantaged in contrast to the Periphery which lacked the resources to engage in scholarly endeavors or knowledge-making practices (Canagarajah, 2002).

expressions such as *interestingly* and *intriguing* could communicate authorial stances and attitudes in discourse. In addition, the intensity of this emotive response could be mitigated by hedges such as *somewhat appealing* or enhanced by boosters such as *very interestingly*. Moreover, self-mentions explicitly identify experiencers of this emotion, as revealed by such examples as *the authors were interested in*.

Apart from being addressed from the metadiscourse perspective, interest markers were also examined within the appraisal framework consisting of three evaluative systems: attitude, engagement, and graduation, with each system being comprised of its own subcategories (Martin and White, 2005). Linguistic expressions of interest fall into the attitude system. Specifically, they are affective responses, as illustrated by *We were intrigued by the recent meta-analysis by Pilling et al. (2002)*. Furthermore, these markers can also indicate a judgment about people or behavior. For instance, *He is a very interesting person* conveys a judgment of the person's character. Moreover, interest markers are also indicators of appreciation, for example, signaling our "reactions" as illustrated by *The results reported are very interesting*. Finally, they are also associated with the graduation system since these emotions can either be sharpened/upscaled or softened/downscaled, suggesting varying intensity levels. For example, "force" resources can be employed to enhance or mitigate the degree of evaluation, as illustrated by expressions such as *particularly interesting*. Similarly, they can also be used to indicate the prototypicality or centrality of a phenomenon or an attitude, as illustrated by the examples of *We are genuinely interested in*, and *These statistical analyses were really interesting*. Among the studies examining evaluative expressions in academic discourse, Tutin (2010), for instance, investigated the use of evaluative adjectives in French academic writing and found that authors from disciplines such as Linguistics and Economics tended to deploy these linguistic resources to provide justification for the author's research and claim the significance of the results obtained. Moreover, in a study that analyzed evaluative adjectives as attitude markers in scholarly writing, Koutsantoni (2004) revealed that these expressions, especially when used positively, contributed to enhancing the originality of the author's study.

As made clear by the discussion above, attitude markers such as expressing interest served primarily textual and interpersonal metafunctions of language (Halliday and Matthiessen, 2013) in the metadiscourse and appraisal frameworks. Examining such explicitly used linguistic devices as functional markers within these frameworks indeed captured the interactive feature of writer-reader communication. However, it should be noted that these functionally oriented analytical approaches could not account for the key semantic features and cognitive properties of a specific type of attitude markers, i.e., interest markers, in academic writing. As noted earlier, interest markers are essential cognitive resources for fostering the creation and growth of knowledge (Silvia, 2019). Therefore, to better understand how these markers relate to knowledge construction, a fine-grained and semantically oriented conceptual framework is needed to

capture their semantic properties in academic writing. To this end, frame semantics provides the needed apparatus for accomplishing the task.

Frame semantics as a cognitive semantic approach to academic writing

Frame semantics (Fillmore, 1985; Fillmore and Baker, 2010) proposed by Fillmore could provide a powerful conceptual tool for developing semantic frames for an understanding of the use of interest markers. This linguistic theory, deemed a cognitive linguistic framework of language understanding, assumes that a word's meaning is construed in relation to our background knowledge acquired from different types of previous experience. Fillmore (1985) held that a semantic frame is a script-like coherent structure of concepts, which constitutes a schematic representation of an event, a particular situation, or a relation. Fillmore provided the Commercial_transaction frame depicting participation in a scenario of commercial transactions with different roles to exemplify what a frame is. This frame includes roles such as *buyer* (someone who has money and wants to exchange it with goods), *seller* (someone who has goods and wants to exchange it for money), *goods* (the item that is exchanged for money), and *money* (any circulating medium of exchange, including coins or paper money). The buyer yields money and takes the goods, and the seller yields the goods and takes the money. Frame elements (FEs) are the roles (i.e., buyer, seller, goods, and money), participants, props, and conceptual elements that constitute the frame. Informed by frame semantics, the Berkeley FrameNet research project (Baker et al., 2003; Ruppenhofer et al., 2016) is a unique online database documenting a wide variety of frame semantics descriptions and syntactic information for the core English lexicon.

According to Ruppenhofer et al. (2016), FEs can be classified into core and peripheral elements "in terms of how central they are to a particular frame" (p. 23). "A core frame element instantiates a conceptually necessary component of a frame while making the frame unique and different from other frames" (Ruppenhofer et al., 2016, p. 19). In other words, core frame elements could uniquely define a frame and capture the essential aspects of an evoked frame. For example, in the Commercial_transaction frame, *buyer*, *seller*, *goods*, and *money* are all core elements of the frame because they are crucial to understanding the frame. The Commercial_transaction frame cannot exist without a buyer or seller. In contrast, peripheral frame elements relate to those that characterize the scene more generally, such as the medium, time, degree, or place when an event occurs (Ruppenhofer et al., 2016). For instance, frame elements such as time, place, and degree in the Commercial_transaction frame are peripheral because they do not uniquely distinguish the frame but merely provide additional information. The given Examples 1–2, taken from the present corpus and presented in line with FrameNet annotation format, illustrate the Stimulus_focus frame with its FEs evoked by a typical interest marker, *intriguing* and the

Experiencer_focused_emotion frame evoked by *interest* in applied linguistics RAs, respectively.

1. He also found a [_{Degree} Very] *INTRIGUING*^{Target} [_{Stimulus} sex difference in LLS use, with females showing a greater propensity than males to engage in out-of-class social interactions].
2. [_{Experiencer} researchers in language and education policy] have long been *INTERESTED*^{Target} in [_{Content} the theories and literature of LI to explain and even to predict the effectiveness of language policy in society] [_{Explanation} given that language planning has not only developed in depth, but also breadth which reached a hitherto unknown degree].

In line with the annotations given by FrameNet, Stimulus (*sex difference in LLS use...*) and Content (*the theories and literature of LI to explain and even to predict...*) are core frame elements suggesting what evokes this emotive response, whereas Degree (instantiated by *very*), Experiencer (*researchers in language and education policy*), and Explanation (*given that...*) are peripheral frame elements. A close examination of frame elements evoked by interest markers led us to conclude that FrameNet assigns different names to the conceptually equivalent FEs related to what triggers the feeling of interest. For example, in the examples presented above, Stimulus in the Stimulus_focus frame is renamed Content in the Experiencer_focused_emotion frame although they all indicate the causes of interest. Likewise, Explanation that indicates why something is interesting is labeled Circumstance in the Stimulus_focus frame but is renamed Reason in the Emotion_directed frame.

In addition to describing semantic frames and their FEs, FrameNet documents relations between semantic frames evoked by lexical units such as Inheritance, Perspective_on, and Using. Frame-frame relations allow “frames (and thus their lexical units) to be associated despite being separated” (Ruppenhofer et al., 2016, p.79), thereby connecting frames to constitute a network of their concepts. According to FrameNet, Inheritance relation describes a connection between a child and a parent frame in which a child frame has all the semantic characteristics and properties of a parent frame (Ruppenhofer et al., 2016). The Perspective_on relation indicates “the presence of at least two perspectives or different points of view on the Neutral frame (non-lexical and non-perspectivized)” (Ruppenhofer et al., 2016, p. 82). The Using relation involves “a particular frame making reference in a very general kind of way to the structure of a more abstract, schematic frame” (Ruppenhofer et al., 2016, p. 83). Apparently, such frame-frame connections and the conceptual overlapping of frame elements across related frames would make it possible to generate a generic semantic frame (Hu and Chen, 2019) for interest markers as an analytical framework to uncover how applied linguists’ geo-academic location might affect their deployment of these markers for communicating science. The Interest frame developed for the interest markers will be presented later.

Geo-epistemological orientations and academic writing

The concept of geo-epistemology assumes that knowledge production and circulation cannot be detached from the immediate physical space involved (Agnew and Livingstone, 2011; Mignolo, 2012). Geo-epistemology well captures how geographical locations tend to influence the process of knowledge production and interpretation because of historical, academic, and cultural trajectories (Agnew, 2007). Our conceptual perspectives developed from the immediate environment cannot be detached from the local domain where we work or live. Of course, given the mobility of academics worldwide, the location where an author works may not necessarily match his/her nationality. For example, some academics affiliated with institutions situated in North America are nationals of Asian countries and vice versa. However, academic values, attitudes, and conventions are socially constituted and thus are possibly shaped by the local community in which academics conduct their research activities. In addition, universities and research institutes, as prestigious knowledge production sites, are supposed to contribute to endogenous societal development (Mansell, 2014). As such, authors’ institutional affiliations are suggestive of the local academic community to which they belong.

As revealed by some research, epistemological assumptions and paradigms developed in a local or national context where intellectual styles may vary could exert a considerable influence on the choice of language and rhetorical practices in scientific discourse (Bennett, 2014; Bondi, 2014). Indeed, substantial textual differences in research papers by American authors and their British counterparts were noted by Swales (1996). He likened British writers’ communication style to the “quick-quick-quick-repeat” style (starting with interesting ideas, followed by some vague methodology, scrappy results, and a summary), in contrast to their American counterparts’ preference for the “slow-slow-slow-quick” style (beginning with an exhaustive review of the extant literature, followed by painstaking methods, the results, and a thorough discussion; Swales, 1996, p. 46). Along the same line, Tight (2007) also found that higher education scholars across regions tended to have different referencing practices. Specifically, higher education scholars based in North America and Britain were prone to write without referring to any publications/policies coming from outside their systems whereas the scholars from other countries, for example, Australia and the Netherlands, showed an opposite preference (reference to studies/experience/evidence outside their system). Tight speculated that scholars working within a more extensive and distinctive higher education system would be more inward-looking, while researchers working within relatively smaller systems would be more inclined to situate their research in a more comparative or global context. In addition, Tight reported that North American researchers’ texts tended to describe theoretical and

methodological issues more explicitly than scholars based in other countries and regions. In a study conducted by Yakhontova (2002), it was found that Ukrainian and Russian academic authors were inclined to employ more positive evaluative language in their abstracts than Western scholars.

Since having access to knowledge is a prerequisite for new knowledge creation (Graham et al., 2011), it is not surprising that researchers from the Center, namely the Anglophone and other European countries, have enjoyed a disproportionately large percentage of academic publications due to this kind of “academic imperialism” (Fewer, 1997, p. 764). Canagarajah’s (2002) study on the geopolitics of academic writing critically evaluated the Western textual conventions, publishing communities, and social norms governing academic writing, through which the forms of intellectual hegemony stemming from the linguistic dominance of English were unveiled. This study, therefore, called for a reconfiguration of the Western-dominated knowledge production market from Western-centered literacy to more democratic realms of scholarship. As Canagarajah (2002) pointed out, the production of scientific knowledge is ideological, value-ridden, and contextual. When science involves a Center-Periphery relation, it is almost impossible to separate knowledge from the location where it is produced. Notably, some research (Acharya, 2014; Wemheuer-Vogelaar and Peters, 2016; Alejandro, 2018) probed into the Western-dominated scholarly work in the discipline of International Relations (IR). For example, Wemheuer-Vogelaar and Peters (2016) revealed how the regional context shaped the academic practices of IR scholars, although they more often than not identified themselves with issue-based research communities crossing geographic boundaries. It was reported that Western scholars (e.g., United States, Canada, and Western Europe) were more likely to eschew traditional paradigmatic analysis in their publications, whereas non-Western researchers (e.g., Latin America or East Asia) were almost twice as likely to choose Marxism as a theoretical framework. Moreover, Western scholars’ strong preference for qualitative or quantitative methods in conducting research was observed, in contrast to the non-Western scholars’ propensity to conduct policy analysis. In addition, scholars from the West most likely identified themselves with the global community, while their non-Western counterparts predominantly opted for national or subnational communities in research practices.

In summary, previous work on the knowledge-making practices upheld by scholars across geographically defined regions has added to our understanding of scientific communication. However, research on the potential mediating effects of authors’ geo-academic location on their choice of interest markers in RAs for expressing evaluative attitude is rather limited. This study, therefore, set out to bridge the research gap and provide new insights into how the use of linguistic expressions of interest in scientific communication may be leveraged by an academic author’s geo-academic location.

Materials and methods

Corpus

To address the research questions, a corpus of 160 full-length applied linguistics RAs (1 million words) was compiled to examine how linguistically expressed interest was mediated by various contextual variables such as authors’ disciplinary background, gender, geo-academic location, and time of publication. These RAs were written by male and female scholars from core and peripheral regions of scientific research, and were published in two periods separated by a 30-year interval (1985–1989 vs. 2015–2019). The two publishing periods were chosen to examine possible diachronic changes in the use of these markers. The gender of the sole author or the first author of a co-author article was determined by capitalizing on multiple sources of information available (e.g., the bio-notes attached to the RAs, faculty profiles, Academia.edu, Researchgate, academic blogs, Facebook pages, and LinkedIn). The geo-academic location of the researcher in terms of his/her institutional affiliation was roughly divided into two broad regions: Anglophone countries + other Western and Northern European countries (Core) vs. the remaining countries (Periphery). This division was informed by Canagarajah (2002) and Kieć (2017). The former study that examined inequalities in academic publishing referred to the West as center academic communities and those colonized by European invasion, i.e., the Third World, as periphery ones. The latter one defined scholars’ core and periphery status according to whether they were “based in countries with a gross domestic product (GDP) *per capita* less or greater than US\$18,000” (p.125). Kieć (2017) used this classification because there was a strong co-relation (0.84) of a country’s publication output and GDP *per capita* according to World Bank Data on academic journal articles (Kieć, 2017). Informed by these studies, Core regions in the present study refer to Anglophone countries as well as other Western and North European countries, such as the United States, Canada, Britain, Australia, Belgium, Czech Republic, Finland, Germany, and France. Periphery regions consist of those areas that do not fall into the Core category, such as Asian countries, Latin America, and Caribbean countries. The geographical location of the single or the first author’s research affiliation was checked and categorized into Core-based academics or Periphery-based academics. Given the limited space, this paper only focused on how the use of interest markers might be mediated by an academic author’s geo-academic location. As presented in Table 1, these empirical RAs were randomly chosen from four prestigious journals that are identified with a high impact and nominated by disciplinary experts.

Text-based interviews

Text-based interviews in a semi-structure format were conducted with disciplinary specialists to complement the

TABLE 1 Profile of the corpus.

Time	Geo-academic location	Gender	No. of RAs	Total no. of words	No. of words/RA	Journals included
Time 1	Core	Male	20	175,840	8,792	<i>Applied Linguistics</i>
		Female	20	173,860	8,693	<i>Language Learning</i>
	Periphery	Male	20	171,840	8,592	<i>TESOL Quarterly</i>
		Female	20	174,740	8,737	<i>The Modern Language Journal</i>
Time 2	Core	Male	20	98,640	4,932	<i>Applied Linguistics</i>
		Female	20	102,120	5,106	<i>Language Learning</i>
	Periphery	Male	20	97,880	4,894	<i>Foreign Language Annals</i>
		Female	20	99,320	4,966	<i>The Modern Language Journal</i>

TABLE 2 Demographic information of participants for the interview.

Informant	Location	Academic rank
I-1	Core (United States)	Professor
I-2	Periphery (China)	Associate professor
I-3	Core (Britain)	Associate professor
I-4	Periphery (Portugal)	Assistant professor
I-5	Periphery (Russia)	Professor
I-6	Core (Australia)	Assistant professor

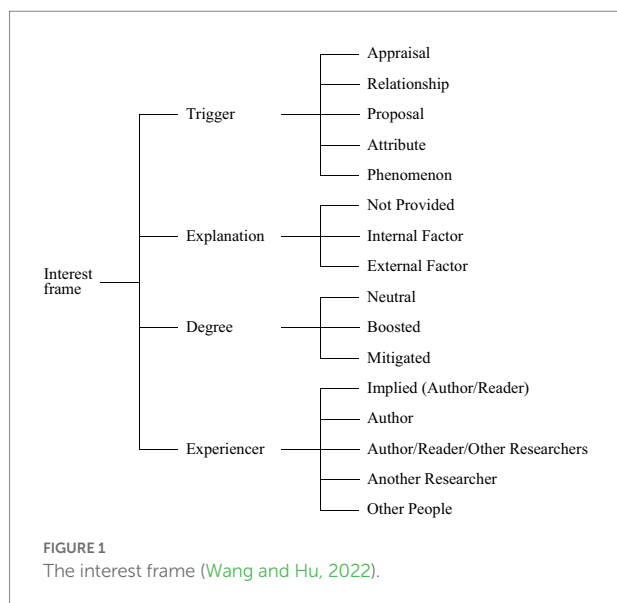
corpus-based quantitative analyses of interest markers found in the applied linguistics RAs. The interviews were intended to explore what motivated applied linguists to employ interest markers and their perceptions of other scholars' use of these markers. The interview guide (Appendix A) purported to elicit the interviewees' responses concerning their considerations for their use or non-use of these markers based on an extract authored by himself/herself. It allowed deviations, digressions, and expansions from the prompts so that both interviewer and interviewees were at liberty to raise questions of relevance coming up in the course of interviews (Mackey and Gass, 2016). The method that allows for the exploration of situated meanings of a text (Lillis, 2008) could provide insights into academic writers' intentions behind their choice of interest markers. Hyland (2012) also remarked that gaining insights from "activities surrounding the production and reception of texts and how participants actually understand what they are doing with them" (p. 37) contributed to a greater understanding of academic writing as a socially negotiated act.

In total, 6 disciplinary informants from applied linguistics, identified based on the corpus constructed for this study, were enlisted (see Table 2). Each interview lasted approximately 30 mins and was conducted in English or Chinese (the first language of some interviewees). The transcripts were sent to the informants to check for accuracy after the interviews were transcribed. The interviewees were referred to as Informants 1, 2, and so on to preserve anonymity. All of them had a considerable number of English publications in prestigious journals. The interview results were used to triangulate the quantitative findings obtained from the corpus-based analysis.

Analytical framework: The interest frame with its FEs

The Interest frame developed by Wang and Hu (2022) was used as an analytical framework to code frame instances associated with interest markers in the corpus. The main procedures for developing this frame are briefly presented. A lexical approach (Hu and Chen, 2019) was adopted to generate a generic Interest frame for the RAs sampled. Informed by *Thesaurus.com* and *Thesaurus by Merriam-Webster*, a list of headwords that were either synonyms or antonyms of interest and all its derivative forms were compiled. This list of words was used as search words (Appendix B) to identify interest markers in our dataset. All the hits in the corpus were manually checked to remove those lexical items irrelevant to the expressions of interest, such as *interest* in *raising interest rates*. These markers were scrutinized and found to evoke six interconnected semantic frames *via* frame relations of Using, Inheritance and Perspective_on described by FrameNet. The six semantic frames are the Emotion-directed frame, the Stimulate_emotion frame, the Experience_focused_emotion frame, the Stimulate_focus frame, the Stimulate_emotion frame, and the Mental_stimulus_exp_focus frame, respectively. Then, a coding scheme based on the FEs associated with these semantic frames that FrameNet lists was developed. The coding scheme was used to code and identify all the FEs of the interest markers that occurred in the corpus. It was found that Stimulus occurred most frequently, followed by Degree, Experienter, and Explanation. As noted earlier, the interconnections of the interest-related frames and the conceptual overlapping among frame elements across various frames made it possible to generate the Interest frame (Figure 1). In what follows, the illustration of each frame element and its subcategories are presented in detail.

Trigger, as a core frame element, indicates what elicits the interest. The first type of Trigger, Appraisal, refers to evaluations of the value, significance, or implications of the findings or results of the current study or previous studies (Example 3). The second type of Trigger includes relationships between different research variables or objects, between results obtained in the current study or from different studies, as shown in Example 4. The third type of Trigger, Proposal, includes hypotheses, viewpoints, or potential research trends suggested or proposed (Example 5). Attribute, as



another type of Trigger, concerns the distinctive features, characteristics, and qualities of research methods, research objects, research variables, or participants, as seen in Example 6. Finally, as a Trigger for the emotion of interest, Phenomenon refers to experiences, entities, and happenings that do not fall into the categories mentioned above, as illustrated by Example 7. In the corpus of applied linguistics RAs, the five categories of Trigger (in the order presented above) accounted for 25%, 14%, 16%, 13%, and 32% of the frame instances, respectively.

3. This finding suggests a very *INTRIGUING*^{Target} [_{Trigger} possibility that increased cognitive task complexity might be associated with diminished L1 influences on comprehensibility].
4. The relationship between L2 listening and the ability to discriminate consonants was the highest for these learners (about $r=0.37$). As the authors suggest, these results indicate an *INTERESTING*^{Target} [_{Trigger} relationship]; however, this is not necessarily a causal relationship.
5. [_{Trigger} Examining learners' motivations for maintaining the gains made abroad as well as their self-perceptions of language maintenance] would be *INTERESTING*^{Target} areas to explore in future research to better understand to what extent we are meeting the needs of these students in order to maintain the gains they made while abroad.
6. This study has clear limitations: due to space constraints, many *INTERESTING*^{Target} [_{Trigger} data episodes] are omitted.
7. Perhaps *INTERESTINGLY*^{Target}, [_{Trigger} no mention is made of any difficulty in learning two typologically different languages concurrently].

Explanation concerns the reason for the evoked feeling of interest. Some research has shown that people find something interesting when they appraise events as more relevant to them

(Connelly, 2011) or perceive an event as novel, unexpected, complex, yet potentially comprehensible (Reeve et al., 2015; Silvia, 2019). The factors contributing to feeling interested could be signaled explicitly or implicitly in scientific communication. When an explanation is provided explicitly, the elicited interest could be ascribed to internal or external factors. The internal ones relate to results or findings from the current study or characteristics of research objects, variables or participants, as shown in Example 8. The external factors refer to hypotheses, the results, and findings of previous research or characteristics of the research background or context, as illustrated by Example 9. In the corpus, most frame instances (77%) did not explain why something was interesting (see Example 10), while 15% provided explanations related to external factors, and 8% gave explanations related to internal factors.

8. The latter finding is particularly *INTERESTING*^{Target}, [_{Explanation} as the vocabulary test was very easy (see Appendix C): Learners who failed to achieve the maximum score on L1 vocabulary were likely to be among the weakest FL readers].
9. This finding obtained from Wicherts et al. (2011) is *INTERESTING*^{Target}, [_{Explanation} given the previous evidence that researchers who were more willing to share their data were less likely to have committed errors in reporting their results].
10. However, these studies also reveal some *INTERESTING*^{Target} inconsistencies indicative of a nascent drive toward vindication of English spoken with Chinese accents.

Degree concerns the intensity of an expressed interest and describes how strongly it is felt. The emotion could be boosted (Example 11) or mitigated (see Example 12). Most of the frame instances (i.e., 71%), however, fell into the "neutral" category, with the expressed interest being neither boosted nor weakened (Examples 13), compared with the 21% that were boosted and the 8% that were mitigated. Notably, when expressed interest was boosted, various boosting devices were employed, for example, *very*, *certainly*, and *particularly*. When expressed interest was hedged, *perhaps*, *may* and *somewhat* were preferred.

11. This finding suggests an [_{Degree} very] *INTRIGUING*^{Target} possibility that increased cognitive task complexity might be associated with diminished L1 influences on comprehensibility.
12. [_{Degree} Perhaps], a *FASCINATING*^{Target} but little-understood aspect of language learning is the involuntary processing of language features.
13. It is *INTRIGUING*^{Target} that learner motivation in the experimental group did not improve in motivational intensity as one important aspect of motivation.

Experiencer refers to the person who experiences the emotion of interest. Experiencers can either be stated or implied in RAs. It

was found that the omission of the Experiencers was salient, occurring with a majority of cases of expressed interest (69%), as shown in Example 14. When the experiencers were explicitly provided, five different categories were identified, including Author(s) (15% of instances of expressed interest), as seen in Example 15, Author/Reader/Other Researchers (7%), as shown in Example 16, Another Researcher (4%), as illustrated by Example 17, and Other People (5%), as illustrated by Example 18.

14. The assumption of a phonological core deficit in FL, though *APPEALING*^{Target}, has to be evaluated with further investigation.
15. [_{Experiencer} We] were particularly *INTERESTED*^{Target} in LLS teachability.
16. It is obvious that they must draw on the insights and methodologies of [_{Experiencer} linguists, sociologists, and practitioners of other disciplines] who have long been *INTERESTED*^{Target} in the phenomenon of cultural diffusion and transformation.
17. [_{Experiencer} Wicherts et al. (2006)] were *INTERESTED*^{Target} in reanalyzing data from published research in psychology to examine the sensitivity of reported findings to outliers.
18. However, as [_{Experiencer} Jane] was only interested in two ranks, the fact that 50 instead of 57 judges participated in the test did not detract from the power of the test or the validity of the conclusion.

Methods of data coding and analysis

Drawing on the Interest frame presented earlier, two coders (the author and trained coder with a doctorate in applied linguistics) coded all the frame instances of interest markers in applied linguistics RAs independently. All disagreements were resolved through discussion. The results for inter-rater reliability showed Cohen's Kappa values of 0.79 with a 95% confidence interval (CI) from 0.68 to 0.85 for the frame element of Trigger, of 0.76 with a 95% confidence interval (CI) from 0.74 to 0.88 for Explanation, of 0.85 with a 95% confidence interval (CI) from 0.77 to 0.82 for Degree, and of 0.85 with a 95% confidence interval (CI) from 0.77 to 0.82 for Experiencer, respectively. These values indicated good inter-coder reliability (Hallgren, 2012).

To address the RQs of this study, binary logistical regression analyses were conducted using SPSS 23.0. Such analyses were intended to determine whether the predictor variable, that is, the author's geo-academic location could predict the absence or presence of the Interest frame elements and their subcategories in an applied linguistics RAs. Given the binominal measures in this study, the outcome variables were coded as dichotomous variables, i.e., the absence or presence of an interest marker and its frame elements. The reasons for using logistical regression analyses were twofold: (1) there were not many instances of interest markers across the data; (2) the interest markers that occurred multiple times in the corpus shared the same source of incongruence.

While a binary logistical regression can provide the statistical results related to the choice of interest markers and their frame elements, Nagelkerke's adjusted R^2 and odds ratio indicators can index the proportion of variance explained by the predictor variable. The odds ratio indicating the likelihood of the occurrence of one event compared to another assumes a positive relationship between the two events if it is greater than 1. By contrast, a negative relationship can be assumed if an odds ratio is smaller than 1. In the binary logistical regressions, Core-based academics were set as the reference value. Bonferroni correction was applied to adjust the alpha value because multiple statistical tests were conducted on the subframes of interest markers.

For the interview data, a thematic analysis was conducted since this method illustrates the data in detail and addresses diverse subjects *via* interpretations (Boyatzis, 1998). As such, an in-depth analysis with the main focus either on the perspectives of separate or groups of individuals can be achieved by investigating the observational data emanating from participants' opinions or feedback (Creswell and Creswell, 2017). All the transcribed data were uploaded to MAXQDA Pro (version 2018) and read through to generate prominent themes related to the research questions of this study. I started by generating initial codes and then grouped them by assigning them headings. Next, I compared, reexamined and revised the codes to identify the themes that emerged. The themes were then re-read, refined and finalized. The experts relevant to the RQs were included in this paper.

Findings

Overall distribution of interest markers by authors' location

As shown in Table 3, the binary logistic regression on the overall distribution of interest markers in the corpus returned a statistically significant difference ($B = -1.231$, $p < 0.001$, Nagelkerke $R^2 = 0.112$, OR = 0.622). The full model explained approximately 11% variance in the outcome variable. The odds ratio statistics indicated that applied linguists from the Periphery regions were 1.6 times (dividing odds ratio by 1) more likely to employ interest markers in their RAs than those from the Core regions.

In the interviews, when the informants were asked about their opinions regarding the use of English for international publishing, the respondents agreed that scholars based in the Periphery had linguistic disadvantages compared to those from the Core. However, they also added that this linguistic handicap was not a decisive influence on the rejection of a paper. A Core-based scholar (I-6) commented that academic writing was also challenging to native speakers, so they did not believe that this linguistic superiority would make it easier for them to publish. Although a majority of the Periphery-based scholars expressed their linguistic concerns about using English to write up

TABLE 3 Results of binary logistic regression on the overall use of interest markers.

Outcome	Predictor					Odds ratio (OR)	95% CI for OR	
		<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>		Lower	Upper
Interest markers	Core vs. periphery	−1.231	0.336	2.631	0.000	0.622	1.721	8.045
	Constant	1.463	0.624	3.928	0.036	1.073		
<i>R</i> ² = 0.069 (Cox and Snell); <i>R</i> ² = 0.112 (Nagelkerke)								
Model $\chi^2(1) = 8.594$, <i>p</i> < 0.001								

manuscripts by commenting that “English norms somehow are different (I-2),” they acknowledged that English publications allowed them to be more visible in the globalized research community. Informants 2 and 4, two Periphery-based scholars elaborated as follows:

Using English is something we cannot change... I feel it is sometimes difficult to achieve persuasiveness when writing in English. You basically have to restructure everything when you write in another language...; but English publications allow me to reach a wider audience and get more recognition...

In Portuguese, I can always find the words I like. I know if these words are accurate or not. However, when writing in English, I sometimes do not say what I know, only what I can.

Apart from the more general language limits, the academics in the Periphery had worries regarding the appropriate use of interest markers in writing. For example, informant 5 commented on his use of interest markers (Example 7 presented earlier) and stated that “it was not easy for him to decide if hedging should be expressed” because he was not sure “if the editors thought this was interesting, too.” Similarly, although informant 4 believed that these expressions were helpful to “draw the readers’ attention to that important information,” and thus increased “the possibility to get the paper published,” she was sometimes hesitant to employ the linguistically expressed interest since “frequent use of them may sound too emotional or make the study less rigorous.” Her responses echoed with comments given by informant 2 on fewer possibilities of publishing in top-tier journals by Periphery-based scholars.

When prompted for probable variations in the use or non-use of these markers by scholars across the Core and Periphery areas, the respondents stated that by intuition they were unable to discern any distinctions by stating that “we all expressed interest when we found something different or new.” However, when asked why they employed these markers, Periphery-based scholars emphasized their intention to “sell their work” (I-4) or “promote the significance of the study” (I-2). As informant 5 elaborated:

This linguistic choice was a kind of promotional tool to increase the likelihood of making my research visible. Comparatively speaking, it is not easy for us to get published

in top journals. If you want to persuade editors that the study is good enough, you need to show that.

Notably, Periphery-based informants expressed their preference for collaborations with Core-based scholars to improve the quality of presentation because co-authorship provided great opportunities for them to learn how to make their manuscripts grammatically correct, stylistically acceptable, and rhetorically persuasive.

Distributions of interest frame elements by authors’ geo-academic location

Trigger

As summarized in Table 4, the binary logistic regressions run on the FE of Trigger only located statistically significant differences in the subcategories of Proposal (*B* = 0.823, *p* < 0.001, Nagelkerke *R*² = 0.257, OR = 2.791) with the full model explaining impressively 26% of the variance in the outcome variable. The odds ratios showed that authors from the Periphery regions were 2.8 times more likely to express interest triggered by newly proposed hypotheses or potential research trends.

Informed by such results, Informant 3, a scholar from the Core regions, was asked to explain why her interest was triggered by a potential research issue (Example 5), she emphasized her intention of “putting forward a new question to get the readers’ attention” since she was “working on a new project related to that topic.” According to her, this was “another way to enhance the significance of her study.” Informant 1, a Core-based scholar also commented:

It is important to extend and build on your previous research, so you can become a kind of expert in the field. It is better to follow up what you have done....If you want to show you are a credible disciplinary member who knows this field quite well, you are obliged to give directions for this line of work...

Explanation

As presented in Table 5, the binary logistic regressions run on Explanation only found a significant association between geo-academic location and the incidence of unidentified sources of interest (*B* = 1.752, *p* < 0.001, Nagelkerke *R*² = 0.3123,

TABLE 4 Results of binary logistic regressions on the frame element of trigger.

Outcome	Predictor					Odds ratio	95% CI for odds ratio	
		<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>		Lower	Upper
Appraisal	Core vs. periphery	−1.625	0.437	1.775	0.022	0.794	1.266	7.323
	Constant	−0.217	0.323	4.155	0.144	1.171		
	$R^2 = 0.015$ (Cox and Snell); $R^2 = 0.028$ (Nagelkerke) Model $\chi^2(1) = 9.116$, $p = 0.033$							
Relationship	Core vs. periphery	1.013	0.455	5.156	0.019	1.917	0.553	4.213
	Constant	2.116	0.645	9.116	0.073	1.653		
	$R^2 = 0.176$ (Cox and Snell); $R^2 = 0.255$ (Nagelkerke) Model $\chi^2(1) = 11.245$, $p = 0.081$							
Proposal	Core vs. periphery	0.823	0.336	8.115	0.000	2.791	0.554	7.146
	Constant	−1.212	0.515	6.228	0.123	0.321		
	$R^2 = 0.121$ (Cox and Snell); $R^2 = 0.257$ (Nagelkerke) Model $\chi^2(1) = 10.807$, $p < 0.001$							
Attribute	Core vs. periphery	1.773	0.427	6.355	0.051	2.103	0.666	6.185
	Constant	−1.316	0.553	9.535	0.226	0.721		
	$R^2 = 0.021$ (Cox and Snell); $R^2 = 0.045$ (Nagelkerke) Model $\chi^2(1) = 6.116$, $p = 0.082$							
Phenomenon	Core vs. periphery	2.325	0.611	7.125	0.015	1.926	0.995	4.577
	Constant	−1.544	0.444	8.544	0.655	0.444		
	$R^2 = 0.125$ (Cox and Snell); $R^2 = 0.223$ (Nagelkerke) Model $\chi^2(1) = 13.165$, $p = 0.071$							

OR=1.911). The full model accounted for about 31% of the variance in the outcome variable. The odds ratio revealed that authors from the Core regions were 1.9 times more likely to leave the source of expressed interest unidentified than their counterparts from the Periphery regions.

In light of the above quantitative results, informant 4, a Periphery-based researcher, was asked to comment on her intention to provide explanations for her expressed interest in her extract (Example 9). She opined that explaining why she evaluated the information as interesting would help target readers better understand the message and work toward a common understanding:

I believed that providing explanations for this emotion could make the message clearer because it helped invite my readers into the disciplinary dialog, so they would get along with my point...

Conversely, applied linguists from the Core regions, for example, informant 3, opined that “explanations were not necessary” because scientific research was supposed to “develop a specific field you know much about.” In the discipline of applied linguistics, “many people have been working in this field for quite a long time,” so that they have been “familiar with previous research.” In addition, informant 1 added that “the absence of an explanation would contribute to negotiating readers’ expectations” because “this gave them the impression that they were disciplinary

experts and they could totally get the information.” Similarly, informant 6 also held that his readers could “see the same thing” as he did in the claims, so the omission of explanations would “help readers delve in the information encountered.”

Degree

For this frame element, Table 6 shows that geo-academic location significantly predicted the boosting of expressed interest in applied linguistics RAs ($B = 1.963$, $p < 0.001$, Nagelkerke $R^2 = 0.322$, OR = 3.062). The Nagelkerke R^2 statistics indicated that the full model explained about 32% of the variance in the outcome model. Researchers from the Core regions were 3.1 times more likely than their counterparts from the Periphery regions to intensify their feeling of interest.

When my Core-based informant (I-3) was asked to comment on the use of boosting expressions of interest instantiated by *very* (Example 11), she held that “presenting information with full assurance helped construct an authoritative disciplinary expert and this contributed to persuasiveness.” Similarly, informant 1 was convinced that the use of boosting conveyed the researchers’ confidence in their knowledge claims and researchers “had the need to argue for what they had found.” Different from the Core-based academics’ beliefs in the importance of making a stronger argument, the Periphery-based scholars thought that it would be better to “avoid being overconfident” (I-2) and “be cautious” (I-4) because that would probably “induce disagreement or doubts” (I-5) from the readers.

TABLE 5 Results of binary logistic regressions on the frame element of explanation.

Outcome	Predictor					Odds ratio	95% CI for odds ratio	
		<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>		Lower	Upper
Unidentified	Core vs. periphery	1.752	0.462	5.626	0.000	1.911	0.842	7.286
	Constant	−2.026	0.515	2.718	0.071	0.633		
	$R^2 = 0.221$ (Cox and Snell); $R^2 = 0.312$ (Nagelkerke) Model $\chi^2(1) = 9.556$, $p = <0.001$							
Internal factor	Core vs. periphery	2.073	0.453	5.262	0.052	1.882	1.255	6.313
	Constant	1.157	0.227	4.289	0.028	2.011		
	$R^2 = 0.016$ (Cox and Snell); $R^2 = 0.026$ (Nagelkerke) Model $\chi^2(1) = 9.463$, $p = 0.012$							
External factor	Core vs. periphery	−1.746	0.423	6.185	0.022	0.825	1.937	8.226
	Constant	−2.628	0.682	9.268	0.055	0.367		
	$R^2 = 0.161$ (Cox and Snell); $R^2 = 0.336$ (Nagelkerke) Model $\chi^2(1) = 11.215$, $p = 0.052$							

TABLE 6 Results of binary logistic regressions on the frame element of degree.

Outcome	Predictor					Odds ratio	95% CI for odds ratio	
		<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>		Lower	Upper
Neutral	Core vs. periphery	2.114	0.426	2.551	0.472	2.011	1.035	8.257
	Constant	−2.735	0.546	5.216	0.268	0.785		
	$R^2 = 0.027$ (Cox and Snell); $R^2 = 0.055$ (Nagelkerke) Model $\chi^2(1) = 11.737$, $p = 0.039$							
Mitigated	Core vs. periphery	1.316	0.428	5.219	0.214	1.827	0.822	6.212
	Constant	2.657	0.528	7.228	0.153	2.198		
	$R^2 = 0.008$ (Cox and Snell); $R^2 = 0.125$ (Nagelkerke) Model $\chi^2(1) = 10.678$, $p = 0.338$							
Boosted	Core vs. periphery	1.963	0.586	5.218	0.000	3.062	1.736	8.328
	Constant	−2.776	0.474	7.136	0.055	0.463		
	$R^2 = 0.186$ (Cox and Snell); $R^2 = 0.322$ (Nagelkerke) Model $\chi^2(1) = 12.643$, $p < 0.001$							

Experiencer

The statistical analyses (see Table 7) revealed a significant location-based difference for the subcategories of Implied ($B = -1.116$, $p < 0.001$, Nagelkerke $R^2 = 0.205$, OR = 0.558) and Author ($B = 1.051$, $p < 0.001$, Nagelkerke $R^2 = 0.094$, OR = 1.878). Scholars from the Periphery regions were 1.8 times more likely to leave Experiencers implied than their Core-based counterparts, while the latter group of researchers were 2.3 times more likely to describe themselves as people who experienced the expressed interest.

In the interviews, when informant 4, a scholar based in the Periphery regions, was asked why he opted for the omission of experiencers (Example 14), he held that researchers should “stand behind” their work because persuasiveness might be achieved by “presenting the data and letting your argument talk.” By contrast, his Core-based counterpart, informant 1 opined that it was

essential to “let readers know this was the author’s unique perspective” although he agreed that scientific writing needs to be “objective and faceless.” Notably, he associated his intrusion of the text by using *we* (Example 15) with the purpose of “establishing a credible disciplinary persona or image” and “better involving readers to co-construct knowledge.”

Discussion

Researchers’ overall use of interest markers across different regions

Our quantitative findings showed that academic authors based in Periphery research locations were inclined to use more interest markers for expressing their evaluative attitudes in applied

linguistics RAs. This observation, perhaps, could be attributable to the Periphery-based scholars' unequal access to and marginalization in the knowledge production market. Collyer (2018) noted that there exist staggering inequalities in global academic knowledge production, especially when English has become the default language for academic dissemination and communication (Hyland, 2015; Lillis and Curry, 2018; Mauranen et al., 2020). Consequently, the non-Center participants of the international academic community are greatly disadvantaged in gaining more visibility, better recognition, and more professional credit through publishing in high-profile Center-affiliated journals. Gregson et al. (2003) also pointed out that the internationalization of knowledge was "inevitably caught up in a complex web of power relations that connect power and knowledge...; writings themselves are constitutive of, and not just reflective of, power-knowledge systems" (p. 6). In fact, linguistic imperialism or hegemony has been well documented in a body of literature (e.g., Hyland, 2001; Canagarajah, 2002; Pennycook, 2017), indicating that knowledge of science, in its modern meaning, is equivalent to colonial science. As a primary mode of communicating scientific knowledge, academic discourse is socially constructed and infused with power relations in the international context (Bennett, 2014). In such context, Periphery-based scholars have to invest considerably more effort to promote their research and persuade the "gatekeepers" of high-ranking journals to accept their research. Their propensity to employ interest markers to describe their research findings highlights the

hierarchical structure of the field. These practices, according to them, seem to be strategies to increase the likelihood of making their research visible in the international sphere. In addition, the Periphery-based informants' responses regarding their great willingness to collaborate with Core-based scholars to make the writing more persuasive and linguistically acceptable, as a matter of fact, accentuate the privileged and dominant position of the Core-based scholars in the knowledge production market. To increase the possibility to get their research published, it is understandable that the Periphery-based scholars have a greater need to employ more interest markers in their RAs to better promote their research.

Regional influences on the occurrence of the interest frame elements

The corpus-based analysis signaled some distinctive regional knowledge-making practices. It was found that the Core-based applied linguists were more likely to express their interest toward Proposal, and preferred to leave sources of expressed interest unidentified. In addition, they were more likely to tone up their expressed interest compared with their Periphery-based counterparts. Finally, they were more inclined not to identify experiencers of the emotion than those from the Periphery regions. However, if they chose to provide experiencers, they opted to describe themselves as Experiencers of the emotion.

TABLE 7 Results of binary logistic regressions on the frame element of experiencer.

Outcome	Predictor					Odds ratio	95% CI for odds ratio	
		<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>p</i>		Lower	Upper
Implied	Core vs. periphery	−1.116	0.472	3.276	0.000	0.558	1.372	8.166
	Constant	−2.826	0.614	2.148	0.024	0.512		
	$R^2 = 0.113$ (Cox and Snell); $R^2 = 0.205$ (Nagelkerke) Model $\chi^2(1) = 6.264$, $p < 0.001$							
Author	Core vs. periphery	1.051	0.322	5.218	0.000	2.278	0.939	7.262
	Constant	2.842	0.515	7.219	0.008	1.764		
	$R^2 = 0.025$ (Cox and Snell); $R^2 = 0.089$ (Nagelkerke) Model $\chi^2(1) = 13.815$, $p < 0.001$							
Author/reader/other researchers	Core vs. periphery	−1.819	0.428	6.917	0.022	1.912	1.325	8.105
	Constant	−2.738	0.528	8.021	0.133	0.725		
	$R^2 = 0.015$ (Cox and Snell); $R^2 = 0.033$ (Nagelkerke) Model $\chi^2(1) = 5.384$, $p = 0.221$							
Another researcher	Core vs. periphery	−1.074	0.538	8.155	0.033	0.928	1.038	5.256
	Constant	−2.768	0.628	9.226	0.318	0.022		
	$R^2 = 0.022$ (Cox and Snell); $R^2 = 0.035$ (Nagelkerke) Model $\chi^2(1) = 11.755$, $p = 0.081$							
Other people	Core vs. Periphery	1.027	0.668	7.482	0.092	2.767	0.921	8.355
	Constant	−2.718	0.568	8.106	0.115	0.236		
	$R^2 = 0.045$ (Cox and Snell); $R^2 = 0.067$ (Nagelkerke) Model $\chi^2(1) = 12.645$, $p = 0.052$							

The reasons why scholars from the Core regions were more likely to express their interest elicited by the proposed new hypotheses or a potential research direction might be plausibly attributed to their easier access to and dominance of the knowledge production world. According to the comments of the informants, the Core-based scholars are at the pinnacle of the academic hierarchy (Moletsane, 2015). In contrast, researchers residing in the Periphery are likely to be denied access to material resources and experience a disproportionate representation (Salager-Meyer, 2008; Curry and Lillis, 2017). In the academic field where English-speaking voices predominate (Curry and Lillis, 2017), academics based in the Core regions dictate potential research trends and thus “play a key role in setting research agendas and determining what gets published” (Hyland, 2015, p. 72). Consequently, they tend to highlight their disciplinary expertise by proposing what type of issues warrant more scholarly attention. Academic writing, in this sense, may incorporate “diverse semiotic resources and ecological affordances” (Canagarajah, 2013, p. 6), and is intertwined with epistemological forms of power (Maton and Moore, 2010; Canagarajah, 2013).

Additionally, the Core-based academics’ propensity to leave the expressed interest unexplained indicate their scholarly practices of foregrounding the readers’ shared epistemological assumptions for knowledge negotiation. Conversely, authors from the Periphery held that explaining the expressed interest contributed to engaging readers in a more effective disciplinary dialog. In the interviews, authors from the Periphery regions opined that their linguistic constraints in using English as an additional language (Hanauer et al., 2019) motivated them to offer explanations to ensure language clarity and thus facilitate readers’ comprehension. In fact, this linguistic hegemony (Canagarajah, 2002; Pennycook, 2017) also suggests that academic discourse is infused with power relations in the globalized academia (Bennett, 2014).

The Core-based authors’ preference for intensifying their expressed interest probably relates to their epistemological beliefs that persuasion could be better achieved through constructing an authoritative persona by evaluating their arguments with a higher degree of assurance. As evidenced by the interview data, they emphasized the critical role of strong convictions could play in negotiating readers’ expectations for legitimating knowledge claims. Notably, they also highlighted the importance of constructing a more prominent authorial stance to claim their role as an arguer responsible for the propositional information. This knowledge-making practice could probably be ascribed to the Anglophone writing featuring a writer-responsible culture (Hinds, 2001) as well as the rhetorical function of authorial presence in establishing the author’s image as privileged disciplinary knowers (Hyland and Jiang, 2017), and promoting the research (Walková, 2019). Conversely, the Periphery-based scholars’ preference for authorial absence in scientific writing signals their understanding of scholarly ethos such as valuing objectivity. Consequently, depersonalization would be helpful to avoid imposing authors’ interpretations of arguments on readers (Yakhontova, 2006). As

noted by Sabaj et al.’s (2013) study, compared to the “self-promotional” feature of scholarly writing in English (Hyland, 2001), Spanish scholars were convinced that the trait of modesty contributed to academic persuasion. This suggests that the locally valued discursive style of relying on research findings rather than authorial visibility held by Periphery-based academics may also impinge on academic texts. As noted by Mauranen et al. (2020), interdiscursive hybridity has become a prominent feature for academic writing in the globalization process.

Conclusion

As a privileged academic avenue for knowledge production and dissemination, RAs are an essential channel to safeguard academic positions and prestige. This study, taking a cognitive semantic approach, examined how linguistic expressions of interest in applied linguistics RAs were leveraged by an academic author’s geo-academic location. It was found that scholars from the Periphery research communities were 1.6 times more likely to use interest markers in their RAs than their counterparts based in Core regions. Moreover, the two groups of scholars exhibited some location-based differences in knowledge-making practices through their deployment of some frame elements of interest markers. While the Periphery-based academics were 2.8 times more likely to express their interest triggered by newly proposed hypotheses or potential research trends, the Core-based academics were 1.9 times more likely not to identify the source of the expressed interest and were 3.1 times more likely than their Periphery-based counterparts to intensify their expressed interest. Finally, the latter group of researchers was 1.8 times more likely to leave the experiencers unidentified, whereas Core-based scholars were 2.3 times more likely to describe themselves as experiencers of expressed interest than those from the Periphery were.

The Periphery-based informants’ responses in the interviews revealed their concerns with linguistic drawbacks regarding using English to write up the manuscript. Given their disadvantaged position in the academia, they were incentivized to exert greater effort to claim the value of their study by employing more interest markers to boost their chances of publishing in top-ranked journals. Moreover, their preference for explaining the linguistically expressed interest index their disadvantaged position in gaining more visibility, better recognition, and more professional credit in the disciplinary community, compared to their Core-based counterparts. In contrast, Core-based academics who play the role of gatekeepers of high-profile journals, are privileged in scholarly publishing. Thus, they were prone to demonstrate a more confident, visible, and authoritative discursal image in knowledge claims.

In summary, the examination of the mediating effect of authors’ geo-academic location on the use of interest markers has offered some insights into the possible connections of different geographically located research communities and their specific ways of constructing and communicating scientific ideas.

However, this study has some limitations. First, it only focused on applied linguistics RAs, and it is worthwhile to examine cross-disciplinary variations in the use of interest markers and particularly, whether interdisciplinarity may impact the use of these markers as more trans-disciplinary and interdisciplinary research is emerging. Second, the adoption of a binary category, i.e., Core vs. Periphery, may obscure some intra-group distinctions since academic authors' L1 background/nationality/ethnicity may also have some impact on their propensity to employ certain linguistic/rhetorical devices in knowledge claims. Finally, authors' affiliations may not necessarily reflect locally defined knowledge-making practices due to academics' increasing mobility. It would be potentially revealing to examine the interplay of various demographic factors such as researchers' gender, cultural background, and the research communities to which they geographically belong. Such attempts are expected to yield a more in-depth understanding of the epistemic role that interest markers can play in knowledge construction and scientific communication.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The project has been reviewed and approved by the PolyU Institutional Review Board (PolyU IRB; or its delegate board; Reference Number: HSEARS20211024001). The patients/participants provided their written informed consent to participate in this study.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1020854/full#supplementary-material>

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Using corpora to reveal style in translation: The case of *The Song of Everlasting Sorrow*

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This article reports on a corpus-based study of the English translation of Wang Anyi's award-winning novel, *The Song of Everlasting Sorrow* [长恨歌, *Chang Hen Ge*] from the perspective of style. Using the keyword and concordance functions of corpus software packages AntConc and ParaConc, this research focuses on how the translator's style reveals itself in the target text (TT) as well as how the style of the source text (ST) is represented in the TT. Findings show that the translators have a preference for contracted negative verb forms and expressions such as "bit" over "little," making the text more colloquial. In general, the rendering of the ST style tends not to be entirely faithful. A distinction between reader-centered and text-centered keywords is made. While the reader-centered ST keywords are, as expected, largely altered, the translation of text-centered ST keywords is also rewritten, contrary to expectations. Presumably, the translators tended to reduce the ambiguity of the ST, resulting in a more explicit TT. The article argues that the translators chose to rewrite the translation to make it more understandable for the target audience since it concerned a work from a source culture very different from the target culture.

KEYWORDS

corpus-based translation studies, translator's style, Wang Anyi, *The Song of Everlasting Sorrow*, corpus keywords

Introduction

This study investigates how the style of a source text (ST) is represented in a target text (TT) as well as how the translator's style reveals itself in the TT. The corpus of this research is the English translation of *The Song of Everlasting Sorrow* by Michael Berry and Susan Chan Egan of the Chinese novel 长恨歌 [Chang Hen Ge] by Wang Anyi. A mixed-method methodology is applied using corpus techniques (AntConc and ParaConc).

Style is one of the primary concerns of literary translation and can be defined as: "the linguistic characteristics of a particular text" (Leech and Short, 2007, p. 11). It is "the linguistic choices evident in a text [that] contribute to the overall meanings and effects of that text" (McIntyre and Walker, 2019, p. 16). The style of a translated text or

the translation style, is supposed to be a mixture of the style of the original work and the translator's style (Saldanha, 2011, p. 26). A translator's style, known also as his/her "thumbprint" (Baker, 2000, p. 245), is "a matter of patterning: it involves describing preferred or recurring patterns of linguistic behavior, rather than individual or one-off instances of intervention" (Baker, 2000, p. 245); it is a "way of translating" that "distinguishes the translator's work from that of others" (Saldanha, 2011, p. 30). Until now, corpus-based translation studies on style have focused on how the ST style is represented in the TT or on how the translator's style reveals itself in the TT. How exactly this happens is still largely to be investigated. Most studies on translational style take an ST-oriented perspective, regarding the style of the TT as "a way of *responding* to the source text [style]" (Saldanha, 2011, p. 27, original emphasis) while not giving adequate consideration to the translator's responsibility for the TT style (Bosseaux, 2004; Winters, 2007; Ji, 2009; Čermáková, 2015, 2018; Mastropierro and Mahlberg, 2017; Ruano, 2017; Malmkjær, 2018; Mastropierro, 2018a, 2020; Toolan, 2018; Chen, 2019). Studies that are TT-oriented are usually concerned with the translator's thumbprint and they fall into two sub-groups. One group, represented by Baker (2000), follows a TT-exclusive approach, leaving out the ST (Olohan, 2004; Saldanha, 2011; Mastropierro, 2018b). As noted by Saldanha (2011), the problem with this approach is that the style may be "carried over from the source text" (p. 32) and may not be a result of the translator's mediation. Although this group of studies assumes that the translator's style is an integral part of the TT style, they do not show how this style is related to the TT style. The other group adopts a parallel model where two or more TTs of the same ST are first compared between them and then with the ST (Winters, 2009; Li et al., 2011; Wang and Li, 2012; Meng, 2015). While parallel model studies effectively attribute specific stylistic choices to a particular translator, they ignore the ways in which TT style depends on the style of the translator. Moreover, they suffer from a methodological drawback: texts with more than one translated version in the same language are, in any case, rare.

Both ST-oriented and TT-oriented studies rely on specific pre-selected linguistic elements as indicators of style. For instance, Baker (2000) in her ground-breaking corpus-based study on translator's style says about reporting verbs such as "say" that "[r]eporting structures in fiction and (auto)biography are both common and important [...] for interpreting the role of the narrator and supporting characterization. We might expect a high level of variation here [...]" (p. 251). In his corpus-based study of four Spanish translations of Dickens's *Hard Times*, Ruano (2017) claims that the rendering of specific speech verbs is "fundamental if Dickens's style and his individualization of the fictional voices is to be preserved" (p. 96). These assumptions can be challenged if we acknowledge that style can only be revealed in comparison, or in the words of Leech (2008),

that "[t]o be stylistically distinctive, a feature of language must deviate from some norm of comparison" (p. 55).

This study investigates to what extent the ST style is transferred into the TT and how the translators reveal their "thumbprints" in the TT. The style markers of the ST and the TT, its keywords, are generated by comparing the texts with a "norm" rather than assuming them. Since the TT for the case study is currently the only English translation of the ST, a parallel-comparative model based on parallel and comparable corpora is adopted for this study, where the translators' "thumbprint" is sought by comparing the translation with both a "norm" and the ST. This article contributes to the study of the translator's style with a model that can detect the translator's style when an ST has only one TT.

"Key-words provide a useful way to characterize a text or a genre." (Scott, 2019, online). Using "keywords" to uncover the stylistic makeup of a literary work is common in corpus stylistics (McIntyre and Walker, 2019). However, the function of keywords in revealing translation style is under-explored. Kenny (2001) uses keywords to facilitate the discovery of creative language use in the translation. Čermáková (2015, 2018), from a practical perspective, discusses the importance of translators' awareness of ST keywords in order to show a 'particular consistency' (2018, p. 123). To explore how ST cohesion is represented in the TT, Mastropierro and Mahlberg (2017) use keywords to help identify nodes that form cohesive networks in the ST that are then compared with the translation. In a few studies on the translator's style, the TT keyword list is used to reduce the number of items for further study (Winters, 2009) or to help to determine meaningful word groups to look at as indicators of the translator's style (Wang and Li, 2012). A different perspective is adopted by Johnson (2016). She considers both ST and TT keywords, and instead of comparing the texts with a comparable corpus, she makes an intra-text comparison, comparing the two parts of the same text. Her comparison between ST and TT concentrates on the keywords, while the translation contexts in which these keywords occur are left out. The next section introduces previous studies on *The Song of Everlasting Sorrow*, followed by a description of the methodology.

Chang Hen Ge and *The Song of Everlasting Sorrow*

The novel *Chang Hen Ge*, winner of the Mao Dun National Prize for Fiction¹ in 2000, was written in Mandarin Chinese by Chinese writer Wang Anyi [王安忆] (1954-) and published in

1. Named after renowned Chinese writer Mao Dun, the prize was created in 1981 to honor the excellent Chinese novels every 4 years and remains the most prestigious award for literature in the China mainland today.

1995. It was translated into English by Michael Berry and Susan Chan Egan as *The Song of Everlasting Sorrow* (2008). In 2009, the translation received an honorable mention for the Sixth Lois Roth Award for the Translation of a Literary Work, and in 2011 it was nominated for the Man Booker Prize.

According to Wu (2012), Michael Berry spent 8 years working on his translation and visited Shanghai several times. In an interview, Berry stressed that he sought to be transparent and tried different English styles to get as close to the original as possible (Wu, 2014, p. 49). Although Berry and Egan admitted that the translation contained a series of stylistic deviations, they referred not so much to the language style as to the length of paragraphs and sentences, the adding of inverted commas to dialogues, and the italicization of a few words (Berry and Egan, 2008, p. vii).

Studies claim Berry and Egan's translation is largely faithful. Zhu and Yang (2017), focusing on culture-specific items, suggest that the translators conveyed the exotic in the novel with slight loss, although they made minor adjustments to some expressions which seemed impossible to translate literally. Wu (2012) also noted the faithful representation of "otherness" in the translation, even when this went against Western literary aesthetics. These studies, while showing that the translators are skillful in rendering culture-loaded expressions, also testify to their high Chinese proficiency.

Some corpus-assisted studies, however, came to a different conclusion. Focusing on the application of degree adverbs, Wang and Li (2015) found that the translators tended to use English adverbs that emphasized the tragedy experienced by the heroine, enhancing the dramatic effect. At the textual level, Wang's (2018) study analyzed how the introduction of paragraph breaks affected narratological features. Comparing the first two chapters of the ST with the TT, Wang found that the added paragraph breaks weakened the effect of the theme-relevant prolepses in the ST, even to the point of changing the plot.

Although these studies show style changes, they only consider a specific, pre-selected group of words or only examine a small part of the novel, thus leaving much space for further discussion. The present study revisits these conclusions from the perspective of a corpus-based analysis.

Materials and methods

The keywords function of the AntConc generates a list of words by comparing a text with a reference corpus. The keyness feature shows the statistical significance of each occurrence. Usually, the list contains three types of keywords: proper nouns, indicators of the "aboutness" of a text, and style indicators (Scott, 2019, online). Jonathan Culpeper states that "[s]tyle markers as words whose frequencies differ significantly from their frequencies in a norm are precisely

what keywords are" (Culpeper, 2009, p. 33). Keyword research should thus reveal "the most significant lexical differences between [texts], in terms of aboutness and style" (Baker, 2004, p. 237).

For this study, the ST and TT were paralleled at the sentence level using ParaConc (Barlow, 2009), a software program for parallel analysis, so that the ST concordances containing a given ST keyword could co-occur with the TT concordances and vice versa.

Two reference corpora were built to be compared with the ST and the TT, respectively. The Chinese reference corpus (CRC) which was used to reveal the ST textual style, consists of four novels, selected according to the following criteria: (i) winners of the Mao Dun National Prize for Fiction, and (ii) translated into English.² The English-language reference corpus (ERC) applied to the exploration of the translation style (a result of the combination of the ST style and the translators' style), was compiled from COCA sample data downloadable from <https://www.corpusdata.org/formats.asp>.³ While the sample contains texts of different genres, only works of fiction were fed into the ERC. The purpose of comparing the TT with a reference corpus justifies the selection of the fiction section of COCA as data for the ERC. Different from the aim of using the CRC to generate an ST keyword list that indicates the ST textual style, the application of the ERC was expected to generate a keyword list that contained both elements induced by the ST style transfer and those indicating the translators' style. Since a translator's style was "the translator's characteristic use of language, his or her ... preferred or recurring patterns of linguistic behaviour" (Baker, 2000, p. 245), it can be disclosed, at least to some extent, by comparing his or her translation with a reference corpus that represented the linguistic norm of the target language in the same genre as the translation. In other words, the reference corpus should be representative enough to reflect the norm and be made up of texts in the same genre as the TT and published in the same period. Designed with a balanced structure, COCA, "the only large and 'representative' corpus of American English"⁴, provides the ideal norm of language use against which the American-English TT can be compared. On the other hand, the sample data which were drawn randomly from fiction published from

2 The four novels are 穆斯林的葬礼 [Mu Si Lin De Zang Li], *Jade King* by 霍达 [Huo Da]; 都市风流 [Du Shi Feng Liu], *Metropolis* by 孙力 and 余小慧 [Sun Li and Yu Xiao-hui]; 少年天子 [Shao Nian Tian Zi], *Son of Heaven* by 凌力 [Ling Li]; and 兄弟 [Xiong Di], *Brothers* by 余华 [Yu Hua].

3 As noted on the website, the sample data are taken from COCA entirely at random from texts published from 1990 through 2012 (about 1/100th the total number of texts). The sample data are not cleaned up; consequently, there is some noise in them, such as messy codes @ and #. Limitations that may result from this should be acknowledged here. For one, the number of messy codes, though not large, impacts the statistics. Different types of fiction vary in terms of linguistic style, which might also influence the statistics of the keywords.

4 <https://www.english-corpora.org/coca/>, accessed 23 September 2022.

TABLE 1 Size of texts and corpora.

	ST	CRC	TT	ERC
Tokens (character or word)	266,921	979,029	196,461	361,938

1990 to 2012 was representative of the contemporary linguistic norms in the same broad genre of fiction as the TT, and thus a comparison between it and the TT can generate features that reveal the translators' linguistic style. **Table 1** shows the size of texts and corpora. In addition to the DIY corpora, the fiction section of COCA will be referenced in the discussion of the findings.

To extract keyword lists for both ST and TT, the electronic version of each text was queried using AntConc 3.5.9 (Anthony, 2020), with a log-likelihood setting of $p < 0.0001$ and Hardie's Log Ratio as the keyword effect size measure with 2 as the threshold. AntConc produced a list of 192 keywords for the ST and 84 for the TT (see **Supplementary Appendices**). The keyword list for the ST contained mainly double character words and multi-character and single-character words. Because the segmentation of the ST at the word level is not entirely accurate,⁵ a one-character word can be part of a word that was misrecognized. Single character words, 30 in total, were disregarded since they might not be bounded.

Both ST and TT keywords included adverbs, verbs, and adjectives, but primarily nouns. The nouns (and pronouns in the ST list), which are "words that human beings would recognize" (Scott, 2019, online) and reveal the "aboutness" of the novel. The other words show the style of the text. Nominal keywords are central to the faithful translation of the content (cf. Čermáková and Fárová, 2010) or when a literary text is analyzed from the perspective of literary criticism (cf. Mahlberg and McIntyre, 2011). In this study, nouns and pronouns among the keywords are not considered since they seem irrelevant to the style. This does not mean that style and aboutness are separable. Certain words have more to do with the style, while others have more to do with the aboutness of a text. The ST verbs 打针 [take an injection] and 打牌 [play cards] and the TT adjective *western* have also been left out of consideration, as they have more to do with the aboutness of the story than with the style. The TT keyword *Mr* has also been ignored because it is used exclusively as a title for two male characters in the ST: 程先生 (Mr. Cheng) and 严先生 (Mr. Yan). A problem is that the Chinese words 一些 [some], 有些 [some/a little], 一般 [as if/like] and 活跃 [lively] belong to more than one part-of-speech category. The word 一般, for example,

can be an adverb or an adjective. These words are placed in the category in which they appear most frequently.

Previous studies on style and translation have paid little attention to static verbs as a style indicator. Wang and Li (2012) found that the translators of two Chinese versions of *Ulysses* showed a different style of adopting Chinese action verbs. Mastropierro (2020) and Ruano (2017) show how changes in the translation of reporting verbs affect characterization. Static verbs have yet to be investigated. In addition, function words indicating style have not been sufficiently studied, as some studies show that articles and prepositions are important style indicators (Culpeper, 2009; Wang and Li, 2012; Mastropierro, 2018a,b). Culpeper's (2009) study suggests that subordinate adverbs such as "if" can explain characterization in *Romeo and Juliet*. Mastropierro (2018b) finds that conjunctive adverbs along with participles such as the cluster "and a," can be markers of the translator's idiosyncrasy. The present study considers how certain Chinese static verbs and function adverbs operate as style indicators and how their translations alter the style.

Different ways of categorizing keywords have been proposed to meet specific research goals (Culpeper, 2009; Mahlberg and McIntyre, 2011; Johnson, 2016). In their study of Ian Fleming's *Casino Royale*, Mahlberg and McIntyre (2011) categorize keywords into "text-centered" and "reader-centered" (pp. 211–212). Although Mahlberg and McIntyre focus only on nouns, their categorization of text-centered and reader-centered keywords is useful and adopted here. Text-centered keywords imply low subjectivity, as they consist of "relevant links to characters, objects and places." The reader-centered category "contains mainly abstract and metaphorical meanings that require more complex interpretation" and therefore "relates to the effects that the text creates on the reader at a higher level of abstraction" (Mahlberg and McIntyre, 2011, p. 211). The meaning and function of text-centered words are context-independent, while the meaning of reader-centered words is ambiguous and may change according to the context, leaving space for interpretation. The identification and classification of the keywords into either group are done independently by the two authors of the article in accordance with the criteria that whether the meaning of the ST keywords could lead to more than one interpretation with the concordance lines as context. When discrepancy occurred, a third analyst who also specializes in literary translation studies is consulted until an agreement is reached. Words whose meaning depended on the context are categorized as reader-centered, the others as text-centered. The hypothesis is that the translation of the text-centered keywords is faithful, while the ambiguity of the reader-centered keywords would be sacrificed to a certain extent.

Table 2 shows ST and TT keywords, with literal translations and part-of-speech indications for the ST words.

⁵ Words in Chinese text are written together without spaces between them. Therefore, Chinese texts are usually segmented (i.e., spaces are inserted between words or characters) with computer software for a corpus. Unfortunately, to date, no software achieves 100% accuracy in segmenting Chinese, including the software ICTCLAS used for segmenting the ST in this study.

TABLE 2 Source text and target text keywords.

ST keywords		TT keywords
Text-centered	Reader-centered	
其实 adv. [actually]	有点 adv. [a little]	Didn't
因此 adv. [therefore]	有些 adv. [a little/some]	Couldn't
总之 adv. [in short]	做人 v. [conduct oneself/be a proper person]	Wasn't
难免 adv. [hard to avoid]	一会儿 adv. [a while]	Wouldn't
总是 adv. [always]	穿行 v. [go through]	Cannot
看上去 v. [look]	一般 adv. [as if/like]	Don't
叫做 v. [be called]	觉着 v. [feel]	Isn't
倘若 adv. [if]	有着 v. [have]	Doesn't
有时 adv. [sometimes]	一些 adv. [some]	Weren't
不由 adv. [cannot help]	好像 adv. [as if/like]	Gradually
只得 adv. [have to]	带有 v. [have]	Simply
渐渐 adv. [gradually]	无所谓 v. [do not care]	However
不料 adv. [unexpectedly]	活跃 adj. [lively]	Neither
听见 v. [hear]	没什么 adv. [no/little/few]	Bit
晓得 v. [know]		Proper

Findings and discussion

While elements of the ST style were transferred into the TT, the translators also left their fingerprints on the TT. The translation of reader-centered ST keywords was essentially unfaithful, but a significant proportion of the text-centered ST keywords were also rewritten. The translators eliminated ambiguousness, leaving less room for other interpretations. This resulted in alterations in characterization and narration. Tables 3, 4 show the translation strategies for the TT and ST keywords, excluding the TT verbs which are shown in Table 5 in the following sub-section.

The labels “mutation” and “modification” are taken from van Leuven-Zwart (1989, p. 159). Based on her definition and criteria, in this study, mutation refers to adding, deleting, and using words that result in a complete meaning shift; modification refers to the strategies that result in a disjunction of meaning, without it being completely different. Cases of faithful translation are referred to as “equivalence.” Again, the grouping of the translation strategies is conducted manually by the two authors assisted by a third analyst when necessary. The following sub-sections elaborate on the findings.

The translators’ style and the target text style

First, the translators preferred the contracted forms of negation, as evidenced by the use of *didn't*, *couldn't*, *wasn't*, *wouldn't*, *don't*, *isn't*, *doesn't*, and *weren't*. Since the Chinese do not have contractions, these forms do not come from the ST. Although non-contracted forms are also used in the TT, they are significantly less frequent or equally frequent, as shown in Table 5. The forms *wasn't* and *weren't* occur less often than

the standard forms in the TT, but this does not affect the general trend. All these contracted forms show a high effect size (over 6) compared with the “norm.” Since the contracted forms of negation are less formal or emphasized than their counterpart two-word forms, the translators’ preference of the latter suggests that they tend to opt for a more casual style of narration.

As for the word *bit* that enjoys the highest keyness in the TT keyword list apart from the contracted forms (see Table 3), the analysis of the TT concordances shows that the translators used the word *bit* rather than *little* in adverbial phrases such as *bit by bit*, *a bit of*, and especially the pre-adjective mitigating adverbial phrase *a bit*. The phrases *a bit*, *bit by bit*, and *a bit of* occurring 128 times, 3 times, and 9 times, respectively in the TT, in contrast to the 31 occurrences of *a little* and the absence of *little by little* and *a little of*. This pattern is at odds with the occurrence of *bit* and *little* in the fiction section of COCA. In COCA fiction section, *a little* occurs 55,476 times, and *a bit* 15,950 times; the occurrence of *little by little*, 318 times, is about 1.5 times that of *bit by bit*, 193 times; the occurrence of *a little of* (567), although smaller than that of *a bit of* (3,832), also contrasts with its absence in the TT. This means that the translators prefer *bit*-constructions to *little*-constructions, although the latter is more widely used in American English. While *bit* is quite informal and mainly used in conversations, its adoption in the TT again indicates that translators tend to write in a casual style.

Regarding the TT style, Table 3 shows that most occurrences of *neither* (94.80%), *gradually* (74.62%), *bit* (56.52%), and *however* (56.41%) are equivalent to the ST expressions, indicating that the TT style follows the ST to some extent. Moreover, the Chinese equivalent for the word *gradually*, 渐渐, and that of the mitigating adverbial phrase *a bit* (occurring 128 times), 有些, also features in the ST keyword list, suggesting further that the TT style is partly the result of an ST style

TABLE 3 Translation strategies for the TT keywords.

	Occurrence	Keyness	Effect size	Mutation		Modification		Equivalence	
				<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Bit	161	118.33	2.1351	40	24.84	30	18.63	91	56.52
Gradually	65	96.02	4.0977	17	26.15	6	9.23	42	64.62
Simply	94	93.6	2.7369	72	76.6	0	0	22	23.4
However	117	90.25	2.2108	48	41.03	3	2.56	66	56.41
Neither	77	60.96	2.2046	2	2.6	2	2.6	76	94.8
Proper	42	47.22	2.987	15	35.71	8	19.05	19	45.24

transfer. Regarding the adjective *proper*, the expression *proper young lady* is used 17 times (of the 19 times it appears as an equivalent of ST expressions) as an equivalent of the Chinese word 淑媛 [proper young lady], which also shows the ST influence on the TT style. However, the word *simply* in the TT keyword list is largely (76.60%) applied due to the translators' mediation and reduces the interpretation space for TT readers. This tendency is discussed in the following.

Representation of the source text style in the target text

Translation of reader-centered keywords

The ambiguity of the reader-centered ST words leaves readers plenty of room to develop their own interpretation. In the ST, degree adverbs such as 有点 [a little], 有些 [a little/some], 一些 [some], 一会儿 [a while], and 没什么 [no/little/few] express vague degrees or quantities; 觉着 [feel], 有着 [have], 带有 [have], as verbs of static or general meaning, are usually followed by abstract concepts that require active deciphering by the reader; 做人 [conduct oneself/be a proper person], 穿行 [go through], 无所谓 [do not care], and 活跃 [lively] are generally used figuratively; 好像 [as if/like] and 一般 [as if/like] imply uncertainty in speculation, judgment, or feelings. When these words occur, the narrator either sounds uncertain or gives only vague information. These words give the narrator and the characters, especially the male ones, a kind of feminine quality characterized by delicate perception and emotional mildness and restraint, reflecting the author's intention to feminize Shanghai (Qi and Lin, 1995, p. 67; Nan, 1998, p. 69).

In the TT, the translators reduced or eliminated the original ambiguity by deleting or interpreting these words. As shown in Table 4, the equivalence rate for all reader-centered keywords, except 好像, is below 50%. This change affects narrative style and characterization. Examples⁶ 1–3 below, which show the translation of three adverbs, the keyness of which ranges from the highest to the lowest in the reader-centered keyword list (see the upper part of Table 4), illustrating the point.

⁶ All translations in square brackets are by the authors.

Example 1

ST: 从片厂回来几天, 她都没什么表示, 这使吴佩珍沮丧。

[Several days passed after returning from the film studio, she gave few comments, this made Wu Peizhen depressed.]

TT: In the days following their visit to the film studio, Wang Qiyao did not utter a single word about their trip, and this left Wu Peizhen quite depressed.

Example 2

ST: 康明逊有些不安, 隐隐地有些明白, 几乎不敢再问, 可又不能不问。

[Kang Mingxun was a little disquieted, faintly had some guesses, almost dared not to ask any more, but thought he should ask.]

TT: Kang Mingxun was disquieted. He had some inkling of what she was up to; he was hesitant to ask but also felt he ought to press her for an explanation.

Example 3

ST: 可说到了这时, 王琦瑶才开始认真起来, 之前, 她就好像是应付蒋丽莉, 还应付程先生。

[It could be said that only till then did she begin to take it seriously, before then, she simply seemed to be dealing with Jiang Lili and Mr. Cheng perfunctorily.]

TT: Only then did she begin to take the pageant seriously; up until that point she had simply been trying to make Jiang Lili and Mr. Cheng happy.

The Chinese adverb of negation 没什么 [no/little/few] in Example 1 is important for both narrative style and characterization. Unlike 没/没有 [no], which always conveys a complete negation, 没什么 can express a complete or partial negation depending on the context. When the contextual information is not adequate or not available, different readers are likely to reach different conclusions. In Example 1, the narrator tells the readers about the heroine Wang Qiyao's reaction after her visit to a film studio with her friend Wu Peizhen. The trip, arranged by Wu through her family connections, changes the course of the heroine's life. The narrator tells the readers that although Wang is very interested in the studio, she does not tell her best friend Wu. So whether or not Wang makes any comments after their return is unclear. To make matters worse, the narrator is ambiguous about this, using 没什么表示 [gave few comments]. The heroine comes across as highly reserved to the point of being peculiar if we interpret the Chinese expression as

TABLE 4 Translation strategies for the ST keywords.

	Occurrence	Keyness	Effect size	Mutation		Modification		Equivalence	
				<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
有些 adv.	404	709.75	3.0767	249	61.9	73	18.91	83	21.5
一些 adv.	260	361.02	2.5672	84	32.31	95	36.54	81	31.15
好像 adv.	170	197.18	2.2557	54	31.76	16	9.41	100	58.82
有点 adv.	130	178.22	2.5438	102	78.46	14	10.77	14	10.77
觉着 v.	78	137.23	3.0886	31	39.74	17	21.79	30	38.46
有着 v.	67	136.19	3.4973	26	38.81	30	44.78	11	16.42
一会 adv.	113	115.44	2.067	29	25.66	36	31.86	48	42.48
一般 adv.	74	79.86	2.1459	32	43.24	7	9.46	35	47
活跃 adj.	31	71.98	3.9704	4	12.9	15	48.39	12	38.71
做人 v.	30	64.48	3.6821	14	47	11	36.67	5	17
没什么 adv.	40	62.17	2.7975	1	2.5	20	50	19	48
穿行 v.	18	60.22	6.6455	8	44.44	8	44.44	2	11.11
无所谓 v.	19	45.92	4.1386	4	21.05	8	42.11	7	36.84
带有 v.	21	39.72	3.283	5	24	15	71.43	1	4.76
其实 adv.	252	443.19	3.0866	165	65.48	3	1.19	84	33.33
倘若 adv.	62	186.19	5.4298	9	14.52	2	3.23	51	82.26
有时 adv.	83	146.44	3.0958	12	14.46	2	2.41	69	83.13
晓得 v.	49	133.99	4.7684	5	10.2	15	30.61	29	59.18
难免 adv.	49	110.1	3.8424	38	77.55	5	10.2	6	12.24
渐渐 adv.	79	101.24	2.4218	36	45.57	6	7.59	37	46.84
总是 adv.	101	98.59	2.0045	41	40.59	24	23.76	36	35.64
不由 adv.	67	92.85	2.5644	49	73.13	3	4.48	15	22.39
听见 v.	63	75.25	2.3032	15	23.81	6	9.52	42	66.67
看上去 v.	45	62.71	2.5752	16	35.56	4	8.89	25	55.56
不料 adv.	40	56.12	2.5881	14	35	12	30	14	35
因此 adv.	44	53.11	2.3203	28	63.63	3	6.82	13	29.55
只得 adv.	35	47.3	2.5174	28	80	1	2.86	6	17.14
叫做 v.	22	46.34	3.6131	6	27.27	3	13.64	13	59.09
总之 adv.	19	45.92	4.1386	13	68.42	0	0	6	31.58

meaning “there was no comment from her.” She would come across as less reserved and her behavior more palatable if the ST is taken to mean “a little comment from her.” In the TT, the translators opt for the first interpretation, which removes the ambiguity. Because of this explicitness, the TT narrator sounds authoritative while the heroine comes across as somewhat odd.

Example 2 describes the reaction of Kang Mingxun, Wang’s lover. She tells him she has come up with an idea to cover up that her illegitimate child is his. As mentioned earlier, all the male characters in the novel are slightly feminine. In this example, the word 有些 [a little], together with 隐隐地 [faintly], 几乎 [almost], and 不敢 [dare not], forms a descriptive cluster that constructs an emotionally restrained, sensitive, and mild image of a feminine man. The deletion of 有些 in the TT, among other changes, suggests that the character expresses his emotions more straightforwardly and seems more agitated than reserved. This

deletion erases the vagueness and again helps construct a rather explicit narrator.

The ST in Example 3 tells the readers that the heroine changes her attitude after entering the second round of the beauty pageant. Before that, she deliberately appears indifferent toward the contest in front of Jiang and Cheng, who are making efforts to help her to do as good as possible in the beauty contest and uses this attitude as a protective shell for her dignity in case of failure. The word 好像 [seem] means that the narrator does not explicitly tell the readers. It is ambiguous whether the narrator knows the truth and refrains from telling it or whether she only views the character from the perspective of those around her. Either way, the ST readers cannot tell whether Wang really treats them indifferently or only pretends. The translation deletes 好像 [seem] and gives the TT readers only one version of the story, namely that Wang did not take the contest seriously. Also striking in this example is the addition of *simply* in the TT. It appears that the translators wanted to eliminate the indeterminacy and impose their own

version. Example 4 provides a further illustration of the use of *simply*.

Example 4

ST: 是权力使然, 也是人生苦短。

[It was because of power, also because life was too short to do everything.]

TT: This was partly the result of what power does to a person, but it was also simply because he felt that life was too short to do otherwise.

The ST in Example 4 explains why Director Li, who later made the heroine one of his mistresses, is always chasing women. The readers can tell from the context that Director Li is a powerful official who uses women to relieve himself of the tensions and dangers he faces. The ST does not distinguish between the two reasons. However, the addition of *simply* in the TT puts extra emphasis on the second reason, while the added *partly* weakens the first one.

The verb 穿行 [go through] deserves attention because of its effect size, over 6.5, the largest of all the ST keywords, about 1.2 larger than the second largest. It is used nine times to describe inanimate objects, twice non-human creatures, four times general people and only twice to describe two of the main male characters, one being Kang, whose child the heroine has out of wedlock, the other being the man who kills her at the end of the story. This particular use of the verb suggests that even these two men, who determine the course of the heroine's life, are like other nameless, faceless people or inanimate objects, implying the illusive nature of the heroine's life. This is further emphasized by the fact that it is the only verb in the keyword list with a dynamic meaning. All other ST verb keywords (做人 [conduct oneself/be a proper person], 有着 [have], 带有 [have]) or verbs of sense or cognition (看上去 [look], 听见 [hear], 觉着 [feel], 无所谓 [do not care], 晓得 [know]) are static and do not describe observable actions. The whole fictional world seems to exist only in the minds of the characters and the narrator. Therefore, keeping this meaning of the verb in the TT may be necessary to stress the fictionality of the ST. However, the word was substituted in different contexts by English words of specific meaning, such as "crisscross," "run," "penetrate," "move through," and "shuttle back and forth." As Table 4 shows, mutation and modification are the most common strategies used to translate this word, 44.44% each, which means that its potential meanings which result from its vagueness are lost in the translation.

Translation of text-centered keywords

Table 4 shows that high equivalence rate, over 55%, features only six text-centered keywords, which include four static verbs, 看上去 [look] (55.56%), 叫做 [be called] (59.09%), 听见 [hear] (66.67%) and 晓得 [know] (59.18%), and two adverbs, 倘若 [if] (82.26%), and 有时 [sometimes] (83.13%). This means that the

hypothesis that the translation of the text-centered keywords is largely faithful does not hold.

The tendency of the translators to eliminate the ambiguity of the ST is extended to the text-centered keywords, particularly the adverbs. The group of adverbial text-centered ST keywords that are deleted or altered can be categorized into two sub-sets. One set, mainly occurring in the narration, includes adverbs that function as logical connectors and provide clues to the narrator's covert attitudes or evaluations that encourage the readers to engage in a dialogue with her, which are 难免 [hard to avoid], 其实 [actually], 因此 [therefore], and 总之 [in short]. The word 难免, literally means *hard to avoid* and indicates a causal relationship between the result introduced by it and the cause described or implied in the context. It also suggests that the language user's evaluation of the result is negative (Zhang, 2000, pp. 390–395). The word 其实 [actually] introduces a part of a sentence or a subordinate clause that complements or slightly contrasts the information given previously and implies that what follows is true, or truer, than what precedes. Instead of directly denying or simply deleting the previous information, the narrator gives more information that complements or contrasts it, leaving the readers with a more complicated picture. Unlike 难免 [hard to avoid] or 其实 [actually], neither 因此 [therefore] nor 总之 [in short] carry an evaluative meaning by themselves. In the ST, they function in a similar way as *in other words* or *similarly* which introduces another idea that elaborates on the previous one and acquires evaluative meaning when a comment that precedes them is repeated in what follows. As can be seen from Table 4, over two-thirds of occurrences of these Chinese adverbs, 难免 (87.75%), 其实 (66.67%), 因此 (70.45%), and 总之 (68.42%), are deleted, changed, or modified to give a version with an unambiguous meaning, leaving the TT narrator's evaluation more explicit. Example 5 shows how 因此 (keyness 53.11), a neutral logic connector that is deleted or changed more often than the other neutral logic connector 总之 (keyness 45.92), is translated.

Example 5

ST: 这雨也不是什么倾盆的雨, 而是那黄梅天里的雨, 虽然不暴烈, 却是连空气都湿透的。因此, 它有着细密绵软的形态, 很是纠缠的。

[The rain is not some torrent kind of rain, rather it is the kind of rain during the season when the plums are ripe, which though not violent, drenches even the air. Therefore, rumors are not to be underestimated; they have a fine, closely woven and soft form, entwining with you very tightly.]

TT: The rain comes down not in a torrent but as a hazy springtime drizzle. Although not violent, it drenches the air with an inescapable humidity. Never underestimate these rumors: soft and fine as these raindrops may be, you will never struggle free of them.

因此 [therefore] in Example 5, which connects the two sentences and functions in a comparable way as *similarly*, creates ambiguity in the narrator's discussion of rumors. Before these sentences in the ST, the narrator compares rumors to

clouds bringing rain that symbolizes problems and disputes. The image of 黄梅天里的雨 [rain during the season when the plums are ripe] is used to figuratively discuss the effect of rumors. The word 因此 suggests that these are almost the same as 黄梅天里的雨. The characteristics of rumors, 细密绵软的形态 [a fine, closely woven and soft form] and 很是纠缠的 [entwining with you very closely], depicted in the second sentence, are very much the characteristics of 黄梅天里的雨, which ST readers can recognize. However, they are deferred to describe rumors, rather than the rain in the first sentence. The narrator creates a kind of ambiguity that confuses rain and rumors. Another ambiguity is the contradiction caused by 因此. Although rumors are previously compared to the clouds that produce rain, in this sentence, 因此 suggests that these rumors are the rain and thus the troubles and disputes rather than their cause. In the TT, the implicitness and ambiguity in the comparison are eliminated, for 因此 is deleted and replaced by the direct comparison between rumors and rain, “soft and fine as these raindrops may be.” TT readers are given a version with an unambiguous meaning and are saved from the reasoning task set in motion by 因此.

The other set, the adverbs 只得 [have to], 不由 [cannot help], and 不料 [unexpectedly], are almost exclusively used to describe character actions, indicating that the characters are often driven by forces beyond their control. These words are also significantly rewritten: only 17.14, 22.39, and 35% of them respectively have an equivalent in the TT (see Table 5). With these words deleted or changed, the characters appear to have more control over themselves, which means that the original meaning potential that calls for readers’ active decoding is sacrificed. Example 6 illustrates this point with the translation of 不由, the word of the highest keyness (92.85) among the three adverbs.

Example 6

ST: 康明逊这才听出这一句句原来都是冲着他来的, 不由后退了几步, 嘴里吸喘着。

[Kang Mingxun only then realized that all these words were targeted at him, he could not help but make several steps backward, speaking haltingly.]

TT: Suddenly Kang Mingxun realized that he was the object of her wrath. He stepped back and stammered something inaudible.

In Example 6, 不由 [could not help] suggests that moving backward is not a deliberate action, but happens unconsciously, after realizing that he himself is the target of lashing and criticism in the form of innuendoes from Wang’s mother. She understood that Kang is the father of the child, and is outraged that he does not take responsibility. Although the narrator does not mention his inner feelings, the word 不由 suggests his complex emotions (surprise, shame, panic, and helplessness) that are not under his control, leaving room for the reader’s own interpretation. The TT, on the other hand, does not imply this, and his action of stepping back looks very conscious.

It is worth noting that the translation of the frequency adverb 有时 [sometimes] contrasts with that of 总是 [always], the other frequency adverb in the ST keyword list, of which about 65% is either deleted or modified, as shown in Table 5. The different translation strategies for the two adverbs also suggest that the translators wanted to avoid the original ambiguity in the TT. While the English equivalent of 有时, *sometimes*, carries no evaluative meaning, the counterpart of 总是, *always*, has a unique usage that both *sometimes* and *总是* lack. In some contexts, it does not literally mean that a particular action always happens but means that the action happens often. This hyperbolic use implies that the action or event is questionable or undesirable. Some occurrences of 总是 in the ST, if translated literally as *always*, could cause indeterminacy of meaning because it sounds as if the character or narrator were speaking hyperbolically. In this case, the translators chose other expressions or deleted the word to avoid ambiguity. It was kept if there was no possibility that the translation would be understood as a complaint about an undesirable event.

Discussion

In the above sections, we have shown that translators tend to rewrite both the reader-centered and text-centered keywords of the ST. While these words, relevant to the overall feminine style of the ST, are ambiguous in meaning or

TABLE 5 Occurrences of contracted and non-contracted forms of negation in the TT.

Contracted form	Keyness	Effect size	Occurrence	Non-contracted form	Occurrence
Didn’t	579.26	9.9964	277	Did not	171
Couldn’t	347.08	9.2577	166	Could not	78
Wasn’t	183.97	8.3421	88	Was not	123
Wouldn’t	81.53	7.1681	39	Would not	24
Don’t	258.98	6.938	133	Do not	18
Isn’t	52.26	6.5266	25	Is not	28
Doesn’t	43.9	6.275	21	Does not	23
Weren’t	39.72	6.1306	19	Were not	37

function, the rewriting eliminates the vagueness and renders the TT rather explicit, thus altering the original style. It is curious that the translators, who have suggested that they are sensitive and attentive to the style of the works they translate (Wu, 2014, p. 49), make these stylistic changes in their translation. While their Chinese language proficiency has already been verified by previous studies (see section “Chang Hen Ge [长恨歌] and *The Song of Everlasting Sorrow*”), there is little possibility that the translators were not able to decipher the polysemy of the above-mentioned Chinese words. Most likely this was for the sake of readability. In the “translators’ notes,” the two translators said that “[f]or the purpose of readability in English” and to save the challenge to the reader (Berry and Egan, 2008, p. vii), their translation shows some stylistic variance from the original. Although by the style they only mean the length of paragraphs and sentences and the presentation of discourse, their translation principle of achieving readability in English must be applied to every aspect of the text, including translating the ST words of ambiguity in meaning and those requiring readers’ considerable interpretive effort. While meaning indeterminacy in the ST gives way to the readers’ active involvement, the translators as the first readers from the target culture produced a version based on their own understanding. On the other hand, since deciphering the ambiguities in the ST requires background knowledge that is likely to be highly culture-specific, a literal translation of ST ambiguous words could fail to open up the same multiple readings from TT readers as those from ST readers. This study argues that despite the fact that in most cases, translators are supposed to convey the original style to the target audience, they sometimes have to make a compromise when translating a literary work in a culture very different from the original culture.

Another reason for the stylistic unfaithfulness might be that the translators did not notice the stylistically significant-but-plain-looking words in their analysis of the ST before translating. While formal stylistic features such as those mentioned by the translators are usually easily identified, words that are important for style are likely to be subtle and dispersed throughout the text and therefore may be overlooked with the naked eyes. As shown by Čermáková and Fárová (2010), translators may not always be aware of the key status of some of the words in an ST, therefore missing some of the original meaning or altering the characterization. From a practical perspective, the present study implies that literary translators could be effectively aided by corpus in terms of the analysis of ST style before translating. Corpus techniques like KEYWORD can help reveal ST words or word groups that appear “plain” but are statistically and stylistically significant, disclosing hidden signposts for the translator’s textual endeavor.

This study also shows that both verbs and adverbs can be important indicators of style. Even function words, such as conjunctive adverbs, can take on an evaluative meaning that is important for the narrative style, while certain recurring dynamic verbs, represented by 穿行, are important for representing the deeper literary meaning of the fictional work. As a result, altering the meaning of these words in translation leads to stylistic changes that affect narrative style and characterization. It is also found that the translators used different translation strategies for the static and dynamic verbs. As shown in Table 4, the translators translated the text-centered verbs, which are all static, fairly faithfully, as the equivalent percentage of these verbs is above 55%. This pattern contrasts with the translation of the dynamic verb 穿行, and also differs from both Mastropierro’s (2020) and Ruano’s (2017) findings. In their respective studies on the translation of reporting verbs, they both found that the translations showed a large lexical variety and did not fully preserve the value of the verbs. These studies and the present study took into consideration together, it seems to suggest that literary translators tend to rewrite dynamic verbs to a greater extent than static verbs in their translations. But large scale studies across languages are needed to verify this preliminary point.

The parallel-comparative model proposed in this study proves effective for revealing the translator’s style to some extent. The translators are found to prefer the contracted forms of negation to their two-word counterparts for most auxiliaries and they usually opt for *bit* rather than *little* in constructions such as *a bit*, *bit by bit*, and *a bit of*, endowing the TT with a casual style from time to time. In other words, the model turns out to be useful in filtering out the influence of the ST, which the TT-oriented model would fail, and in singling out some of the translators’ characteristic use of language that distinguishes them from other translators when there is only one TT, in which case the ST-oriented model would not be workable. Nevertheless, it should be noted that these features do not account for a more generalizable description of the translators’ style. They only indicate some aspects of it. This implies that keywords alone cannot bring out the full capacity of this model, and other corpus techniques, such as clusters, should be applied to complement the search for the likely candidates for the translators’ style. Mastropierro’s (2018b) study has shown that key clusters, instead of keywords, can indicate stylistic differences between two TTs of the same ST. The parallel-comparative model can be fruitfully tested with CLUSTERS and other corpus techniques to reach a more integrated representation of the translators’ style, which calls for further research in the future.

Conclusion

This study uses corpus techniques, particularly the KEYWORDS, to examine what are the features of the translators' style and the transfer of the ST style represented in the English translation of *Chang Hen Ge, The Song of Everlasting Sorrow*. The findings are that the translators preferred the contracted negative forms of verbs and the word *bit* to *little*, suggesting that they write in a rather casual style. As for the translational style, the representation of the ST style in the TT tends not to be faithful. As expected, the reader-centered ST keywords were heavily rewritten. Contrary to expectations, the translation of text-centered ST keywords was also unfaithful to a considerable extent. It appears that the translators wanted to reduce the ambiguity, making the TT more explicit. The effects of the rewriting are that the TT readers are left with a more authoritative narrator who gives less room for their interpretation and that the characters in the TT are more in control of themselves, and less susceptible to outside forces. The rewriting thus fails to some degree to represent the author's intention of feminizing Shanghai in the story. Our findings challenge claims voiced in other studies of the novel according to which the translation faithfully reproduces the original, but are consistent with the conclusions made by Wang and Li (2015) and Wang (2018) who state that stylistic and narratological differences exist between the ST and the TT. We argue that stylistic alteration is inevitable for the TT to achieve readability among readers who come from a culture very different from the one which the ST author and readers are from.

Despite the conclusion reached, it is essential to point out that the findings concerning the translators' style are only preliminary. Even though some features of the translators' style have been successfully revealed with the corpus KEYWORDS function, these features only represent part of the spectrum of indicators of the translators' style. Future studies are expected to take into account a wider range of textual features (especially those above word level) that may indicate the translators' style. Another point to be noted is that the register of the texts in the ERC, which covers both popular and serious literature, is not exactly the same as that of the TT, a novel of a serious theme. While we intended to use this reference corpus to reveal the general linguistic norm of the target language in the broad genre of fiction (as justified in section "Materials and methods"), future studies can build a reference corpus with texts of more comparable literariness to that of the TT to see if the results differ. We hope this preliminary research may constitute the first step toward more corpus-based studies on the translators' style using the parallel-comparative model in the future.

Data availability statement

The original contributions presented in this study are included in the article/**Supplementary material**, further inquiries can be directed to the corresponding author.

Author contributions

LM contributed in the literature review, data analysis, and references of the study. FP designed the project and the methodology. Both authors contributed to the "Discussion" section and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1034912/full#supplementary-material>

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A corpus-based study of modal verbs in Chinese–English governmental press conference interpreting

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This study investigates the use of modal verbs in Chinese–English government press conference (GPC) interpretation. Modal verbs mark the speaker's opinion of or attitude toward the event described in a sentence. Interpreters also use modal verbs to indicate the stances of the source language speakers. The use of modal verbs has been examined in such contexts as research papers, textbooks, and second language learners' output; however, studies that compare differences in modal verbs between source and target languages in the context of interpreting are sparse. The investigation being reported is based on a comparable corpus—an original Chinese GPC and its English-translated version—and a parallel corpus—a translated English GPC and the original English version from the US. The results of the comparable corpus analysis indicate that the frequency of modal verbs in translated English is significantly higher than in original Chinese, in which only 40% of the modal verbs in translated English are consistent with their Chinese counterparts, while others are employed through amplification and value variation. The results of the parallel corpus analysis suggest that the increase of modal verbs in the target texts may help to achieve certain types of pragmatic functions in English.

KEYWORDS

corpus-based, modal verbs, modal values, consecutive interpreting, China

Introduction

Modality is the notion of intermediate degrees between positive and negative poles (Halliday, 1994), and it makes up the region of uncertainty that lies between “yes” and “no,” he also classified modalities into modalizations and modulations by the implications of the message. The use of modal verbs is an important way to encode modality. They are used in writing and speaking to express opinions, understanding, purposes, obligations, free will, and other associated notions (Leech, 1987). Modal verbs feature a complex, nonlinear mapping system between form and function due to their diverse semantic meanings (Palmer, 2014), as well as their multiple pragmatic meanings (Sinclair, 1990).

Using a corpus-based approach, this study examines the changes in modal verb frequency and value between source and target languages. It explores possible reasons for these changes from a pragmatic and semantic perspective. Through the analysis of large quantities of real language examples, corpus-based research has identified some previously neglected language structures as a complement to traditional descriptions of language systems. Researchers use large-scale corpora to observe the utilization of modal verbs with a greater degree of validity and reliability. Corpus-based studies of modal verbs tend to focus on the description of second language (L2) learners' use of modal verbs (Westney, 1995; Palmer, 2014) and the distribution of different modal verbs employed in academic texts; however, most of these studies concern only monolingual contexts. Therefore, the question arises as to whether these verbs are used differently in bilingual settings. However, it is unusual for modal verbs to be discussed in connection to translation or interpreting, partly because modal verbs differ semantically and pragmatically from language to language. Very few interpreting studies investigate the value changes of modal verbs from ST to TT.

Since 1985, the National People's Congress (NPC) and the Chinese People's Political Consultative Conference (CPPCC) have been held jointly every March; these are also known as the Two Sessions. With about 2,000 to 3,000 delegates from all over China, the Two Sessions examine and approve the annual Report on the Work of the Government and make national-level political decisions. On the closing day of the NPC and the CPPCC, the sitting Chinese premier usually hosts a press conference beginning with an opening statement before opening the floor to domestic and overseas journalists for a question-and-answer session. To facilitate communication, Chinese-English consecutive interpreting is provided for both the opening statement and question-and-answer session. This gives the media access to firsthand information about the Chinese government's attitudes and stances on important political, diplomatic, and economic issues.

Consecutive interpreting can be studied from either the interactive or textual perspective. Studies, such as those conducted by Cheung (2012a, 2014b, 2017, 2018), Pease et al. (2018), and Li et al. (2022), have investigated how different interactive and textual functions can be achieved by altering linguistic devices between source language and target language during consecutive interpreting (Cheung, 2007). Simultaneous interpreting, on the other hand, tends to be studied in terms of the cognitive aspects (Cheung, 2001, 2008, 2009b, 2012b, 2014a). Chinese officials' statements tend to be heavily scripted. Because English is a *lingua franca* (Cheung, 2022), these Chinese statements often come with carefully crafted versions in English (Cheung, 2019; Song and Cheung, 2019; Ma and Cheung, 2020; Wu et al., 2021). The government press conferences (GPCs) on which this study focuses are no exception, as many non-Chinese-speaking correspondents may rely on prepared English versions delivered live. Studying the differences between Chinese GPCs and their corresponding English interpretations could shed light on whether the Chinese

government may want it to be perceived differently between domestic and foreign audiences, as different features in the interpretation could have different impacts on listeners' perceptions (Cheung, 2003, 2013, 2015, 2020). Using a corpus to study interpreting could illuminate both professional practice and training in interpreting (Setton, 2011).

Literature review and theoretical framework

Modal verbs

Huddleston and Pullum (2002) defined *modality* as the speaker's opinion on whether a particular subject is necessary or possible. A modal verb is an auxiliary verb that implies probability, necessity, inevitability, or inclination. As their name suggests, modal verbs are important for encoding modality. The attributes of modal verbs can be summarized by the acronym NICE, which stands for *negation, inversion, code, and emphatic affirmation* (Huddleston, 1976, 333). Negation means that modal verbs can combine with the word *not*, so that the newly made phrase carries a negative meaning. Inversion means that modal verbs can be put in front of the subject to form an interrogative sentence. Code means that modal verbs can replace predicate verbs in sentences. Emphatic affirmation means that modal verbs can help emphasize a point.

Modal verbs differ from other auxiliary verbs in at least three ways (Palmer, 2014). First, a modal verb has the same form, regardless of whether it follows a singular or plural or a first-person, second-person, or third-person subject. Second, modal verbs do not have an infinitive or gerund form. Third, modal verbs have an exclusive relationship with one another. Thus, one should use only one modal verb at a time.

Broadly speaking, modal verbs include central modal verbs (*can, could, may, might, must, shall, should, will, and would*), marginal modal auxiliary (*dare [to], need [to], ought to, and used to*), and semi-modal verbs (*have to, [had] better, [have] got to, be supposed to, and be going to*; Quirk et al., 1985; Biber et al., 1999). Additionally, Biber et al. (1999) established a relationship between pairs of central modals according to a grammatical value based on the expression of time: *can* and *could*, *may* and *might*, *shall* and *should*, *will* and *would*.

Modal verbs are regarded as the main carriers of modal expression in many languages, including Chinese (Peng, 2007). Chinese scholars have given modal verbs various names, such as auxiliary verbs (Liu, 1960; Zheng, 2001) or modal auxiliary verbs (Tsang, 1981). However, these names and their corresponding definitions fail to capture the full range of modality between the positive and negative poles. This full range of modality is reflected in Zhu (1996) definition of *qingtaidongci* (modal verb) with respect to the semantic and stylistic characteristics of Chinese modality. Therefore, in this paper, *modal verb* also refers to Chinese auxiliaries expressing modality.

TABLE 1 Value classification of English modal verbs.

Value	1	2	3	4
Modal verbs	Can, could, may, might	Would	Shall, should, will	Must

Classification and value of modal verbs

The semantics of modal verbs has been the focus of much corpus-based research over the past decade. There are three major ways to classify modal verbs. The bipartite classification (Lyons, 1977) into epistemic and deontic modality seems to be the earliest one. Palmer (2014) further developed the bipartite model into a tripartite classification that includes deontic, dynamic, and epistemic modality. Biber et al. (1999) and Quirk et al. (1985) distinguish between intrinsic and extrinsic modality.

Among all three modal verb classifications, Palmer's is the simplest to operationalize since it considers both semantic meaning and pragmatic functions. Thus, this paper will adapt Palmer's classification of modal verbs into three categories: epistemic, deontic, and dynamic.

Epistemic modal verbs are used to express how certain the speaker is about a statement. For example, "what she stated *can/might/should/will/may/must* be wrong." Deontic modal verbs are used to express how much responsibility the subject assigns to the object. For example, "you *should* get the work done by tomorrow" or "I *must* submit the paper on time." Dynamic modal verbs can be used to express the ability or willingness of the subject. For example, "he *can* take this job" or "I *will* join this team on the project."

As each modality has a certain magnitude and pragmatic orientation (Halliday, 1994), the speaker can alter the pragmatic orientation of the discourse based on the value implied in the modality expression. Thus, the affirmative and negative of one modal verb might have different values. Halliday (1994) believes that the modality of positive modal verbs (modal operators) can be roughly divided into three levels based on their modal intensity: low, medium, and high. In terms of pragmatic orientation, the lower the value of modal verbs, the weaker and more euphemistic these modal verbs are.

Based on Halliday (1994) value classification and Huddleston and Pullum (2002) semantic analysis of modal verbs, modal verbs in this paper are divided into four groups based on their values. There will be "can/may/could/might" for Value 1, "would" for Value 2, "shall/should" for Value 3, and "must" for Value 4 (Table 1).

According to their values, Chinese modal verbs can also be divided into several groups. Xu (2018) identified twenty-four Chinese modal verbs. The formality of GPCs, however, reduces the number of Chinese modal verbs found in the corpus to nineteen. Table 2 shows the categorization of these nineteen Chinese modal verbs according to Li (2018) and Xu (2018), as well as the values of their English counterparts.

TABLE 2 Chinese modal verbs values.

Value	1	2	3	4
Modal verbs	可以keyi, 大概dagai, 能够nenggou, 可能keneng, 也许yexu	希望xiwang, 愿意yuan, 将要jiangyao	要yao, 应该yinggai, 得de, 如果ruguo, 应当yuding, 应该yingdang	必须bixu, 必然biran, 肯定kending, 一定yiding, 势必shibi

Research questions

Studies on modal verbs tend to focus on written rather spoken aspects. Using computer learner corpora, Aijmer (2002) compared the range and frequency of some key modal words between native English and advanced English learners' writing using a 52,000-word corpus. The findings show that L2 writers overused modal verbs, a tendency that may be both developmental and interlingual. Chinese speakers who use English as a foreign language may overuse verbs because Chinese is a verb-heavy language (Pease and Cheung, 2018). While Aijmer's study reports the frequency of different modal verbs in both corpora, it fails to explain why the frequency varies from one modal verb to another. Studies that investigate modal verbs used in oral output tend to use corpora with limited sizes. Park (2019) examined the distribution of modal verbs in a corpus of about 55,000 spoken words and concluded that English learners from Korea produced fewer modal verbs than native speakers, contradicting Aijmer (2002) findings. Römer (2004) conducted a comparative analysis of modal verbs by using spoken British English corpus data and data from English as a foreign language (EFL) textbooks and found discrepancies between authentic English and English textbooks in terms of the use of modal verbs. The modals *will*, *can*, and *must* were overused in the textbooks, while *would*, *could*, *should*, and *might* were underused.

Frequently regarded as a challenging grammatical structure in English (Palmer, 2014), modal verbs pose one of the greatest challenges for EFL learners (Saeed, 2009; Bensaid, 2016; Cournane and Pérez-Leroux, 2020). The misuse of modal verbs by EFL learners could result in unintended pragmatic consequences in cross-language communication contexts (Hyland and Milton, 1997). Markkanen and Schroder (1997) stressed the importance for EFL learners to become familiar with the use of modal verbs to avoid potential misunderstanding. Therefore, observing EFL speakers, including interpreters, is imperative for shedding light on the link between use of modal verbs in EFL and effective cross-cultural communication.

Most corpus-based investigations of modal verbs are found in the translation literature instead of interpreting. Kranich's (2009) study of the translation of scientific texts from English to German revealed that translators tend to use higher-value epistemic modals by using a relatively large corpus of over 500,000 tokens; however, it only examined popular scientific texts. Zhao and Liang (2013) compared the English-Chinese translation of the epistemic verbs *may* and *might* between literary and non-literary texts, thus

expanding the scope of study to literary translation. Wu (2019) explored the differences between four Chinese translations of Shakespeare's *Measure for Measure* in terms of *can*, *may*, *must*, *shall*, and *will*. Pei and Li (2018) investigated the distribution of the semantic meanings and values of more than ten Chinese and English modal verbs in thirty-three Chinese civil-commercial legislative instruments and their English translations.

There are few studies on the interpreting of modal verbs. Warchał and Łyda (2009) were the first to study modal verbs in interpreting and collected eighteen student interpreters' Polish-English and English-Polish consecutive interpretations and examined their transfer of epistemic modal markers. However, with a "translation failure" of about 21% (Polish-English) to 26% (English-Polish), it seems that this research's primary focus was on L2 learners' utilization of modal verbs and thus will not provide any insights into the interpreting of modal verbs.

Chinese scholars (Li and Hu, 2013; Li, 2018; Fu and Chen, 2019) have used the GPC corpus to study the shift of modal verbs identified in English interpretation. Their findings suggest that such a shift could be attributed to the need to follow the conventions in the target language. However, none of these studies explored the modal verb distribution in both the ST (source text) and TT (target text), nor did they address the difference in values between modal verbs within the comparable pair. This fails to help us to understand how modal verbs are interpreted in the GPCs. Most of the research has focused on the utilization of modal verbs of strong value and the function of low-value modal verbs in interpretation has been neglected. As one of the most important and difficult grammatical systems in English (Palmer, 2014), modal verbs indicate proficiency in English (Thomas, 1994; Römer, 2004).

This study addresses this research gap by examining the distribution and value of modal verbs in both the ST and TT for a more accurate description of Chinese-English interpreting in terms of modality. Drawing on a self-built corpus of GPC interpreting, this article attempts to conduct a comprehensive intertextual analysis and seeks possible explanations behind the statistics. To this end, this study attempts to answer the following two questions:

1. What are the emergence frequencies of modal verbs with different values in the comparable corpus?
2. What are the interpreting methods for modal verbs, and how they are distributed?

Corpus and procedures

The corpus is comprised of twenty press conference sessions recorded during the Two Sessions of the National People's Congress and the Chinese People's Political Consultative Conference from 2003 to 2022 and delivered by two premiers of China, as well as five interpreters. The corpus consists of 309,737

TABLE 3 Comparison of the total of modal verbs in ST and TT.

Corpora	Tokens	Modal verbs	Percentage
Chinese ST	180,777	1,768	0.98
English TT	128,960	2,658	2.06

tokens in total (128,960 in English and 180,777 in Chinese), and a total recording length of 2,541 min. Additionally, to understand if the use of modal verbs by interpreters was similar to that of native English speakers, we compared the figure in GPC interpretation with the original English GPC corpus created by Li and Hu (2013), which contains 223,728 tokens derived from thirty press conferences held between 1989 and 2011. According to Quirk et al. (1985), Biber et al. (1999), Mindt (2000), and Facchinetti et al. (2003), the central modal verbs (*can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*) are the most typical and frequently used. These modal verbs will be discussed in this study, with an emphasis on their affirmative versions.

The frequency of modal verbs (nineteen in Chinese and nine in English) in the ST and TT in the corpus will first be reported. Then, the analysis characteristics of the use of modal verbs in Chinese-English interpreting of GPCs by comparing the frequency and value of Chinese modal verbs in the ST and their English counterparts in the TT will be presented. Finally, the Chinese into English interpretation of modal verbs will be categorized and analyzed.

Analysis and results

Distribution of modal verbs in ST and TT

Table 3 shows that the proportion of modal verbs in English interpretation is higher than that in Chinese STs. The English corpora contain more modal verb use than the Chinese corpora. Due to its paratactic nature, Chinese uses covert coherence to illustrate grammatical relationships in loosely structured, short, and simple sentences (Cheung, 2009a). In contrast, the English language emphasizes the logic and completeness of sentence structures by using modifiers. Thus, when interpreting Chinese into English, interpreters may have to make explicit in the English target language what is implicit in the Chinese source language (Cheung, 2007; Cheung, 2009a,b, 2016). This could account for the differences in the number of modal verbs between the Chinese and English corpora.

Table 4 shows that the most frequently used Chinese modal verb is “要,” which has the approximate meaning of “should” in English. The second most frequent is “想,” meaning “will” in English.

Adopting from the typology of modality in Halliday (1994) and the scale of modal orientation in Li (2018), all modal verbs were assigned a numerical value from 1 to 4. Table 4 shows that the two most frequently used modal verbs in the Chinese are Value 3, accounting for 55.7% of all modal verbs. A total of 9% of

TABLE 4 Distribution of Chinese modal verbs.

Chinese modal verb	Number	Percentage	Value
也许 yexu	3	0.17	1
大概 dagai	11	0.62	1
可能 keneng	108	6.11	1
能够 nenggou	137	7.75	1
可以 keyi	179	10.12	1
将要 jiangyao	3	0.17	2
希望 xiwang	78	4.41	2
愿 yuan	105	5.94	2
应当 yingdang	16	0.90	3
得 dei	115	6.50	3
如果 ruguo	122	6.90	3
应该 yinggai	124	7.01	3
想 xiang	200	11.31	3
要 yao	408	23.08	3
肯定 kending	3	0.17	4
势必 shibi	4	0.23	4
必然 biran	7	0.40	4
一定 yiding	57	3.22	4
必须 bixu	88	4.98	4
Total	1768	100	N.A

TABLE 5 Frequency of each English modal verb in TTs.

English modal verb	Number	Percentage	Value
might	14	0.53	1
could	61	2.29	1
may	124	4.67	1
can	337	12.68	1
would	266	10.01	2
shall	5	0.19	3
should	265	9.97	3
will	1,320	49.66	3
must	266	10.01	4
ALL	2,658	100	N.A

modal verbs are found to be Value 4, which is the lowest of all four types. According to Perkins (1983), there are only sixteen modal verbs in English, while there are twenty-four in Chinese (Xu, 2018). Chinese speakers have more choices of modal verbs than English speakers, and this fact has an important effect on our corpora. The distribution of Chinese modal verbs is not as centralized as English. The figure may be indicative of the preference for more formal language in press conferences on the part of the Chinese premiers, as well as attempts at avoiding ambiguity and conveying toughness.

A total of 2,658 English modal verbs were identified from this corpus of 128,960 words, of which the “will” and “shall” verbs were manually differentiated into modal verbs and auxiliary verbs. Table 5 shows that the most frequently used modal verb is “will,”

appearing 1,320 times among 128,960 tokens and making up nearly half of the modal verbs in the interpretation. The proportion of English modal verbs in the TT with the value of 3 increases, while the proportion of modal verbs with the value of 4 decreases, when compared to Chinese modal verbs in the ST. The modal verbs used most frequently after “will” are “can,” “would,” “must,” and “should.” Table 5 shows the frequency of each modal verb in English.

Comparison of modal verbs in the English interpretation and original English GPC corpora

Table 6 shows the similarities and differences between how often modal verbs are used in English-interpreted Chinese GPCs compared to the native-English ones. Frequency in Table 6 refers to the how often a modal verb is used per thousand words of the entire corpus, while percentage refers to how frequently each modal verb is used per hundred modal verbs. A list of the modal verbs investigated by Li and Hu (2013, 28) appears in the Original English GPC column.

Table 6 shows that the overall frequency of modal verbs in English interpretation is 20.06‰, which is 16% higher than the English-speaking GPCs. However, the difference between the usages of each modal verb is even more noticeable.

On the one hand, in interpretation, low-value modal verbs are used less frequently. Modal verbs such as “can,” “could,” and “might” are rarer in the interpretation than in English-speaking GPCs. As Table 6 shows, “could” shows up only 0.47 times every 1,000 words in interpretations of Chinese GPCs, while it shows up much more regularly in English GPCs. This difference is also true of the usage of “might.” However, “may” is an exception to this rule. Although “may” is low-value, it is more frequently used in Chinese GPCs (0.96 times per 1,000 words) than in English-speaking ones (0.47 times per 1,000 words).

On the other hand, modal verbs of a medium or higher value are used much more frequently in the interpretation of Chinese GPCs than in English-speaking ones. As Table 6 shows, “must,” “shall,” and “should” are used more often in interpretation. The results show that the word “should” appears in English translations of Chinese GPCs nearly twice as often as it appears in English press conferences. In the former case, it occurs 2.05 times for every 1,000 words, while for the latter, it appears 1.1 times for every 1,000 words. The biggest gap in the usage of high-value modal verbs is “must.” The data show that “must” appears in the interpretation 2.06 times for every 1,000 words spoken, five times that of the English-speaking GPCs, suggesting that modality value tends to be intensified when interpreting from Chinese into English.

Table 7 shows the differences in the average of modal values among the corpora.

Table 7 shows that the TT has the highest (2.60) average modal value, followed by ST (2.49), while Original English

TABLE 6 Comparison of modal verbs in bilingual/English-speaking press conferences.

Modal verb	Interpreted English			Original English GPC		
	Counts	Frequency*	Value	Counts	Frequency*	Value
can	337	2.61‰	1	712	3.18‰	1
could	61	0.47‰	1	236	1.05‰	1
may	124	0.96‰	1	106	0.47‰	1
might	14	0.11‰	1	125	0.56‰	1
would	266	2.06‰	2	925	4.13‰	2
shall	5	0.04‰	3	2	0.01‰	3
should	265	2.05‰	3	246	1.1‰	3
will	1,320	10.24‰	3	1,416	6.33‰	3
must	266	2.06‰	4	84	0.38‰	4
Total	2,658	20.06‰	N.A	3,852	17.22‰	N.A

*Every thousand words.

TABLE 7 Average value of modal values.

	ST	TT	Original English GPC
Average modal values	2.49	2.60	2.17

GPC has the lowest (2.17) among the three. The difference between the TT and ST is 0.11. However, the difference between the TT and the Original English GPC is 0.43, or 19.382%. This difference seems to contradict the claim that the need to comply with the conventions of the target language leads to shifts in modal value when interpreting from Chinese into English (Li and Hu, 2013; Li, 2018; Fu and Chen, 2019). A negligible difference in the average of modal value between TT and Original English GPC may support that claim. However, a nearly 20% difference in average modal values between the TT and Original English GPC implies that there could be other reasons to account for an increase of modal values in TT.

Interpreting modal verbs from Chinese into English

Interpreted modal verbs fall into five categories: deletion, amplification, direct translation, switching between affirmation and negation, and using modal verbs of different values. As Table 8 shows, only 39.69% of the modal verbs in the interpretation are directly derived from the ST without value change, while a similar percentage of modal verbs are additions in the TT that did not have a corresponding modal verb in the ST. Additionally, 20.62% of the modal verbs have their value changed in the process of interpreting, and fewer than 1% of the modal verbs are shifted between affirmative and negation. It is worth mentioning that 141 (7.98%) of the modal verbs used in Chinese are omitted in English.

TABLE 8 Categories of how modal verbs were interpreted into English.

	Counts in ST	Counts in TT	Percentage of TT
Omission	141	0	0%
Amplification	0	1,031	38.79%
Direct translation	1,055	1,055	39.69%
Switch between affirmative and negation	24	24	0.90%
Adjusting modal values	548	548	20.62%
Total	1768	2,658	100%

TABLE 9 Amplification used on each modal verb.

Modal verb	Counts	Amplification	Percentage
will	1,320	480	36.36
can	337	152	45.10
would	266	141	53.01
must	266	56	21.05
should	265	103	38.87
may	124	51	41.13
could	61	33	54.10
might	14	11	78.57
shall	5	4	80.00
ALL	2,658	1,031	38.79

Amplification

Amplification refers to the addition of a modal verb in the interpretation that is not found in the source language. As shown in Table 9, the interpretation contains a total of 2,658 modal verbs, of which 1,031 are the results of amplification, making up 38.79% of all the modal verbs. Table 9 also shows that high-value modal verbs such as “should,” “will,” and “must” take up the smallest

percentage of amplification. Modal verbs that make up the highest proportion are “might” (78.57%), “shall” (80%), and “could” (55.1%).

Two primary reasons may account for the use of amplification. First, when interpreting from Chinese to English, meanings that are implicit in Chinese need to be made explicit so that the interpretation is comprehensible to English speakers; hence, extra words are added (Cheung, 2009a,b), including modal verbs. The following examples illustrate the amplification of modal verbs in the target language.

Example 1a

Premier Wen

葬我于高山之上兮，望我大陆 ... 葬我于高山之上兮，望我故乡。(2003).

GLOSS

Bury me on the highest mountaintop, staring at my mainland.
Bury me on the highest mountaintop, looking afar my hometown.

Interpreter

Bury me on the highest mountaintop, so that I *can* get a sight of my mainland. Bury me on the highest mountaintop, so that I *can* get a glimpse of my hometown.

Example 1b

Premier Wen

诚实守信，责权统一。(2004).

GLOSS

Good faith, trustworthiness, and responsibilities and rights in consistency.

Interpreter

The government *must* also be clean, honest, and honors its commitments. And there *must* be a combination of power and responsibility.

Example 1c

Premier wen

华山再高，顶有过路。(2010).

GLOSS

Although Huashan Mountain is towering, the mountaintop is accessible.

Interpreter

No matter how high the mountain is, one *can* always ascend to its top.

In Example 1 a-c, the Chinese STs with four-character formulaic expressions. All three are null sentences that are

grammatical in Chinese and comprehensible to Chinese speakers. However, the interpreter has to make the implicit subject and modal meaning explicit when interpreting into English so that the interpretation is grammatical and comprehensible in English. The hidden modal meaning in the source language should be amplified in the interpretation because of the differences between the two languages.

Example 2

Premier Li

至于说中日韩自贸区 and RCEP 哪一个先达成，我想那要看我们各方所做的努力了。不管是哪一个协议能够先达成，中方都乐见其成。(2019).

GLOSS

As to the China–Japan–ROK FTA or RCEP, which will be concluded first, I think that depends on how the parties concerned make efforts. And whichever agreement will come first, China welcome that.

Interpreter

As to which one will be concluded first, the China–Japan–ROK FTA or RCEP, I think that depends on efforts made by the parties concerned. And whichever will be concluded first, China would welcome that.

In Example 2, Premier Li stressed that as a strong advocate of free trade, China welcomes both, and there is no priority between the two. The word “would” not only emphasizes the Chinese government’s eagerness to promote China–Japan–ROK FTA and RCEP but also projects China’s inclusive attitude when conducting international affairs.

Example 3

Premier Wen

第二个阶段就是实行工业反哺农业，城市支持农村的方式，对农民多予、少取、放活。(2005).

GLOSS

In the second phase, we make industry nurture agriculture and cities support the countryside. For farmers, we give more, take less, and liberalize the countryside.

Interpreter

In the second phase, we should make industry nurture agriculture and cities support the countryside. We should give more to, take less from, and liberalize the countryside.

Rural development has always been a priority of the Chinese government. In Example 3, Premier Wen talks about how the government would promote reform and development of China’s rural areas, and he uses three two-character modifier-head structures to express his strong determination and concern about the rural areas. Modal verbs serve a variety of pragmatic functions,

TABLE 10 Modal verbs' value change between ST and TT.

Value changes (TT's value-ST's value)	Counts
−3	0
−2	31
−1	231
1	257
2	28
3	0
Total	548

including marking evidentiality, possibility, likelihood, determination, strategic vagueness, and politeness (Markkanen and Schroder, 1997). So in order to achieve a similar pragmatic function in English, the word “should” is added to indicate the premier’s determination and confidence in rural development.

Switch between affirmation and negation

There are twenty-four cases of switching modal verbs between affirmation and negation. Of the twenty-four conversions, twenty-one are changed from negative in Chinese to positive in English, probably to follow language conventions in English, as in the following example.

Example 4

Premier Wen

中国的主权和领土完整不容分割。(2006).

GLOSS

China’s sovereignty and territorial integrity brook no division.

Interpreter

China’s sovereignty and territorial integrity should always be intact.

This is Premier Wen’s reply to a question about the cross-strait relationship. Example 4 shows how the meanings of the source language are presented by using very different wordings in the target language. In this case, instead of saying what should not happen, the idea is formulated in a positive way—that is, what *should* happen.

Adjusting modal values

Modal value also correlates with levels of politeness (Leech, 1987). Analyzing the difference, if any, between the ST and TT modal values may reveal the level of certainty between the two languages. Analyzing the changes in the value of each modal verb between the ST and TT may provide insights into the handling of modal verbs in settings characterized by

cross-cultural and cross-linguistic communication. As Table 10 shows, 548 modal verbs in the TT experienced value changes in comparison to their Chinese counterparts. Of those, 285 are rendered into higher-value modal verbs in the TT, and 262 into lower-value ones. The value difference was calculated by comparing the value in the interpretation to the value in the original text. For example, if the value in the TT is 3, and the value in the ST is 1, the difference in value is 2. The value deviation of modal verbs from the ST to the TT was within the range of −2 to 2. There are no instances where the differences are either 3 or −3, suggesting that there are no cases in which there is an extreme difference in the modal value of the ST and TT. Table 10 shows that in most of the value changes, the value variation between the ST and TT is only 1.

Example 5

Premier Li

这几年的实践可以证明，中国经济“硬着陆”论可以休矣。(2017).

GLOSS

The past few years’ economic performance demonstrate that the predictions of China’s “hard landing” should be put to an end.

Interpreter

I hope this will put an end to any more predictions of a hard landing.

High-value modal verbs could be used to express strong attitudes. In Example 5, to illustrate the premier’s firm objection to the narrative of China’s looming economic hard landing, the value of the modal verb is adjusted from 1 in the ST to 3 in the TT. As such, the attitude in English is stronger than that in Chinese, with a difference of 2.

Example 6

Premier Wen

同时，我也必须说明，这是我们主动调控的结果。(2012).

GLOSS

At the same time, I must say that this is exactly what our proactive regulations have delivered.

Interpreter

At the same time, I would like to say that the economic slowdown in China is mainly the result of our proactive macro control.

Premier Wen is responding to a question on the slowdown of China’s economic growth in Example 6. In the source language, the modal verb “必须,” which means “must” in English, has a modal value of 4, indicating a very strong stance and sentiment. However, the word “would,” with a modal value of 3, was used in

English, potentially projecting a softer and gentler image of China in English than in Chinese.

Example 7

Premier Wen

经济发展快了也不行，经济生活长期处于紧张阶段，难以为继。(2005).

GLOSS

Yet too fast economic growth rate will not work either because the economy life will face long-term stretch-out in an unsustainable situation.

Interpreter

Yet too fast economic growth rate will not do either because it may make the economy to stretched out for a long time in an unsustainable situation.

In Example 7, when responding to a question about the speed of economic growth, Premier Wen concentrates on the possible dangers of hasty economic development. Instead of using the Value 3 modal verb “will,” which has an equivalent modal value in English, the word “may,” which is a Value 1 modal verb, is used to increase the level of uncertainty in the prediction.

Omission

Omission means no trace of the ST modal verb is found in the TT. Results show that 7.98% of the modal verbs in the ST were omitted. Chinese–English interpreting usually uses omission to eliminate redundant words to be idiomatic in English, as the following example shows.

Example 8

Premier Li

而且在此基础上，由政府 and 居民共担，购买大病保险，建立了大病保险的机制，这是可以缓解大病患者特别是困难群众负担的一个重要举措。(2019).

GLOSS

Moreover, on this basis, the government and residents jointly take the risk, purchase serious illness insurance, and establish a mechanism of serious illness insurance, this is an important measure that could alleviate the burden of patients with serious illness, especially the people with difficulties.

Interpreter

In addition, we have established the scheme for serious illness insurance with a cost-sharing formula between the government and individuals, an important measure to mitigate the burdens on patients with serious illnesses, especially needy patients.

In Example 8, Premier Li introduces a policy the Chinese government has taken to reduce patients’ financial burdens, but

when he describes the purpose of this policy, he uses the modal verb “可以,” which has a low value of 1. The statement may be perceived as uncertain and less convincing with the presence of this low-value modal. Thus, the interpreter omits the “可以” included in the ST and places “重要举措” (important measure) at the beginning of the clause to signal the Chinese government’s commitment to improving social welfare.

Conclusion

The study analyzed the frequency and features of modal verbs and how they are interpreted from Chinese into English in corpora with twenty GPCs from the Two Sessions. The findings only partly support the claim that the need to follow target language conventions leads to shifts in modal value during the process of interpreting Chinese into English (Li and Hu, 2013; Li, 2018; Fu and Chen, 2019). The difference in the average modal values between the original English corpus and the interpretation corpus suggests that other factors may also contribute to these shifts. One such factor may be varying signals between domestic and overseas listeners. The differences in modal values between the ST and TT indicate that the value shifts may be attributed to the need to convey semantic and pragmatic functions in the target language. The current study also categorized the different interpreted modal verbs, an area that has not been extensively studied, and found that only 40% of the modal verbs were rendered literally in the TT. Quite a few modal verbs in the TT were amplified, partly because of the need to make what is implicit in the ST explicit in the TT. Some modal verbs were omitted in the TT, but the intended pragmatic functions of these omitted modal verbs were retained by sentence restructuring in the TT. Other approaches, such as using euphemism and adverbs in the TT, may have similar functions but will be explored in the future.

At least two factors limit the generalizability of this study. First, all interpreters are not native English speakers and might have used modal verbs unidiomatically, despite being highly proficient in English. Second, the setting of the Two Sessions is formal and heavily scripted; data from settings that are less formal and unscripted may yield different results. Future studies should investigate the use of modal verbs in diverse settings and test related hypothesis with inferential statistics.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

YZ performed data analysis and wrote the first draft of the manuscript. AC contributed to data-coding and interpretation of

results. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1065077/full#supplementary-material>

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Acquisition of L2 English spatial deixes by Arabic-speaking children

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Deictic words are considered the earliest words which children acquire at the stage of two-word-utterance. However, mastering them like adults may take more time. This paper investigates how L2 children comprehend and produce English spatial deixis 'here', 'there', 'this', and 'that' by observing and documenting their responses and reactions in hide-and-seek game. It also aims to find out the children's obstacles in acquiring these words, such as proximity bias and egocentrism. The subjects are Arabic children of ages four, five, and six who acquire English as a second language in international schools in Riyadh, Saudi Arabia. They performed two types of tasks: comprehension task and production task. Both tasks contained two trials: same perspective and the different perspective. Based on the results, children did better in comprehending the spatial deixis than in producing them. Moreover, the results showed that there was no proximity bias happened with children in this study. In addition, the results of the two trials in both tasks illustrated that changing the deictic center improves with age. Although the study provides some significant results, there should be an increase in the number of the samples in order to make the results generalized.

KEYWORDS

spatial deixis, English, second language acquisition, children, Arabic

Introduction

One of the main things which makes participants communicate effectively is to share the knowledge of what they have been talking about. According to Zhao (2007), deictic words are considered the most useful tool which reflect the relationship between language and context. They are used to refer to a location in which objects are in a specific context (Cutting, 2005). Thus, in all languages, the utterance is linked with its context. In the early stages of development, children start communicating and interacting with their caretakers about locations (*here/there*) and objects (*this/that*) around them. The reason of this study's concentration on deictic words, especially spatial deixis, is that they are challenging our ability to learn/acquire a language.

There are many conducted studies about the first language acquisition of spatial deixis in many different languages. The acquisition of spatial deixis (demonstratives) has become a new subject again in some recent works (for a review see Zhao, 2007; Krasnoshchekova,

2012; Muşlu, 2015; Gonzalez Pena, 2020). Based on our readings, there is a small number of studies which have been conducted about the acquisition of spatial deixis as a second language. Although most of the studies were conducted on children's acquisition of deictic words as a first language, this study tries to focus on the L2 children's comprehension and production of English spatial deixis. The present study helps us to understand the development of children's acquisition of spatial deixis. The deictic words which we will focus on in the current study are *here*, *there* and *this*/*that*.

This paper poses the following questions: Is there any age effect on children's comprehension and production of acquiring English demonstratives and locative adverbs as a second language? Do children take the speaker as a point of reference? Do children first acquire the proximal deixes '*this*/*here*' or the distal ones '*that*/*there*'? Which deictic pair '*this*/*that*' or '*here*/*there*' do children acquire first? In order to answer the previous questions, the overall structure of the study is divided into six parts. The first part provided a general introduction of the study topic followed by the research significant and the research objectives. The second part begins with an overview of the main theories of first and second language acquisition, and a general introduction about the differences between Arabic and English demonstratives. Then, the same part reviews some previous studies about children's acquisition of spatial deixis in different languages, and it mentions some of their main issues. The third part presents the research questions which led to the conduct of this study. The fourth part discusses the method used in this study. The study's findings are presented in the fifth part. Finally, the last part gives a conclusion with the study's limitations.

Research significance

The present study will be valuable to those who teach and acquire English in Arab countries in addition to those who will conduct studies about the acquisition of English spatial deixis. It is also important for parents whose children acquire English as a second language as well. The current research provides information about how children acquire the spatial deixis from age four till six. In the research field, researchers tend to figure out the children's obstacles in acquiring those spatial deixes. This paper proves that children have some characteristics which may affect their acquisition of languages, especially deixis words.

Research objectives

The major objectives of the present study are as follows:

1. To find out the children's obstacles in acquiring English spatial deixes.
2. To find out the developmental stages in acquiring the spatial deixes.

Literature review

Demonstratives structure in Arabic and English

At the early stages, infants start interacting with their parents and caregivers about objects and locations in space. As an outcome, they are engaging in deictic communication (Gonzalez Pena, 2020). According to the frequency counts in lexical databases, such as Celex, Lexique and Subtlex, demonstratives are amongst the most highly used lexical items in many languages (Peeters et al., 2021). The number of demonstratives in each language is a remarkable cross-linguistic diversity. In English, demonstratives are classified as 'proximal' (*this* and *here*) and 'distal' (*that* and *there*) forms. Some languages divided demonstratives into three types, such as Spanish and Japanese. Quileute, Somali, Malagasy and Navajo are languages which divided demonstratives in more than three types (Diessel, 1999, 2013; cited in Peeters et al., 2021). In all languages, demonstratives play a crucial role in any discourse. For example, speakers use demonstratives to refer to either the objects in the context (exophoric use) or things which represented textually (endophoric use or cataphoric use; Zaki, 2007). Because all the study's participants are Arabs who acquire English as a second language, it is important to mention the main differences between the structure of demonstratives in Arabic and English. The following paragraphs will illustrate types of demonstratives in English and standard Arabic.

In English, '*this*', '*that*', '*these*' and '*those*' are demonstratives, whereas '*there*' and '*here*' are the locative adverbs. The demonstratives '*this*' and '*that*' can be used as pronouns (e.g., '*what is that?*'), or determiners (e.g., '*that book on the right*'; Rabadi, 2016; Gonzalez Pena, 2020). Demonstrative pronouns and demonstrative adjectives are similar, but they are different in sentence/phrase structure. Table 1 shows that the former is used as a pronoun with a demonstrative meaning, while the latter is used as a determiner which followed by a noun (Rabadi, 2016). In other words, the main difference is that the demonstrative pronoun takes the place of the noun phrase, while the demonstrative adjective (often called determiner) comes before a noun. The demonstrative pronouns/adjectives can be used to indicate objects which are far or near from the speaker (*this*, *that*, *these*, *those*; Musa, 2017).

Demonstratives in Arabic are more complicated than in English (Gonzalez Pena, 2020). In Standard Arabic, the

TABLE 1 The difference between demonstrative pronouns and demonstrative adjectives (Rabadi, 2016).

Demonstrative Pronouns	Demonstratives followed by N
This is a red dress.	This dress is red.
That is a tamed lion.	That lion is tamed.
These are intelligent boys.	Those boys are intelligent.
Those are beautiful roses.	Those roses are beautiful.

'here' refers to a place near the speaker while 'there' refers to a place farther away. The second factor is that each pair of deictic words contrasts in the distance dimensions; for example, 'here' and 'this' are proximal while 'there' and 'that' are non-proximal (Clark and Sengul, 1977). According to Zhao (2007), the acquisition of demonstratives is considered a gradual process. All children around the world do not acquire them all at once.

There are many conducted studies about the acquisition of deictic words whether in the first or second language. The acquisition of deixis has been a subject of some recent studies (Zhao, 2007; Krasnoshchekova, 2012; Muşlu, 2015; Gonzalez Pena, 2020). There are several issues which have been discussed regarding the acquisition of deictic words. First, it has been argued that deictic words are among those words that are acquired first. Second, some researchers discussed the main reasons of children's errors in their studies which lay back to their bias toward choosing objects near them. Third, some researchers conducted studies to see whether cues and gestures affect the children's performance about deictic words. Fourth, there was also a point which has been discussed about the children's recognition of deictic contrasts. Fifth, some studies tested children to see the most difficult deictic pair to acquire. Each issue will be discussed in depth in the following paragraphs.

There was a claim which stated that demonstrative words are among the earliest words which children acquire. Caselli et al. (1995) described in their study the language acquisition of English and Italian through parental report with the MacArthur-Bates Communicative Development Inventory (CDI) on more than 800 children. The results showed that the demonstratives did not appear with the first 50 words which children acquired in both languages. Similarly, González-Peña et al. (2020) conducted a study and re-evaluated this claim. The results of the spontaneous speech transcripts and parental report data showed that demonstratives are not the most frequent of early verbal deixis. In other words, they did not appear before the 50th word which children acquired. They are more frequent at the stage of two-word-utterance. Many researchers also faced the problem of children's proximity bias in their studies. In the experiment of Clark and Sengul (1977), they put two toys within reach of the children in order to avoid bias. They were 30 and 40 away from the children. In addition, there is an egocentrism hypothesis which stated that children who are under the age of six have some difficulties in shifting the deictic center when they and the experimenter have different perspectives. According to many results, the children's performance in the different perspectives was worse than in the same perspective. They never see things from anybody else's point of view except their own (Zhao, 2007; Muşlu, 2015). According to Zhao (2007), all children think in an egocentric way. Thus, egocentrism is probably a universal phenomenon which affects the acquisition of a language in children.

There are some devices in every language, such as linguistic deictic terms and extralinguistic devices, which are used to convey deictic aspects of communication. Linguistic deictic terms are like

the pronouns of the participants in the discourse, their locations, and the time when the utterance is occurred. On the other hand, extralinguistic devices are like the gestures and the facial expressions which are used by the participants (Tfouni and Klatzky, 1983). According to many studies of spontaneous speech, it is natural that children at a very early-stage point to things by using nonlinguistic cues, such as gestures or eye-gaze. Later, they use deictic words along with their gestures (Clark and Sengul, 1977; Zhao, 2007). There are many different researchers who have discussed the effect of gestures and cues on children's performance. The two following paragraphs will discuss some of them.

Tfouni and Klatzky (1983) conducted a study which aimed to test the children's comprehension of the spatial deixis in two different conditions: hearer-addressee and hearer-spectator. The population consisted of 18 children who were divided into two groups: the pragmatic group and the semantic group. The procedure which they used is similar to Clark and Sengul (1977). With the pragmatic group, the experimenter was pointing by using gestures to disambiguate the meaning of the spatial deixis. On the other hand, there were no gestures used with the semantic group. According to the findings of the study, there is a distinction between the children's comprehension of the linguistic knowledge and the pragmatic knowledge. The pragmatic knowledge of place and space is acquired first, followed by linguistic knowledge. The use of pointing gestures (pragmatic) with the deictic words (semantic) facilitates the comprehension of the utterance in which the words appeared. In addition, children in their study found that when the deictic words were used without gestures, they were difficult to comprehend. They concluded the paper by mentioning the importance of pointing in children's comprehension because the lexical words which are used to indicate the deictic meaning have only a partial meaning.

The use of cues has also an impact on the children's ability to understand the demonstratives. Muşlu (2015) conducted a study which aims to provide information about the development of children's comprehension of demonstrative pronouns in their first language (Turkish). Moreover, the researcher tried to find out whether there is an age effect on the children's comprehension or not. She also used toys with 12 children ages 3–5. In her study, the children should make a choice between two toys based on the experimenter's testing sentences. When the testing sentence was with non-linguistic cue, she looked at the child directly without any cues. On the other hand, when the testing sentence was with a linguistic cue, she said the sentence by giving an eye gaze to the objects. The findings of the study revealed that the use of physical cues had an impact on children's ability to perform correctly. However, the results are varied without any physical cues.

Spatial deixis, such as demonstratives and locative adverbs, show pair contrasts (Fillmore, 1975). Children at the early ages do not recognize the deixis contrasts. Clark and Sengul (1977) conducted a study in which the first experiment aimed to see how children interpret and deal with deictic contrasts. The experimenter set a game where a child decides which toy should he/she move. According to the results of their experiment,

children went through three stages in acquiring deictic contrasts. In the first stage, children acquired deixis without any contrast. At this stage, they did not know that the point of reference is the speaker, and the deictic terms contrast on a proximal/non-proximal dimension. Both of the speaker principle and the distal principle were not mastered by the children. In the second stage, they mastered them with partial contrast. In the last stage, they acquired deixis with full contrast equivalent. According to their findings, children acquired the locative pair '*here*' and '*there*' before they acquired the demonstratives '*this*' and '*that*'. In short, children improve as they grow older.

In addition, many researches were conducted to see whether the proximal words '*that/there*' or the distal words '*this/here*' are hard to acquire and comprehend. It has been predicted by Clark and Sengul's (1977) that '*this*' and '*here*' are easier to acquire and comprehend than '*that*' and '*there*'. This is because the first pair is proximal to a speaker, and the shift of reference is less than the second pair. The results of the second experiment showed that children did well with '*here/this*' when they were sitting beside the experimenter. However, when they were sitting opposite each other, they did well with '*there*' and '*that*'. On the contrary, Tfouni and Klatzky (1983) gave the reason why '*that*' and '*there*' might be easier than '*this*' and '*here*'. This is due to the fact that they are used in many different applications other than '*this*' and '*here*'. For example, they can be used as a relative pronoun, a subordinating conjunction, and they appear in existential constructions. In addition, they can be used in a deictic sense or in an anaphoric sense.

Krasnoshchekova (2012) focused in her study on how Russian-speaking children acquire the system of demonstratives. Her study aims to show the process of building up the demonstrative system of Russian-speaking children like adult. The study used longitudinal observations of children's speech in addition to parental diaries, audio and video recordings. There were 14 monolingual children (7 boys and 7 girls) who were aged 1–4. Their speech was recorded by their parents once a month. The results showed that the first demonstrative pair which produced based on the data is the locative adverbs '*there/here*' in the age of 1,3 and 1,4; for example, 'Dania there Dania' which means 'Dania! There is Dania!'. To be more precise, the demonstrative '*here*' appeared immediately after '*there*'. Later, children started to use the pronoun '*this*'. After that, they produced '*that*' which is paired with '*this*' at the ages of 2,5 and 2,6.

The study of Webb and Abrahamson (1976) tested the children's comprehension of the deictic pair '*this/that*' through comprehension and production tasks. The sample contains 60 children of ages 4 and 7. They were divided into two groups based on their age. Each group was made up of 15 children of both genders. In the comprehension task, children were instructed to choose one of two toys based on the speaker's instructions. The children and the experimenter first sat next to each other, then opposite to each other. In this task, there were two expectations. The first prediction which was confirmed is that children were expected to learn the spatial deictic words, and subsequently learn

to use them from the experimenter's perspective. The second prediction is that children can perform well with the deictic word '*that*'. However, the latter prediction was not confirmed when the experimenter and the children were sitting next to each other. In the production task, the experimenter replaced the toys with two different candies. She covered them by using paper cups to not distract the children's attention from choosing a specific one. Then she asked a child, "Which candy do you want?" If the child did not either utter the word or point to it, the experimenter asked the child again, stating, "Point to the candy you want and say either '*this one*' or '*that one*'." The result showed that children who are four-years-old have a bias toward objects near them, while seven-year-old children preferred to choose objects which are far away from them. Furthermore, two out of 60 children violated the restriction that '*this*' could only refer to a nearby object. In terms of egocentrism, three-year-old children did not have a consistent linguistic reference point, while the seven-year-old children relied on themselves or the speaker as a point of reference.

Zhao (2007) conducted a study which aimed to investigate the children's comprehension and production of demonstrative pronouns '*this*' and '*that*' in Mandarin Chinese. In addition, the study also attempted to show how children acquire the proximal and distal demonstratives. Eight nursery children, ages 3–6, who are monolingual Mandarin Chinese speakers took part in the study. They were used to test their developmental stages and age differences in their use of demonstrative pronouns. The egocentrism hypothesis of Piaget and the marking hypothesis of Clark were both tested in the study. The researcher used two trials in her study (same and different perspectives). She put two identical cartoon boxes on a table; one with candies and the other with cookies. Children were asked to choose one of these boxes in each trial. The study's findings backed up the former hypothesis. It has been discovered that children under the age of six were unable to alter the deictic center when they and the experimenter had a different perspective. For the latter hypothesis, the results showed that children performed better with the marked '*this*' than with the unmarked '*that*'. This study showed some inconsistent results because of the use of candies and cookies which distracted the children's attention to the experimenter's instructions. This happened with group 2 where a child chose her favorite snack instead of the requirement set by the experimenter. On the comprehension and production tasks, the results revealed that children did better with the proximal word than with the distal one. Both results contradicted Clark's hypothesis which stated that children acquire the deictic word '*that*' before '*this*'.

Similarly, the study of De Villiers and De Villiers (1974) used a procedure to test the children's comprehension and production of some of the contrastive deixes, such as '*this/that*' and '*here/there*'. The sample was 39 children whose ages ranged from 2.5 to 4.5. In order to create a comprehension and a production task, the researchers divided a table into two parts with a cup on each side. Regarding the comprehension task, the experimenter put an M&M under one of the cups and then asked a child to take it; for example, "The M&M is over here/there." In the production task,

the experimenter was blindfolded. He asked another participant to hide the M&M inside one of the cups. Then, he asked the child to tell him where the M&M is. The first task is done when the experimenter faced the child while the second task is done in two different ways: they were opposite and next each other. The results of the study showed some of children's proximity bias. Unlike most of the studies, this study showed that 3 or 4-year-old children have the ability to take a speaker as a point of reference for the demonstratives 'this', 'that', 'here' and 'there' in both tasks. This result is against the evidence which stated that preschool children are egocentric in their point of view.

Research questions

Q1. Is there any age effect on children's comprehension and production of acquiring English demonstratives and locative adverbs as a second language?

Q2. Do children take the speaker as a point of reference?

Q3. Do children first acquire the proximal deixis 'this\here' or the distal ones 'that\there'?

Q4. Which deictic pair 'this\that' or 'here\there' do children acquire first?

Materials and methods

Subjects

The total number of children who were involved in the study is 30. They are bilingual Arabic children who acquire English as a second language. They were divided into three groups based on their ages who are from 4 to 6 years old. Each group contains 10 children of both genders and they were chosen randomly. The children are from different Arabic nationalities, such as Saudi, Syrian, Sudanese, Egyptian, etc. The ages of the participants were chosen based on previous studies. The deictic words appear firstly with children at the age of two and a half (Grant, 1915; Nice, 1915; Rodrigo, 2004 as cited in Zhao, 2007), and they acquire them like adults not until the age of six or seven (Clark and Sengul 1977; Küntay and Özyürek, 2006).

Stimuli

The total number of testing sentences which were used with each child is 16; eight in each task and four in each trial. In the comprehension task, there were eight testing sentences with the use of *this\that* and *here\there*. For example, the experimenter says to a child: "*the toy is here*" or "*the toy is in this cup*." On the other hand, the production task contained four phrases in each trial in order to force children to produce the words instead of using their figures to point or giving an

eye-gaze. For instance, the experimenter says: "*can you tell me where the candy is? Is it here or there? Is it in that cup or this cup?*." The order of the testing sentences was randomized by the experimenter.

Materials

Two identical black paper cups on both sides of a table are used. In the comprehension task, one of the cups contained a small toy and a sticker. On the other hand, one of the cups in the production task contained only a piece of candy. The stickers and the candies were used in order to motivate children to think before they answer. In addition, two different puppets (monkey and frog) are used in order to avoid children from being bored; one is used in the first task while the other is used in the second task. Moreover, there is a use of a recorder in both tasks to make sure about the children's responses in the production and comprehension tasks.

Tasks

In this study, there are two types of tasks: comprehension task and production task. The first task tested the children's comprehension of the words 'this', 'that', 'here', and 'there' in two different trials: same perspective and different perspective. On the other hand, the second task tested the children's production of the same words in two different trials. These two tasks are based on the procedure of De Villiers and De Villiers (1974). In both tasks, there was a table which was divided into two parts to indicate far and near space. There were also two identical black paper cups which were put upside down, and one of them contained a toy and a sticker (in the comprehension task) and a candy (in the production task). The two cups were hand reachable in order to avoid any proximity bias. Unlike the original procedure of De Villiers and De Villiers (1974), the experimenter in this study used a puppet to utter testing sentences in order to avoid any non-linguistic cues, such as eye gaze. It is similar to the studies of Muşlu (2015) and González-Peña et al. (2020) where they used a puppet when they uttered the testing sentences to avoid any non-linguistic cues which may help children to choose the intended object (Figure 1).

Procedure

Unlike the procedures of Webb and Abrahamson (1976), Clark and Sengul (1977) and Zhao (2007), the procedure of this study (hide-and-seek game) is very familiar with children which increased the natural communication between them. The experimenter tested each child individually in a small private room which contained a table and two chairs at the children's school.

Comprehension task

At the beginning of the task, the experimenter played a recorder and told each child that they are going to play hide-and-seek game, and she/he had to listen to the puppet's instructions in order to find the hidden toys. The task began with the experimenter sat next to the child (same perspective). Then, she asked the child to turn around and close her/his eyes while she was hiding a toy inside one of the cups. To avoid any auditory cues, the experimenter lifted both cups in every time. After that, the child opened her/his eyes and the experimenter used a puppet, either the frog or the monkey, to give the instructions. The use of a puppet helped the experimenter to avoid any non-linguistic cues by looking directly at the puppet, while the puppet is looking at the child, and its arms perform ambiguous gestures. In order to encourage the children to think and to avoid any proximity bias, the experimenter hid a sticker with a toy in one of the cups, and she gave the sticker to those children who answered correctly. If they do not, the puppet will take the stickers. In each trail, the experimenter uttered four testing sentences for each participant by using 'this', 'that', 'here', and 'there'; for example, 'the toy is in that cup', or 'the toy is here'. Thus, eight testing sentences are divided into two groups. Four testing sentences are uttered when the experimenter is sitting next to the child (same perspective), and the other four are uttered when the experimenter is sitting opposite to the child (different perspective).

Production task

At the beginning of this task, the experimenter informed each child that they are going to change the game slightly. The task began with the experimenter sitting next to the child (same perspective). First, the experimenter asked a volunteer assistant to help her conceal a piece of candy in one of the cups. The puppet and the experimenter covered their eyes while the child was watching the place of the candy. The assistant should hide candies in four specific places for each trial: twice inside the near cup and twice in the far cup. The instructions had been given to her before starting the task to avoid hiding candies in the same place and in the same trial three times in a row. Then, the experimenter and the

puppet opened their eyes and asked the child about the place of the candy. The experimenter attempted to avoid non-linguistic responses from the children by asking them to choose between two deictic words; for example, the experimenter said "Is the candy here or there?" or "Is it in that cup or in this cup?." So, the experimenter asked the children to make a choice between two deictic words in order to force them to use the linguistic cues and to avoid the non-linguistic ones. The aim of this task is to motivate children to produce the demonstrative words by asking them about the place/location of candies. If the children answer correctly, they can keep the candy. If they do not, the puppet will take the candy. Like the comprehension task, this task contains two trials: same perspectives and different perspectives.

Data collection and analysis

The results of the study were collected through the observation of children's responses and reactions in comprehension and production tasks in two trials (same perspective and different perspective). The data were illustrated in Tables 5, 6. Table 5 shows the results of children's correct responses in the comprehension task in the two trials (same perspective and different perspective). As well as that, Table 6 represents the children's responses in the production task in the two trials. The Tables show that children were divided into three different groups based on their age. Each group contained 10 children of the same age. Tables 5, 6 documented only the children's correct responses.

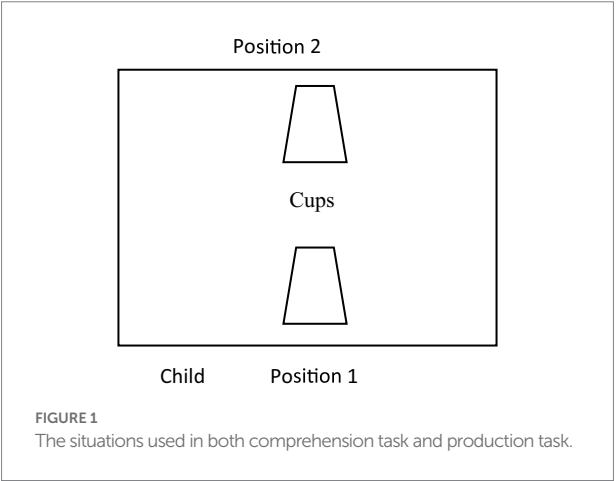
This study has adopted two different statistical methods (Two-Way ANOVA test and t-test) in order to analyze the data. In Two-Way ANOVA test, we tried to compare between the same perspective and the different perspective with different ages within the same task (comprehension and production task), but it did not provide any significant results. On the other hand, we applied t-test which provided interesting results.

TABLE 5 The number of children's correct responses in the comprehension task.

	Same Perspective				Different Perspective			
	This	That	Here	There	This	That	Here	There
4	7	1	6	7	9	5	6	5
5	5	6	9	8	7	9	9	8
6	7	5	8	8	8	9	8	8

TABLE 6 The number of children's correct responses in the production task.

	Same Perspective				Different Perspective			
	This	That	Here	There	This	That	Here	There
4	8	6	7	4	6	4	7	3
5	6	6	8	7	2	2	4	5
6	8	8	10	9	1	5	5	5



Results and discussion

The findings of the present study are presented in order to answer the research questions. The results are illustrated in Tests 1–4. Test 1 showed the result of the comprehension task in the same and different perspectives, while Test 2 showed the result of the production task in both same and different perspectives. Tables 3, 4 compared between the same perspectives or the different perspective in the two tasks (comprehension task and production task).

Results of comprehension and production tasks in both trials

As seen in Table 5, children who are five and six-years-old have shown a little increased of correct responses in the comprehension task in both trials than those at age four. They actually scored 46 correct answers, while those at ages five and six scored 61. The results of four-year-old children can illustrate two different reasons. First, the results may go back to those children, especially boys, who tended to guess the place of the toy instead of thinking of what the puppets said.

Second, they may not fully comprehend the meaning of the deictic words ‘this’, ‘that’ ‘here’ and ‘there’. In other words, the result of Test 1 did not provide any significant differences between the same perspective and the different perspective in the comprehension task.

On the other hand, Table 6 shows that four-year-old children got five more correct responses than those at age five who got 40 in both perspectives. The result of this task with age four shows irregular development. Most of them tended to guess the place of the candies or they chose the last word which the puppet said. According to the observation in the different perspective trial, a few numbers of 4 and 5-years-old children started to notice the difference between the deictic center. They noticed that when they answered incorrectly, the puppets took either the sticker or the candy. Then, they knew that the answer they chose was incorrect. The six-year-old children scored 51 correct responses. The result of Test 2 showed that there is a difference between the same perspective and the different perspective in the production task. Children actually in the production task showed some understanding of the spatial deixis in the same and different perspectives.

The results of Tests 1, 2 illustrate that children of all ages have a good ability to comprehend the spatial deixis ‘this’, ‘that’, ‘here’ and ‘there’ than to use (produce) them. In other words, the total

TEST 1 Same perspective (Table 5) and different perspective (Table 5).

Group Statistics

Factor		N	Mean	Std. Deviation	Std. Error Mean	
Data1	Same Perspective (Table 5)	12	6.4167	2.10878	0.60875	
	Different Perspective (Table 5)	12	7.5833	1.50504	0.43447	
Independent Samples Test						
Levene's Test for Equality of Variances				t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
						Mean Difference
						Std. Error Difference
						95% Confidence Interval of the Difference
						Lower
						Upper
Data1	Equal variances assumed	0.395	0.536	−1.560	22	0.133
	Equal variances not assumed			−1.560	19.898	0.135
						−1.16667
						0.74789
						−2.71770
						0.38437
						−2.72726
						0.39393

TEST 2 Same perspective (Table 6) and different perspective (Table 6).

Group Statistics

Factor		N	Mean	Std. Deviation	Std. Error Mean	
Data2	Same Perspective (Table 6)	12	7.2500	1.60255	0.46262	
	Different Perspective (Table 6)	12	4.0833	1.78164	0.51432	
Independent Samples Test						
Levene's Test for Equality of Variances				t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
						Mean Difference
						Std. Error Difference
						95% Confidence Interval of the Difference
						Lower Upper
Data2	Equal variances assumed	0.180	0.675	4.578	22	0.000
	Equal variances not assumed			4.578	21.758	0.000
						3.16667
						0.69176
						1.73204
						4.60129
						3.16667
						0.69176
						1.73111
						4.60222

TEST 3 Same perspective (Table 5) and same perspective (Table 6).

Group Statistics

Factor		N		Mean		Std. Deviation		Std. Error Mean		
Data3	Same Perspective (Table 5)	12		6.4167		2.10878		0.60875		
	Same Perspective (Table 6)	12		7.2500		1.60255		0.46262		
Independent Samples Test										
Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Data3	Equal variances assumed	0.297	0.591	−1.090	22	0.288	−0.83333	0.76459	−2.41899	0.75233
	Equal variances not assumed			−1.090	20.528	0.288	−0.83333	0.76459	−2.42561	0.75895

results of each age group in each task reveal that the comprehension task has a higher number of correct responses than the production task. According to the children's responses in both tasks, they acquired first the proximal words 'this' and 'here' then the distal words 'that' and 'there'. According to Clark and Sengul (1977), the proximal words are easier to acquire than the distal ones. Specifically, children scored more correct answers with the word 'here' than 'there', and 'this' than 'that'. In addition, all children acquired the deictic contrast 'here\there' before 'this\that'. As Clark and Sengul (1977) and Zhao (2007) found, children acquired first 'here\there' then 'this\that'. However, the results of Krasnoshchekova (2012) showed that children at earlier ages acquired the distal word 'there' than the proximal one 'here', then they acquired 'this' before 'that'. Similarly, the study results of Küntay and Özyürek (2006) showed that children do not acquire 'this' and 'that' until the age of six. Through the observation, many children at ages four and five did not notice the difference between proximal and distal deixes, especially in the production task when they use their fingers to point. They used 'here' and 'this' to indicate both far and near objects\places. When the experimenter in the production task told them not to use their hands or give an eye-gaze, they started noticing the difference between far and near objects and they gave a correct answer. In the current study, children responded to most of the spatial deixes correctly in the same perspective trials, while they responded incorrectly in the different perspective trial. In addition, when they were next and opposite the experimenter, they did well with 'here'. On the other hand, their responses with other words were varied.

Unlike the studies of De Villiers and De Villiers (1974), Webb and Abrahamson (1976) and Clark and Sengul (1977), there was no proximity bias happened with all ages in the present study. Although Clark and Sengul (1977) put the cups near the children in order to avoid any proximity bias, they still chose the nearest cup to them. However, even the cups in present study were hand-reachable to the children, there was no bias toward near objects. So, there was no occurrence of proximity bias with all ages. If children did not understand what the puppets said, they tended to guess which cup contained the toy and the candy. Guessing was more

widespread among the younger children than the older ones. In both tasks, a small number of four-year-old children did not listen to the puppets' instructions. They quickly chose a cup when they opened their eyes. Some children chose the last word which the puppet said in the production task when they felt that they were unable to choose the correct word.

Unlike the studies of Tfouni and Klatzky (1983) and Muşlu (2015), the present study does not use eye-gaze and pointing to help children in the tasks. In fact, the results of their studies showed that the use of non-linguistic expressions can affect the children's ability to perform correctly. Similarly, Zhao (2007) mentioned that the non-linguistic expressions, such as pointing and eye-gaze, play a main role in helping children to understand the meaning of deictic words. Like the study of Gonzalez Pena (2020), the present study dealt with this issue by giving only the instructions without the use of non-linguistic expressions in order to have a clear picture of the children's development stages of acquiring English spatial deixis. It is also not allowed for children to use non-linguistic expressions. When children used their hands to point to one of the cups, we told them not to use their hands to point and they had to choose between the phrases which the puppet provided.

Result of the same perspective and the different perspective

Tests 3, 4 focused on the children's understanding of the same and different perspectives. Test 3 showed the result of the same perspective in both Tables 5, 6, and the result did not show any significant differences. To be more specific, six-year-old children clearly have more control of spatial deixis in both perspectives than four-and five-year-old children. When comparing the responses of children in the same perspectives, it has been noticed that four-year-old children performed better than those at age five. After that, the performance increased again at age six which shows the U-shaped pattern of development. The result is surprising that four-year-old children did better than those at age five. Similarly, this happened in the study of Muşlu (2015) in which children at age four did better than those at age three and five, and she explained this issue in her paper by saying that "[T]he learner first learns a given

TEST 4 Different perspective (Table 5) and different perspective (Table 6).

Group Statistics

Factor		N	Mean	Std. Deviation	Std. Error Mean
Data4	Different Perspective (Table 5)	12	7.5833	1.50504	0.43447
	Different Perspective (Table 6)	12	4.0833	1.78164	0.51432

		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper
Data4	Equal variances assumed	0.280	0.602	5.199	22	0.000	3.50000	0.67326	2.10374 4.89626
	Equal variances not assumed			5.199	21.402	0.000	3.50000	0.67326	2.10147 4.89853

target behavior, then unlearns it and finally learns it" (p: 423). Moreover, Long (1990) also explained the U-shaped pattern of development by stating, "Progress is not linear; backsliding is common, giving rise to so-called U-shaped behavior observed in first and second language acquisition" (p: 659).

On the other hand, Test 4, which provided the result of the different perspective in both tables, showed a significant result. Children showed an increase in understanding the changes of the deictic center with age. In the present study, when the experimenter changed her place and sat opposite to the children, they started to notice that there was a problem. They get confused about which perspective to take. Clark and Sengul (1977) have mentioned that children face some problems in changing the deictic center. The result is not surprising because it is consistent with the results of the previous studies (Clark and Sengul, 1977; Zhao, 2007; Muşlu, 2015).

In addition, Zhao (2007) concluded her results by mentioning that children think in an egocentric way which may be considered as a universal phenomenon that obstructs children's acquisition of deictic words. In other words, children who are under the age of six do not have the ability to change the deictic center when they and the speaker have a different perspective (Zhao, 2007). Just as Zhao (2007), Meltem Muşlu (2015) mentioned in her study that children between the ages of 2 and 7 think in an egocentric way. In other words, children did not acknowledge any other perspectives except their own. Thus, they failed to recognize the speaker-center in the different perspective. However, the observation of the two tasks in the present study showed that most of the children noticed that there was a problem in their comprehension and production of the spatial deixis when the experimenter changed her place and sat opposite to them. They noticed that there is something wrong happened when the experimenter changed her place. For example, when the puppets got the candies and stickers instead of giving them to the children, they noticed that their answers were incorrect. Similar to the results of the current study, De Villiers and De Villiers (1974) stated that children showed a simple ability to take a speaker as a point of reference in the second trial (different perspective). Thus, children are not totally egocentric.

Conclusion

To sum up, all languages, especially deixis words, are designed for face-to-face communication in daily life which cannot be separated from the context of utterance. The current study aims to investigate how Arabic children between the ages of four, five and six acquire the English spatial deixis 'this', 'that', 'here' and 'there'. In order to investigate that, a hide-and-seek game was used to observe and record the children's responses about English spatial deixis. The results indicate that children, unlike the previous studies, did not show any proximity bias regarding their choice of the cups. Instead, they tended to guess the place of candies and stickers when they did not understand what the puppets said. Moreover, there was a U-shaped pattern of development in the same perspective in both tasks, while they showed an increase with age in different perspective. The results also showed that children first acquire the proximal words 'here\this' than the distal ones 'there\that'. In addition, they also acquire the deictic pair 'here\there' before 'this\that'. The results of the study can show some inconsistent results because children, especially those at age four, tended to guess the place of the candy and sticker instead of thinking.

Limitations

The present paper attempts to provide a clear picture of the acquisition process of spatial deixis with children at ages four, five and six. However, the study's results cannot be generalized because of some limitations regarding the samples. Further studies should include a larger number of children from different ages.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

HiA and HaA developed this paper. HaA was responsible for the literature review and setting up the theoretical framework and methodological part. HiA was in charge of collecting and analyzing the data, displaying the findings, and writing the discussion section. All authors contributed to the article and approved the submitted version.

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A corpus-based study on Chinese and American students' rhetorical moves and stance features in dissertation abstracts

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Dissertation is the most important research genre for graduate students as they step into the academic community. The abstract found at the beginning of the dissertation is an essential part of the dissertation, serving to "sell" the study and impress the readers. Learning to compose a well-organized abstract to promote one's research is therefore an important skill for novice writers when they step into the academic community in their discipline. By comparing 112 dissertation abstracts in material science by Chinese and American doctoral students, this study attempts to analyze not only the rhetorical moves of dissertation abstracts but also the lexical-grammatical features of stance in different abstract moves. The findings show that most of the abstracts include five moves, namely, Situating the research, Presenting the research, Describing the methodology, Summarizing the findings, and Discussing the research. However, fewer abstracts by Chinese students include all five moves. In addition, the choices of stance expressions by the two groups vary across the five abstract moves for different communication purposes. The results of this study have pedagogical implications for facilitating the development of academic writing skills for L2 writers.

KEYWORDS

stance markers, rhetorical moves, dissertation abstracts, Chinese doctoral students, American doctoral students

Introduction

Theses and dissertations are the most important research genres for master's and Ph.D. students as they step into the academic community. Swales (2004, p. 99) commented that "the dissertation/thesis is the most sustained and complex piece of academic writing (in any language) they will undertake," especially for non-native English speakers (Sükan and Mohammadzadeh, 2022). As an abstract is a highly condensed and conventionally structured text, the knowledge of the rhetorical moves of abstracts and linguistic sources to realize these moves is essential for novice writers, particularly for L2 writers (Pho, 2008).

Swales (1990) defines the abstract as both a summary and a “purified” reflection of the entire article. In addition to the informative function, abstracts also function to promote the research to the readers. Therefore, it is important to understand the reader-writer interaction and the linguistic realization of the promotional function in abstracts. Much attention has been paid to the rhetorical moves (Santos, 1996; Can et al., 2016; Tankó, 2017; Amnuai, 2019) and linguistic characteristics of abstracts in research articles (Ebrahimi and Chan, 2015; Friginal and Mastafa, 2017; Ansarifard et al., 2018). Dissertation abstracts, however, differ significantly from research article abstracts in the subcategories of moves and use of metadiscourse features (El-Dakhs, 2018), and little is known about how L2 graduate writers employ linguistic features to engage readers in dissertation abstracts. The present study, therefore, aims at exploring not only the rhetorical moves of dissertation abstracts by L2 graduate students but also the lexical-grammatical features of stance in different abstract moves.

Literature review

Move structure of abstracts

The significance of the abstract in academic writing lies in the variety of functions and roles it plays (Ebrahimi and Chan, 2015; Friginal and Mastafa, 2017; Nasser and Thompson, 2021; Sükan and Mohammadzadeh, 2022). Firstly, it saves the reader's time by providing a condensed version of the whole research article (RA). Secondly, it helps the readers to decide on whether to continue to read the article. Thirdly, it has a persuasive function in convincing journal editors to accept a research article. Lastly, it also aids in indexing, which assists the research article to be easily located in the database. Dissertation abstracts can hold a higher stake than RA abstracts as the direct reader of dissertations is the reviewer who evaluates the quality of research and writing.

Following Swales's (1990) move analysis, a five-move pattern of abstracts was first proposed by Santos (1996) which includes Situating the research (M1), Presenting the research (M2), Describing the methodology (M3), Summarizing the results (M4), and Discussing the research (M5). Hyland (2000), based on an analysis of 800 RA abstracts from eight disciplines, proposed a similar five-move model: introduction, purpose, method, product, and conclusion (IPMPC). In the same line of research, Lorés (2004) found that 61% of 36 abstracts in the field of applied linguistics follow the IMRD structure (introduction-method-result-discussion), while 31% of them employ the CARS model (creating a research space), and 8% show a mixture of the two structures.

It has been attested that Ph.D. thesis abstracts and RA abstracts are two distinct genres, with the former representing an educational genre, and the latter, a professional one (Kawase,

2015; El-Dakhs, 2018). El-Dakhs (2018) compared Ph.D. thesis abstracts and RA abstracts in applied linguistics and found that thesis abstracts included lengthier introductions while RA abstracts provided a lengthier description of the methodology, findings, and implications. Afzaal et al. (2019) noted that EFL learners in Pakistan mostly followed Swales' CARS model in the abstract of master's dissertations, but they used past participle in the move of occupying the niche, suggesting a lack of confidence when presenting their own study. A review of these studies suggests that it is insufficient for novice writers to understand the generic move structure of abstracts. It is equally important for them to know how to realize rhetorical functions through linguistic devices.

Stance in academic writing

Stance, a common feature concerned with writers' or speakers' personal attitudes, feelings, or judgments about the information communicated, has received increasing attention in recent years (Hyland, 2005b; Biber, 2006; Du Bois, 2007; Aull, 2019; Kaltenböck et al., 2020; Zhang and Zhang, 2021). Stance markers refer to the way that stance is expressed or realized, including a range of grammatical devices like modal auxiliaries, adverbial hedges, and complement clauses (Poole et al., 2019). They function to express different feelings such as the attitudes that a speaker or writer has about the information (Biber, 2006). Stance and stance markers play significant roles in academic writing but pose a challenge to academic writers. The author not only needs to guarantee the credibility of the research and make objective comments while reporting results or findings but also has to establish an authorial presence to interact with readers as well as acquire visibility in this field (Can and Cangir, 2019).

The past decade has witnessed a growing interest in stance and stance markers in academic writing. Following this line of research are investigations of a variety of linguistic devices, such as boosters and hedges (Hyland, 2012), personal pronouns (Yang, 2016; Can and Cangir, 2019), reporting verbs (Hyland, 1999, 2002; Peng, 2019), and engagement sources (Lancaster, 2014). The results have confirmed that academic writing, despite its expected objectivity, involves the expression of an authorial stance, including evaluation of previous studies, commitment to one's own claim, as well as attitudes toward one's own research.

The identification of stance features is highly context-dependent, which can lead to fuzziness in the classification. Biber (2006), therefore, examines stance from a lexical-grammatical approach which focuses on three categories of evaluative language: modal and semi-modal verbs, stance adverbs, and complement clauses controlled by stance verbs, adjectives, or nouns. This classification is more comprehensive and specific in identifying stance features and has been adopted in several studies on stance in academic writing (Chan, 2015; Çakir, 2016).

Stance in academic writing has been mainly examined from two perspectives: cross-disciplinary (Hyland, 2005b; Chan, 2015; Yang, 2016; Li, 2020) and cross-linguistic (Hu and Cao, 2011; Mur-Dueñas, 2011; Kim and Lim, 2013; Jiang, 2015; Loi et al., 2016; Bax et al., 2019). A comparison of research articles in different disciplines has shown that soft disciplines generally employ more stance markers than hard disciplines (Hyland, 2005b; Chan, 2015). Interestingly, a diachronic study of stance has found that the frequencies of stance markers are increasing in the sciences and falling in the soft disciplines, demonstrating a converging tendency (Hyland and Jiang, 2016).

As stance markers are used by writers to “engage with the socially determined positions of others” (Hyland, 2005a, p. 52), the deployment of these linguistic sources is expected to vary across different linguistic and cultural communities. For instance, Chinese journal articles are found to include fewer metadiscourse features, especially interactional metadiscourse features (hedges, boosters) than English research articles (Mu et al., 2015). The lower density of metadiscourse features in Chinese journal articles is also consistent in different parts of the articles, including abstracts (Hu and Cao, 2011) and introductions (Kim and Lim, 2013). These findings suggest the avoidance of authorial presence in a reader-responsible context.

In such a context, Chinese ESL (English as a second language) learners may transfer these norms from Chinese academic writing to English academic writing. As Hyland (2004, p. 141) argues, “the ways that writers present themselves, negotiate an argument, and engage with their readers are closely linked to the norms and expectations of particular cultural and professional communities.” Many existing studies have revealed difficulties in expressing the stance encountered by Chinese ESL students (Li and Warton, 2012; Lee and Deakin, 2016; Afzaal et al., 2021). Unlike their L1 peers, Chinese ESL students are found to maintain a more detached and impersonal writing style, and they are less strategic in making assertions (Lee and Deakin, 2016; Yoon, 2020). Most of these findings are based on argumentative writing by L2 students. As abstracts are persuasive in nature, it can be assumed that L2 novice writers may face similar challenges when drafting abstracts.

As mentioned in the last section, Ph.D. thesis abstracts differ from RA abstracts in the rhetorical structure. The linguistic realization of the rhetorical moves and the use of stance markers have also been found to be different. For example, more hedges and attitude verbs are found in Ph.D. thesis abstracts while the abstracts of journal articles include more impersonal markers and self-mentions (El-Dakhs, 2018). This difference suggests that compared to RA authors, who are in a higher power status in the scientific community, thesis writers as new members are more cautious in taking responsibility for their claims.

Although much attention has been paid to stance markers in academic writing and moves in abstracts, little is known about how novice L2 writers employ stance markers in the rhetorical moves in abstracts. In addition, most of the studies

TABLE 1 Overall information of CCSA and CASA.

Corpus	Number of abstracts	Word count	Average length
CCSA	56	47,836	854
CASA	56	25,434	454

on abstracts have involved cross-linguistic or cross-disciplinary comparisons, and they have addressed disciplines in soft sciences such as applied linguistics (Hu and Cao, 2011; Can et al., 2016; Ansarifard et al., 2018; El-Dakhs, 2018; Nasser and Thompson, 2021), literature, translation studies (Li, 2020), economics (Ebrahimi and Chan, 2015), and accounting (Amnuai, 2019). In contrast, abstracts in the hard sciences have received little attention. In universities in China, except for language-related studies, dissertations in other disciplines are written in Chinese. Nevertheless, abstracts in both English and Chinese are required. The dissertation abstract, therefore, is an ideal genre to examine EFL students’ use of stance markers in academic writing. The purpose of the present study is to examine the use of stance markers in the moves structures of English abstracts written by Chinese and American doctoral students. Specifically, the present paper aims to answer the following two questions:

- (1) Are there any similarities and differences between the features of move structure in Chinese and American doctoral students’ dissertation abstracts?
- (2) What are the lexical-grammatical features of stance in the five moves of Chinese and American students’ dissertation abstracts?

Methodology

Data collection

The corpus-based study aims to investigate the lexical-grammatical features of stance in the move structures of English dissertation abstracts written by Chinese and American Ph.D. students. The data for this study include 112 English dissertation abstracts written by Chinese and American doctoral students majoring in materials science and engineering between 2010 and 2016. Two corpora were constructed as the corpus of Chinese students’ abstracts (CCSA) and the corpus of American students’ abstracts (CASA). CCSA included 56 dissertation abstracts extracted from the China Dissertation Database of Full Text. The dissertations were selected from universities in seven areas of China (i.e., North China, Central China, and Northwest China). The 56 dissertation abstracts of CASA were selected from the ProQuest Dissertation and Theses Database of Full text. The dissertations were selected from universities in four areas of America (i.e., North, South, West, and Midwest). Table 1 shows the overall information of the two corpora.

Data analysis

All dissertation abstracts were analyzed in two ways. Firstly, Santos (1996) five-move structure model was employed to analyze the moves in the dissertation abstracts. The framework for the move structure is presented in Table 2 with one Chinese student's dissertation abstract used as an example. Ten abstracts were randomly selected and coded by the first and third authors separately. The coding was compared, and the agreement rate reached 98%. The application of the coding scheme was discussed. The third author then coded the rest of the data twice in 2 weeks intervals. All uncertain or inconsistent cases were discussed and settled among the three authors.

Secondly, stance markers in the dissertation abstracts were identified based on Biber (2006) classification of linguistic and grammatical features of stance, including modal and semi-modal verbs, stance adverbs, and stance-complement clauses controlled by verbs, adjectives, or nouns. AntConc software was used to identify the stance markers, and all identified instances were manually checked and classified into different sub-categories according to the semantic meaning revealed by the controlling stance word. Frequencies of the stance features were then normalized to a relative frequency per 10,000 words to account for the different sizes of the two corpora. The distribution of stance features in each abstract move was compared.

Findings

Move structure of abstracts in CCSA and CASA

To answer the first research question, moves in each dissertation abstract in CCSA and CASA were identified based on Santos (1996) five-move structure model. We first counted the number of moves in the abstracts to see if the abstracts included all five moves. The general move structure of abstracts in the two corpora is presented in Table 3.

As seen in Table 3, most abstracts in both corpora include four or five moves (89.28% for CCSA and 94.64% for CASA). Very few abstracts have an incomplete structure with three moves. Fewer abstracts in CCSA include four or five moves than in CASA, though the average length of abstracts in CCSA is near twice the length of abstracts in CASA (see Table 1).

To examine the distribution of the five moves in the two corpora, the length and occurrence of each move were counted (see Table 4). As seen in Table 4, the largest portion of the abstracts in both corpora is devoted to the Summarizing the findings move, and the second and third largest portions are Describing the method and Situating the research respectively. Compared to American students, Chinese students put more emphasis on the research result with more than half of the

abstract summarizing the findings, leaving very little room for discussing the research. In contrast, the length of each move in American students' abstracts is more balanced. On the other hand, the occurrence of each move is similar in both corpora. Most abstracts in both corpora include three obligatory moves: Presenting the research, Describing the methodology, and Summarizing the findings.

Stance features of abstracts in CCSA and CASA

To answer the second research question, stance markers in both corpora were identified and classified, and then the normalized frequencies were calculated and compared. Biber (2006) divides stance markers into three categories: modals and semi-modals, stance adverbs, and stance-complement clause constructions. Table 5 presents the frequencies of the three major categories of stance markers in CCSA and CASA.

Table 5 shows no significant differences in the total number of stance markers between the two corpora ($p > 0.05$). Both groups use stance-complement clauses the most, and the American students employ slightly more of them than Chinese students ($p = 0.05$). The second preferred category for both groups is modal and semi-modal verbs and Chinese students employ significantly more of them than American students ($p < 0.05$). The least preferred category by the two groups is stance adverbs. The frequency of stance adverbs used by American students is higher than that of Chinese students.

As the most common category in both corpora, stance-complement clauses are further divided into verb-complement clauses, adjective-complement clauses, and noun-complement clauses. The results are presented in Table 6. A closer look at the sub-categories of the stance construction reveals some noticeable discrepancies between the two corpora. As shown in Table 6, both groups rely heavily on stance verb-complement clauses to show stance in the abstracts. Chinese students show a remarkable preference for the stance verb + *that*-clauses while American students use more stance verb + *to*-clauses than Chinese students. Stance-complement clauses controlled by adjectives and nouns were rarely found in the two corpora, although American students employed significantly more stance noun + *to*-clauses than Chinese students ($p < 0.05$).

As for the choice of stance verb-complement construction in CCSA and CASA, it was noted that American students employed a similar amount of *that*- and *to*-clauses, whereas Chinese students preferred *that*-clauses to *to*-clauses. Significant differences were found between the two student groups in their use of stance verb + *that*-complement clauses and stance verb + *to*-complement clauses ($p < 0.05$). Specifically, in contrast to their American counterparts,

TABLE 2 Santos (1996) framework for move structure.

Moves	Function/description	Example (CCSA-01)
Move 1: Situating the research < STR >	Setting the scene for the current research (topic generalization)	With a stable six-membered ring structure, carbon nanotubes (MWNTs) have good thermal stability and play a flame retardant synergistic effect during the combustion of polymers.
Move 2: Presenting the research < PTR >	Stating the purpose of the study, research questions and/or hypotheses	On this basis, this paper presented carbon nanotubes was wrapped with silica microspheres, modified phosphazene, and ionic polymer respectively, by surface chemical modification. It studied the effect of MWNTs on the thermal stability and flame retardant of polymer and the flame-retardant mechanism during the combustion.
Move 3: Describing the methodology < DTM >	Describing the materials, subjects, variables, procedures	First part, two kinds of triazines charring agent (CA-ODA and CA-DDS) with high benzene ring content were synthesized by amino-substituted reaction.
Move 4: Summarizing the findings < STF >	Reporting the main finding of the study	With 4% of PAAZn-g-MWNTs, the PHRR of PMMA composites was reduced from 590 W·g ⁻¹ down to 355 W·g ⁻¹ , and the total heat release rate was reduced from 25.5 kJ·g ⁻¹ down to 16.1 kJ·g ⁻¹ .
Move 5: Discussing the research < DTR >	Interpreting the results/findings and/or giving recommendations, implications of study	It presented there was a synergistic effect between the MWNTs and modified phosphazene.

TABLE 3 General move structure of abstracts in CCSA and CASA.

Corpus	3 moves	4 moves	5 moves	Total
CCSA	6 (10.71%)	16 (28.57%)	34 (60.71%)	56
CASA	3 (5.36%)	17 (30.36%)	36 (64.28%)	56

Chinese students tend to overuse *that*-clauses controlled by communication verbs and epistemic certainty verbs ($p < 0.05$), but underuse *to*-clauses controlled by mental verbs and communication verbs ($p < 0.05$). In-depth analysis reveals that the stance verb + *that*-complement construction in both corpora is particularly common with communication verbs (e.g., *show*, *indicate*, *reveal*, and *demonstrate*) and verbs expressing epistemic certainty (e.g., *find*, *determine*, and *conclude*).

Example 1: The results **show** that antimony, tin oxide, ferric oxide can improve fire-resistance time and reduce smoke density (CCSA-02).

Example 2: Lastly, it was **determined** that the fabrication process greatly influences the impurity types and concentrations of the alloys, and therefore greatly dictate which thermal stability mechanisms care active (CASA-21).

In examples 1 and 2, stance verb + *that*-complement clauses are accompanied by inanimate subjects in both sentences. This structure is used to report information in an impersonal way, which conforms to the typical characteristics of academic

writing. Both groups prefer *that*-clauses controlled by certainty verbs and communication verbs, which implies their confidence in the reported information.

Different from the use of stance verb + *that*-clauses in both corpora, the stance verb + *to*-complement construction is frequently employed with mental and communication verbs, especially among CASA.

Example 3: The Sb composition **is found to** vary non-linearly with substrate temperature and V/III ratios (CCSA-28).

Example 4: Instead, color center formation **was shown to** be controlled by oxidation and reduction of variable valence impurity ions, primarily Fe 2+/3+ (CASA-26).

As seen in examples 3 and 4, similar to *that*-clauses, stance verb + *to*-complement clauses usually appear with impersonal subjects, which demonstrates the objectivity and impartiality of the writers in declaring information. Nevertheless, the use of the mental verb *find* and communication verb *show* by the writers indicate a higher degree of certainty to the reported information, thus increasing the force of their claim. The two words *find* and *show* take up more than half of the

TABLE 4 Length and occurrence of each move in abstracts in CCSA and CASA.

Moves	Average length of the move in CCSA	Average length of the move in CASA	Number of abstracts in CCSA containing the move ($n = 56$)	Number of abstracts in CASA containing the move ($n = 56$)
Move 1: STR	15.18%	21.68%	53 (94.64%)	48 (85.71%)
Move 2: PTR	6.33%	7.25%	47 (83.93%)	55 (98.21%)
Move 3: DTM	20.28%	27.56%	56 (100.00%)	55 (98.21%)
Move 4: STF	53.49%	35.08%	56 (100.00%)	51 (91.07%)
Move 5: DTR	4.72%	10.39%	40 (71.43%)	48 (85.71%)

(The weight of the move in abstracts indicates the portion of the move out of the total word count of the abstract).

TABLE 5 Overall frequencies (per 10,000 words) of stance markers in CCSA and CASA.

Stance markers	CCSA	CASA	X-square	p-value
Modal and semi-modal verbs	59.58	39.32	13.04	0.00
Stance adverbs	21.53	31.45	6.56	0.01
Stance-complement clauses	68.57	81.39	3.77	0.05
Total	149.68	152.16	0.07	0.79

communication and mental verbs in both corpora, indicating the students' inclination to employ these *to*-complement clauses to ascertain their confidence and certainty with regard to the information.

methods of the study, in both of which an objective tone is expected.

The following sections provide a detailed examination of the distribution of different types of stance markers in every move of abstracts in CCSA and CASA.

Stance features in different moves of abstracts in CCSA and CASA

This section reports various types of stance markers across five moves of abstracts by both student groups. As shown in Table 7, the overall use of stance markers across the five moves in CCSA and CASA corpora have similar distribution characteristics. There are more stance markers in STR, STF, and DTR moves than in PTR and DTM moves in both corpora. It is noteworthy that American students use more stance markers in STR, PTR, DTM, and STF moves of abstracts than Chinese students, except for the DTR move. The distribution of stance markers is closely related to the different functions of each move. Situating the research (STR) move serves to set the scene or present background information for the study, which states the significance of the present study. Summarizing the findings (STF) move, which reports the findings and discusses the research part, shows a detailed interpretation of the results. However, presenting the research (PTR) move gives the hypothesis, and describing the methodology (DTM) move describes the

Stance features in the STR move

The situating the research (STR) move in the abstracts serves to set the scene for the research and establish the significance of the current study (Hyland, 2000). As shown in Table 7, the distributions of stance markers in this move in the CCSA and CASA abstracts are similar. No significant differences in the frequencies of the five categories were identified between the two corpora ($p > 0.05$). In presenting this move, both groups of students favor modal verbs and stance verb-complement clauses the most, and stance noun-complement clauses the least. Further analysis shows that both groups prefer possibility modals in modal verbs the most and the other sub-classes of stance markers are remarkably less common than possibility modals.

Both Chinese and American students use various stance devices in this move to emphasize the significance of their research topic, which is useful for setting the scene for the present research. Particularly remarkable is the frequent use of modal verbs in the STR move. The possibility modal *can* is used with inanimate subjects to show ability or logical possibility meaning, as can be seen in examples 5 and 6.

TABLE 6 Normalized frequencies (per 10,000 words) of each class of stance-complement clauses in CCSA and CASA.

	CCSA	CASA	X-square	p-value
Stance verb + <i>that</i> -clause	50.59	34.99	8.982	0.00
Stance verb + <i>to</i> -clause	10.03	34.60	54.085	0.00
Stance adjective + <i>that</i> -clause	1.05	0.79	0.117	0.73
Stance adjective + <i>to</i> -clause	6.06	7.86	0.806	0.37
Stance noun + <i>that</i> -clause	0.42	1.18	1.411	0.24
Stance noun + <i>to</i> -clause	0.42	1.97	4.164	0.04

TABLE 7 Normalized frequencies of stance markers across five moves (per 10,000 words).

Stance markers		Modals	Stance adverbs	Stance verb-complement clauses	Stance adjective-complement clauses	Stance noun-complement clauses	Total
STR	CCSA	77.11	20.66	34.43	24.79	1.38	158.36
	CASA	89.73	35.89	49.85	17.95	7.98	201.40
PTR	CCSA	3.30	0	3.30	0	0	6.61
	CASA	5.43	5.43	16.28	10.85	0	37.98
DTM	CCSA	5.15	1.03	4.12	0	1.03	11.34
	CASA	15.69	8.56	8.56	7.13	2.85	42.80
STF	CCSA	71.91	31.26	87.93	5.47	0.78	197.36
	CASA	19.05	44.83	133.36	5.60	1.12	203.97
DTR	CCSA	172.72	31.00	155.00	8.86	0	367.58
	CASA	98.37	56.75	90.81	3.78	3.78	253.50

Example 5: However, the performance of lithium ion batteries *can* no longer satisfy the ever increasing demands for high energy density even though they almost reach the theoretical limit both in mass and volume. Therefore, the improvement of the research for lithium ion batteries is urgent (CCSA-31).

Example 6: For instance, the ability to create controllable nanostructures in a scalable manner *can* enable the wide use of nanotechnology (CASA-07).

As shown in examples 5 and 6, the possibility modal *can* is utilized with inanimate subjects by both Chinese and American students. Example 5 stated that lithium-ion batteries fail to meet the demands, thus providing a rationale for the current study. Example 6 suggested the necessity to develop a new function of nanotechnology. The choice of *can* shows the possibility of conducting research related to this topic from different perspectives.

In contrast, the necessity modals (*must* and *should*) are less frequently employed than the possibility modals in the STR move in CCSA and CASA. Both *must* and *should* express the necessity, which can boost the claim expressed in the sentence. The word *must* is commonly used to express any unavoidable requirement or obligation. When they are employed in this

move, the personal obligation voiced by them indicates the writer's emphasis on the necessity of the present study. This can explain why necessity modals appear more frequently in this move than in the other four moves of abstracts. For instance:

Example 7: The most efficient mode of transportation of petroleum-based fuel is *via* pipelines, and due to the 300% increase in ethanol use in the U.S. in the past decade, a similar method of conveyance *must* be adopted for ethanol (CASA-29).

Example 8: Therefore, the segregation behavior of B *should* be confirmed and the recovery rate of Si *should* be improved during the alloy solidification refining process (CCSA-07).

As seen in examples 7 and 8, *must* and *should* demonstrate the writers' advocacy of the action introduced in the clause, as well as the writers' confidence in claiming authority in the research area.

Stance features in the PTR move

As shown in Table 7, presenting the research (PTR) move includes the least stance markers in the two corpora partly because of its function to present the objective or hypothesis of the research in academic papers. The occurrence of different kinds of stance markers employed by American students is

significantly higher than by Chinese students, with no exception ($X^2 = 6.116, p < 0.05$).

It is noteworthy that both corpora contain more *to*-clause controlled by verbs of effort (*try, seek*) in the PTR move compared to the other moves. We can see in examples 9 and 10, the writers' employment of the stance resources demonstrates their purposes of stating the attempt and endeavor of their research effort, which is a useful way to accomplish the goal of presenting the research objective of the PTR move. For instance:

Example 9: In this thesis, we **try to** introduce a new weak (soft) phase on the basis of traditional nanoglass, to replace the role of grain boundaries, construct a new kind of nanoglass composite (CCSA-38).

Example 10: This investigation **seeks to** determine if current superalloy casting methods can result in the formation of oxide bifilms... (CASA-34)

In addition, some instances of epistemic likelihood verbs + *that* clauses and stance adjectives + *to* clauses exist in the PTR move of CASA. For instance:

Example 11: **It was hypothesized that** atmospheric pressure plasma treatment **could** functionalize and/or remove peel ply remnants on the CFRP surfaces to improve adhesion (CASA-54).

Example 12: Although the exact form of $\gamma(V)$ is unclear, **it is reasonable to** assume an exponentially-decaying form of $\gamma(V)$, where at low temperatures γ is... (CASA-31)

In example 11, the writer's uncertainty about the claim is revealed by the use of an extraposed *that*-clause controlled by the epistemic likelihood verb (*hypothesize*) and the combination of the modal verb with tentative meaning (*could*) in *that*-clause, which serves to present the hypothesis and indicate the writer's discretion in making the assumption. In example 12, the use of extraposed *to*-clause controlled by an adjective (*reasonable*) conveys a positive evaluation of this assumption. In both examples, the American students make the assumptions more convincing with the use of stance expressions. Although stance devices in the PTR move are the fewest in both corpora, the American students use more of these devices than the Chinese students to strengthen their personal involvement in the presentation of the research objective.

Stance features in the DTM move

Few stance expressions are found in describing the methodology move in both corpora. This is because the major function of this move is to introduce the methods and procedures for conducting the study. In this move, CCSA contains significantly fewer stance markers than in CASA ($X^2 = 16.450, p = 0.000$), and Chinese students employ significantly fewer modal verbs, stance adverbs as well as stance adjective + *to*-clauses than the American students ($p < 0.05$). The possibility modals are the most common stance markers used by both student groups. For instance:

Example 13: The objective of these experiments was to correlate observations of slip transfer with a geometric parameter m' , which **can** be used to identify and predict crystallographic arrangements that are better suited for slip transfer (CASA-03).

Example 14: So we introduce the method that **can** remove or weaken undesired carrier localization (CCSA-28).

In examples 13 and 14, the use of the possibility modal *can* in the description of methodology shows the justification of the methods employed. The considerably higher use of modals, especially possibility modals, in the DTM move of CASA than that of CCSA ($X^2 = 4.500, p < 0.05$) suggests that the American students' greater efforts in justifying the choice of research tools and methods in this move. Regarding stance adverbs in DTM move, style adverbs and epistemic likelihood adverbs are preferred by American students. For instance:

Example 15: **Specifically**, tensile stress generation was evaluated using an in situ wafer curvature measurement technique, and correlated with the inclination of edge-type threading dislocations observed with transmission electron microscopy (TEM) (CASA-24).

Example 16: In particular, the use of nanosphere lithography to pattern thin films of aluminum prior to anodization is described, which allows for **nearly** arbitrary control of the pore size, interpore spacing and aspect ratio (CASA-07).

The style adverb *specifically* in example 15 indicates the writer's attempt to describe the research methods to the readers in detail. The likelihood adverb *nearly* in example 16 shows the writer's caution when introducing the effectiveness of the research procedure. Both examples show American students' objectiveness in presenting the methodology, which is enhanced by stance adverbs.

Stance features in the STF move

Summarizing the findings (STF) move takes up the largest portion of the abstracts in both corpora and it involves the frequent occurrence of stance expressions. Results indicate that the American students employ significantly more stance verb-complement clauses ($X^2 = 13.837, p = 0.000$), whereas the Chinese students use significantly more modals than the American students ($X^2 = 31.922, p = 0.000$). Stance verb-complement clauses have the highest frequency in STF move in both corpora. In contrast, stance noun-complement clauses have the lowest frequency in both corpora. Unlike American students, Chinese students show a preference for modal verbs over stance adverbs in this move.

A close examination of the subcategories of stance expressions in the STF move shows that the stance verb + *that*-clauses is the most preferred device used by Chinese and American students. To be specific, *that*-complement clauses occur mostly after communication verbs (such as *indicate* and *show*) and epistemic certainty verbs (such as *find* and *determine*)

in both groups. Examples 17 and 18 are two instances of stance verb + *that*-clause controlled by communication verbs (*indicate* and *show*) in the STF move.

Example 17: *The simulations indicate that* the particle size dependent velocity of the sedimentation increases the rate at which the system coarsens (CASA-10).

Example 18: *The results show that* the wear resistance of WC/Co-Cr composite coating is better than H13 steel (CCSA-23).

The communication verbs *show* and *indicate* are the most preferred stance verbs used by both students in STF move. Textual analysis reveals that stance verb + *that*-clauses controlled by communication verbs occur most frequently with inanimate subjects, such as “simulations” and “results” in examples 17 and 18. This shows the writers’ objectivity and certainty toward their results when reporting their findings. Both student groups report the findings with words with high certainty to establish their personal expertise, thus making the findings more convincing.

In addition to the stance verb + *that*-clause, the stance verb + *to* clause, especially the *to*-clause controlled by mental and communication verbs, is also frequently used by American students in the STF move. However, this stance device is rarely found in Chinese students’ abstracts. Significant differences were found between their overall use of stance verb + *to*-clauses ($X^2 = 91.104, p = 0.000$), as well as their use of *to*-clauses controlled by mental and communication verbs ($p = 0.000$ for both). *To*-clauses in CASA were frequently controlled by mental verbs (such as *find*, *determine*, and *observe*) and communication verbs (such as *show* and *confirm*). Textual analysis shows that they often occur with subjects concerning the research-related object or process to denote objectiveness in the presentation of the findings (such as *find* and *show*), and the verbs selected are often with high certainty. For instance:

Example 19: The dissolution behavior of disordered Fe₅₀Pd₅₀ *was found to* strongly relate to the crystallographic orientation of specific grains (CASA-41).

Example 20: Finally, non-planar LEDs *were shown to* exhibit broader light-emission spectra than conventional planar LEDs (CASA-09).

In examples 19 and 20, the stance verb + *to*-clause in the STF move shares a similar role with *that*-clause, but the Chinese students seem to ignore this function of *to*-clauses in the STF move and tend to overuse *that*-clauses.

When presenting the findings of the current research, both Chinese and American students were prone to display their objectiveness and discretion to make the findings more reliable. Nevertheless, they also employ some constructions with high certainty to make the result appear more powerful and convincing. The Chinese students prefer verb + *that*-clauses to verb + *to*-clauses in STF move. In contrast, American students employ more stance verb-complement clauses with high

certainty to make the research findings more powerful and forceful.

Stance features in the DTR move

Consistent with the argumentative nature, discussing the research (DTR) move in both corpora includes the most stance expressions. Results demonstrate that the two corpora are similar in the distribution of stance expressions, with modal verbs being the most frequently used and followed by stance verb-complement clauses and stance adverbs. Nevertheless, significant differences were found between the two corpora in the frequency of stance devices employed in this move. Specifically, the DTR move of CCSA contains significantly more modal verbs and stance verb-complement clauses ($p < 0.05$).

Modal verbs are the most preferred grammatical stance device in this move in both corpora, which are more frequent than in the other four moves.

Example 21: It proves that the wet-mix shotcrete with high air content *can* solve the inharmonious contradiction between pumpability and shootability (CCSA-46).

Example 22: The findings of this research *will* hopefully guide future efforts to design more thermally stable nanocrystalline alloys (CASA-21).

The use of possibility or prediction modals in examples 21 and 22 indicates the writer’s confidence in the findings. *Can* in Example 21 implies that the present research is meaningful and *will* in example 22 suggests the future positive influence of the current research results. Moreover, it is also noteworthy that the use of the verb of effort/ facilitation + *to*-clause in the DTR move of both corpora contains the most frequent occurrence. In examples 23 and 24, the students choose to use verbs of facilitation (*help* and *allow*) to demonstrate their attitude that the results of the present research are valuable, which indicates the importance of the study. For example:

Example 23: These results *help* to control the conditions for generating the continuous and uniform carburized layer on the surface and around the pore wall of porous TiAl alloy (CCSA-52).

Example 24: A potential consequence of this study would be the development of a superior armor material that is sufficiently affordable, *allowing* it to be incorporated into the general soldier’s armor chassis (CASA-33).

Stance adverbs are also common in this move of both corpora, especially likelihood adverbs and style adverbs. For instance:

Example 25: The initial crystalline thickness increase was *mainly* due to the crystallization of some tie chains in the amorphous region, as well as small transformation of diffuse transition layer into crystalline region (CASA-17).

Example 26: The remarkably enhanced performance of lithium electrode could *probably* be attributed to the effective

protection of a unique SEI layer; formed under the synergistic effect of LiFSI and DOL (CCSA-40).

The adverbs in the two examples are used in the interpretation of the research results. The use of style adverbs (*mainly*) in example 25 in this move suggests the writers' attitude that their explanation is rational and acceptable but there may be other possible causes behind the results. And the likelihood adverb *probably* in example 26 is to demonstrate the writers' caution and prudence in the interpretation. Both groups utilize stance adverbs to avoid being assertive in making claims, which demonstrates their respect for opinions from their community and makes their explanation of results more acceptable to the readers.

Chinese and American students have similar preferences in the choice of stance markers in the DTR move of the abstract. On the one hand, they utilize possibility and prediction modals and verbs of facilitation + *to*-clauses to show the positive impacts of the research results. On the other hand, they prefer to use *that* and *to*-clauses controlled by communication verbs and mental verbs as well as style and likelihood adverbs to show their respect for different opinions, which makes the research significance more credible. Both groups employ different stance devices in the DTR move to realize the interpersonal function of the abstract.

Discussion

Taken together, the findings reveal a similar move structure; but the divergence is apparent in the lexical-grammatical features in the dissertation abstracts by Chinese and American students.

In response to the first research question, most abstracts in both corpora include four or five moves, indicating a comprehensive understanding of the rhetorical features of the writers (Sükan and Mohammadzadeh, 2022). Within those five moves, Presenting the research, Describing the methodology, and Summarizing the findings are found in most abstracts, supporting previous research findings (Santos, 1996; Pho, 2008; Can et al., 2016; Sükan and Mohammadzadeh, 2022). This is especially true for dissertation abstracts in the current study, all of which report empirical studies in the discipline of materials science and engineering in IMRD (introduction-methods-results-discussion) format. In terms of the length of each move, the emphasis on the Summarizing the findings move by both groups conforms with the findings of El-Dakhs (2018), which is a salient feature of scientific discourse. American students put more balanced emphasis on Situating the research, Describing the method, and Summarizing the findings moves in abstracts of journal articles. In contrast, Chinese students focus more on Summarizing the findings. This is different from Ren and Li (2011) finding which shows that Chinese students over-emphasize the introduction move in MA thesis in applied

linguistics. The reason for this incongruence can be disciplinary differences. Scientific discourse, as McKenny and Bennett (2011) point out, is characterized by the presentation of facts while social science and humanities rely more on argumentation. The results of the move structure in the abstracts by the two groups suggest a larger effect of disciplinary norms than cultural factors.

In response to the second research question, we first looked at the overall lexical-grammatical features of stance in the dissertation abstracts. No significant differences were found in the total number of stance expressions in CCSA and CASA. Both groups employed stance-complement clauses the most, followed by modal and semi-modal verbs and stance adverbs. This supports Biber (2006) observation of the lexical-grammatical features of the written registers. However, Chinese students use significantly more modals and semi-modals while American students use more stance adverbs. This is in line with Çakir (2016) finding that native writers employ more stance adverbs in abstracts than L2 writers.

Although no significant differences were found between the overall frequencies of stance-complement construction in the CCSA and CASA, the use of stance verb-complement construction differed in the two corpora. Stance verb + *to*-complement construction shares a similar function to *that*-complement construction in abstracts. Both constructions are likely to appear with inanimate subjects to indicate objectiveness, and they are often controlled by verbs with a higher degree of conviction and certainty, such as *find* and *show*. The inanimate subject structure can reveal the authors' confidence in the information, thus collaboratively enhancing the persuasiveness of abstracts. However, compared to their American counterparts, Chinese students tended to limit their choice to *that*-complement construction but underused *to*-complement clauses followed by *find* and *show*. This is in line with Charles (2006) finding that *find/show* verbs are the most frequently used reporting verbs in doctoral theses in material science, displaying the author's detailed knowledge of the research.

In terms of the distribution of stance markers in different moves, the results show that three moves (Situating the research, Summarizing the findings, and Discussing the results) in abstracts in both corpora are heavily loaded with stance markers while the other two moves include few stance features. This supports Pho (2008) finding that rhetorical devices are scarcely found in Presenting the research and Describing the Method moves. Both groups preferred to use possibility modals such as *can* and *may* in Situating the research move to emphasize the importance of their research topics. The employment of modal verbs such as *may* and *can* when summarizing the previous findings to lead to their own study can reduce the definiteness of the claim concerning previous research and take the responsibility off the present writer (Pho, 2008). In Summarizing the findings move, however, possibility modals are used to show the writer's caution about the outcome of

the current study. Modals in Discussing the results move have two functions: allowing alternative interpretations of the results (with the use of possibility modals) and emphasizing the significance of the findings (with the prediction modals, such as *will*). This finding is in line with Pho (2008) observation that writers prefer to use modal verbs as hedging or boosting device in the DTR move.

Next to modal verbs, stance verb-complement clauses are the second most preferred stance device employed by both groups, particularly in Summarizing the findings and Discussing the research moves. This is most likely due to the multiple functions of verbs in conveying the epistemic meaning that is dominant in abstracts (Hyland, 2000). It is interesting to note that Chinese students use more stance verb-complement clauses in Discussing the research move while American students use more of them in Summarizing the findings moves. In the Summarizing the findings move, complement clauses followed by *find/show* verbs are used to present the writer's own findings. This is consistent with Pho (2008) finding that the principal syntactic feature of the STF move is the employment of *that*-complement structure controlled by the reporting verbs. In contrast, the complement clauses in Discussing the research move, particularly the verb of effort/ facilitation + *to*-clause, help to highlight the value of the research findings.

Stance adverbs are the least frequent stance markers used by both groups, most of which are found in the Summarizing the findings and Discussing the research moves. The frequent use of stance adverbs (*probably* and *mainly*) in Discussing the research move suggested Chinese and American students' interpretation of the research results in a cautious way. This can be attributed to the tentativeness of researchers when explaining their research findings (Pho, 2008). Despite the shorter length of Discussing the research move, abstracts by Chinese students are more densely loaded with stance expressions, particularly modal verbs, than abstracts by American students. This suggests L2 writers lack confidence when making claims based on the research findings.

Overall, the stance expressions across the five moves used by the two student groups shared similar distributional features. The DTR, STF, and STR moves are more densely loaded with stance expressions than the DTM and PTR moves in both corpora. The different functions of the moves were realized with the use of these stance features, pinpointing the necessity of conducting the study, establishing the credibility of the research findings, or highlighting the significance of the research. This indicates students' good understanding of the rhetorical function of each move and control of the degree of authorial voice expressed in each move. As pointed out by Li (2020), abstracts function to inform and persuade readers. While students in both groups are aware of discipline-specific knowledge of abstracts, the American students seemed to promote their research more consciously with the use of a variety of stance

devices than the Chinese students in the PTR, DTM, and STF moves.

Conclusion

The present study investigated the lexical-grammatical features of stance in English dissertation abstracts written by Chinese and American students majoring in materials science and engineering. Both similarities and differences were identified in the move structure in Chinese and American doctoral students' dissertation abstracts. Abstracts in both CCSA and CASA corpora include four or five moves, but American students' move structure of abstracts is generally more balanced than their Chinese counterparts, with each move present in most abstracts. In contrast, Chinese students' abstracts were characterized by a longer average length with fewer moves. Both groups underscored the significance of DTM (describing the method) and STF (stating the findings) moves in the abstracts. However, compared to their American counterparts, Chinese students concentrated more on STR (situating the research) than PTR (presenting the research) and DTR (discussing the research) in abstracts.

Some similarities and differences in the overall distribution of lexical-grammatical features could be found in the five moves of CCSA and CASA corpora. The distribution of the three main categories of stance expressions was similar in Chinese and American students' abstracts, with stance-complement clauses being the most preferred stance device and stance adverbs being the least used one. Similar features were also found in the distribution of sub-categories of these stance expressions, with both preferring possibility modals, stance verb-complement clauses, and style and likelihood adverbs. However, in comparison with their American counterparts, the Chinese students preferred modal verbs and stance verbs + *that*-clauses to express stance, but they seldom employed stance adverbs and stance verbs + *to*-clauses.

The findings of the present study have pedagogical implications for academic writing. The results suggest that Chinese students face some challenges in the textual organization of English abstracts. Since Chinese students' dissertations in material science are composed in Chinese, the required abstract in English is very likely to be translated from the Chinese abstract, maintaining the textual features of the Chinese version. Therefore, rhetorical moves and stance markers of research article abstracts should be incorporated into the instruction of academic writing (Zhang and Zhang, 2021). Teachers can highlight the importance of these moves in writing an English abstract with both informative and persuasive functions. Discussion on the differences between the writing convention in English and Chinese would benefit L2 students' English abstract writing. Additionally, writing instructors can provide students with feedback on their use

of stance markers in academic writing to make stance more visible. Some meaningful findings have emerged from the current study, yet there exist some inevitable limitations. Firstly, the sizes of the corpora are relatively small, which may restrict the generalizability of the findings. Secondly, the study focuses only on a single discipline and may not provide a comprehensive understanding of students' stance features in abstract moves. Therefore, future studies could construct a larger corpus to cover abstracts from different disciplines and conduct cross-disciplinary research on the choice of stance devices in different abstract moves. Moreover, a comparative study on the use of various stance devices in different moves of abstracts by students at different proficiency levels is also expected to provide meaningful findings.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

YL and JL conceived of the initial idea and designed the study. JL collected the data and analyzed the data. XH drafted the manuscript. YL and XH revised subsequent versions and

proofread the manuscript. YL finalized the manuscript for submission as the corresponding author. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Corpus-based analysis of shifts in China's diplomatic stance across seven decades (1949– 2018)

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This study investigates the changes in China's diplomacy in the past seven decades based on the diachronic corpus of Chinese diplomatic discourse from 1949 to 2018 using corpus based critical discourse analysis theoretical insights. The study examines the targeted keywords used in the seven periods of Chinese diplomatic discourse and their significant collocations. The results show that China has worked with the United States, Japan, the United Kingdom, and some Asian, Latin American, and African countries to safeguard world peace while opposing war, establish good relations with these countries, and promote mutual development through cooperation. In addition, China's diplomacy has experienced politics-oriented and economy-oriented eras and is now in an era of global sustainable development. Therefore, Chinese diplomatic discourse is the linguistic representation of China's diplomacy, fundamentally determined by its national interests and changing social and historical situations domestically and internationally.

KEYWORDS

China's diplomatic stance, shifts, Chinese diplomatic discourse, critical discourse analysis, corpus

Introduction

Diplomacy is “the conduct of relations between sovereign states through the medium of officials based at home or abroad, the latter being either members of their state's diplomatic service or temporary diplomats” (Berridge and Lloyd, 2012, p. 97). The subject of diplomacy of an independent sovereign state is neither an individual nor an organization or a group, but the central government (Guan, 2000; Jin, 2007). China's diplomacy is a direct source of the international community's perceptions, evaluations, and understanding of China (Hu and Li, 2018). It showcases China's foreign policies and initiatives, such as “Five Principles of Peaceful Co-existence” in the 1950s and the “Belt and Road Initiative” in the 2010s. It constitutes an essential part of China's soft power, expands China's influence home and abroad, and constructs China's national image on the international stage. Diplomatic discourse is “the linguistic and discursive actions resorted [to] by the subject of diplomacy

to express their international strategies and foreign policies in a certain historical period” (Hu and Li, 2018, p. 5). In addition, the diplomatic discourse has been regarded as “the most institutionalized political discourse of the highest level of formality” (Wu and Cao, 2011, p. 28). The Chinese diplomatic discourse is the linguistic representation of China’s diplomatic policies and domestic and international activities in which China has initiated or participated. It is also an important source for the international community to learn about China’s stances and attitudes toward domestic and international affairs.

China, being the largest developing country in the world, has been attentive to build and improve its international image through diplomacy. According to Wang (2003), China has tried, through its diplomatic discourse, to project its images as a peace-loving country, victim of foreign aggression, socialist country, bastion of revolution, anti-hegemonic force, developing country, major power, international cooperator, and autonomous actor to world in the past 40 years. It is suggested by scholars (Sun, 2020; Sun and Kong, 2020) China should strengthen its diplomatic capacity, improve the discursive system, and cooperate with different diplomatic subjects and fields globally with the international community to fight the pandemic to maintain its international image. To better disseminate its ideas to the international community, China must construct a diplomatic discourse system characterized by Chinese characteristics as well as a shared future for humankind (Sun, 2017; Lu, 2018; Ma and Ma, 2018). Studies (Xu, 2017; Liu, 2018; Afzaal et al., 2019, 2022a,b) show that differences in US and Chinese diplomatic press conferences reflect their different national interests, ideologies, and cultural traditions, and the increased use of competitive and antagonistic lexical items in China and India’s diplomatic discourse indicates the pluralism and instability between these two countries.

Previously, many studies focused on diplomatic or major events that happened in a short period, but a few studies have investigated China’s diplomacy as a whole and have examined China’s diplomacy within a comparatively longer timespan through Chinese diplomatic discourse. In this regard, this research, based on the diachronic corpus of Chinese diplomatic discourse over 1949–2018, divides China’s diplomacy into seven different periods to investigate its changes in China’s diplomacy over the past 70 years. The following questions are addressed:

1. What are the significant linguistic features of Chinese diplomatic discourse over these 70 years?
2. What are characteristics of China’s diplomacy of different periods? How has it changed in the past 70 years?
3. What factors have contributed to the changes in China’s diplomacy over different periods?

Research design

Corpus based approaches are employed for the diachronic studies to analyze the discourse of over 25 to 30 years. The research

period can be divided into several periods to examine the changes that occurred over time (Baker, 2004; Hu and Li, 2017). Primarily, this study divides China’s diplomacy into seven periods and then introduces the diachronic corpus used for the study and the primary data of the corresponding periods. As is generally accepted, discourse is the linguistic representation of social facts, and the study on discourse investigates the correlation between linguistic features and social realities and changes. This study also applies Fairclough’s three-dimensional model to analyze the interaction between linguistic patterns and social realities to examine the changes in China’s diplomatic discourses. With this model, this research adopts a corpus-based approach first to examine the linguistic features of Chinese diplomatic discourse as a whole to find out the top priorities of China’s diplomacy by scrutinizing the critical keywords of Chinese diplomatic discourse. Then it examines Chinese diplomatic discourse at different periods to analyze the characteristics of China’s diplomacy at different periods reflected through the linguistic patterns. Finally, it explores the social and historical factors that contributed to the changes in China’s diplomacy.

Division of the study period

Jin (2007) suggests that the policies and strategies of a diplomatic entity are often adjusted at different times. Indeed, researchers can “divide a long historical period into several periods following the different eras or major historical events [that] happened” (Hu and Li, 2017, p. 70). For example, the third plenary session of the 11th Central Committee of the Communist Party of China in Beijing in 1978 was a landmark moment in the country’s history, as it signaled the start of the reform and opening up era (Yang, 2008; Wang, 2015). The 2008 Beijing Olympics were another important event in China’s history, as the world could see the extent to which the country had opened further to the outside world (Yang, 2006; Bing, 2008). Drawing insights from the abovementioned scholars and based on the development of China’s diplomacy over time, this study considers these two important events as nodes. It divides China’s diplomacy into three stages and seven periods, with a span of 10 years for each period.

The first stage (1949–1978) is the initial period of China’s diplomacy. During this stage, China made great efforts to establish diplomatic relations with other countries. The first stage is subdivided into three periods. In the first period (1949–1958), the first decade of the People’s Republic of China, China initiated its diplomacy as a newly established country focusing on the bilateral relations with international community. The second period (1959–1968) was characterized by the slow development of the Chinese economy, during which domestic development, especially economic development, slowed due to the influence of the Great Leap Forward Movement and the turning of China’s relations with Russia. Finally, the third period (1969–1978) was a special period in China’s history in which it experienced twists and turns in its politics, economy, and foreign relations.

In the second stage (1979–2008), a period that saw the development of China's diplomacy, economic development was of prime significance. After implementing the reform and opening-up policy in 1978, China conducted more frequent and closer communication and exchanges with other countries to facilitate its economic development. Similar to the first stage, this period is subdivided into three periods. In the fourth period (1979–1988), the initial stage of China's reform and opening up policy, the country started to open to the outside world, and its diplomacy played an increasingly important role in facilitating exchange and communication with the world. In the fifth period (1989–1998), the Chinese economy experienced rapid development as the opening-up and reform policy accelerated. Finally, in the sixth period (1999–2008), during which China opened up even further and conducted exchanges with most countries in various fields, the Chinese economy grew faster than ever.

During the third stage (2009–2018), the seventh period, China's strength in all aspects increased constantly. It started to set agendas, formulate rules, and participate in international affairs as a significant global power. Its top diplomatic priority in this period was to build an advantageous and favorable international image.

The corpus

The present study is based on the diachronic corpus of Chinese diplomatic discourse over 1949–2018, which spans the 70 years from the founding of the People's Republic of China in 1949 to the present (2018). The texts in the corpus include the diplomatic speeches and remarks of Chinese presidents, premiers, and (vice) foreign ministers; official diplomatic documents; inter-state treaties; agreements, statements, and declarations; diplomatic negotiations; articles signed by major leaders and interviews with Chinese presidents and premiers; and diplomatic decrees and instructions. The corpus size is 2,142,156 tokens (words). [Table 1](#) lists the details.

Theoretical foundations

The study employs the theatrical underpinnings of critical discourse analysis (CDA) while taking Faircloughian three dimensional model (Fairclough, 1992). The model presents discourse as a social behavior and language as a tool for the verbal representation of social facts. CDA claims that social reality is represented through language and that discourse is an important means of social construction (Wodak and Meyer, 2016). Fairclough (1992) claims that a text should be analyzed from these three dimensions; at the “text” dimension, the linguistic analysis of the text is made; at the “discursive practice” dimension, which is the “interaction” in the “text-and-interaction” view of discourse, investigates the property of the text production and interpretation processes, including what types of discourse are selected and the

TABLE 1 Basic information of the corpus.

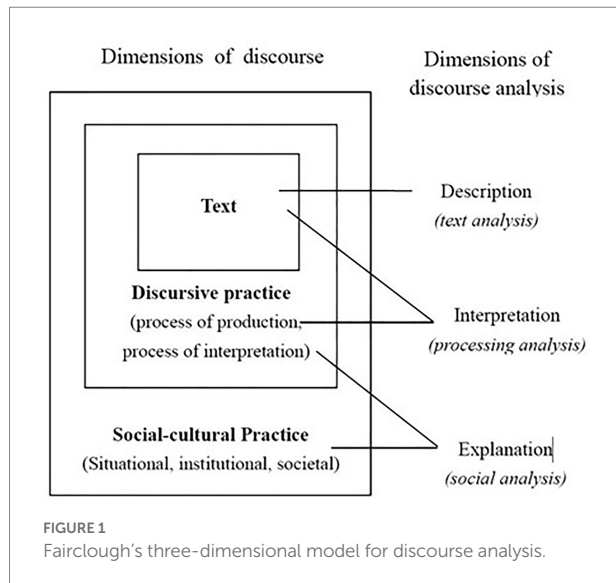
Period	Timespan	Types	Corpus size (tokens/words)
First	1949–1958	5,944	81,745
Second	1959–1968	5,005	62,577
Third	1969–1978	1,582	7,686
Fourth	1979–1988	4,318	67,855
Fifth	1989–1998	4,959	56,894
Sixth	1999–2008	9,489	293,044
Seventh	2009–2018	18,427	1,572,355
Total (tokens/words)			2,142,156

way how they are combined; and at the “social practice” dimension, the issues of social analysis are examined, such as what are the institutional and organizational circumstances of the discursive event and how the nature of the discursive practice, and the constitutive/constructive effects of discourse are constructed in the social contexts.

As the linguistic representation of China's diplomatic activities, Chinese diplomatic discourse has changed following China's diplomacy over time, resulting in ever-changing political, economic, and social situations domestically and internationally. Accordingly, investigating Chinese diplomatic discourse in different periods can reveal the changes in China's diplomacy over time. This research essentially explores the interaction between discourse and social changes, which fits Fairclough's model well. Therefore, Fairclough's model for discourse analysis is employed to analyze the interaction between Chinese diplomatic discourse and China's diplomacy ([Figure 1](#)).

Using this model, this study analyzes Chinese diplomatic discourse from the three dimensions of text analysis, discourse practice, and social practice. First, in the dimension of text analysis, the essential keywords and keywords of Chinese diplomatic discourse are analyzed. The essential keywords are those “keywords with higher recurrence rates on the keywords list of a series of texts in the observation corpus” (Wei et al., 2005, p. 169). Thus, they are shared by all the texts in the corpus, reflecting the themes under constant focus. Therefore, examining the critical keywords of Chinese diplomatic discourse sheds light on the essential factors that China has been paying attention to in its diplomacy.

The keywords are lexical items whose frequencies are much higher or lower in the observation corpus than in the reference corpus (Scott and Tribble, 2006). The investigation of keywords is a critical approach to examining the language features and actual contents of texts; it is also a significant research area in corpus-based translation studies and corpus-based critical translation studies (Hu and Li, 2015). In this sense, examining the keywords of Chinese diplomatic discourse in different periods highlights the diplomatic priorities of China over time.



The dimension of discourse practice represents the discursive practice of China's diplomatic strategies and foreign policies over time, such as the diplomatic subjects, objects, goals, scopes, and interests. Jin (2007) states that no diplomatic activity can be separated from the six elements of diplomacy: the diplomatic subject, object, foundation, purpose, method, and scope. Diplomatic strategies, the general plans for a country's diplomatic activities, usually include diplomatic ideas, diplomatic interests, diplomatic strength, diplomatic objectives, and foreign policies. Different diplomatic entities naturally enact different strategies to meet their respective diplomatic objectives. As Jin (2007, p. 109) suggested, "for the same diplomatic entity, the specific contents of its diplomatic strategies are often adjusted and changed at the different historical periods." As a discourse, the product of the social construction and discourse construction, influences society, we further analyze how Chinese diplomatic discourse reflects the social reality and changes in China's diplomacy through the changes in diplomatic subjects, objects, objectives, scopes, and interests at the discourse level in different periods.

The dimension of social practice reflects China's diplomatic strategies and foreign policies in different periods, which are determined by the social and historical conditions at that time. In other words, China's diplomatic strategies and policies are aligned with political, economic, and social changes domestically and internationally. These constantly changing strategies and policies inevitably change China's diplomatic objectives, purposes, modes, scopes, etc. Since these changes are represented linguistically through Chinese diplomatic discourse, it constantly evolves with changes in domestic and international environments. In this sense, the social, economic, and historical factors that prompt the changes in China's diplomatic policies and strategies are explored, as these lead Chinese diplomatic discourse to change over time.

Methodology and procedures

This study investigates the changes in China's diplomacy by scrutinizing the Chinese diplomatic discourse and examine in the light of the rules of language use by analyzing regular linguistic patterns. Sinclair (1991) points out that using the corpus methodology to research a large number of texts systematically can reveal linguistic facts that may have thus far been neglected. In addition, the corpus approach is a more effective research method than other methods, and its results can be verified (Leech, 1993). As it is based on the linguistic data that people use, it is not subject to interference from the researcher's personal intuition or judgment, ensuring that the research results are more realistic, reliable, and objective (Hu, 2011; Afzaal et al., 2022a,b). The procedure comprises three major steps. First, the key keywords of Chinese diplomatic discourse are examined. Seven keyword lists of Chinese diplomatic discourse and the keywords that appear five times or more are screened to create a major keyword list to examine the long-term focus of China's diplomacy. Then, the keywords of Chinese diplomatic discourse are examined. Content keywords usually highlight the theme of the texts, while functional keywords reflect their style (Li and Hu, 2017). Therefore, the examination of the keywords of Chinese diplomatic discourse over time helps us identify the priorities that China values most in each period. Finally, in the dimension of social practice, the social and historical factors that contributed to the changes in China's diplomacy are explored.

Findings

This part illustrates the results of this research by examining the critical keywords of the Chinese discourse and the keyword of the Chinese discourse of seven different periods. As discussed above, essential keywords are those keywords that appear in all the texts in the corpus, which are the patterns repeatedly used in all texts to highlight the top priorities of China's diplomacy all the time. Therefore, examining the critical keywords of Chinese diplomatic discourse in this section will first draw attention to the primary highlights of China's diplomacy over the past 70 years. In addition, the keywords are lexical items with much higher or lower frequencies. Investigating the keywords of the Chinese diplomatic discourse of different periods will reveal the focus of China's diplomacy at different periods. Accordingly, examining the keywords of the Chinese diplomatic discourse helps analyze the characteristics of China's diplomacy at different periods and then further explore the Changes in China's diplomacy over time. As a result, the scrutiny of the Chinese diplomatic discourse will, on the one hand, underline the long-term priorities of China's diplomacy over the past 70 years and, on the other, highlight the primary mission of China's diplomacy in different periods, respectively.

Key keywords and China's diplomatic stance

The keyword lists of Chinese diplomatic discourse are created using the British National Corpus as the reference corpus; the p value is set at less than 0.0001 and the cutoff point is set at 100. Then, the keywords that appear five or more times on these keyword lists are screened out and the top 20 are selected (Table 2).

As shown in Table 2, 20 key keywords appear at least five times in the seven keyword lists and these can be tentatively categorized into four groups. The first group includes *China*, *Chinese*, and *we*; the second group includes *United States*, *US*, *Asia*, and *countries/country*; the third group includes *people*, *relations*, *world*, *peace*, *peaceful*, *Taiwan*, *our*, *friendship*, and *cooperation*; and the last group includes *should* and *will*.

The first group of key keywords (*China*, *Chinese*, and *we*) is the subject of China's diplomacy, which implements its diplomatic policies and carries out its diplomatic activities and events. The concordance search results (19,608 concordance lines) show that these keywords are widely used in Chinese diplomatic discourse as the subject of China's diplomacy. For example,

"We are committed to building a harmonious world of lasting peace and common prosperity". (20070421)

The second group (*United States*, *US*, *Asia*, and *countries/country*) is the object of China's diplomacy. Since 1949, the *United States/US* has been one of the most important objects for China's diplomacy; meanwhile, China has attached great importance to diplomatic relations with countries in *Asia*, especially its neighbors such as Japan, South Korea, and India. For instance,

"We actively supported the other developing countries in taking part in the Expo, including free participation for some countries from Asia, Africa and Latin America." (20101101)

"China is the biggest trading partner of ASEAN, Japan, ROK, India and Australia and the biggest source of investment for many countries in the region." (20120705)

The third group (*people*, *relations*, *world*, *peace*, *peaceful*, *Taiwan*, *our*, *friendship*, and *cooperation*) is about the purposes and objectives of China's diplomacy, namely, to establish good relations with other countries, safeguard world peace, build friendships with people from various countries, cooperate and promote mutual development, and properly handle the question of Taiwan. The Chinese people have suffered several wars (e.g., the War of Resistance against Japanese Aggression, the War of Liberation, World War II); therefore, a major task of China's diplomacy is to safeguard world peace, while opposing war. This is repeatedly addressed on different occasions, such as,

"In a globalized world where the interests and destinies of all countries are entwined, peace is what we all desire and war is what we all detest." (20100923)

TABLE 2 Key keywords of Chinese diplomatic discourse (1949–2018).

No.	Major keyword	Freq.	No.	Major keyword	Freq.
1	China	7	11	Taiwan	6
2	Chinese	7	12	We	6
3	Countries	7	13	Cooperation	5
4	People	7	14	Country	5
5	Relations	7	15	Friendship	5
6	World	7	16	Should	5
7	Asia	6	17	States	5
8	Our	6	18	United	5
9	Peace	6	19	US	5
10	Peaceful	6	20	Will	5

China has been actively establishing good relations with countries worldwide. In 1949, it had diplomatic relations with about 10 countries, which had increased to over 170 countries by 2012 (Qi and Li, 2014).

The last category comprises the two modal verbs *should* and *will*, which reflect China's inclination and attitude toward diplomatic affairs. Halliday (1994) classifies modal verbs into three types according to their value, namely, high, medium, and low. High-value modal verbs are used to represent positive and resolute attitudes, while low-value modal verbs are used for the opposite and medium-value ones are used between these two types. In this regard, *should* and *will* are medium-value modal verbs used in Chinese diplomatic discourse to express China's positive and affirmative attitudes toward diplomatic affairs. For example,

"We should abandon the zero-sum game and the Cold War mentality, make efforts to build a new type of international relations featuring win-win cooperation ..." (20160603)

In summary, the examination of the key keywords of Chinese diplomatic discourse reveals that the objects of Chinese diplomacy have always included the United States, the former Soviet Union, Japan, the United Kingdom, neighboring countries in Asia, and nations in Latin America and Africa. The goal of China's diplomacy is to safeguard world peace and oppose war, establish good relations with people globally, and promote the common development of China and other countries. The scope of China's diplomacy is expanding constantly. In addition, China has an active and affirmative attitude toward diplomatic affairs.

Keywords and China's diplomatic stance

To create the keyword list of each period, those keywords in the major keyword list (Table 2) are excluded and the top 20 (content) keywords of each period are selected (Table 3).

Table 3 shows that among the top 20 keywords in the first three periods of China's diplomacy, many relate to international and regional politics, including the names of countries and regions

TABLE 3 Top 20 keywords in the seven periods.

First period (1949–1958)	Second period (1959–1968)	Third period (1969–1978)	Fourth period (1979–1988)	Fifth period (1989–1998)	Sixth period (1999–2008)	Seventh period (2009–2018)
Mao	Mao	Mao	Socialism	Hong	Development	Development
Soviet	Imperialism	Cambodia	Reform	Kong	Sides	International
Burma	Shek	Samdech	Hong	Development	International	Economic
Chiang	Chiang	Health	Kong	Economic	Mutual	Global
Shek	Kai	Indochinese	Socialist	World	Economic	Mutual
Imperialists	Japanese	Aggression	Mao	Sino-	Republic	security
War	Struggle	Nixon	Plenary	Reunification	EU	Sides
Kai	Japan	Sihanouk	Revolution	International	Exchanges	Exchanges
Union	Montgomery	Samdech Penn Nouth	Productive	Compatriots	Strengthen	ASEAN
Comrade	War	Norodom	Policies	Stability	Security	Promote
Stalin	Imperialists	Imperialism	Zedong	Motherland	Bilateral	Regional
Aggression	Vietnam	Cambodian	Mistakes	Straits	Promote	Africa
Korea	Troops	national	Policy	Developing	Stability	Growth
Kuomintang	Revolution	Modernizations	Principles	Socialism	Dialog	Efforts
Diplomatic	Snow	Japan	Modernization	Need	ASEM	Sustainable
Burmese	American	Zedong	Party	Defense	Regional	EU
Imperialist	Latin	Penn	Economy	HKSAR	Developing	Stability
Sukarno	Africa	Struggle	Years	APEC	SCO	Dialog
Zhou	Not	Normalization	Modernizations	Socialist	Efforts	Strengthen
Imperialism	Imperialist	Japanese	Shall	Rights	APEC	Bilateral

such as *Soviet Union*, *Burma*, *Korea*, *Japan*, *Vietnam*, and *Cambodia* and the names of political figures such as *Mao Zedong*, *Chiang Kai Shek*, *(Joseph) Stalin*, *(Bung) Sukarno*, *Zhou (Enlai)*, *(Bernard) Montgomery*, *(Edgar) Snow*, *(Edward) Heath*, *Samdech Norodom Sihanouk*, *Samdech Penn Nouth*, and *(Richard) Nixon*. The keywords also include those highlighting the themes of war and struggle, namely, *imperialist (s)*, *imperialism*, *war*, *aggression*, *Kuomintang*, *struggle*, *troops*, and *revolution*. Hence, China's diplomacy in the first three periods is characterized by its prioritization of politics over economy and others. This era is often referred to as the “politics-oriented” era (Liu, 2015).

Among the keywords in the first three periods, *Mao*, *Zedong*, and *Zhou (Enlai)* acted on behalf of China on the international stage as the subjects of its diplomacy, while the abovementioned countries and regions, as well as the political figures, are virtual objects of China's diplomacy. These keywords suggest that at the founding of the People's Republic of China, the country conducted most of its diplomatic activities with the two superpowers (i.e., the United States and the former Soviet Union), as well as some socialist countries and neighboring Asian countries.

In addition, the appearance of such keywords as *imperialist (s)*, *imperialism*, *war*, *aggression*, *Kuomintang*, *struggle*, *troops*, and *revolution* suggests that as a newly established country, China experienced wars and struggles both before and after its founding in 1949. To safeguard its sovereignty and national interests, it joined the socialist camp led by the Soviet Union and fought resolutely against such imperialists as the United States and Japan. Meanwhile, it, together with oppressed nations, launched revolutions and struggles against imperialist countries on the one

hand and fought hard against Chiang Kai-shek and Kuomintang on the other.

Except for the abovementioned keywords, the remaining keywords in the first period (1949–1958) include *comrade*, *diplomatic*, and *Burmese*. *Comrade*, as a salutation originating from the Soviet Union, refers to people with common aspirations and it is often used to address strangers. However, it was used to distinguish between the two camps (socialists and imperialists) at that time. The concordance lines of *diplomatic* show that 71 of the 91 are found in the phrase “the establishment of diplomatic relations.” This illustrates that at the beginning of the People's Republic of China, it attached great importance to the establishment of diplomatic relations with other countries. *Burmese* appears as a keyword because of the Sino-Burmese border issue. On 1 October 1960, Chinese and Burmese leaders signed the Boundary Treaty between the People's Republic of China and the Union of Burma in Beijing, the first border treaty between China and its neighboring countries.

The remaining keywords in the second period (1959–1968) include *Japanese*, *not Americans*, and *Latin*. Among them, *Latin* mainly appears in the lexical items of “Latin America” and “Latin American countries.” At the beginning of the People's Republic of China, efforts were made to establish diplomatic relations with other countries. Latin American countries, especially developing ones, were important objects of China's diplomacy. Surprisingly, *not* is among the keywords used in this period. The concordance search results show that it is mainly used to express China's stance and attitude toward foreign affairs, for example,

*"They do **not** agree with us, and we do **not** agree with them."*
(19590510)

The study uses AntConc version 3.5.7 to identify the collocates function. It is found that the keyword *Japanese* mainly appears in such expressions as "Japanese people," "Japanese aggression," "the Japanese warlord," "Japanese friends," "Japanese monopoly capitalists," "the Japanese government," "the Japanese imperialist," and "Japanese militarism." These expressions show that diplomatic relations between China and Japan were complicated at that time, including positive and negative aspects.

The remaining keywords in the third period (1969–1978) include *Indochinese*, *Cambodian*, *national*, *modernizations*, and *normalization*. The concordance search results show that most occurrences of *Indochinese* are in the expression of "Indochinese People against US aggression," which highlights China's advocacy that Indochinese people should unite to fight foreign aggression. In 1978, China held the third plenary session of the 11th Central Committee of the Communist Party of China, making the strategic decisions to implement the reform and opening up policy and shift its focus from class struggle to socialist modernization as well as the normalization of relations with Japan and the United States. This is why these three keywords (*national*, *modernizations*, and *normalization*) appear as keywords. Such statements are frequently seen in Chinese diplomatic discourse in this period, for example,

*"At present the Chinese and American people strongly desire the **normalization** of relations between the two countries and the relaxation of tension."* (19720221)

Table 3 presents the keywords in the fourth and fifth periods are significantly different from those in the first three periods. The number of economy-related keywords is rising, while that of politics-related keywords has declined. In addition, with changes domestically and internationally, the theme of the time has changed from "war and revolution" to "peace and development." As pointed out by Deng (1993), there were two global strategic issues at that time: peace and development. Among these two issues, development was the more important. The priority of China's diplomacy during these periods aimed to promote national economic development, and it is often referred to as the "economy-oriented" era (Chen, 2012; Liu, 2015). In addition, the unification of Hong Kong and Macao, which was important for China's diplomacy, meant that such keywords as *Hong Kong*, *reunification*, *motherland*, *compatriots*, *socialist*, *socialism*, and *HKSAR* appeared among the top 20 keywords, which suggests that China prioritized this in its diplomacy during these periods.

In the fourth period, there are still some political keywords such as *socialism*, *socialist*, *revolution*, *Mao Zedong*, and *Party*. Economy-related keywords such as *reform*, *productive*, *policies*, *policy*, *modernization* (s), and *economy* were added into the list of the top 20 keywords. As mentioned above, China was shifting its priority from the establishment of the country to economic

development and modernization. The concordance search result of the keyword *Plenary* shows that all its occurrences are in the lexical chain of "the third plenary meeting of the Central Committee of the Communist Party of China," which marked the beginning of China's reform and opening up period. This meeting has been highlighted as "a great turning point with far-reaching significance" (Yang, 2011, p. 43). In addition, the modal verb *shall* ranks 20th on the keyword list, which is used to indicate China's positive and assertive attitude toward what is being discussed, for example,

*"We **shall** station troops there to safeguard our national security, not to interfere in Hong Kong's internal affairs."* (19840622)

Among the keywords in the fifth period, in addition to economy-related keywords such as *development*, *economic*, *world*, *international*, *developing*, and *APEC* and those related to the reunification of Hong Kong and Macao such as *Hong Kong*, *reunification*, *compatriots*, *stability*, *motherland*, *straits*, *HKSAR*, and *rights*, the remaining keywords include *Sino*, *need*, and *defense*. The concordance search results show that all the occurrences of *Sino-appear* in the expressions of "Sino-US" (35 times), Sino-Japanese (14), Sino-Russian (9), Sino-African (9), Sino-Indian (4), Sino-Britain (2), Sino-Armenian (2), and Sino-Indonesian (1) to describe China's relationships with these countries. The top five significant collocates (5: 5) of the keyword *defense* are *technology*, *national*, *active*, *strategy*, and *development*, which reflects China's determination to strengthen its defense technology and capacity, for instance,

*"However, this in no way indicates that we can ignore **technology**. We need to work hard to develop **defense technology**; this is also an important strategic issue."* (19910608)

Still, there is a modal verb *need* on the keyword list in the fifth period. The concordance search results show that it is used to indicate China's attitude toward and need for economic development, such as,

*"... we **need** to keep economic development as our central task while promoting all-around social progress."* (19980721)

As shown in Table 3, the top 20 keywords in the sixth and seventh periods are no longer limited to one or two specific aspects of China's diplomacy such as politics and the economy, but are diverse, covering different aspects, including the economy, politics, security, cooperation and development, and global issues. Among the top 20 keywords in both periods, 16 are the same, namely, *development*, *international*, *economic*, *mutual*, *security*, *sides*, *exchanges*, *ASEAN*, *promote*, *regional*, *efforts*, *EU*, *stability*, *dialog*, *strengthen*, and *bilateral*. By category, politics-related keywords include *ASEAN*, *bilateral*, *sides*, and *regional*; economy-related keywords include *development*, *international*, *economic*, *mutual*, and *EU*; security-related keywords include *security*,

stability, dialog, and exchanges; and development-related keywords include *strengthen*, *promote*, *cooperation*, and *development*. Some keywords appear in multiple categories, such as *development*, *strengthen*, *promote*, *EU*, and *efforts*. In this regard, China's diplomacy is referred to as the new era of diplomacy (Jin, 2007; Liu, 2015).

As shown in Table 3, economy-related keywords such as *development*, *international*, and *economic* rank high on both lists, reflecting that economic development remains one of the top priorities in China's diplomacy. Meanwhile, the frequent occurrences of keywords such as *EU*, *ASEAN*, *SCO*, *APEC*, *regional*, *bilateral*, *exchanges*, and *sides* indicate that China works with different international organizations and countries across regions to maintain international and regional cooperation and exchanges. In the 21st century, China actively promotes bilateral and multilateral diplomacy and contributes its wisdom and solutions to global governance through a series of diplomatic strategies, policies, and initiatives such as APEC, the Belt and Road Initiative, the Asian Infrastructure Investment Bank, and the so-called Major Country Diplomacy with Chinese Characteristics program. In addition, *security* and *stability* rank high on both keyword lists, which reveals that China attaches great importance to global and regional security issues as well as to maintaining *stability* in international and domestic situations to create favorable conditions for its domestic development, for example,

"The heads of state supported building ties between the SCO and the Collective Security Treaty Organization and adopting coordinated efforts between the two organizations in maintaining regional and international security and addressing new threats and challenges." (20070823)

In addition, two verbs, *promote* and *strengthen*, appear as keywords on the list. To see their specific contexts, Table 4 lists their significant (mutual information value > 3) collocations (5:5).

Table 4 shows that except for such functional words as *and*, *to*, *the*, *of*, and *in*, the significant collocations of *promote* and *strengthen* are *cooperation*, *development*, *we*, *will*, and *economic*. The frequent occurrences of these significant collocations indicate that China still emphasizes promoting and strengthening its economic development, which is crucial for its diplomacy.

The modal verb *will* shows the positive attitude of China and its frequent collocation with *promote* and *strengthen* forms a positive semantic prosody, which directly expresses China's positive attitude toward and determination to promote and strengthen international and regional cooperation to ensure economic development through diplomacy. Moreover, the word *mutual* ranks fourth and fifth on the keyword list in these two periods. The search result for clusters 2–5 shows that it mainly appears in these four phrases: *mutual benefit* (230 occurrences), *mutual trust* (155), *mutual understanding* (114), and *mutual respect* (110). The high frequency of such expressions suggests that when dealing with international affairs, China attaches much importance to the benefits of its partners and values the trust,

TABLE 4 Top 10 significant collocations of *promote* and *strengthen*.

Ranking	Collocation	Mutual information value	Frequency
1	And	5.17918	1,673
2	To	5.51722	1,022
3	The	4.04530	892
4	Cooperation	6.31602	602
5	Of	3.94285	457
6	In	4.49260	403
7	Development	5.44652	293
8	We	4.98734	202
9	Will	5.32409	169
10	Economic	5.44934	169

understanding, and respect between them, which is repeatedly addressed on different occasions, for example,

"After fifty years of development, China-Arab relations have entered a period of maturity and stability and can boast a wealth of experience as follows: politically, mutual respect and equality; economically, mutual benefit and win-win cooperation; and culturally, mutual enrichment and complementarity." (20060531)

Except for the shared keywords, another four words are on the keyword list in the sixth period, namely, *Republic*, *developing*, *SCO*, and *APEC*. Among these, *Republic* mainly appears in the names of countries such as *the People's Republic of China*, *the Republic of Tajikistan*, *the Republic of Korea*, *the Republic of Macedonia*, *the Republic of South Africa*, *the Federal Republic of Yugoslavia*, and *the Republic of India*, indicating that China has diplomatic exchanges with various countries. The concordance search results reveal that the keyword *developing* appears only in the two phrases of *developing countries* and *developing country*, which suggests that China, as a large developing country, values its cooperation with other developing countries and cares about their development, for example,

"High priority should be given to boosting cooperation in human resources development and capacity building in the financial sector, especially financial capacity building for developing countries. China supports exploring the possibility of setting up a new financing mechanism for cooperation on the basis of the Asia-Europe Trust Fund to provide funding for future financial dialogue and capacity building." (20060910)

Another two keywords, *SCO* and *APEC*, are the names of international organizations in which China plays an important role. As repeatedly addressed by the members of the SCO and economies of APEC, the purposes and principles of these organizations are "to help consolidate regional security and stability and promote the common development of countries in

the region” and “to reduce tariffs, improve customs efficiency, close the gap between developing and developed economies, combat climate change, dismantle terrorist networks, increase transparency, and stimulate economic integration.” As a member of international organizations, China participates in international affairs and contributes its vision and wisdom to global development, peace, security, and stability.

The remaining keywords in the seventh period (2009–2018) are *global*, *Africa*, *growth*, and *sustainable*. To see the context of *global*, clusters 2–5 are generated with AntConc 3.5.7 and the results show that the top 10 lexical clusters with the highest frequencies are *global economy* (244 occurrences), *global governance* (238), *global challenges* (222), *global economic governance* (218), *global development* (171), *global growth* (144), *global issues* (117), *global trade* (99), *global economic growth* (89), and *global financial crisis* (89). The frequent appearance of these lexical items in Chinese diplomatic discourse suggests that China, through its diplomacy, pays much attention to these global issues, particularly the global economy, global development, and global governance. This further indicates that it sees the world as having a shared future and that its diplomacy aims to address the issues that concern all people globally.

Africa, which also appears as a keyword on the list, has been one of China’s important objects since its founding in 1949. To see its context, its collocation list is generated with the Collocates function of AntConc 3.5.7 and the top five significant collocations are *China*, *cooperation*, *development*, *will*, and *relations*. These high-frequency collocations show that China values cooperation and relations with countries in Africa and strives to promote the development of the continent, for example,

“*China has done its best to help Africa’s development. Yet China is always grateful to African countries and people for their firm support and selfless help over the years.*” (20130325)

Further, *sustainable* and *growth* appear on the list of keywords for the first time. The concordance search results show that all the occurrences of *sustainable* are paired with *development* in the expression of *sustainable development*, describing China’s goodwill in its diplomatic relations, exchanges, and cooperation with countries globally, for example,

“*We are committed to green and sustainable growth, and addressing environmental challenges through closer practical cooperation.*” (20141112)

In summary, the investigation of the keywords in these seven periods shows that China’s diplomacy has evolved from being politics-oriented in the early days of its founding in 1949 to economic development being the main task since the reform and opening up period in 1978, and then to global sustainable development in the new era. Likewise, the scope of Chinese diplomacy has expanded from establishing diplomatic relationships with the former Soviet Union and other socialist

countries, neighboring countries, and Latin American developing countries to maintaining diplomatic exchanges and cooperation with countries globally. The purpose of China’s diplomacy has also changed dramatically over time, as it aimed to achieve sovereign independence and restore its legitimate seat at the United Nations in the first three periods, to facilitate economic development and safeguard the peaceful reunification of Hong Kong and Macao with the Mainland in the fourth and fifth periods, and to actively participate in global governance to maintain global cooperation and development in politics, the economy, and security as well as the common progress and development of humankind in the new era.

Discussion

The study unveils that language is a form of social representation that “can fully represent the status quo, development and changes in the society” (Di, 2011, p. 69). Chinese diplomatic discourse is the linguistic representation of China’s diplomacy and reflects its focus, which varies in accordance with the changes in the political, economic, and social conditions domestically and internationally. To achieve diplomatic purposes in different periods, China has adopted diverse strategies and policies to safeguard its national sovereignty and territorial integrity, create international conditions for national development, maintain world peace, and promote human progress.

The fundamental purposes of China’s diplomacy stated in the provisions of China’s constitutions and other documents and by the Chinese leaders on such international occasions as the General Assembly of the United Nations, are to safeguard national sovereignty and territorial integrity, to create international conditions for national development, and to maintain world peace and promote the progress of humankind (Qu and Zhong, 2012, pp. 1–2). The key keywords, as examined by this research above, together with their respective linguistic contexts, show that China has attached great importance to world peace and its sovereignty and territorial integrity, its economic development and the progress of the humankind.

The study results reveal that the top priority of China’s diplomacy is to safeguard China’s sovereignty and territorial integrity. Since its founding in 1949, China has taken the maintenance of national sovereignty and territorial integrity as the primary task of its diplomacy, and it has resolutely participated in several wars in the 1950s and 1960s to protect the sovereignty of China’s borders and the peace of the border areas. Furthermore, since the reform and opening in 1978, China has firmly established mutual respect for sovereignty and territorial integrity as the basic principle of bilateral relations while developing relations with western developed countries (Tian, 2020). China’s diplomacy encouraged other countries to recognize its independent and sovereign status and thus a legitimate diplomatic subject because “only countries with independent sovereignty can become a

diplomatic subject” (Jin, 2007, p. 8). In 1949, China only forged diplomatic relations with the former Soviet Union and some socialist countries and adopted such diplomatic strategies as “Leaning to One Side” to seek their support. It also engaged in several wars, to provide a stable environment for domestic development. As the linguistic representation of China’s diplomacy, the keywords of Chinese diplomatic discourse of the first three periods, are characterized by the names of countries, leaders of states, political figures, and wars and struggles against imperialist countries and Kuomintang at the domestic and international levels in the first three periods. Accordingly, China’s diplomacy with this period (1949–1978) is characterized by war and struggle, and it is labeled as the “Politics-Oriented” period.

Another important mission of China’s diplomacy is to create international environment for China’s development and rejuvenation. As a nation just rose from the semi-colonial and semi-feudal society, China’s national strength was weak, and it had no other choice but to seek for international status, equality and cooperation through struggle when dealing with these world powers during 1950s to 1970s. After fighting with the western world for more than 20 years, China has successively won recognition of major western countries and established various constructive partnerships with them. Meanwhile, China’s cooperation with the Soviet Union also experienced twists and turns, and finally established a strategic partnership of equal cooperation on a new basis. In addition, China also handled its relations with developing countries in an equal manner, which helped China win their praises and opportunities for economic cooperation (Tian, 2020).

The maintenance of sovereignty and territorial integrity is only the basic premises for China’s economic and social development and rejuvenation, while the economic and social development requires the establishment of friendly and cooperative relations with various countries. It is suggested by Marx and Engels (1995, p. 695) that during social development, the economic factor is “fundamentally the decisive factor in the historical process.” as pointed out by Deng (1993) development is even more important than other problems and China adjusted its diplomatic policies and strategies to promote national economic development since the fourth period. Accordingly, it has adopted such diplomatic strategies as “non-alignment (*Bujiemeng*),” “keeping a low profile to make a difference (*Taoguang Yanghui, Yousuo Zuowei*),” and “insisting on keeping a low profile to actively make a difference (*Jianchi Taohui, Jiji Zuowei*)” to create an environment and opportunities for economic development. Since 1978, China has implemented its reform and opening up policy.

Through economic exchanges and cooperation as well as technological advancement, the Chinese economy has developed rapidly. The scope of China’s diplomacy has since expanded further, and China is now recognized as an independent sovereignty by most countries worldwide. Therefore, economy-related keywords have largely replaced politics-related ones to highlight the characteristics of China’s diplomacy, especially given

the prioritization of economic development since 1978. Indeed, China has joined more than 130 intergovernmental organizations and signed over 300 multilateral treaties since then (Qu and Zhong, 2012, pp. 349–350), and the breadth and depth of its diplomacy has advanced. China’s economy experienced rapid growth within this period and China has become the 2nd largest economy in the world since 2011, and China’s diplomacy of this period (1979–2008) is characterized by its economic development, and this period in China’s diplomacy is labeled as the “Economy-oriented” Period.

China has long taken world peace and the progress of humankind as another vital mission of its diplomacy. China has been a victim of war of aggression many times in its history and has a strong desire for world peace. It has learnt from history that only in a peaceful international and domestic environment can it be free from wars between major countries, can it quickly heal the wounds caused by these wars, and can it win the historical opportunities for developing its economy and improving its people’s lives (Tian, 2020). Therefore, China has proposed many internationally recognized diplomatic principles, such as the Five Principles of Peaceful Coexistence, “to seek common ground while shelving differences” and “unity without uniformity” (Zhang, 2015, p. 197). Moreover, China has solved international disputes by applying these diplomatic concepts and principles and has achieved much with its foreign affairs policy. For instance, it has actively participated in UN peacekeeping operations to safeguard international peace and security. By February 2019, China had sent nearly 40,000 peacekeepers and completed more than 300-armed escort patrols. In addition, China promotes the progress of humankind through its diplomacy. China has been advocating the equality of all countries, the peaceful coexistence of countries with different social systems, the reform of the old international political and economic order, the democratization of international relations, the promotion of multi-polarity, the settlement of disputes between countries through consultation, the handling of international affairs through multilateralism, the establishment of a harmonious world of multiple coexistence, mutual benefit, and win-win results (Tian, 2020). Besides, China has continuously helped other countries, Albania and Vietnam in particular, achieve development and progress through its diplomatic measures and assistance. China’s assistance to Albania reached nine billion yuan from 1954 to 1978, equivalent to more than CNY 4,000 *per capita* (Qu and Zhong, 2012, p. 187). China also shares its development achievements and experience through diplomacy to promote economic development and achieve common progress. For example, it vigorously promotes such diplomatic strategies as the Major Country Diplomacy with Chinese Characteristics program, with an aim to build a shared future; develop relations with neighboring countries based on friendship, good faith, mutual benefits, and inclusiveness; and assist developing countries in Asia, Africa, and Latin America.

China's overarching aim is to provide its programs and wisdom to enhance global governance and benefit people globally, which helps present it as a responsible country. China's diplomacy during this period (2009–2018) no longer focuses on politics or the economy. Instead, it has shifted to global cooperation and development to promote the progress of humankind, which scholars label the “New Era.”

Conclusion

The study explored through the diachronic corpus of Chinese diplomatic discourse from 1949–2018 the long-term changes in China's diplomacy over these 70 years from a discursive perspective. The examination of Chinese diplomatic discourse shows that the significant objects of China's diplomacy include the United States, the former Soviet Union, Japan, the United Kingdom, and countries in Asia and Africa. China's diplomacy aims to safeguard world peace while opposing war, promote development through cooperation, and establish good relations with people globally. The study identified that China's diplomacy has constantly expanded from diplomatic exchanges with socialist and neighboring countries in the first three periods to communication and exchanges with more countries in the subsequent periods and global diplomatic exchanges and cooperation in various fields in the 21st century. Moreover, the content of Chinese diplomacy varies across periods. In the first three decades, establishing the country was the primary task of China's diplomacy. Since its reform and opening up in 1978, the focus of China's diplomacy has shifted to economic development. China's diplomacy in the 21st century is global. Its priority is no longer on one aspect of national development but rather on safeguarding global stability and security, enhancing bilateral and multilateral cooperation, and promoting sustainable development worldwide. Hence, in different historical periods, China's diplomacy has varied in its content, scope, and purpose depending on the domestic and international social, economic, and historical conditions, which is linguistically represented through Chinese diplomatic discourse.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Bibliometric assessment of world scholars' international publications related to conceptual metaphor

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Research on metaphor has gained increasing attention of world's scholars since the publication of Lakoff and Johnson's collaborated book *Metaphors We Live By* in 1980. The present study comprises a pioneering review of publications on Conceptual Metaphor Theory (CMT). It aimed to use the CiteSpace software to provide a clear overview of international research in relation to CMT. In total, 4,458 bibliometric recordings ranging from 1980 to 2022 were collected from the Web of Science (WOS) Core Collection. The descriptive analysis presents the trend of annual publications, the top 10 most prolific journals and the top 10 most productive authors. A document co-citation analysis was conducted via CiteSpace to navigate the key documents in this field. A visualization of keywords and its cluster analysis were conducted to show the research fields and dominant topics. The top 5 keywords with high frequency were language, comprehension, conceptual metaphor, discourse, and figurative language. The most prominent 5 clusters are labeled as right hemisphere, self, time, teacher education, and corpus linguistics. The present review through CiteSpace flags the need for more investigations of CMT from more aspects or interdisciplinary studies, such as metaphor translation, metaphor in literature, metaphor and corpus linguistics, etc.

KEYWORDS

Conceptual Metaphor Theory, hot topics, bibliometric analysis, CiteSpace, research trend

Introduction

Traditionally, metaphor was considered as a kind of rhetorical flourish that deviates from ordinary language. Moreover, metaphor was viewed as a matter of language alone, not a matter of thought or action. In 1980, Lakoff and Johnson challenged the traditional view of metaphor in their seminal book *Metaphors We Live By*, arguing that metaphor is ubiquitous in everyday life, not just in language, but also in thought and action, that is to say, our conceptual system is fundamentally metaphorical (Lakoff and Johnson, 1980, p. 3). Our conceptual system plays a key role in defining our everyday realities. If

our conceptual system is metaphorical, then what we do, what we experience and the way we think in daily life, is mainly a matter of metaphor. Therefore, metaphor is very important in our everyday life, thus we cannot live without metaphor, as the title of the book suggests that metaphors are the things we live by.

In order to differentiate it from traditional view of metaphor, the metaphor theory proposed by Lakoff and Johnson (1980) is called Conceptual Metaphor Theory (CMT for short). The view that our conceptual system is metaphorical has aroused a large number of scholars' interest in metaphor research from different disciplines since 1980. Based on the view that abstract concepts are largely metaphorical, Lakoff and Johnson (1999) proposed Embodied Philosophy, which challenges the western philosophical tradition and is considered as the philosophical foundation of Cognitive Linguistics. Besides linguistics, CMT has had great impact on other disciplines. International publications concerning CMT have proliferated across disciplines, such as linguistics, cognitive science, philosophy, literature, anthropology, sociology, etc. However, there is no systematic review on metaphor research till now. It seems that a comprehensive review of studies on CMT cross disciplines is in need. Therefore, the present study intends to conduct a bibliometric analysis of articles related to CMT collected in the database of Web of Science Core Collection with the aid of CiteSpace to present the *status quo* in the area of CMT. Specifically, the following questions will be addressed in this study:

Q1: What are the most fruitful journals and who are the most productive authors in the field of CMT research?

Q2: What are the critical articles in the field of CMT research?

Q3: What are the active research areas and the recent trends in CMT research?

Methods

Data collection

To understand how CMT research has developed since 1980, the present study collected articles/reviews through an advanced search in the Web of Science (WOS) Core Collection of Thomson Reuters, SSCI, and A&HCI sections for the bibliometric analysis. All collected articles/reviews were written in English, and we retrieved the data using the following fields:

1. Title = ("metaphor*"), which means that only articles with "metaphor" in the title will be retrieved.

2. Time span = 1980–2022
3. Document type = article OR review
4. ("*" is a wildcard in WOS that represents any group of characters, including no character. For instance, metaphor* = metaphor, metaphors, and metaphorical, etc. Besides, in this article, the review articles do not include book reviews).

7,708 papers in total were obtained from the database distributed in various WoS categories such as "linguistics," "psychology," "neurosciences," "philosophy," "communication" and "education." The present study attempted to focus on CMT, but not on traditional view of metaphor. Therefore, the category of "literature (643)" is excluded since its studies are not from the perspective of CMT, but are considered as a traditional literal device. Finally, only 4,458 documents were obtained, which were collected from WoS categories of "linguistics," "psychology experimental," "education research," "communication," "philosophy," "religion," "humanities multidisciplinary," "psychology multidisciplinary," "social sciences interdisciplinary," "neurosciences," "psychology," "anthropology," "sociology," "art," "history," "cultural studies" and "political studies."

Instrument

CiteSpace 6.1 R2, a bibliometric analysis program created by Chen (2004), is the technology used in this study (Chen, 2004, 2006, 2017; Chen et al., 2010; Chen and Song, 2019). A quantitative strategy for assessing and analyzing the body of literature in a particular topic is provided by bibliometric analysis (Mou et al., 2019, p. 221; Chen, 2020). As one of the most popular bibliometric tools, CiteSpace is "a Java application for analyzing and visualizing co-citation networks" (Chen, 2004, p. 363). It provides a range of analyses, including reference journal analysis and keyword analysis, to assist academics spot present and upcoming research trends in an area (Mou et al., 2019). Although there is a significant amount of international research on CMT, relatively few studies have used bibliometric techniques to examine this literature. The purpose of this study is to conduct a bibliometric analysis of CMT research from 1980 to 2022 using the CiteSpace software. Visual analytical software called CiteSpace is frequently used to carry out bibliometric analyses (e.g., Ellegaard and Wallin, 2015; Peng and Hu, 2022).

A collection of bibliographic data files in the field-tagged Institute for Scientific Information Export Format constitute the software's input. The files used in this investigation are taken from the WoS core collection. We select "full record and cited references" as the record content, and CiteSpace tool can directly identify the files. The following procedural processes will be carried out on the files once they are loaded into the software: time slicing, thresholding, modeling, pruning, merging, and

mapping (for more information, see [Chen, 2004](#)). Cocitation networks are represented as the software's outputs, and each network is shown in its own interactive window interface. It can illustrate the overall state of a particular field, show the evolution of a knowledge field on a citation network, and highlight some important documents in the development of a field. The analysis and visualization of thematic structures and research hotspots is where CiteSpace excels. It can give us networks of co-citations between references, authors, countries, etc.

Co-citation documents and keyword co-occurring analysis were carried out in this study using this software to find significant references, identify research trends, and identify research hotspots in the international research on CMT.

Results

Publication years, journals, and productive authors on metaphor

In total, 4,458 articles and reviews about CMT research met the criteria. [Figure 1](#) shows the number of articles published annually on metaphor since 1980. There is only 1 publication in 1980, 2 publications in 1981, and no publication in 1982. In 1983, there is a huge surge with 59 publications on metaphor.

After 1983, there is a continued growth in general, and in 2021, the number of articles pertaining to metaphor reaches the peak with 251 publications.

[Table 1](#) presents the top 10 most fruitful journals for metaphor study. *Metaphor and Symbol*, as the only SSCI journal specializing in metaphor study, ranked the top in the number of published articles, with 304 publications related to metaphor. *Journal of Pragmatics* ranked the second in the number of published articles, with 98 publications about metaphor, followed by *Semiotica* and *Frontiers in Psychology*, with 70 and 65 publications on metaphor respectively. *Review of Cognitive Linguistics* and *Cognitive Linguistics* are journals which only publish topics related to the linguistic school of Cognitive Linguistics, and metaphor is one of the most studied sub-fields in Cognitive Linguistics, so *Review of Cognitive Linguistics* (47) and *Cognitive Linguistics* (41) ranked the fifth and sixth in the rankings. They did not rank the top three because they only publish about 20 papers each year. Metaphor researchers can refer to [Table 1](#) to find suitable journals as their papers' outlets when they are considering a submission.

[Table 2](#) presents the top 10 most productive authors for metaphor study. Gibbs ranked the top in the number of papers published on metaphor (33), followed by Faust (24) and Steen (23). Steen is the pioneer of Deliberate Metaphor Theory ([Steen, 2010, 2015](#)). Among the top ten most productive authors, Faust,

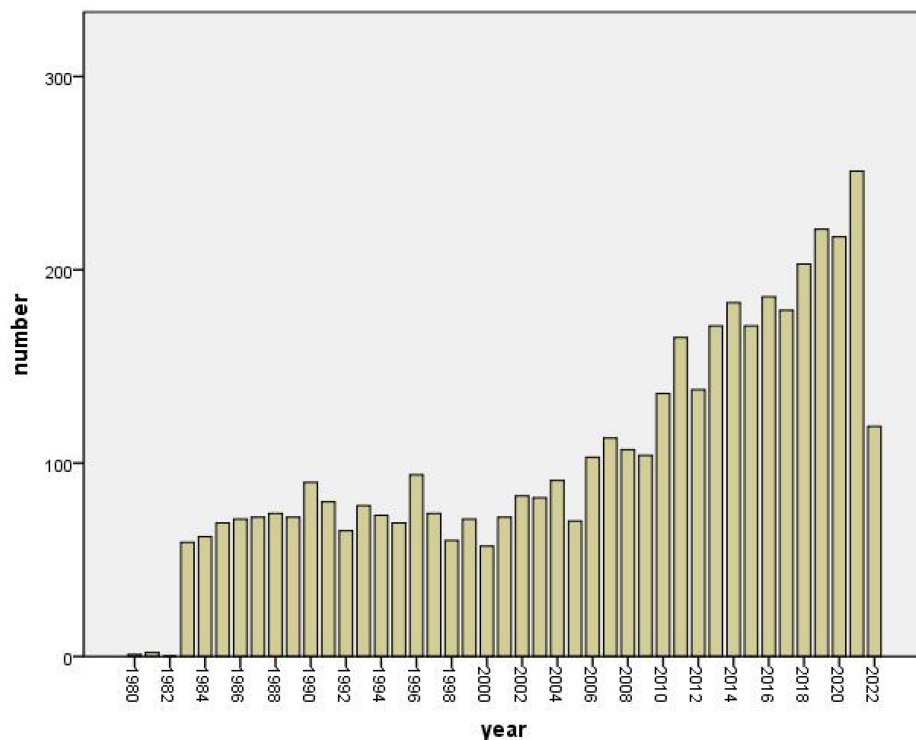


FIGURE 1
Annual publication on metaphor in WoS.

TABLE 1 Top 10 most prolific journals for metaphor study.

Ranking	Journals	The number of published papers
1	<i>Metaphor and Symbol</i>	304
2	<i>Journal of Pragmatics</i>	98
3	<i>Semiotica</i>	70
4	<i>Frontiers in Psychology</i>	65
5	<i>Review of Cognitive Linguistics</i>	47
6	<i>Cognitive Linguistics</i>	41
7	<i>Journal of Psycholinguistic Research</i>	37
8	<i>Brain and Language</i>	32
9	<i>Discourse Society</i>	27
9	<i>IBERICA</i>	27

TABLE 2 Top 10 most productive authors for metaphor study.

Ranking	Authors	The number of published papers
1	Gibbs, W.	33
2	Faust, M.	24
3	Steen, J.	23
4	Mashal, N.	22
5	Katz, N.	18
6	Semino, E.	16
7	Glucksberg, S.	15
7	Littlemore, J.	15
7	Ritchie, D.	15
10	Burgers, C.	14
10	Kennedy, M.	14

Mashal (top 4, 22), and Katz (top 5, 18) are all mainly focusing on the cognitive processing of metaphor.

Document co-citation analysis

The citation frequency of literature is a basic index for academic circles to evaluate the influence of literature. The higher the citation frequency is, the higher the application value and reference value of a literature are, and its research methods or conclusions have exerted an important influence in this field. Document co-citation analysis via CiteSpace can help us find out the key documents in a knowledge domain. We conducted a document co-citation analysis of the 4,458 documents collected from the WoS. The 4,458 bibliographic recordings from 1980 to 2022 were visualized. We chose a three-year time slice and selected the top 50 most cited articles in every 3 years. The results are illustrated in Figure 2. There were 1,134 individual nodes and 4,008 links, representing cited articles and co-citation relationships among the whole data set, respectively. Table 3 presents the top 10 most cited publications in the field of metaphor study.

From 1980 to 2022, a total of 27 documents were cited for more than 20 times. The most cited document is a book written by Lakoff and Johnson (1980). It is cited most because it's a seminal book which changes our understanding of metaphor. It argues that metaphor is not only a rhetoric device, but importantly, it is a way of thinking. In a word, our conceptual system is fundamentally metaphorical. The work of Lakoff and Johnson (1980) serves as the foundation for the cognitive linguistic approach to metaphor. It draws attention to the conceptual, as opposed to purely linguistic character of metaphor. A "mapping" from a "source (conceptual) domain" to a "target domain" is how it defines metaphor. So a statement like "I defended my argument" can be explained by a conceptual metaphor ARGUMENT IS WAR, where "argument" is the target and "war" is the source. Conceptual Metaphor Theory (CMT) is an influential theory in Cognitive Linguistics and publications about CMT have proliferated since 1980.

The second most cited document is a monograph by Kövecses (2010). It is an introduction to CMT. It provides an overview of what has happened in the past three decades in the cognitive linguistic study of metaphor since 1980. It is easy to read and it can help those who are not familiar with CMT to get a quick overview of the current state of metaphor theory.

Bowdle and Gentner (2005)'s article is the third most cited one. How metaphors establish mappings between concepts from different domains is a key issue in metaphor study. The structure-mapping theory is used by the authors to propose an evolutionary path. This hypothesis—the career of metaphor—postulates a shift in mode of mapping from comparison to categorization as metaphors are conventionalized. The language that people employ to make figurative assertions also reflects this processing shift, as shown by three experiments. The career of metaphor hypothesis offers a unified theoretical framework that can resolve the debate between comparison and categorization models of metaphor. According to this account, the degree of conventionality and linguistic form of a metaphor will determine whether it is processed directly or indirectly, whether it operates at the level of an individual concept or at the level of a complete conceptual domain.

The fourth most cited publication was written by Pragglejaz Group (2007) about how to identify metaphorically used words in discourse. For metaphor researchers, how to identify and explicate metaphoric language in real discourse is a key issue. This article provides a practical Metaphor Identification Procedure (MIP) for metaphor researchers to follow. Its general purpose is "to provide a research tool that is relatively simple to use and flexible for adaptation by scholars interested in the metaphorical content of realistic discourse" (Pragglejaz Group, 2007, p. 2). To date, MIP is the most widely used metaphor identification tool. Most of the metaphor scholars used MIP to find metaphorically used words in discourse.

Gibbs' (2006) monograph ranked the fifth most cited publication on metaphor. This book examines how some of the



TABLE 3 The top 10 most cited publications in metaphor study.

Citation count	Author (year)	Publication name	Journal or press
131	Lakoff and Johnson (1980)	<i>Metaphors We Live By</i>	Chicago: University of Chicago Press
104	Kövecses (2010)	<i>Metaphor: A practical introduction</i> (2nd ed.)	Oxford University Press
41	Bowdle and Gentner (2005)	The Career of Metaphor	<i>Psychological Review</i>
39	Pragglejaz Group ¹ (2007)	MIP: A Method for Identifying Metaphorically Used Words in Discourse	<i>Metaphor and Symbol</i>
31	Gibbs (2006)	<i>Embodiment and Cognitive Science</i>	Cambridge University Press
31	Kövecses (2015)	<i>Where Metaphors Come from: Reconsidering Context in Metaphor</i>	Oxford University Press
30	Mashal et al. (2007)	An fMRI investigation of the neural correlates underlying the processing of novel metaphoric expressions	<i>Brain Lang.</i>
29	Lakoff and Johnson (1999)	<i>Philosophy in the Flesh: the Embodied Mind & its Challenge to Western Thought</i>	Chicago: University of Chicago Press
27	Musolff (2016)	<i>Political Metaphor Analysis: Discourse and Scenarios</i>	Bloomsbury Academic
26	Semino et al. (2018)	An integrated approach to metaphor and framing in cognition, discourse, and practice, with an application to metaphors for cancer	<i>Applied Linguistics</i>

¹The original members of Pragglejaz were Peter Crisp (Chinese University of Hong Kong), Raymond Gibbs (University of California, Santa Cruz), Alice Deignan (University of Leeds), Graham Low (University of York), Gerard Steen (Vrije University of Amsterdam), Lynne Cameron (University of Leeds/The Open University), Elena Semino (Lancaster University), Joe Grady (Cultural Logics), Alan Cienki (Emory University), and Zoltan Kövecses (Eötvös Loránd University).

fundamental underpinnings of human cognition and language are derived from people’s subjective, felt perceptions of their bodies in motion. It is important to study cognition in terms of the dynamic interactions between people and their environment because cognition is what happens when the body interacts with the physical and cultural world. Human mind and language develop from recurrent embodied activity patterns that limit on-going intelligent conduct. We must look for the broad and specific ways that language and mind are intimately impacted by embodied action rather than assuming that cognition is

Kovecses' (2015) monograph is also the fifth most cited one with 31 citations. This book makes the case that "Conceptual Metaphor Theory" has proven to be effective throughout time. At the same time, it also implies that the idea of conceptual metaphor, according to which conceptual metaphors are based on our bodily experience, is enhanced and refined by the notion of metaphorical grounding put forth in the book. The body can thus be seen as just one of the many contexts from which metaphors can emerge (including the situational, discourse, and conceptual-cognitive contexts), even though it may be the dominant or crucial one. This is true in many instances of metaphor, but the role of the body in metaphor creation can and should be reinterpreted. Such a proposal appears to be more in accord with what has recently been learned about the nature of human cognition, namely that human cognition is anchored in experience in many different ways, with embodiment, strictly speaking, being just one of them. According to the research presented here, this is due to the fact that cognition, including metaphorical cognition, is rooted in a variety of contexts, including the situations in which people act and live, the discourses in which they are constantly interacting and communicating with one another.

In a sense, keywords express an article's main idea and subject matter and act as its central summary. When two keywords appear together in a piece of writing, it shows how closely related they are and how strong their association is. The general consensus is that the more closely connected two or more terms are, the more frequently they will appear together. To define the strength, CiteSpace offers a function called Betweenness Centrality. In other words, it is likely that we will see a keyword even if we discuss other related topics if it frequently appears alongside other different phrases. Therefore, the higher the Betweenness Centrality value this keyword exhibits, the status of the keyword can be more important. The research fields and dominant topics were identified in this study using a keyword co-occurrence analysis.

In order to pinpoint the terms or phrases that appeared in at least two different publications, a term analysis of words derived from keywords was carried out. High frequency terms may be used to identify hotspots in a particular research area (Chen, 2004). Language, comprehension, conceptual metaphor, discourse, and figurative language made up the top 5 keywords with high frequency. Figure 3 depicts the network of related keywords, and Table 4 lists the terms with a frequency of greater than 20.

TABLE 4 Co-occurring terms with high frequency.

Count	Central	Keyword	Count	Central	Keyword	Count	Central	Keyword
294	0.10	Language	41	0.00	Aptness	27	0.02	Embodiment
187	0.06	Comprehension	41	0.04	Belief	27	0.00	Future
152	0.01	Conceptual metaphor	40	0.05	Politics	27	0.02	Metaphor comprehension
98	0.04	Discourse	39	0.01	Conceptual metaphor theory	26	0.03	System
92	0.06	Figurative language	38	0.03	Analogy	26	0.01	Individual difference
85	0.07	Context	38	0.03	Communication	25	0.03	Attention
83	0.05	Representation	38	0.01	Cognitive linguistics	25	0.01	Corpus linguistics
74	0.01	Model	36	0.03	Thinking	25	0.05	Activation
71	0.03	Right hemisphere	35	0.04	Gender	25	0.01	Cognition
70	0.02	Similarity	35	0.01	Metaanalysis	24	0.02	Emotion
67	0.02	English	33	0.03	Children	24	0.01	Political discourse
67	0.07	Knowledge	33	0.01	Embodied cognition	24	0.00	Critical discourse analysis
66	0.04	Brain	32	0.03	Perspective	24	0.02	Brain damaged patient
64	0.05	Science	32	0.00	Metaphor analysis	24	0.02	Organization
59	0.01	Education	31	0.04	Meaning	24	0.01	fMRI
51	0.03	Memory	31	0.01	Visual metaphor	23	0.00	Grammatical metaphor
51	0.04	Expression	31	0.02	Identity	23	0.03	Performance
50	0.02	Working memory	30	0.01	War	23	0.00	Conception
50	0.02	Perception	30	0.02	Body	22	0.01	Power
49	0.01	Time	28	0.02	Sentence	22	0.02	Image
47	0.02	Space	27	0.06	Self	21	0.00	Teacher
47	0.03	Mind	27	0.01	Discourse analysis	21	0.01	Impact
45	0.04	Student	27	0.01	Culture	20	0.02	Novel metaphor
45	0.04	Idiom	27	0.01	Discourse analysis	20	0.04	Narrative
43	0.08	Information	27	0.01	Culture	20	0.01	Conventionality
42	0.03	Experience	27	0.01	Attitude	20	0.01	ERP
42	0.01	Word						

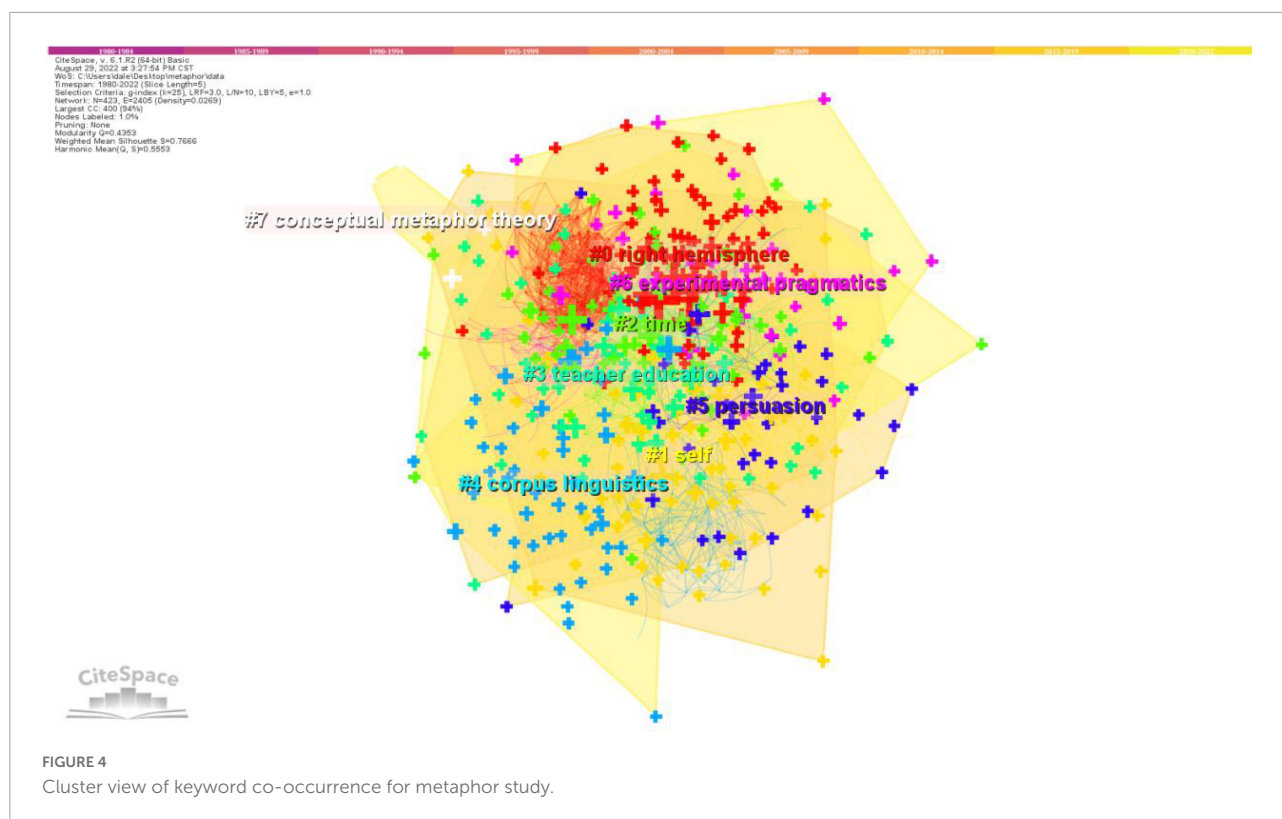
Cluster interpretations

A cluster analysis was conducted based on the keyword co-occurrence analysis. The 4,458 bibliometric recordings generated 27 clusters in total. **Figure 4** shows 8 most important keyword clusters obtained by keyword co-occurrence analysis by Labeling clusters with indexing terms and showing clusters by log likelihood ratio (LLR). **Table 5** shows the keywords lists of the seven important clusters in metaphor study. It illustrates an aggregated distribution in which most colorful areas overlapped, indicating that these clusters share some basic concepts or information (as suggested by [Chen, 2004](#)).

Cluster #0 is labeled as right hemisphere. Processing of metaphoric language is a very important research topic in neurolinguistics. Hemispheric processing of metaphors has been extensively explored by scholars in neurolinguistics and psycholinguistics during the past two decades. It is suggested by many researchers that the right hemisphere (RH) may contribute uniquely to the processing of metaphoric language.

According to behavioral studies using the divided visual field (DVF) paradigm ([Faust and Mashal, 2007](#);

[Mashal and Faust, 2008](#)) and neuroimaging data ([Mashal et al., 2007](#); [Bohrn et al., 2012](#)), left-lateralized processing is more important for processing familiar, traditional metaphors (e.g., broken heart) than unfamiliar, novel metaphors (e.g., mercy blanket). Additionally, conventional metaphors were found to undergo bilateral processing ([Bambini et al., 2011](#); [Diaz et al., 2011](#)). The graded salience hypothesis (GSH; [Giora, 1997](#)), which states that the level of semantic salience impacts metaphor processing, is typically supported by these findings. Meanings that are more conventional, frequent, familiar, prototypical, and context-independent are easier to obtain than meanings that are less prominent. The figurative meaning of traditional metaphors is more obvious and more approachable than the literal interpretation. In contrast, the literal meaning is more obvious in novel metaphors, while the figurative meaning is only revealed later with context. According to the GSH, the important metaphorical meaning of traditional metaphors is stored in the mental lexicon as opposed to novel metaphors, whose meaning must be acquired through a process of integration and inference. The GSH also predicts a stronger participation of the right hemisphere (RH) in understanding



novel and non-salient metaphorical meanings and a greater involvement of the left hemisphere (LH) in understanding traditional and salient metaphorical meanings (Giora, 2003).

Recently, scholars begin to explore the differences between hemispheric processing of metaphoric expressions in a native language versus a second language. An experiment study conducted by Ershaid et al. (2022) shows that a left-hemisphere advantage or a bilateral pattern of processing was observed for conventional metaphors in both varieties of Arabic and in Hebrew, a pair of typologically close languages, suggesting similar hemispheric processing in native and second language.

Cluster #1 is labeled as self. Metaphors “can cast light on why we understand ourselves as we do” (Potter and Wetherell, 1987, p. 108). In Garrett’s (1996) words, “metaphors help create the self” (p. 139). Metaphors, in the words of Garrett (1996), “help build the self” (p. 139). As a result, metaphors can be useful in revealing how language users construct their identities, both as individuals and as engaged members of a social network. For instance, Bates (2015) found that pro-ana participants drew on a core set of self metaphors (self as space, self as weight, perfecting the self, and the social self) that served as effective rhetorical tools for controlling self-description and fostering interactional practices. These findings pave the way for further investigation into the function of metaphors in the interpretation of eating disorders and, more specifically, in the formation of identities within the pro-ana community. With a focus on the use of metaphors to discuss the self, it seeks to

deepen and advance our understanding of how identities and selfhood are discursively constructed in pro-ana sites.

Understanding the various tools created and used by disorder members to perform their identities is made possible by the examination of metaphorical language used to talk about the self, which adds a new level to the description of disorder online identities. These studies on self-metaphors are thus part of a wide and expanding body of social psychology research that promotes a psychological understanding of self and identity in the area of discourse practices (Potter and Wetherell, 1987; McGannon and Spence, 2010).

Cluster #2 is labeled as time. The representation of time in language is a key issue which has drawn much attention in Cognitive Linguistics. Unlike space, which is “out there” for us to discover, time is something that can not be perceived directly by human beings. If there are no “temporal percepts,” what is time? Cognitive linguists answer this question by holding the view that time has a phenomenological basis (Evans, 2019, p. 97). That is to say, time has a subjectively and psychologically real experience, which is directly, at least in part, perceived at the level of subjective awareness. A large body of research by cognitive linguists showcases that our perception of time is grounded in the experience of our spatio-physical environment. Metaphor researchers contrast and compare the domain of time and the domain of space and argue that time is understood through the domain of space, i.e., the spatialization of time. Space is often recruited to understand concepts for time.

TABLE 5 Important clusters of keywords in metaphor research.

Cluster ID	Size	Silhouette	Cluster names (LLR)	Top terms (LSI)	Top terms (LLR, p-level)
0	84	0.842	Right hemisphere	Figurative language; working memory; conceptual metaphor; language processing; predicative metaphors; modality; coherence; structural alignment	Right hemisphere (76.36, 1.0E-4); n400 (47.97, 1.0E-4); fMRI (35.91, 1.0E-4); figurative language (28.141, 1.0E-4); novel metaphors (24.381, 1.0E-4)
1	71	0.735	Self	Metaphor; irrationality; change; disorder; absurdity; narrative; discourse; gender; pregnancy; conceptual metaphors	Self (33.1, 1.0E-4); gender (19.33, 1.0E-4); infertility (19.33, 1.0E-4); experience (18.9, 1.0E-4); women (16.52, 1.0E-4)
2	67	0.624	Time	Conceptual metaphor; semantic approximations; cognitive operations; conceptual complexes; first language acquisition; language; implicit; future; gesture; construal;	Time (51.41, 1.0E-4); embodied cognition (47.99, 1.0E-4); conceptual metaphor (44.99, 1.0E-4); space (34.07, 1.0E-4); embodiment (22.99, 1.0E-4)
3	55	0.769	Teacher education	Knowledge; model; representation; text; Chinese learners; teacher beliefs; pre-service science teacher; rasch Measurement; item response theory	Teacher education (39.33, 1.0E-4); science (33.84, 1.0E-4); knowledge (31.78, 1.0E-4); student (31.44, 1.0E-4); model (31.41, 1.0E-4)
4	51	0.824	Corpus linguistics	Discourse analysis; critical discourse analysis; dialectical-relational approach; hybrid space; science learning; corpus linguistics; social exclusion; social democracy; sound images; radio storytelling	Corpus linguistics (45.44, 1.0E-4); political discourse (40.23, 1.0E-4); discourse analysis (32.51, 1.0E-4); migration (28.12, 1.0E-4); critical discourse analysis (26.16, 1.0E-4)
5	36	0.795	Persuasion	Information persuasion; recall; news; increase; expression; comprehension; dimension; figurative language; analogical transfer;	Persuasion (28.95, 1.0E-4); rhetorical figure (19.85, 1.0E-4); visual metaphor (19.36, 1.0E-4); information (17.89, 1.0E-4); picture (14.88, 0.001)
6	31	0.776	Experimental pragmatics	Figurative language; alzheimers disease; language comprehension; language; working memory; cognitive linguistics; relevance theory; older; elicited speech production; internal state language;	Experimental pragmatics (19.13, 1.0E-4); cognitive linguistics (16.46, 1.0E-4); williams syndrome (13.83, 0.001); relevance theory (13.83, 0.001); pragmatics (13.59, 0.001)
7	5	0.991	Conceptual metaphorthory	Conceptual metaphor theory; metaphor clusters; political argumentation; mixed metaphor; visual spatial attention multimodal metaphor; primary metaphors; economic discourse; corpus linguistics	Conceptual metaphor Theory (70.48, 1.0E-4); multimodal metaphor (23.44, 1.0E-4); political cartoons (15.6, 1.0E-4); social semiotics (15.6, 1.0E-4); visual metaphor (10.3, 0.005)

We can talk and think about the passage of time as the passage of physical objects because there is a stable knowledge structure in our conceptual system which structures temporal passage in terms of physical passage. The stable knowledge structure is what we call conceptual metaphor (Lakoff and Johnson, 1980, 1999). The concept of FUTURE, for example, is conceptualized in many languages as being metaphorically “located” in front of the observer, while the concept of PAST is conceptualized as being metaphorically “located” behind the observer. However, this is not the case for all languages and the cross-linguistic variations of time conceptualization are widely discussed in metaphor research. In Aymara, an indigenous South American language, the concept of FUTURE is conceptualized as being “located” behind the observer, while

the PAST is conceptualized as being “located” in front of the observer (Núñez and Sweetser, 2006).

In recent years, how we conceptualize time in terms of space was also discussed in gesture studies. Cognitive linguists try to find evidence in gesture studies to test the findings they find in the study of metaphor languages. The Cognitive Commitment, a postulate of Cognitive Linguistics, asserts that linguistic patterns and structures are based on broader cognitive principles (Lakoff, 1990). As a result, gesture and spoken language are both “manifestations of the same underlying conceptual system that is the basis for the human expressive ability” (Wilcox and Xavier, 2013, p. 95). Research on metaphors has come under fire for its “linguistic circularity” (Murphy, 1996, p. 184). To examine the suitability of theories and models proposed primarily based

on verbal modality, one strategy to prevent it is to look for converging evidence from other modality(ies). From this vantage point, the study of co-verbal gestures can add to our understanding of metaphor studies. It may provide evidence for, or give new insights into, or even challenge the findings about the representation of time solely based on metaphorical language.

Cluster #3 is labeled as teacher education. Figurative language is easy for native speakers to understand and use. However, second-language speakers often find it particularly difficult to understand those figurative languages. [Littlemore et al. \(2011\)](#) found that 40% of metaphoric expressions, which were understood effortlessly by native speakers, were not understood by second language learners at a British university. Similarly, second-language learners use less metaphors in speaking and writing than native speakers and their metaphors tend to be incorrect and stylistically inappropriate ([Kathalia and Carmel, 2011](#)). The reason for the difficulty for the second-language speakers' understanding and production of metaphors may lie in the fact that the figurative meaning of an expression is established within the socio-cultural experience of native speakers. As second-language speakers lack enough experience with the language and the culture, those metaphorical expressions, which are accessible to native speakers, are not necessarily accessible to second-language speakers ([Kecskes, 2006](#)). Thus, how to improve second-language learners' ability to comprehend and produce figurative language is a major concern for second-language teachers. Accordingly, how to improve teachers' ability to improve students' metaphor using ability is discussed intensely in metaphor research.

Implications for future study

During the past four decades, CMT has drawn the attentions of scholars across disciplines. Based on the above document co-citation analysis, co-occurring terms analysis, and cluster interpretations via CiteSpace, this study found that metaphor research has largely focused on cognitive processing of metaphors, the influence of metaphors on self identity, the spatialization of time, and second-language learners' metaphor ability education. The spatialization of time is the study of metaphor theory itself. Metaphor ability education is one particular strand of applied linguistics, while cognitive processing of metaphors, the influence of metaphors on self identity respectively comprise interdisciplinary studies of language and cognitive science, and metaphor and pathology.

The present state of international publications on CMT reveals that scholars around the world have contributed significantly to literature on CMT from various disciplines. However, there is still a dearth of studies concerning some

important aspects, such as metaphor translation, metaphor in literature, metaphor and corpus linguistics, etc.

Metaphor translation. Metaphor is ubiquitous in all languages, but it is also influenced by different cultures. Metaphor has a natural and inseparable connection with culture. Metaphors will inevitably reveal cultural attributes, including historical events, literary traditions, philosophy, local customs, food, clothing, housing and transportation, aesthetic concepts, and so on. Therefore, a culture-specific metaphor may not find a counterpart in another language. When a culture-specific metaphor exists, the translation of the metaphorical expressions represents a huge challenge to translators. The success of the translation largely depends on the handling of the language-specific metaphor expressions. Facing this difficulty, scholars have explored metaphor translation strategies for different genres, such as news ([Van Poucke and Belikova, 2016](#)), legal documents ([Bozovic, 2022](#)), metaphorical idioms ([Su, 2021](#)), etc. However, there is no consensus on the strategies for translating metaphors since different scholars proposed different strategies, such as literal translation, paraphrase, translation by other rhetoric devices, translation by substitution, omission, and combined strategies. More extensive and in-depth studies of metaphor translation will enable us to learn more about the complications and mechanism of translation and enhance our understanding of CMT, and even our cognition.

Metaphor in literature. According to the traditional view, there is a sharp distinction between literal language and figurative language. While literal language is precise and clear in meaning, figurative language (e.g., metaphor) is imprecise and largely belongs to the domain of literature, such as poets and novelists. To be simple, in traditional view, metaphor, whether in linguistics or philosophy, is only a kind of rhetorical flourish which deserves the attention of literature researchers. However, at the onset of CMT, the traditional view is challenged and changed. Cognitive linguist Raymond [Gibbs \(1994\)](#), through examination of the features that are held to distinguish literal and figurative languages and based on lots of different kinds of psycholinguistic experiments, found that there are no such sharp distinctions between literal and figurative languages. The basic premise of CMT is that novel metaphors (the traditional view of metaphor) and dead metaphors (CMT) have no principled distinction and they are both embodiment of our thinking ways. Following the onset of CMT, scholars paid increasing attention to conceptual metaphor, while neglecting the novel metaphors in literature. Therefore, more scholarly attention should be paid to those metaphors in literary contexts and the comparison between novel metaphors and conceptual metaphor can deepen our understanding of CMT and literature works.

Metaphor and corpus linguistics. Like CMT, corpus linguistics started to grow quickly at the beginning of 1980s and it is widely used in applied linguistics and related fields ([Deignan, 2005](#)). CMT and corpus linguistics share some

basic assumptions and are complementary. Like CMT, corpus linguistics is usage-based, as it examines actual language data to find out usage patterns or rules. At the early stage of CMT research, scholars (e.g., Lakoff and Johnson, 1980) utilized metaphorical expressions as examples based on their intuitions, which is considered to be too subjective. Further, it is believed by some scholars that it seems that intuition could not predict the more delicate features of linguistic metaphors. Therefore, corpus data can help metaphor researchers to make less subjective statements about issues such as the existence and frequency of literal and metaphorical senses, detailed aspects of their meanings, and their collocational and syntactic behavior (Deignan, 2005). How to retrieve metaphorically used expressions from the corpus is a key issue in using corpora to research metaphor. There are mainly three possibilities. Firstly, when the corpus is large, the researcher can first intuitively work out lists of linguistic metaphors which realize particular conceptual metaphors, and then use these linguistic metaphors to trawl concordance lines in the corpus. Secondly, the researchers can search linguistic metaphors manually in a small corpus, and then find metaphors in the large corpus (Cameron and Deignan, 2003), or search a small sample of the large corpus by hand (Charteris-Black, 2004). The third way into a corpus is to cooperate with the lexicographers who rely on corpus data and ask them to flag metaphorical uses on their database while they work through concordances of the entire lexicon (Deignan, 2005).

Strengths and limitations

CiteSpace is a technique used to identify trends in international scientific research. The global CMT research included in this study covers publication outputs, productive authors, popular articles, popular keywords and research gaps. To the best of our knowledge, our study was the first to use CiteSpace to examine a significant amount of data from CMT publications published during the previous 40 years. Instead than just reviewing articles and studies about metaphor (Morsanyi et al., 2020; Ivan, 2021), CiteSpace could find more thorough results. Additionally, we were able to spot emerging trends, author collaboration, and co-occurring terms with high frequency thanks to the bibliometric approach.

Although within its delineated scope, the present study aspired to be as comprehensive as possible, some limitations were unavoidable. One limitation of this study is that it only searched documents in the Web of Science. Other data sources such as Scopus, Google Scholar, Index Medicus, or Microsoft Academic Search were neglected. The document type labeled by publishers is not always accurate. Some publications that WoS described as reviews, for instance, weren't reviews at all (Yeung, 2021). Another limitation of this study is that only one

scientometric tool is employed in this review. Thirdly, some potential publications have recently been published, but these studies could not be frequently cited. And due to obliteration by incorporation, the citation count for some older publications may also be low (Li et al., 2021). Future research should be conducted by using a larger database and performed by different tools.

Conclusion

From Aristotle (1954), scholars have begun to think about metaphor. In a very long time, metaphor is only seen as “a device of the poetic imagination and the rhetorical flourish—a matter of extraordinary rather than ordinary language” (Lakoff and Johnson, 1980, p. 3). It is only when Lakoff and Johnson (1980) published their seminal book *Metaphors We Live By*, which proposed the Conceptual Metaphor Theory, that the cognitive function of metaphor has gained much scholarly attention. In contrast to the traditional view, Lakoff and Johnson (1980) argue that metaphor plays a central role in thought, i.e., our conceptual system is fundamentally metaphorical, and metaphor is indispensable to both thought and language. Since then, CMT has been explored and developed in a large number of studies in the fields of linguistics, psychology, philosophy, cognitive science, anthropology, and sociology, etc. To date, there are huge publications on CMT. However, there is a lack of bibliometric assessment of world scholars' international publications related to CMT. To fill this gap, the present study carried out a bibliometric study on the relevant and available literature. In total, 4,458 bibliometric recordings ranging from 1980 to 2022 were collected from the Web of Science (WOS) Core Collection. The descriptive analysis shows that there is a continued growth in the number of publications each year, which means that CMT has aroused increasing interests of scholars from different academic disciplines. *Metaphor and Symbol* ranked the top in the number of published articles, with 304 publications related to metaphor. Gibbs is the top author in the number of papers published on metaphor, followed by Faust and Steen. Then CiteSpace software was adopted to visually analyze those bibliometric recordings. The document co-citation analysis showed that a total of 27 documents were cited for more than 20 times, which comprise the key documents in metaphor research. A visualization of keywords and its cluster analysis were conducted to show the research fields and dominant topics in this field. The top 5 high-frequency keywords were language, comprehension, conceptual metaphor, discourse, and figurative language. The most prominent 5 clusters are labeled as right hemisphere, self, time, teacher education, corpus linguistics. These results revealed that metaphor research has largely focused on cognitive processing of metaphors, the influence of metaphors on

self identity, the spatialization of time, and second-language learners' metaphor ability education. Metaphor ability education belongs to one particular strand of applied linguistics, while cognitive processing of metaphors, the influence of metaphors on self identity respectively comprise interdisciplinary studies of language and cognitive science, and metaphor and pathology. The present review through CiteSpace flags the need for more investigations of CMT from more aspects or interdisciplinary studies, such as metaphor translation, metaphor in literature, metaphor and corpus linguistics, etc.

Overall, this study is the first review of linguistic research on CMT via CiteSpace tool and can provide us a sound overview of the landscape of international research on CMT. It is hoped that this study can help researchers to identify subsisting knowledge gaps and a number of future research opportunities.

Data availability statement

The original contributions presented in this study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

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Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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A corpus-based investigation of the English translations of Mao Zedong's speeches

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This study adopts a corpus-based approach to examine the linguistic features manifested in the English translations of Mao Zedong's speeches, taking Winston Churchill's speeches (representative of normalized spoken texts) and the spoken texts in BNC Sampler (representative of original spoken texts) as the reference corpora. By investigating the macro- and micro-linguistic features, it is found that the translated Mao's speeches (both direct and inverse translations) differ from normalized spoken texts as well as original spoken texts in three aspects: (i) macro-linguistic features, (ii) the use of personal pronouns, (iii) the use of modal verbs. In terms of macro-linguistic features, the average word length of the English translations is higher than that of normalized spoken texts and that of original spoken texts; the standardized type/token ratio and average sentence length of the English translations are higher than those of original spoken texts, but lower than those of normalized spoken texts. Meanwhile, in terms of the use of personal pronouns, the English translations of Mao's speeches prefer the underuse of the first person singular pronoun *I*. Furthermore, as far as modal verbs are concerned, the English translations of Mao's speeches prefer the overuse of *must* and *should* on the one hand, and the underuse of *shall*, *could*, *may*, and *would* on the other hand. Therefore, it can be said that the translated Mao's speeches exhibit some particular linguistic features, which can not only be differentiated from normalized spoken texts, but also be distinguished from original spoken texts. They are in a middle position in relation to normalized spoken texts as well as original spoken texts. This in-betweenness not only exhibits Mao's creative and idiosyncratic language use, but also reflects the influence of the language transfer from Chinese into English.

KEYWORDS

English translations of Mao Zedong's speeches, normalized spoken texts, original spoken texts, linguistic features, directionality of translation

Introduction

A speech text can be the draft for an oral delivery, or the record of an unprepared oral presentation. Linguistically speaking, speech texts can be categorized as spoken or written languages. Yet such a categorization seems too general and does cause some problems in investigating this type of text. As a matter of fact, speech texts exhibit the characteristics of both spoken and written languages, which has been under-explored so far. Speeches or

statements made by political leaders or delivered on political occasions are usually designated as “political writings,” “political texts,” or “political discourse,” all of which are vague, umbrella terms and cover a variety of text types or genres (Trosborg, 1997: 145; Schäffner, 1997a,b: 119–120). In some studies, speech texts are often equated with political discourse and are discussed from different perspectives in the field of translation studies (Baumgarten and Gagnon, 2005; Schäffner and Bassnett, 2010; Schäffner, 2012; Bánhegyi, 2014; Wang and Feng, 2018; Du and Chen, 2022, etc.). Nevertheless, a more explicit linguistic delimitation of speech texts is needed, based on the medium of communication and the form of presentation.

Quite a few texts in Mao Zedong’s writings are based on his oral speeches. Many texts, originally delivered without prepared scripts, have evolved from speeches into textual classics, including “On the 10 Major Relationships” “On the Correct Handling of Contradictions Among the People” “Talk at an Enlarged Working Conference” “Rectify the Party’s Style of Work” “Oppose the Stereotyped Party Writing” “Serve the People” “In Memory of Norman Bethune” “The Foolish Old Man Who Removes the Mountains” (Chen, 2020: 227). The evolutionary process from oral delivery to written classics indicates that Mao’s speech texts we read today are a fusion of both spoken and written language. In terms of content, these texts often differ from the original oral delivery in diction; stylistically, these texts can reflect not only the style of written language but also that of spoken language. In this sense, Mao’s speech texts cannot be simply categorized as purely written or spoken texts. Similarly, the translations of Mao’s speech texts also cannot be classified into purely written or spoken texts.

Focusing on the English translations of Mao’s speech texts, this study examines the differences between the direct and inverse translations in terms of macro-linguistic features, personal pronouns and modal verbs. Here, direct translation, according to Shuttleworth and Cowie (1997: 41), is “the type of translation in which the translator works into, rather than away from, his or her native language (or language of habitual use),” while “the opposite procedure is termed inverse translation or service translation.” As far as the English translations of Mao’s speeches are concerned, both direct and inverse translations are involved in the present study. Two corpora of spoken English texts, namely Winston Churchill’s speeches and the spoken texts in BNC Sampler, are employed as reference corpora to decide the distinctiveness of the English translations of Mao’s speeches. The comparisons are mainly carried out intra-lingually: (i) between the direct and inverse translations, (ii) between the three English translations and Churchill’s speeches, and (iii) between the three English translations and the spoken texts in BNC Sampler.

Speaking vs. writing, spoken forms vs. written forms

Speaking and writing are the two necessary means of communication, thus resulting in the two varieties of language:

spoken and written languages. Spoken language comes from the production of speech, while written language is made up of written symbols such as letters, numbers and punctuation marks, etc. Many studies have discussed the differences between those two language varieties (Halliday, 1989; Cornbleet and Carter, 2001; Biber et al., 2002; Aijmer and Stenström, 2004; Biber and Barbieri, 2007; Biber, 2009; Gray and Biber, 2013). For example, in style, spoken language is usually more casual, with the common use of colloquial expressions. But written language tends to be more formal, involving the carefully chosen lexis and grammar. In addition, spoken language is in most cases produced on the spot, but written language can be edited for many times before its final version.

Based on the medium of communication, language can be presented in two basic forms: spoken and written form. In a broad sense, spoken form generally corresponds to spoken language, and written form to written language. However, it should be noted that this general correspondence does not include all the specific cases.

The fact is that presentation forms (spoken and written forms) do not completely equate to language varieties (spoken and written language). As is pointed out by Ye (1990: 134), “written language is not equivalent to written forms. When spoken language is transcribed into writings, the writings become the written forms of spoken language; similarly, written language also has its spoken forms.” In other words, presentation forms (spoken and written forms) may intermingle with language varieties (spoken and written language), resulting in four types including (i) spoken language in spoken forms, (ii) written language in written forms, (iii) spoken language in written forms, and (iv) written language in spoken forms. Stylistically speaking, the last two types are hybrid languages, since they are the mixtures of written and spoken language.

“Writing and speaking are not at opposite ends of the spectrum” (Cornbleet and Carter, 2001: 92). Therefore, it is not surprising that the hybrid languages contain the features of both written and spoken language. Originating from speech, spoken language in written forms, more often than not, is unable to remove the innate linguistic features of spoken language. On the other hand, presented in the texts, spoken language in written forms makes use of the written symbols (rather than sounds) to express particular meanings. In this sense, spoken language in written forms has to bear the features of both written and spoken language.

Original spoken texts and normalized spoken texts

Spoken language in written forms, one type of the hybrid languages, can be further divided into two subtypes, according to the stylistic features the texts exhibit. The first subtype, referred to as “original spoken texts” in the present study, is the text that accurately records the exact language use of an oral presentation, thus reflecting only the features of the spoken

language. That is to say, the content of the text remains identical to that of the actual oral delivery. Take the spoken texts in the British National Corpus (BNC) for instance. Those texts, containing pauses, silences, fillers, grammatical errors, etc., are

Yes. We shall just have to pretend it's not there, there's not, there's not quite as bad as when I had to speak for Amnesty on Radio Essex last year and it was live, as every word, every word I spoke was being you know being heard by a lot of people and that's, that was very, that was very intimidating.

(Extracted from the [BNC Sampler, XML version, 2005](#): text identifier DCH, sentence No. 1-2)

accurate and detailed transcriptions of oral delivery in a variety of communicative contexts. Human interventions in the authenticity of the texts are limited as much as possible.

The other subtype of spoken language in written forms, referred to as “normalized spoken texts” in the present study, is the text which adapts the language use of an oral presentation to written forms. Such texts combine the features of both spoken and written languages, and thus differ somewhat from the actual oral delivery owing to human interventions. For example, the texts contained in the book *Never Give In! The Best of Winston Churchill's Speeches* ([Churchill, 2004](#)) are revised on the basis of Winston Churchill's speech content. Those texts exclude pauses, silences, fillers or

Though Parliament is dull, it is by no means idle. A measure is before them of the greatest importance to the working men of this country. I venture to hope that, if you think it presumptuous in one so young to speak on such a subject, you will put it down to the headstrong enthusiasm of youth.

([Churchill, 2004](#): 3)

grammatical errors in spoken language, and thus are not completely consistent with the original delivery. Another example is Mao Zedong's “Talks at the Yan'an Forum on Literature and Art,” which has developed many textual forms including a speech outline, minutes, a proofread script, a published draft with revisions, and revised editions ([Qiu, 2020](#): 99). It originally developed from a speech outline prepared for the Yan'an Forum on Literature and Art in May 1942 ([Hu, 2014](#): 263; [Zhou, 2022](#): 21–22). On May 2 and May 23, Mao made two speeches which were recorded in minutes. After the forum, the minutes of Mao's speech were proofread by Qiaomu Hu (Mao's secretary), producing an early version of the spoken text ([Zhou, 2022](#): 22). On 19 October 1943, *Jiefang Ribao* (Liberation Daily, a newspaper run by the Communist Party of China at Ya'an) published this text on the first, second and fourth pages, which was the first open publication of the text ([Jin, 2005](#): 77). Almost 10 years later, in 1953, this text was further revised and then included in the third volume of *Mao Zedong Xuanji* ([Pan, 1982](#): 1). Therefore, the above-listed textual forms all develop from Mao's speech into different versions. And these written texts, some of which are revised many times after the oral delivery,

embody the features of both spoken and written languages to varying degrees.

In this sense, Mao's speech texts are normalized spoken texts, and their translations are thus translated normalized spoken texts. It is, therefore, an interesting question as to whether the translated normalized spoken texts contain some peculiar linguistic features. This study adopts a corpus-based approach to investigate the linguistic features of the English translations of Mao's speeches, taking Winston Churchill's speech texts (representative of normalized spoken English texts) and the spoken texts in BNC Sampler (representative of original spoken English texts) as the reference corpora. The linguistic features will be examined at two levels: at the macro-linguistic level, general statistical data (including standardized type/token ration, average word length and average sentence length) will be analyzed; at the micro-linguistic level, the use of function words (including personal pronouns and modal verbs) will be investigated.

The research questions are formulated as follows:

1. At the macro-linguistic level, what features do the English translations of Mao's speeches present compared with Churchill's speeches and the spoken texts in BNC Sampler? What are the probable causes for the differences?
2. At the micro-linguistic level, i.e., the use of personal pronouns and modal verbs, to what extent do the English translations of Mao's speeches differ from Churchill's speech and the spoken texts in BNC Sampler, respectively? What are the probable causes for the differences?
3. As far as the English translations are concerned, in which aspects do the translations of Mao's speech texts in SWM (inverse translation) differ from those in CWM and MRP (direct translations)? And can the English translations of Mao's speeches be differentiated from Churchill's speech and the spoken texts in BNC Sampler?

Data and methodology

Among various English translations of Mao Zedong's writings, the most representative ones include: (i) *Selected Works of Mao Tse-tung* ([Mao, 1961, 1965a,b,c](#)), hereinafter referred to as SWM, (ii) *Collected Works of Mao Tse-tung (1917–1919)* ([Mao, 1978](#)), hereinafter referred to as CWM, (iii) *Mao's Road to Power: Revolutionary Writings 1912–1949* ([Schram, 1992](#); [Schram and Hodes, 1994, 1995, 1997, 1999, 2004, 2005](#); [Schram et al., 2015](#)), hereinafter referred to as MRP. SWM is initiated by the Chinese government and published by Foreign Languages Press in Beijing in the 1960s; CWM is completed and published by the U.S. Joint Publications Research Service (JPRS) in 10 volumes in 1978; MRP is funded by the National Endowment for the Humanities in the U.S. and edited by Stuart Reynolds Schram. That is to say, the project of SWM is organized by the Chinese government, while CWM and MRP are translation programs in the U.S. at different historical periods. Thus, in terms of the directionality of

translation, SWM belongs to the category of inverse translation (that is, translation into a foreign language), while CWM and MRP are direct translations (that is, translation into the translators' mother tongue).

In this study, the translated Mao's speeches are extracted from the three English translations (SWM, CWM and MRP), so as to examine the discrepancies in linguistic characteristics between direct and inverse translations. Both macro- and micro-linguistic features are taken into account. Besides, Churchill's speech texts (hereinafter referred to as WCH) and the spoken texts in BNC Sampler (hereinafter referred to as BNC-S) are used as reference corpora. WCH is representative of the normalized spoken English texts produced by native English-speaking state leaders, while BNC-S represents the original spoken English texts. The purpose of comparing the English translations of Mao's speeches with WCH and BNC-S is to examine the similarities and differences between translated normalized spoken texts, normalized spoken English texts and original spoken English texts.

There are 35 translated normalized spoken texts (about 210,000 words) in SWM, 26 (about 100,000 words) in CWM and 71 (about 380,000 words) in MRP. It was found that some of the translations in MRP are mainly based on those corresponding texts in SWM, causing overlap between MRP and SWM. To ensure the comparability between those corpora, we left out those overlapping texts in MRP, and excluded some excessively long texts from SWM. The finalized texts under investigation are: 30 translated normalized spoken texts in SWM, 26 in CWM and 44 in MRP (see [Supplementary Appendices](#)).

With the assistance of WordSmith Tools Version 6.0 (Scott, 2015), this study investigates the macro- and micro-linguistic features of the three English translations, taking WCH and BNC-S as the reference corpora. Firstly, it makes a comparative analysis of the macro-linguistic statistics of the three English translations. And then, the study explores the use of personal pronouns and modal verbs in the three English translations.

Data analysis

Macro-linguistic features

Table 1 summarizes the macro-linguistic statistics of the English translations of Mao's speeches, WCH, and BNC-S. There are some differences between the different types of spoken texts in macro-linguistic statistics, including standardized type/token ratio (STTR), average word length (AWL), average sentence length (ASL).

In terms of STTR, CWM (35.90) is very close to MRP (35.93), while SWM (37.16) is higher than CWM and MRP. This indicates that the direct translations CWM and MRP are similar in lexical richness and readability, and the inverse translation SWM is featured by a higher degree of lexical richness and yet a lower degree of readability. Compared with the reference corpora, the STTRs of the three English translations are lower than that of WCH (43.22) but higher than that of BNC-S (33.17).

TABLE 1 Macro-linguistic statistics of different types of spoken texts.

Texts	Tokens	Types	TTR	STTR	AWL	Num. of sentences	ASL
SWM	96,710	6,225	6.44	37.16	4.80	4,265	22.68
CWM	96,233	5,781	6.01	35.90	4.97	4,206	22.88
MRP	73,676	5,468	7.42	35.93	4.71	3,924	18.78
WCH	186,003	11,149	5.99	43.22	4.52	7,196	25.85
BNC-S	947,843	20,968	2.21	33.17	4.00	77,375	12.25

TABLE 2 Key personal pronouns in SWM (in comparison with CWM).

No.	Personal pronouns	SWM		CWM		Keyness	Significance
		Freq.	%	Freq.	%		
3	We	1,173	1.21	722	0.74	107.62	0.00
5	You	139	0.14	21	0.02	85.55	0.00
64	He	141	0.15	68	0.07	24.78	0.00
98	I	151	0.16	86	0.09	17.26	0.00

This shows that, on the one hand, the three English translations demonstrate relatively less lexical richness but more readability than normalized spoken English texts; on the other hand, they show more lexical richness but less readability than original spoken English texts.

Regarding of AWL, SWM (4.80) is lower than CWM (4.97) and higher than MRP (4.71), and all the three English translations are higher than WCH (4.52) and BNC-S (4.00). It can be found that the spoken texts in inverse and direct translations are relatively similar in terms of AWL. Meanwhile, the three English translations are close to normalized spoken English texts in AWL, differentiating themselves from original spoken English texts.

In terms of ASL, SWM (22.68) is lower than CWM (22.88) but higher than MRP (18.78), with SWM and CWM being very close to each other. The ASLs of all the three English translations are lower than that of WCH (25.85) but much higher than that of BNC-S (12.25). This shows that in terms of ASL, the three English translations of Mao's speeches reflect a more formal and serious style of normalized spoken English texts, which is different from that of original spoken English texts.

The use of personal pronouns

Based on the statistics provided by WordSmith Tools Version 6.0 (Scott, 2015), this section investigates the three English translations in the use of personal pronouns. It firstly conducts a comparison among the three English translations. On that basis, in order to explore their relation to normalized spoken English texts and original spoken English texts, the three English translations are further compared with WCH and BNC-S.

Tables 2, 3 list the key personal pronouns in SWM, in comparison with CWM and MRP, respectively. There are significant differences in the use of personal pronouns between

TABLE 3 Key personal pronouns in SWM (in comparison with MRP).

No.	Personal pronouns	SWM		MRP		Keyness	Significance
		Freq.	%	Freq.	%		
203	It	828	0.85	725	0.98	−7.37	0.01
296	We	1,173	1.21	1,111	1.50	−27.17	0.00
310	He	141	0.15	206	0.28	−36.12	0.00
315	I	151	0.16	226	0.31	−42.22	0.00
321	You	139	0.14	353	0.48	−162.05	0.00

TABLE 4 Key personal pronouns in SWM (in comparison with WCH).

No.	Personal pronouns	SWM		WCH		Keyness	Significance
		Freq.	%	Freq.	%		
831	She	8	—	55	0.03	−12.03	0.00
868	It	828	0.85	1,925	1.03	−21.00	0.00
906	You	139	0.14	487	0.26	−39.69	0.00
912	He	141	0.15	502	0.27	−42.70	0.00
948	I	151	0.16	1,886	1.01	−653.74	0.00

TABLE 5 Key personal pronouns in CWM (in comparison with WCH).

No.	Personal pronouns	CWM		WCH		Keyness	Significance
		Freq.	%	Freq.	%		
890	It	865	0.89	1,925	1.03	−12.68	0.00
1,046	He	68	0.07	502	0.27	−124.92	0.00
1,053	We	722	0.74	2,413	1.29	−175.35	0.00
1,054	You	21	0.02	487	0.26	−203.13	0.00
1,060	I	86	0.09	1,886	1.01	−784.50	0.00

TABLE 6 Key personal pronouns in MRP (in comparison with WCH).

No.	Personal pronouns	MRP		WCH		Keyness	Significance
		Freq.	%	Freq.	%		
70	You	353	0.48	487	0.26	76.35	0.00
327	We	1,111	1.50	2,413	1.29	17.11	0.00
825	I	226	0.31	1,886	1.01	−326.91	0.00

inverse and direct translations. The pronouns such as *we*, *you*, *he*, and *I* are all significantly overused in SWM compared with CWM, while all the four personal pronouns are significantly underused in SWM compared with MRP, although the three English translations of Mao's speeches are consistent in style, register and text type.

Concerning the use of personal pronouns, then, which of the three translations is close to normalized spoken English texts and at the same time distinct from and original spoken English texts? It is therefore necessary to compare the three English translations with WCH and BNC-S, respectively.

Tables 4–6 list the key personal pronouns in SWM, CWM and MRP, in comparison with WCH. Compared with

normalized spoken English texts, which are represented by WCH, the three English translations exhibit the following characteristics in the use of personal pronouns. Firstly, the first person plural pronoun *we* is significantly underused in the CWM while significantly overused in the MRP. There is no significant difference in the frequency of *we* between the SWM and the WCH. Secondly, the second person pronoun *you* is significantly underused in both SWM and CWM, while it is significantly overused in MRP. Thirdly, the first person singular pronoun *I* is significantly underused in all the three English translations.

Tables 7–9, respectively, list the key personal pronouns in SWM, CWM and MRP, in comparison with BNC-S. In terms of

TABLE 7 Key personal pronouns in SWM (in comparison with BNC-S).

No.	Personal pronouns	SWM		BNC-S		Keyness	Significance
		Freq.	%	Freq.	%		
247	We	1,173	1.21	7,846	0.83	147.88	0.00
1942	He	141	0.15	5,350	0.56	−295.66	0.00
1945	She	8	—	3,417	0.36	−333.70	0.00
1952	It	828	0.85	18,229	1.92	−564.05	0.00
1953	You	139	0.14	22,311	2.35	−2048.01	0.00
1954	I	151	0.16	24,944	2.63	−2304.60	0.00

TABLE 8 Key personal pronouns in CWM (in comparison with BNC-S).

No.	Personal pronouns	CWM		BNC-S		Keyness	Significance
		Freq.	%	Freq.	%		
1763	We	722	0.74	7,846	0.83	−7.58	0.01
1959	He	68	0.07	5,350	0.56	−416.44	0.00
1961	It	865	0.89	18,229	1.92	−522.71	0.00
1965	You	21	0.02	22,311	2.35	−2289.53	0.00
1966	I	86	0.09	24,944	2.63	−2435.30	0.00

the use of personal pronouns, the three English translations share some similarities and differences with original spoken English texts, represented by BNC-S. First, the first person plural pronoun *we* is significantly underused in CWM. Second, the four personal pronouns *I*, *you*, *it*, and *he* are significantly underused in all the three English translations.

The use of modal verbs

Based on the lexical usage statistics retrieved from WordSmith Tools Version 6.0 (Scott, 2015), this section compares the three English translations in the use of modal verbs. The comparison is preliminarily conducted among the three English translations. On that basis, in order to explore their relation to normalized spoken English texts and original spoken English texts, the three English translations are further compared with WCH and BNC-S.

Tables 10, 11 list the key modal verbs in SWM (in comparison with CWM and MRP respectively). As can be seen from the two tables, the use of modal verbs in the inverse translation SWM shows the following features: (i) *shall* and *can* are significantly overused in SWM, compared with CWM and MRP; (ii) *could* is significantly overused in SWM compared with CWM, while it is significantly underused in SWM compared with MRP; (iii) *must* is significantly overused in SWM compared with MRP; (iv) *would*, *may* and *ought* are significantly underused in SWM compared with CWM. On the whole, the differences between the inverse translation SWM and the direct translation CWM are more obvious.

Tables 12–14, respectively, list the key modal verbs in SWM, CWM and MRP, in comparison with WCH. It can be found that, compared with normalized spoken English texts, *should* and *must* are significantly overused, while *shall*, *could*, *may*, and *would* are significantly underused in all the three English translations. At the same time, *might* and *ought* are significantly underused in SWM and MRP, and *can* is significantly overused in SWM.

Tables 15–17, respectively, list the key modal verbs in SWM, CWM and MRP, in comparison with BNC-S. It can be observed that the three English translations show the following characteristics in terms of the use of modal verbs: (i) *must*, *should*, *shall*, and *may* are significantly overused in SWM, while *must* and *should* are significantly overused in CWM and MRP; (ii) both *could* and *would* are underused in the three English translations; (iii) *might* is underused in SWM, *can* is underused in CWM, and *can* and *might* are underused in MRP.

Discussion

Differences in macro-linguistic features

With regard to macro-linguistic features, there are some differences between the inverse translation SWM and the direct translations CWM and MRP, and the three translations are in a middle position in relation to normalized spoken English texts as well as original spoken English texts. As is shown above, the English translations of Mao's speeches differ from both normalized spoken English texts and original spoken English texts in the aspects of vocabulary richness, readability, degree of formality, etc.

Those differences in macro-linguistic features may be attributed to different modes of language production. The translated Mao's speeches belong to constrained English texts, influenced by both the source language and the target language. For one thing, rendered from Chinese into English, the translated Mao's speeches are unavoidably affected by Mao's habitual language use. For another, in order to become the cultural facts and occupy a position in the English world (both direct and inverse translations included), the translated Mao's speeches have to adapt themselves to the norms of the English

TABLE 9 Key personal pronouns in MRP (in comparison with BNC-S).

No.	Personal pronouns	MRP		BNC-S		Keyness	Significance
		Freq.	%	Freq.	%		
87	We	1,111	1.50	7,846	0.83	356.63	0.00
1,372	He	206	0.28	5,350	0.56	−103.59	0.00
1,397	It	725	0.98	18,229	1.92	−335.97	0.00
1,401	You	353	0.48	22,311	2.35	−1115.40	0.00
1,402	I	226	0.31	24,944	2.63	−1546.71	0.00

TABLE 10 Key modal verbs in SWM (in comparison with CWM).

No.	Modal verbs	SWM		CWM		Keyness	Significance
		Freq.	%	Freq.	%		
36	Shall	89	0.09	25	0.03	34.80	0.00
47	Can	317	0.33	190	0.20	31.31	0.00
50	Would	103	0.11	37	0.04	30.16	0.00
56	May	105	0.11	41	0.04	27.16	0.00
157	Ought	14	0.01	0	–	12.06	0.00
187	Should	381	0.39	296	0.31	10.40	0.00
240	Could	32	0.03	12	0.01	8.19	0.00

TABLE 11 Key modal verbs in SWM (in comparison with MRP).

No.	Modal verbs	SWM		MRP		Keyness	Significance
		Freq.	%	Freq.	%		
7	Must	536	0.55	237	0.32	49.66	0.00
37	Shall	89	0.09	25	0.03	20.27	0.00
147	Can	317	0.33	186	0.25	7.84	0.01
201	Could	32	0.03	46	0.06	−7.23	0.01

TABLE 12 Key modal verbs in SWM (in comparison with WCH).

No.	Modal verbs	SWM		WCH		Keyness	Significance
		Freq.	%	Freq.	%		
21	Must	536	0.55	408	0.22	213.18	0.00
91	Should	381	0.39	417	0.22	64.44	0.00
178	Can	317	0.33	394	0.21	33.57	0.00
787	Shall	89	0.09	246	0.13	−8.39	0.00
796	Ought	14	0.01	65	0.03	−8.83	0.00
914	Could	32	0.03	206	0.11	−44.74	0.00
918	Might	8	–	130	0.07	−48.29	0.00
926	May	105	0.11	464	0.25	−62.25	0.00
937	Would	103	0.11	553	0.30	−99.34	0.00

language. Thus the translated Mao’s speeches come from the double influence of both the source language and the target language. In contrast, both WCH (normalized spoken texts) and BNC-S (original spoken texts) are non-translated, naturally

TABLE 13 Key modal verbs in CWM (in comparison with WCH).

No.	Modal verbs	CWM		WCH		Keyness	Significance
		Freq.	%	Freq.	%		
29	Must	537	0.55	408	0.22	214.60	0.00
438	Should	296	0.30	417	0.22	16.65	0.00
1,026	Shall	25	0.03	246	0.13	−74.10	0.00
1,029	Could	12	0.01	206	0.11	−78.57	0.00
1,050	May	41	0.04	464	0.25	−151.80	0.00
1,055	Would	37	0.04	553	0.30	−203.73	0.00

TABLE 14 Key modal verbs in MRP (in comparison with WCH).

No.	Modal verbs	MRP		WCH		Keyness	Significance
		Freq.	%	Freq.	%		
194	Should	254	0.34	417	0.22	29.16	0.00
264	Must	237	0.32	408	0.22	21.77	0.00
735	Could	46	0.06	206	0.11	−12.26	0.00
739	Ought	6	–	65	0.03	−12.93	0.00
800	Might	4	–	130	0.07	−41.33	0.00
804	Shall	25	0.03	246	0.13	−48.08	0.00
816	Would	76	0.10	553	0.30	−81.69	0.00
818	May	52	0.07	464	0.25	−84.40	0.00

TABLE 15 Key modal verbs in SWM (in comparison with BNC-S).

No.	Modal verbs	SWM		BNC-S		Keyness	Significance
		Freq.	%	Freq.	%		
14	Must	536	0.55	616	0.06	1,891.05	0.00
74	Should	381	0.39	1,029	0.11	523.80	0.00
386	Shall	89	0.09	291	0.03	88.24	0.00
669	May	105	0.11	500	0.05	45.65	0.00
1874	Might	8	–	691	0.07	−54.17	0.00
1904	Would	103	0.11	2,524	0.27	−89.65	0.00
1906	Could	32	0.03	1,538	0.16	−97.40	0.00

produced English texts, with no interference of the source language. Therefore, the translated Mao’s speeches differ from both normalized spoken English texts and original spoken English texts in certain macro-linguistic aspects.

TABLE 16 Key modal verbs in CWM (in comparison with BNC-S).

No.	Modal verbs	CWM		BNC-S		Keyness	Significance
		Freq.	%	Freq.	%		
14	Must	537	0.55	616	0.06	1,898.98	0.00
178	Should	296	0.30	1,029	0.11	266.39	0.00
1896	Can	190	0.20	3,535	0.37	-77.43	0.00
1917	Could	12	0.01	1,538	0.16	-132.62	0.00
1932	Would	37	0.04	2,524	0.27	-186.65	0.00

TABLE 17 Key modal verbs in MRP (in comparison with BNC-S).

No.	Modal verbs	MRP		BNC-S		Keyness	Significance
		Freq.	%	Freq.	%		
55	Must	237	0.32	616	0.06	532.59	0.00
104	Should	254	0.34	1,029	0.11	299.12	0.00
1,317	Can	186	0.25	3,535	0.37	-27.76	0.00
1,343	Could	46	0.06	1,538	0.16	-43.88	0.00
1,346	Might	4	-	691	0.07	-45.07	0.00
1,363	Would	76	0.10	2,524	0.27	-71.87	0.00

Differences in the use of personal pronouns

As to the use of personal pronouns, the three English translations deviate from both normalized spoken English texts and original spoken English texts. This deviation is most noticeable in the use of the first person singular pronoun *I*, which is significantly underused in all the three translations.

Such a phenomenon may be attributed to the source texts and ultimately to the cultural and linguistic differences between China and the West. First, from the cultural perspective, China and the West lay different emphasis on individual status in their culture. The emphasis on collectivism in China has led to a tendency for Chinese leaders to downplay the individuals in speeches, resulting in a higher frequency of the inclusive *we* in Chinese culture. By contrast, the emphasis on individualism in the West allows Western leaders to highlight the power and role of the individuals in speeches, thus resulting in a higher frequency of the first person singular pronoun *I* in western culture. Second, from the linguistic perspective, Chinese as a type of paratactic language tends to use fewer personal pronouns while English as a type of hypotactic language has a preference for personal pronouns to achieve the cohesion and coherence of a text. In Chinese-English translations, due to the influence of the source texts, the English translations may be featured by the underuse of the first person singular pronoun *I*, thus differentiating themselves from both normalized spoken English texts and original spoken English texts.

Differences in the use of modal verbs

According to Halliday and Matthiessen (2004: 622–624), modal verbs generally can be classified into three types, on the

TABLE 18 Quantitative values of modal verbs (Halliday and Matthiessen, 2004: 622–624).

Values	Modal verbs
High	Must, ought to, need, have to, be to
Medium	Will, would, shall, should
Low	May, might, can, could

basis of their “value.” As is shown in Table 18, high-value modal verbs include *must*, *ought to*, *need*, *have to*, as well as *be to*; medium-value modal verbs include *will*, *would*, *shall*, and *should*; low-value modal verbs include *may*, *might*, *can*, and *could*.

Based on Halliday and Matthiessen’s classification, we can find that, in comparison with normalized spoken English texts and original spoken English texts, all the three English translations prefer the overuse of the high-value modal verb *must* and the medium-value modal verb *should*; on the other hand, the three translations prefer the underuse of medium-value and low-value modal verbs *shall*, *could*, *may*, and *would*.

Those features may be attributed to the linguistic characteristics of the source texts. Mao’s speeches are mainly political texts, which contain many non-dialogical imperative sentences and fulfill the “expressive function” as proposed by Newmark (1988: 39–40). According to Sun (1993: 244–248), major modal verbs in Mao’s writings include 必须 (*must*), 应该/应当/要 (*should*), and 不能 (*must not/should not*). Generally speaking, these Chinese modal verbs can be mainly rendered into the high-value modal verb *must* and medium-value modal verb *should* in English. In the process of translating from Chinese into English, the regular use of equivalence/explicitation strategy can lead to the overuse of the high-value modal verb *must* and medium-value modal verb *should* in English translations.

To sum up, the above findings suggest that the macro- and micro-linguistic differences exist not only between direct and inverse translations, but also among translated normalized spoken texts, normalized spoken English texts, and original spoken English texts. Specifically, in terms of macro-linguistic statistics, the average word length of the English translations is higher than that of normalized spoken English texts and that of original spoken English texts; the standardized type/token ratio and average sentence length of the English translations are higher than those of original spoken English texts, but lower than those of normalized spoken English texts. Meanwhile, in terms of the use of personal pronouns, the English translations of Mao’s speeches prefer the underuse of the first person singular pronoun *I*. Furthermore, as far as modal verbs are concerned, the English translations of Mao’s speeches prefer the overuse of *must* and *should* on the one hand, and the underuse of *shall*, *could*, *may*, and *would* on the other hand.

Concluding remarks

Focused on macro-linguistic features, personal pronouns and modal verbs, this study investigates the spoken texts in three English translations of Mao’s writings, taking WCH

(Churchill's speeches, representative of normalized spoken English texts) and BNC-S (spoken texts in BNC Sampler, representative of original spoken English texts) as the reference corpora, so as to explore the features of language use in the inverse and direct translations of Mao's writings. The findings suggest that, on the one hand, direct and inverse translations share some differences, and on the other hand, the translated of Mao's speeches can be differentiated from normalized spoken English texts as well as original spoken English texts. The translated of Mao's speeches are in a middle position in relation to normalized spoken English texts as well as original spoken English texts. This in-betweenness not only exhibits Mao's creative and idiosyncratic language use, but also reflects the influence of the language transfer from Chinese into English.

Those discrepancies may be due to many factors, including the purposes that the translating activities serve, the functions that the Chinese source texts fulfill in the translating process, the roles of the translators in the translating activities, the attitudes toward the Chinese source texts held by the translators (Wang and Huang, 2020: 14). For example, the inverse translation SWM, initiated by the Chinese government in the early 1960s, aims to transfer Mao Zedong's thought and introduce China's revolutionary experience. As authoritative texts in China, Mao's writings are not only national political documents but also formal speeches which fulfill expressive and vocative functions. It is precisely because of the authoritativeness of Mao's writings, the inverse translation SWM tends to be more literal and source text-oriented in nature, resulting in a more adequate translation. By contrast, the direct translations CWM and MRP, initiated by the U.S., prefer to consider Mao's writings as a source of information or the research materials for historical and political studies. Although the source texts are still regarded as authoritative texts, they are, more importantly, seen as informative texts in the translation process. The source texts' expressive and vocative functions are downplayed, and their informative function comes to the fore. Thus, the direct translations CWM and MRP tend to be more target text-oriented in nature, resulting in more acceptable translations.

To sum up, this study investigates the features of translated normalized spoken texts at the macro-linguistic and micro-linguistic levels. Findings show that, in terms of macro-linguistic statistics, the use of personal pronouns and the use of modal verbs, the translated normalized spoken texts can be differentiated from non-translated original spoken texts and non-translated normalized spoken texts. It should be noted that more indicators (such as deixis, modal particles, cultural-specific terms) are to be explored so as to efficiently distinguish different types of spoken texts.

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Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

LH designed the research, analyzed the data, and wrote the manuscript. XS collected the data and revised the manuscript. Both authors contributed to the article and approved the submitted version.

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Supplementary material

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Processing figurative language: Evidence from native and non-native speakers of English

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In recent research on figurative phrases, factors (e.g., familiarity, transparency, meaning, and decomposability) have played a significant influence on how native and non-native English speakers (various L1 and L1 Arabic) acquire, process, and comprehend figurative language. These factors are not always described and operationalized precisely and are frequently considered autonomous. This study explores these factors in terms of language users' ratings and their abilities to accurately infer meaning from a variety of familiar English and translated idioms and novel metaphors. A total of 123 participants from various language groups engaged in this study. The findings showed that familiarity is a strong predictor of transparency. In the ability to infer the meaning correctly, the best-fit model included an interaction between transparency and familiarity. The findings showed that guessing the meaning correctly led to a greater increase in the scores of transparency and decomposability. We explore how these factors work together to enable speakers to infer the meaning of both known and new figurative words at various levels. These results have significant implications for the learning and teaching of figurative phrases in the English as a foreign language (EFL) context, as they indicate variables that may make a figurative phrase valuable in terms of teaching time and effort.

KEYWORDS

figurative language, metaphors, idioms, familiarity, transparency, comprehension, decomposability, non-native

Introduction

Figurative language is broadly defined as any language in which a speaker means anything other than what is expressed literally and is a principal component of everyday communication (Dancygier and Sweetser, 2014). Native speakers use idioms, metaphors, similes, analogies, and other figures of speech so regularly that they appear commonplace. Yet, they constitute a significant barrier to second- and foreign-language learners. Numerous studies have pointed out the difficulty involved in using figurative phrases (FPs), as a major barrier among second-language learners from various L1 backgrounds (see, e.g., Cieřlicka, 2015; Park, 2018; Chen, 2019). The difficulty associated

with FPs in L2 English has been attributed to several sources. First, second-language learners have difficulty processing the mappings from the source or vehicle to the target or tenor. If we take the example of “Juliet is the sun,” we have Juliet as the tenor or target and the sun as the vehicle or source, and we can understand it to mean that there are mappings from the source to the target or that there is a ground with shared properties between the tenor and vehicle. Through mapping and/or the ground, we understand that Juliet glows and is warm and beautiful. A non-native speaker may encounter difficulties in understanding that Juliet is described as the sun because she has these outstanding physical or aesthetic qualities. Littlemore and Low (2006) attributed the difficulty in processing to a lack of “native speaker competence.” Second, FPs comprise two or more words that are viewed as a single unit, which is semantically understood thus (Johnson and Malgady, 1979). Such processing may cause learners to either misunderstand and/or not understand FPs. Littlemore et al. (2011) found that international students in British universities encountered over 40% of FPs that were challenging to understand in their lectures (Littlemore et al., 2011). Not all figurative language is created equal, given the different degrees of comprehensibility and processing for non-native speakers (Littlemore et al., 2011). Cacciari and Corradini (2015) noted that certain processing variations appear to exist across different forms of figurative expressions, in that fluent bilinguals appear to comprehend metaphors and irony (but not idioms) on the lines of monolinguals, but at a slower rate in general (Cacciari and Corradini, 2015). Metaphorical meanings are more accessible than conventional idiomatic ones, given that metaphors are classification assertions that are identical to those provided by literal language (Cacciari and Corradini, 2015). There is little research on FPs and the factors that determine L2 knowledge of the various senses. Only two recent studies (Carrol et al., 2018; Carrol and Littlemore, 2020) have examined this issue, to the best of my knowledge. Therefore, the current study examines whether factors like familiarity, transparency, meaning, and decomposability influence how native and non-native speakers of English comprehend the language figuratively. How do native L1 and L2 speakers of English vary in their capacity to comprehend and infer figurative meaning, and how does this connect to the broader set of skills that constitutes “figurative competence” (Pollio and Pollio, 1974, 200)?

Literature review

Brief accounts of metaphor processing

Metaphor theories differ in their assumptions about how metaphors are processed (Cacciari, 2015). Classical accounts of metaphors are a deviation from conventional (literal) language. The conventional pragmatic perspective holds that

metaphors are utterances that are interpreted differently from their literal meanings. According to this approach, the literal interpretation should be sought and discarded until we arrive at the metaphorical interpretation. This means that inference is necessary to ascertain the intended message (Gibbs and Colston, 2012). Classical views consider metaphors “exceptional” patterns that exist in ordinary language and vary according to time and context. According to Grice (1967), a figurative interpretation is sought only after the literal reading is rejected. When one of the four maxims (e.g., the condition that an interpretation is informative) is broken, the literal interpretation is rejected. Figurative interpretation cannot begin until the complete utterance is processed (Grice, 1967).

In an alternative account, it was proposed that both metaphorical and literal interpretations are processed concurrently and employ the same processing mechanisms. Thus, processing interacts with contextual information for lexical elements and metaphorical language. Gibbs et al. (1997) demonstrated that metaphors need the same amount of processing time as literal phrases. When the context was appropriate, reaction times did not vary between figurative and literal expressions (Gibbs and Colston, 2012). However, Frisson and Pickering (2001) remarked that the reason for a typical difficulty in interpreting results from research on figurative language processing is due to confounding factors, such as plausibility, cloze likelihood, and word frequency, which are not usually controlled in several studies that compare processing durations for figurative and literal phrases. Such factors should be included as they can result in different conclusions around the potential difficulty of figurative language (Frisson and Pickering, 2001).

Blasko and Connine (1993, 13) defined familiarity as “the perceived experience with the metaphor.” They revealed that figurative interpretations of well-known metaphors were just as accessible as literal ones. They reported that figurative inferences of novel metaphors were more difficult to comprehend than literal interpretations. It is worth debating whether this measure of familiarity is truly aimed at the topic–vehicle relationship (for an overview of the topic–vehicle relationship, see Connor and Kogan, 2018). As Blasko and Connine proposed, a metaphor’s perceived experience may be influenced by earlier encounters with a group of related metaphors (e.g., from the same conceptual domains; Blasko and Connine, 1993). Thibodeau and Durgin (2011) proposed a potential alternative evaluation of metaphor familiarity and found a strong correlation between subjective assessments of familiarity [obtained by asking participants to rate a set of metaphors utilized in Jones and Estes (2005)] and metaphor frequency (obtained using Google as a corpus). They proposed that metaphor frequency can be used as an objective indicator of familiarity. They discovered a strong association between familiarity and aptness and did not find any relationship between conventionality and familiarity (Thibodeau and Durgin, 2011).

Familiarity

One factor that may affect metaphor processing is familiarity. Metaphors that make frequent use of close associates are more likely to gain familiarity with time. Associations may have evolved between these phrases because of speakers' cumulative experience with a familiar metaphor (see, e.g., Bowdle and Gentner, 2005). Metaphors vary significantly in terms of familiarity, ranging from conventional or very familiar (babies are angels) to novel or highly unfamiliar (marriage is an alloy). Established metaphors do not activate the right hemisphere of the brain, whereas unfamiliar ones do (e.g., Mashal et al., 2005).

Transparency

Metaphor processing may be influenced by transparency, which refers to how easy it is to guess the meaning before it is known (Carrol et al., 2018). In comparison with an opaque phrase, readers can decipher the intended meaning more easily when it is easier to work out. For example, the FP expression “spell the bees” means “to reveal a secret” and is considered transparent (Keysar and Bly, 1999), whereas the FP expression “break the ice” is considered non-transparent (Smith, 2021). Skoufaki (2008) argued that idiom transparency intuition arises after learning and guessing an expression's meaning and that contextual hints matter in constructing idiom transparency intuition.

Meaning

Processing or disambiguating figurative meaning aims to explain the implicit understanding of metaphor from a psycholinguistic perspective (see, e.g., Gibbs and Colston, 2012). According to Lakoff and MacCormac (1987), idioms that “make sense” are driven by an image and conceptual mapping. The motivating factors, according to Lakoff, make figurative phrases and their meanings comprehensible. Another classical example of a transparent figurative phrase is “to keep someone at arm's length.” Lakoff argued that for many people, an image of an individual extending their arm would motivate their understating of the FP (Lakoff and MacCormac, 1987, 447–449). For metaphorical phrases that are not “understood” in the same way, learners appear to perform similarly in L1 and L2, indicating that it may be related to individual differences (Littlemore, 2001).

Decomposability

Certain figurative phrases were highly decomposable, with the meanings of their constituent pieces autonomously influencing their total figurative meanings. It relates to how closely metaphorical and literal interpretations correspond as independent variables. Other figurative phrases were impossible to decompose because it was difficult to see any connection between the phrase's constituents and the idiom's metaphorical meaning (Gibbs, 1994). There is a qualitative difference in

processing decomposable versus non-decomposable figurative meaning (Caillies and Declercq, 2011). For example, it was found that after reading decomposable idiomatic phrases, figurative meanings were immediately activated, whereas it took longer for non-decomposable metaphoric figurative meanings to be activated. The finding supports the hypothesis that decomposable idiom comprehension takes place because of retrieving the figurative meaning from memory, but that non-decomposable metaphor comprehension requires a sense construction process (Caillies and Declercq, 2011).

Native and non-native metaphor processing

The book, *Bilingual Figurative Language Processing*, was dedicated to non-native speakers' figurative language processing. Section III of this book is most relevant to the current study. It discusses language processing in general and provides an overview of many known models of multilingual figurative language processing (García et al., 2015; Heredia and Cieřlicka, 2015). Titone et al. (2015) provided an excellent summary of the present state of knowledge on bilingual idiom processing. They introduced the Constraint-Based Processing Model of L2, which postulates that bilinguals, like monolinguals, make simultaneous use of all information given (e.g., idiom familiarity or predictability) gathered from the direct recall and configurational analysis of idiomatic expressions during idiom comprehension (Titone et al., 2015). Cieřlicka (2015) expanded on bilingual figurative language understanding and demonstrated how a bilingual processing model based on the literal analysis of L2 idioms (i.e., the Literal Salience Model) accounts for foreign-language learners' processing of idiomatic phrases. Cieřlicka covered several basic theories of L2 lexical acquisition in addition to evaluating a variety of characteristics (e.g., cross-linguistic resemblance, literal plausibility, and predictability), which influence idiom processing (e.g., Parasitic Hypothesis of vocabulary development; Cieřlicka, 2015). Paulmann et al. (2015) analyzed phrasal verbs among native and non-native speakers using event-related potentials. Like idiomatic expressions, phrasal verbs (e.g., run into) are ambiguous and can be taken literally (e.g., to enter: He ran into the building) or metaphorically (e.g., to encounter someone: He ran into his old acquaintance). Paulmann et al. (2015) showed that proficient L2 English learners do not necessarily have difficulty comprehending phrasal verbs. Their overriding conclusion was that non-native, but fluent English speakers grasp phrasal verbs using processing mechanisms that are similar to those of native speakers (NS; Paulmann et al., 2015). Bromberek-Dyzman et al. (2015) presented an overview of the research on ironic processing and demonstrated that it is not defined by the literal/non-literal language difference in L1 and L2, but rather by the subjective connotation.

Research has investigated variables that affected metaphor processing (Gentner and Bowdle, 2001; Glucksberg and McGlone, 2001; Jankowiak et al., 2017; Kulkova and Fischer, 2019; Jankowiak, 2020; Khatin-Zadeh and Khoshsim, 2021). Carroll et al. (2018) investigated factors that have an important role in figurative processing among native and non-native speakers. As familiarity has a direct impact on transparency perception, semantic judgments cannot be considered independent. Although this has been mentioned in the literature before, it is not widely accepted in idiom research and has significant methodological implications. Transparency, decomposability, and motivation, for example, should be defined and operationalized more precisely. These judgments of transparency, decomposability, and motivation fluctuate significantly based on the stage at which they are made and may be best-considered interactions between a specific speaker and a specific phrase rather than as intrinsic idiom qualities. Carroll et al. (2018) state that once familiarity is considered, native and non-native speakers understand and determine the meaning of figurative terms in similar ways. When expressions are completely unfamiliar, their relative transparency impacts how well language users will be able to figure out what they imply. Inequalities are often attributable to native speakers' larger vocabulary and cultural understanding. Many language learners may consider phrases fundamentally more transparent than would native speakers owing to their analytical approach. They argue that for L2 speakers, cross-linguistic influence has a clear impact on judgments and the capacity to recognize meaning.

Speakers view expressions in L2 that have the same words and meanings as idioms in the L1 as being more familiar (regardless of whether they have encountered the precise expression in the L2) and are more likely to identify the meaning correctly. They also think they are clearer and have native speakers' competency in terms of being familiar with the idiomatic meaning and the ability to understand the meaning. This study relates to evidence that links L1 knowledge to multiword L2 processing in both online and offline language tasks. Future research may include some additional factors addressed here aside from continuing to deepen our understanding of how native speakers and language learners cope with and acquire idioms and figurative meaning in general (e.g., embodied simulation, cultural knowledge, and emotional engagement). Carroll and Littlemore (2020) looked at how native speakers understand novel figurative language in two eye-tracking studies. In Study 1, they established that known idiom (i.e., where meaning is provided) had a distinct advantage over unfamiliar idioms, but did not find a causal relationship between figurative and literal versions of conventional metaphors when compared to literal paraphrases of the same meaning. For L2 idioms, familiarity, transparency, and decomposability demonstrated facilitative effects. They found that the processing of idioms was affected by variables,

such as literal plausibility and the dominance of metaphorical versus literal meanings. In Study 2, readers encountered familiar and unfamiliar idioms (or paraphrases) in contexts that either supported the meaning or were neutral. Supporting contexts had no effect on reading habits for either type of idiom or had no effect when readers were asked to determine the meaning later. Context can help with sense selection, but not when it comes to generating new senses, when factors like transparency gain relevance.

Materials and methods

Participants

A total of 123 participants engaged voluntarily in this study. The researcher adhered to the American Psychological Association (APA's ethical guidelines), which prioritizes privacy, consent, and the ability to quit the task at any point. Three groups were selected. The first group comprised Arabic native speakers (L1 Arabic, $n = 54$, 43.9%). Their average age was 18.8 years (standard deviation SD = 1.7 years). They were all female undergraduate students who had enrolled at a Saudi University. They studied English for a mean of 6.8 years (standard deviation SD = 3.12 years) and lived in an English-speaking country for an average of 0.8 years (standard deviation SD = 2.62 years). The second group comprised English native speakers ($n = 25$, 20.3%) with an average age of 25.6 years (standard deviation SD = 2.2 years). Of these, 16 (38.1%) were female participants and 26 (61.9%) were male participants; 37 (88.1%) were undergraduate students, and five (11.9%) were postgraduate students. The third group comprised 43 "general" non-native second-language learners of English. They included 25 native Urdu speakers (20.3%) with a mean age of 21.6 years (standard deviation SD = 1.9 years), 14 native Hindi speakers (10.6%) with a mean age of 19.7 years (standard deviation SD = 1.78 years), and only three Filipino speakers (2.4%) with a mean age of 19.3 years (SD = 1.8 years). Of the total, 11 (44%) were female participants and 15 (56%) were male participants; 17 (68%) were undergraduate students, and 8 (32%) were postgraduate students. The non-native speakers' group had studied English for an average of 14.1 years (standard deviation SD = 5.78 years) and lived in an English-speaking country for an average of 1.2 years (standard deviation SD = 2.71 years).

The L2 English and L1 Arabic speakers alone were asked to complete a vocabulary test. They were presented with 30 items. A modified version of the vocabulary size test was used to measure their proficiency (Nation and Beglar, 2007). The non-native speakers (NNS) scored higher (mean score = 18.9/30, SD = 9.39) than the L1 Arabic group (mean score = 13.4, SD = 7.00). In the self-rated reported usage of the English survey, listening skills were rated higher by the NNS group (mean listening score = 8.4, SD = 2.72) than the L1 Arabic group

(mean listening score = 6.8, SD = 2.51). The NNS group rated reading higher (mean reading score = 8.4, SD = 3.27) than the L1 Arabic group (mean reading score = 7.1, SD = 2.40). The NNS group rated themselves higher for writing (mean writing score = 7.8, SD = 2.92) than the L1 Arabic group (mean writing score = 6.0, SD = 2.42). The NNS and L1 Arabic groups had mean speaking scores of 8 (SD = 2.88) and 5.7 (SD = 2.88), respectively. Regarding the self-rating of perceived proficiency in the usage of English by participants, they were asked to rate each of the ten dimensions out of five, and the NNS group rated themselves higher (mean = 31.9/50, SD = 16.0) than the L1 Arabic group (mean = 23.1, SD = 15.2).

Materials and procedures

The study selected three types of figurative phrases; the first set of English idioms were adopted from [Carrol et al. \(2018\)](#). I modified the phrases to meet the cultural expectations of Saudi Arabic speakers. The second set were novel metaphors adopted from [Carrol et al. \(2018\)](#), and their selection met two conditions: They had to be unfamiliar and transparent. The third set were translated idioms from other languages; one of the subsets had translated Arabic idiomatic expressions selected by the researcher and was verified by two linguists. In [Carrol et al. \(2018\)](#), plausible meanings were generated following three criteria: (a) The alternative meanings should be different from the correct one, (b) the correct meaning should not be a paraphrase of the phrase in question, and (c) all meanings (alternative and correct) should be possible interpretations of the intended figurative meaning. The researcher adopted a process that increased the likelihood of providing possible interpretations by asking three speakers of different L1 (Filipino, Dutch, and English) to provide other possible meanings. When the speakers provided correct answers, the Arabic idiom was eliminated. All idioms chosen had not been encountered, and their answers fed the options for incorrect meanings. The final list comprised 22 English idioms, 22 novel metaphors, 22 translated idioms from German and Bulgarian, and 22 Arabic idioms.

The participants were told that a phrase would be shown on the screen. All of them answered the following questions: “How familiar is this phrase?” (they had to circle their answer on a seven-point Likert scale ranging from 1 = not at all familiar to 7 = very familiar), and “How easily could you guess the meaning of the phrase?” (they had to circle the answer on a seven-point Likert scale ranging from 1 = not easily at all to 7 = very easily). Then, four possible meanings were presented. The participants were instructed to choose the correct meaning of the phrase. They were presented with the correct meaning of the phrase and were asked to indicate whether there was a connection between the phrase and its meaning (they had to circle the answer on a seven-point Likert scale, ranging from 1 = no connection to

7 = very clear connection). The responses to the four questions provided data on four factors, namely familiarity, transparency, meaning, and decomposability. Each participant viewed the 88 items. This exercise lasted around 30–40 min for native English speakers. Each group of L2 English learners and native Arabic speakers took approximately 45–60 min.

Results

Familiarity

The English NS group was far more familiar with English idioms (score = 5.77) than the L1 Arabic (score = 4.35) and NNS (score = 4.28) groups. The difference between the English NS and L1 Arabic groups was statistically significant ($t = 17.117$, $p < 0.00001$). The difference between the English NS and L2 English NNS groups was statistically significant ($t = 3.035$, $p < 0.00039$). The L1 Arabic group was marginally better than the NNS group in terms of familiarity with English idioms (means of 4.35 and 4.28, respectively). However, the difference was not statistically significant ($t = 0.8667$, $p = 0.3863$). For a visual representation of familiarity ratings, see [Figure 1](#) below.

However, in terms of novel metaphors, the L1 Arabic group (mean score = 4.13) was more familiar with novel metaphors than the English NS group (mean score = 3.39) with a significant margin ($t = 7.978$, $p < 0.00001$), but the L1 Arabic group's rating of familiarity was not significantly different from that of the NNS group (mean score = 4.18; $t = 0.623$, $p = 0.5335$). The NNS group was more familiar with novel metaphors than the English NS group (mean scores of 4.18 and 3.39, respectively, $t = 7.952$, $p < 0.00001$). L1 knowledge influenced familiarity ratings for the translated Arabic idioms. The mean of the L1 Arabic group was 4.44, in terms of familiarity with Arabic idioms, substantially exceeding both the English NS (mean score = 2.69, $t = 19.629$, $p < 0.00001$) and NNS (mean score = 3.99, $t = 5.775$, $p < 0.00001$) groups. The English NS group was far less familiar with Arabic idioms when compared to the NNS group ($t = 13.619$, $p < 0.00001$). The L1 Arabic group's mean score was 4.12 for familiarity with generally translated idioms, which was higher than that of both the English NS (mean score = 2.64, $t = 16.521$, $p < 0.00001$) and NNS (mean score = 3.96, $t = 2.084$, $p = 0.03731$) groups. The English NS group's familiarity with generally translated idioms was lower than the NNS group ($t = 13.748$, $p < 0.00001$).

Transparency

For English idioms, the English NS group was more likely to rate English idioms as more transparent (mean = 4.97) than both the Arabic L1 group (mean = 3.57, $t = 17.022$, $p < 0.00001$) and the NNS group (mean = 3.76, $t = 13.625$,

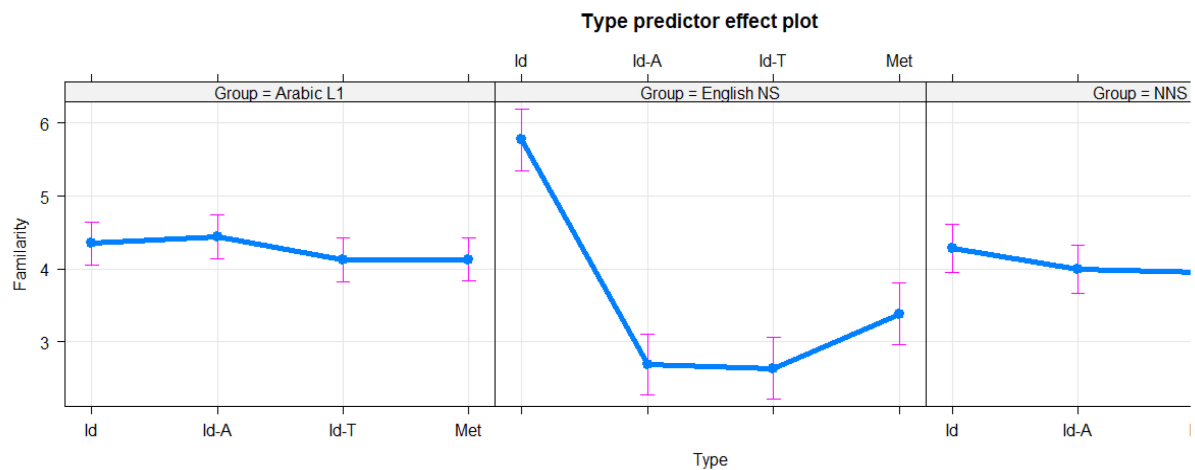


FIGURE 1

Ratings of familiarity broken down according to each phrase type (Id, English idioms; Met, novel metaphors; Id-T, generally translated idioms; and Id-A, Arabic idioms) for the Arabic L1 (left panel), English native speakers (NS) (middle panel), and non-native speakers (NNS) (right panel) groups. The 95% confidence interval is represented by error bars.

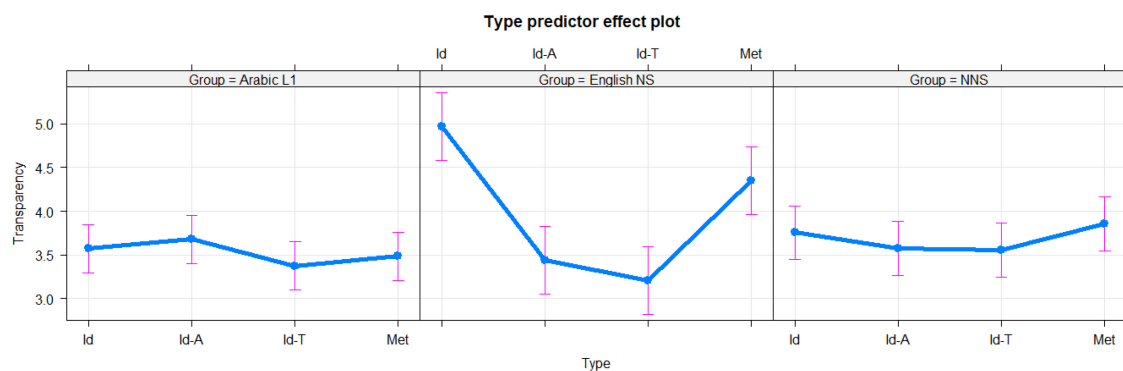


FIGURE 2

Ratings of transparency broken down according to each phrase type (Id, English idioms; Met, novel metaphors; Id-T, generally translated idioms; and Id-A, Arabic idioms) for the Arabic L1 (left panel), English native speakers (NS) (middle panel), and non-native speakers (NNS) (right panel) groups. The 95% confidence interval is represented by error bars.

$p < 0.00001$). The difference in transparency scores for English idioms between the NNS (mean = 3.76) and Arabic L1 (mean = 3.57) groups was statistically significant ($t = 2.3962$, $p = 0.01666$). These results were consistent even after accounting for the effect of familiarity ($t = 9.42644$, $p < 0.00001$) for the difference between the Arabic L1 and English NS ($t = 6.315629$, $p < 0.00001$), Arabic L1 and NNS, and English NS and NNS ($t = 2.767943$, $p = 0.00745631$) groups. For generally translated idioms, the Arabic L1 group scored a mean of 3.37, which exceeded that of the English NS group (score = 3.21). This difference was statistically significant ($t = 2.0885$, $p = 0.03698$) and improved upon accounting for the familiarity effect too ($t = 6.00781$, $p < 0.00001$). However, the Arabic L1 group scored the translated idioms as less transparent than the NNS group (mean score = 4.35, $t = 2.3772$, $p = 0.01755$; became

$t = 3.412871$, $p = 0.002411837$) after accounting for familiarity. The NNS group outperformed the English NS group with a significant margin ($t = 3.9664$, $p = 0.00008$; after accounting for familiarity, it became $t = 2.679873$, $p = 0.022161618$). As for the transparency of translated Arabic idioms, the Arabic group score (mean = 3.67) was significantly higher than that of the English NS group (mean = 3.43, $t = 3.1128$, $p = 0.001895$), but not statistically different from that of the NNS group (mean = 3.58, $t = 1.3721$, $p = 0.1702$). The difference between the NNS and English NS groups was statistically insignificant ($t = 1.6825$, $p = 0.0927$). For a visual representation of transparency ratings, see Figure 2 above.

In relation to transparency for novel metaphors, the Arabic L1 group underperformed (mean = 3.48) when compared to both the English NS (mean score = 4.35, $t = 10.735$, $p < 0.00001$)

and NNS (mean score = 3.85, $t = 4.7853$, $p < 0.00001$) groups. The English L1 group scored higher than the NNS group ($t = 5.6874$, $P < 0.00001$). All these measures stayed the same after accounting for the effect of familiarity ($t = 20.7432$, $p < 0.00001$; $t = 4.498109$, $P = 0.000035$; $t = 9.582462$, $p < 0.00001$, respectively).

The L1 Arabic group (mean score = 4.13) was more familiar with novel metaphors than the English NS group (mean score = 3.39) with a significant margin ($t = 7.978$, $p < 0.00001$), but the L1 Arabic group's rating of familiarity was not significantly different when compared with the NNS group (mean score = 4.18; $t = 0.623$, $p = 0.5335$). The NNS group was more familiar with novel metaphors than the English NS group (mean scores 4.18 and 3.39, respectively, $t = 7.952$, $p < 0.00001$). L1 knowledge influenced familiarity ratings for the translated Arabic idioms. The L1 Arabic group scored a mean of 4.44 in terms of familiarity with Arabic idioms, substantially exceeding both the English NS (mean score = 2.69, $t = 19.629$, $p < 0.00001$) and NNS (mean score = 3.99, $t = 5.775$, $p < 0.00001$) groups. The English NS group was far less familiar with Arabic idioms than the NNS group ($t = 13.619$, $p < 0.00001$). The L1 Arabic group's mean score was 4.12 for familiarity with generally translated idioms, higher than both the English NS (mean score = 2.64, $t = 16.521$, $p < 0.00001$) and NNS (mean score = 2.57, $t = 2.084$, $p = 0.03731$) groups. Remarkably, the English NS group's familiarity with generally translated idioms was lower than the NNS group ($t = 13.748$, $p < 0.00001$).

Meaning

We alternated between mixed logistic regression models and started with an omnibus model to explore the fixed effects of group and type. We included familiarity and transparency to explore the extent of their contributions, and the upcoming models were sequentially compared. Both familiarity (chi-squared = 8.037, $p = 0.004583$) and transparency (chi-squared = 19.178, $p = 0.000012$) improved the model fit significantly when each of them was added to the omnibus model. The inclusion of both variables made a significant improvement in model fit when compared to the familiarity-only model (chi-squared = 11.974, $p = 0.000539$). However, when both variables were included, the fit was not substantially better than the transparency-only model (chi-squared = 0.8329, $p = 0.3614$).

Both familiarity and transparency were positively associated with the meaning: for familiarity (mean score for those who identified the correct meaning = 4.21, mean in those who did not = 3.98, $t = 6.1656$, $p < 0.00001$); for transparency (mean score for those who identified the correct meaning = 3.95, mean in those who did not = 3.49, $t = 13.577$, $p < 0.00001$). To explore this further, we fit separate models for each phrase type. For each model, we added familiarity to see whether it improved

the model and then added transparency to see whether it made any additional improvements. The variables were added in this order on the grounds that if a phrase is known, its meaning can be retrieved directly. Thus, relative transparency had an effect only for unknown phrases. Figure 3 shows the contribution of familiarity and transparency per speaker group for each phrase type.

For idioms, adding familiarity to the model with the fixed effect of groups substantially improved the model fit (chi-squared = 5.9773, $p = 0.01449$). The addition of transparency to the model with familiarity and group improved the fit (chi-squared = 7.6161, $p = 0.005785$). Including an interaction between group and familiarity improved the omnibus model further (chi-squared = 19.19, $p = 0.00025$). Transparency inclusion as a fixed effect improved the model (chi-squared = 8.0644, $p = 0.004514$) and as an interaction between transparency and group (chi-squared = 19.958, $p = 0.0001732$). The best-fitting model included familiarity and transparency in interacting with the group. For metaphors, the inclusion of familiarity (chi-squared = 3.1411, $p = 0.0704$) and transparency as a fixed term (chi-squared = 0.2503, $p = 0.6168$) and as an interaction term (chi-squared = 5.0146, $p = 0.1707$) in the model did not improve the model fit. This highlighted the absence of an impact on familiarity and transparency around identifying the correct meaning of metaphors. The best model, upon comparing all possible models, was the one that included interaction terms with both groups and transparency. In this model, the English NS group scored significantly better than the Arabic L1 group ($z = 2.521$, $p = 0.0117$), but the NNS group did not ($z = 1.856$, $p = 0.0635$). The effect of familiarity and transparency on getting the correct meaning of a metaphor was not statistically significant ($z = 1.561$, $p = 0.1185$, and $z = -0.502$, $p = 0.6155$, respectively).

For translated idioms, adding familiarity with group interaction term improved the model fit significantly (chi-squared = 7.8686, $p = 0.04881$). However, including a further transparency term did not help the model fit both as a fixed (chi-squared = 0.3009, $p = 0.5833$) and interaction term (chi-squared = 1.2284, $p = 0.7462$). The best-fit model was the one with an interaction term for familiarity with the group, in which the English NS group outperformed the Arabic L1 group, but the NNS group did not ($z = 1.946$, $325p = 0.05160$). For Arabic idioms, including a familiarity term did not improve the model (chi-squared = 7.3418, $p = 0.06176$). However, including a fixed transparency term in the omnibus model resulted in substantial improvement (chi-squared = 11.329, $p = 0.000763$). This model improved through the inclusion of an additional familiarity interaction term (chi-squared = 8.3131, $p = 0.03996$), but did not improve upon adding a transparency interaction term (chi-squared = 1.4125, $p = 0.4935$). The best fit was for the model that included fixed transparency and interaction familiarity terms, where transparency exhibited an improved ability to get the correct meaning ($z = 3.527$, $p = 0.000421$), but familiarity did

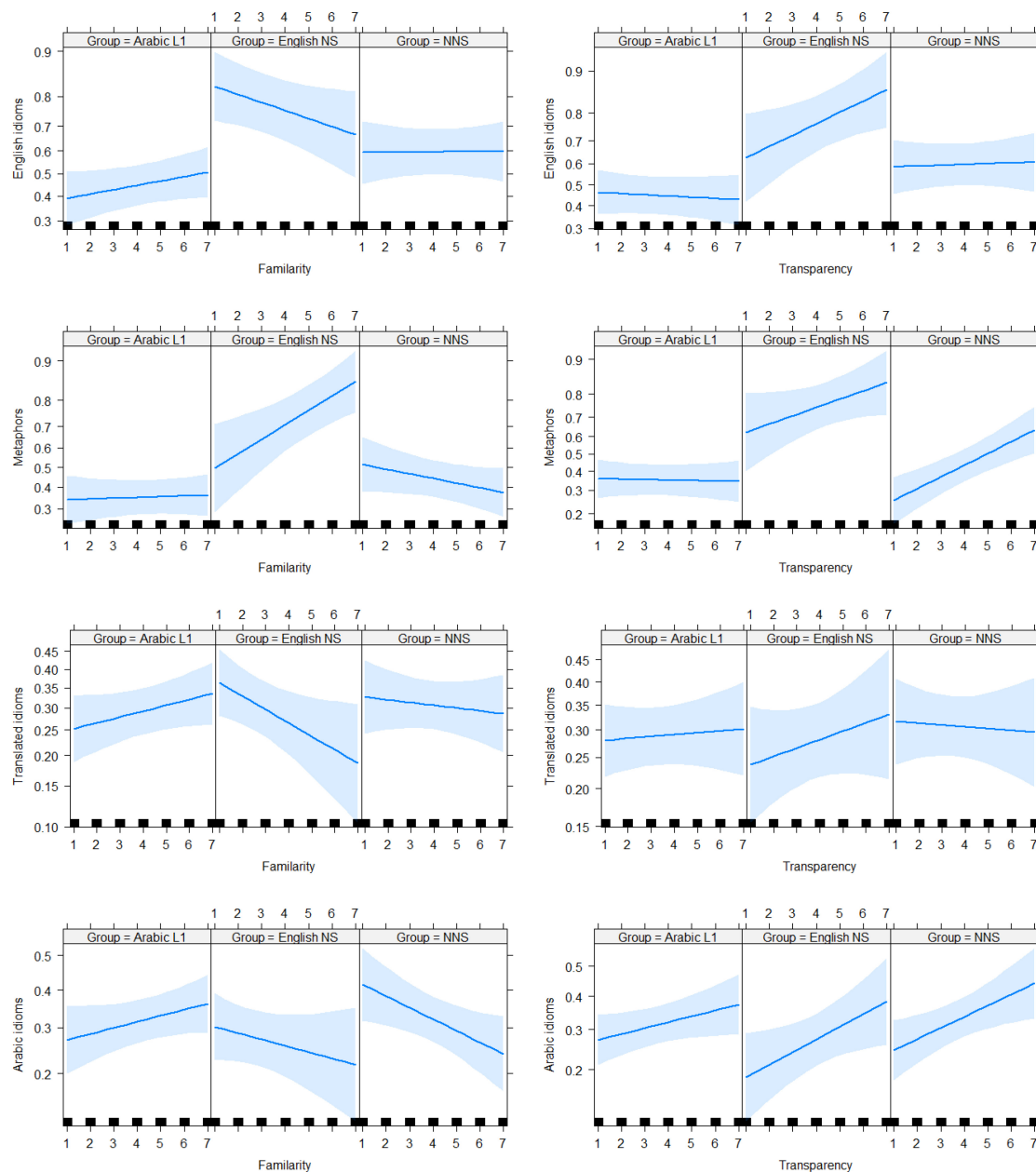


FIGURE 3

Logistic model estimates for the effects of both familiarity (left) and transparency ratings (right) broken down further according to phrase type: English idioms (top row), metaphors (second row), translated idioms (third row), and Arabic idioms (bottom row). Blue shading indicates 95% confidence intervals. The correct mean is expressed on the logit scale.

not ($z = 1.258$, $P = 0.208250$). The NNS group outperformed the Arabic L1 group ($z = 2.435$, $p = 0.014887$), but the English NS group did not ($z = 0.580$, $p = 0.561727$).

Logistic model estimates for the effects of both familiarity (left) and transparency (right) ratings were broken down further based on phrase type, as follows: English idioms (top row), metaphors (second row), translated idioms (third row), and Arabic idioms (bottom row). The blue shading indicates

95% confidence intervals. The correct mean is expressed on the logit scale.

Decomposability

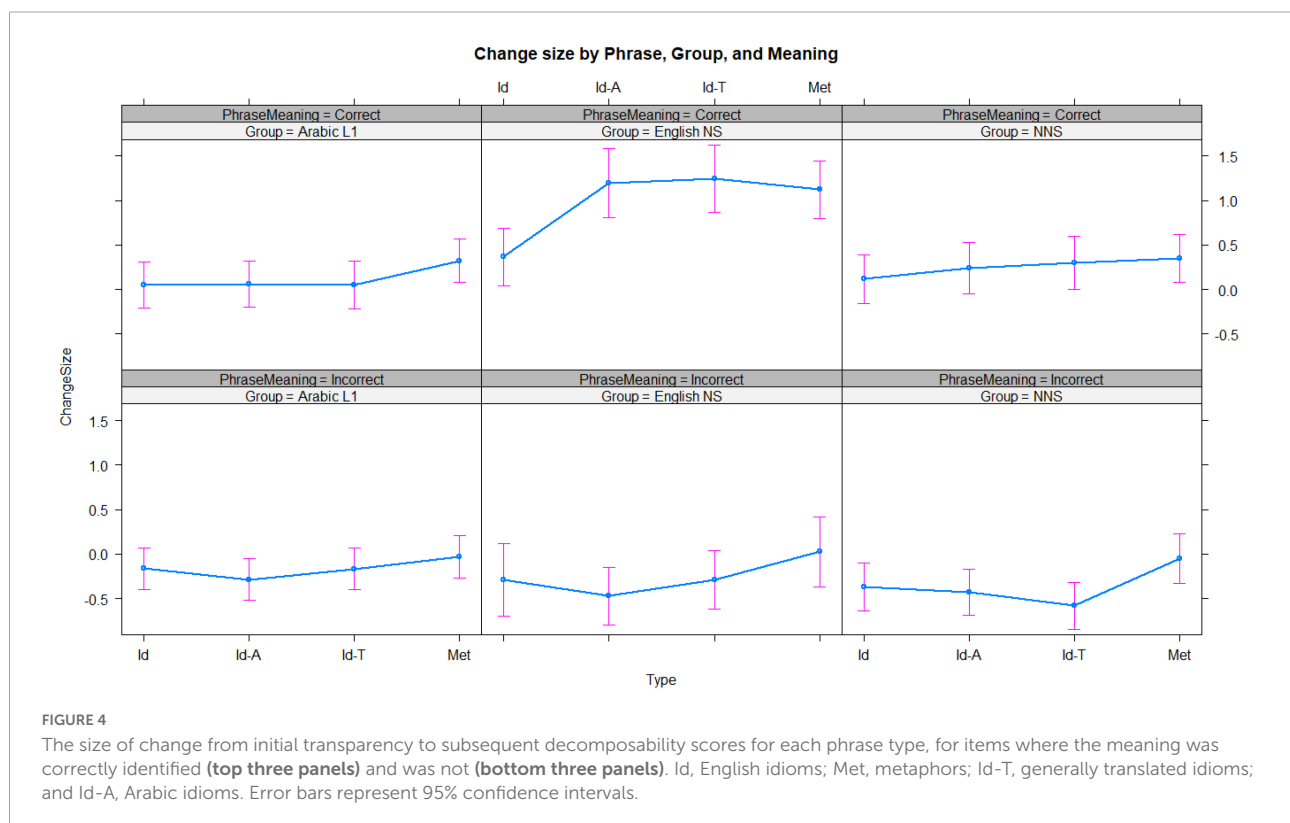
The transparency (i.e., the ratings of how easy it was to guess the meaning of a figurative phrase) was positively correlated with the subsequent decomposability scores (i.e., the

clarity of connection between individual words and the overall correct meaning of the figurative phrase). The correlation was statistically significant ($r = 0.4333678$, $p < 0.00001$). However, transparency's mean score was 3.681, marginally higher than the decomposability's mean score of 3.679 ($t = 0.082822$, $p = 0.934$). Thus, decomposability ratings (after the meaning was known) were, in general, similar to transparency ratings (before the meaning was known).

A model with the size of the change from initial transparency to final decomposability as the dependent variable was constructed to evaluate the effect of different covariates. We first included the fixed effects of Type and Group. Then, initial transparency ratings were added, which significantly improved the model both as a fixed effect (chi-squared = 4476, $p < 0.00001$) and as part of the interaction with Type and Group (chi-squared = 112.66, $p < 0.00001$). Second, familiarity was included, which also added to the model fit both as a fixed effect (chi-squared = 387.08, $p < 0.00001$), and as part of an interaction with the Type and Group (chi-squared = 111.58, $p < 0.00001$). Familiarity significantly improved the size of the change from decomposability to transparency ($t = 8.421$, $p < 0.00001$). We finally checked whether adding meaning would make an additional improvement on the grounds that whether participants got the answer right or wrong may be important to how they re-evaluated their original rating for transparency. The model comparison showed that the inclusion

of meaning made an improvement, both as a fixed factor (chi-squared = 493.35, $p < 0.00001$) and as part of an interaction with the group and type (chi-squared = 255.07, $p < 0.00001$), and when it was included, familiarity remained a significant predictor ($t = 8.663$, $p < 0.00001$). The best-fitting model included interactions among the Type, Group, and Familiarity; and Type, Group, and Transparency; and Type, Group, and Meaning. This model suggests that participants were more likely to show an increase from transparency to decomposability if they identified the correct meaning successfully, when compared to when they were incorrect. **Figure 4** highlights patterns according to phrase type and speaker group, and according to whether participants identified the meaning of each phrase accurately. The findings presented in **Figure 4** suggest that identifying the meaning of a phrase correctly led to a greater increase in the score from transparency to decomposability than if the meaning was not identified.

The final model confirmed that this difference was greater for the NNS group (effect = -0.6030869 , $p = 0.007630426$). The English NS group did not differ substantially from the Arabic L1 group in this model (effect = 0.2193054 , $p = 0.4971379$). To interpret the effects better, we fitted separate models for each phrase type. Each model included interactions among group, transparency, and meaning. For English idioms, all three groups showed a non-significant negative change from transparency to decomposability when they did not identify the correct meaning, with the only significant between-group



difference being recorded between the NNS and Arabic L1 groups ($t = 2.703$, $p = 0.00687$). There was a significant effect of initial transparency ($t = -24.791$, $p < 0.00001$) and significant interaction between group and transparency for the NNS group ($t = 2.354$, $p = 0.018573$) and L1 Chinese ($t = 4.79$, $p < 0.001$). For all three groups, when the meaning was not identified correctly (therefore, presumably not known in the first place), subsequently learning the meaning made little difference to how decomposable the idioms were perceived to be (relative to the original rating for transparency). In contrast, identifying the meaning correctly (either because this was known or correctly inferred) led to a positive change, which was more pronounced for the NNS group when compared to the L1 Arabic speakers. For metaphors, there was a substantial effect for initial transparency scores on the size of change from transparency to decomposability ($t = -26.653$, $p < 0.00001$). There was a significant interaction between English NS and initial transparency score ($t = 3.612$, $p = 0.000304$), between English NS and getting the correct meaning ($t = 5.551$, $p < 0.00001$), and between transparency and correct meaning ($t = 3.688$, $p = 0.000023$).

For Arabic idioms, as expected, both English NS and NNS groups showed lower change size when compared to the Arabic L1 group ($t = -2.054$ and $p = 0.039976$, $t = -2.651$, and $p = 0.008025$, respectively). Initial transparency scores were highly associated with the size of change ($t = -26.573$, $p < 0.00001$), indicative of the fact that a lower initial transparency score would leave more room for change than a high initial score.

Guessing the correct meaning was associated with change size ($t = -2.097$, $p = 0.0359936$) as well. There was a significant interaction between transparency and the NNS group ($t = 2.382$, $p = 0.0172189$) and between correct meaning and both the English NS ($t = 4.351$, $p = 0.00014$) and NNS ($t = 1.963$, $p = 0.049646$) groups. For translated idioms, both the English NS and NNS groups showed a smaller change when compared to the Arabic L1 group ($t = -3.443$ and $p = 0.000575$, $t = -5.375$, and $p < 0.00001$, respectively). Initial transparency score and correct meaning individually indicated a smaller change ($t = -28.787$, $p < 0.0001$; $t = -3.098$, $p = 0.0019483$, respectively).

Transparency interacted significantly with both English NS and NNS groups ($t = 3.086$ and $p = 0.0020287$, $t = 5.609$, and $p < 0.0001$, respectively). Correct meaning interacted with both English NS and NNS groups ($t = 4.951$, $p < 0.00001$, and $t = 2.929$, $p = 0.0034005$, respectively) and with transparency ($t = 4.548$, $p < 0.00001$). The results suggest that initial transparency ratings had an inverse relationship with the size of change toward final decomposability scores. The ability to correctly identify the meaning of the phrase posed a negative relationship with the size of change in translated and Arabic idioms, but not in metaphors or English idioms.

Discussion

We investigated the factors that influence the way native and NNS comprehend figurative language. The results show that there is a significant difference among the English NS, English NNS, and L1 Arabic groups. The English NS group was more familiar with English idioms than both the English NNS and L1 Arabic groups. Yet, L1 Arabic speakers were slightly more familiar with English idioms than NNS speakers. This study produced results that differed from those of [Carrol et al. \(2018\)](#). Both L1 Arabic and the English NNS groups had similar familiarity ratings to novel metaphors. However, significant differences were found between the English NS and L1 Arabic groups, but not between the English NS and NNS groups. The English NS group was the least familiar with novel metaphors. This is not in line with [Carrol et al. \(2018\)](#). In generally translated idioms, the L1 Arabic group was more familiar with them than the English NS group and the English NNS group. There was a statistical difference between the English NS and NNS groups, wherein the former's familiarity with generally translated idioms had the least familiarity ratings. This study produced results that differed from those of [Carrol et al. \(2018\)](#), in terms of familiarity with generally translated idioms. [Carrol et al. \(2018\)](#) found that L1 Chinese speakers were more familiar with the translated idioms than the English NS and NNS groups and that there were no differences between the English NS and NNS groups, and L1 Chinese speakers. However, L1 Arabic speakers were more familiar with generally translated idioms. The finding on the familiarity ratings of Arabic idioms was similar to [Carrol et al. \(2018\)](#) in that L1 knowledge influenced familiarity ratings. With transparency ratings alone, no differences between groups were found in [Carrol et al. \(2018\)](#). The inclusion of familiarity as a covariate in a three-way interaction besides type and group proved to strengthen the findings of [Carrol et al. \(2018\)](#), especially for the English NS group. Both the English NNS and L1 Chinese groups found the English idioms to be more transparent than the English NS group. However, in this study, the transparency mean scores for the English NS group were higher than those of both the English NNS group and L1 Arabic speakers with the statistical difference between the English NS and NNS groups, and the English NS and L1 Arabic groups before including familiarity as a covariate. These findings were consistent even when familiarity was included. In this study, novel metaphors were more transparent to the English NS group, followed by the English NNS group, and then followed by L1 Arabic speakers before and after the inclusion of familiarity. This is inconsistent with the findings of [Carrol et al. \(2018\)](#), where novel metaphors were more transparent for the English NNS than NS groups and L1 Chinese speakers. Metaphors were considered more transparent by the NNS speakers, in the

model both with and without familiarity as an interaction term.

When familiarity and transparency were introduced to the omnibus model, both improved models fit to each phrase type by the speaker group. The English NS group outperformed the Arabic L1 group significantly, whereas the NNS group did not. The model containing the interaction between language groups and familiarity was the best fit. In this model, the English NS group outperformed the Arabic L1 group, but not the NNS group. This is in line with [Carrol et al. \(2018\)](#) in that familiarity is a strong predictor of meaning and how well participants inferred the meaning correctly. The relationship between meaning and form is established and harder to ignore, familiar phrases appear more transparent, and unfamiliar words become less transparent. This indicates that accurately predicting the meaning increased the ratings of transparency and decomposability, on the lines of [Carrol et al. \(2018\)](#).

Finally, this study investigated how these variables interact to enable speakers to infer meaning at various levels from both known and novel figurative words. As familiarity affects perceptions of transparency and meaning, they cannot be considered autonomous. Cross-language influence affects L2 speakers' perceptions and the ability to recognize meaning. L2 speakers view expressions in L2 that have the same words and meanings as idioms in L1, as more familiar. They see them as more transparent, just as native speakers infer the meaning in the idioms they know well. The ability to competently interpret idiomatic language is found in two critical areas: a semantic inferencing skill that helps derive meaning from analogy, analysis, and context, and a comprehensive knowledge of the conventional figurative phrases in the language ([Gibbs, 1987, 1994; Gibbs et al., 1997; Miller et al., 2020](#)).

The findings show that the results differ from [Carrol et al. \(2018\)](#). It is likely that language skills for L2 speakers have different trajectories of development given the learners' individual differences. Even for native speakers, processing figurative language requires a range of linguistic, pragmatic, and cognitive skills to derive an appropriate interpretation ([Carrol, 2021, 307](#)). It is possible that these results may be inconsistent with those of [Carrol et al. \(2018\)](#), as cross-language influence may have had an effect on judgments and the ability to determine meaning for L2 speakers. When L2 speakers encounter FPs that are the same in the L1, they perceive them as more familiar and transparent and can easily identify their meanings, whereas if the FPs are not the same, the judgments will differ.

A significant contribution of this study is that its findings reveal certain difficulties that English as a foreign language (EFL) learners may face while processing FPs. First, as EFL learners in the present study found highly familiar FPs easy to recall and recognize, these should not be the focus of teaching interventions. Instead, language teachers may need to

devote classroom time to senses that are not that transparent and cannot be decomposed as easily. If learners are expected to use FPs productively, then familiarity, transparency, and decomposability should also be driving forces for item selection. Thus, FP classroom instruction can be considered compensation for the scarcity of encounters available through natural language exposure. This is especially the case for the less transparent FPs senses, which were found difficult to recall/recognize by our EFL learners and those in the literature (see [Martinez, 2013](#)). One way for this is to use cognitive teaching approaches, such as metaphor awareness (see [Boers, 2004](#)). To the best of my knowledge, only very few studies (e.g., [Yasuda, 2010; Strong and Boers, 2019](#)) have explored the effectiveness of various teaching techniques on FP knowledge development. More research is needed in this area.

Although the NNS group's proficiency is higher than that of the L2 Arabic native speakers, one could argue that one of the limitations of this study is that it does not identify within-group differences between the proficiency levels of different language groups, which requires a more comprehensive test (see [Tremblay, 2011](#)).

Conclusion

Research on figurative phrases has shown that various factors (e.g., familiarity, transparency, meaning, and decomposability) impact how native and non-native English speakers comprehend figurative language. However, these variables are not often explicitly characterized and operationalized and are frequently considered independent. Following [Carrol et al. \(2018\)](#), this study investigated these variables through the lens of language users' judgments and their ability to reliably comprehend a range of common English and translated idioms, and novel metaphors. The study recruited 143 people from various language groups. We show that familiarity is a powerful predictor of transparency based on the participants' evaluations. In terms of inferring meaning accurately, the model with an interaction between transparency and familiarity was the best fit. The findings showed that accurately predicting the meaning resulted in a greater increase in the transparency and decomposability ratings. We examined how these variables interacted to allow individuals to infer meaning at various levels for known and novel figurative words. Valuable classroom time should be dedicated to teaching the least familiar, transparent, and decomposable figurative meanings of FPs. This can be accomplished by employing cognitive methods, such as metaphor awareness. In terms of the amount of time invested and expected learning outcomes, future research must focus on determining the most effective teaching method.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Taif University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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Conflict of interest

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Marked distinctions in syntactic complexity: A case of second language university learners' and native speakers' syntactic constructions

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Existing research on syntactic complexity tends to examine diversity and complexity embedded in grammatical employments which may well be witnessed in formulations of different syntactic structures. Conceivably, the subject syntactic complexity seems to be exercised mostly by non-native speakers and writers. The present study employs pseudo-longitudinal data: essays written by undergraduate students in different levels collected at the same time. Hence, it aims at investigating the mechanism involved in the L2 production of L2 learners in terms of syntactic complexity by analyzing a corpus of non-native English-speaking learners. The research inquiry is mainly focused on investigation of significant differences in terms of syntactic complexity between writing of Japanese university students and that of native speakers, probing further into the particular dimension and level of difference. The study also traces marked variations in syntactic complexity employed by Japanese university students in different grades. Nagoya Interlanguage Corpus of English (NICE) developed by Sugiura in 2015 was employed to conduct the entire research proceedings. The corpus of the subject study comprises 339 essays written by L2 EFL learners studying in a Japanese university employing a judicious selection of quantitative measures of syntactic complexity. The results exhibited a considerable statistical difference between the writing of Japanese learners and native English writers. The findings of this study provide meaningful pedagogical implications for English teachers and textbook compilers. Japanese university students in higher grades are found to be employing more complicated and diverse syntactic structures. Conforming to the already conducted research studies with almost similar objectives, this study demonstrates the significance of using both general and more particular complexity metrics to assess syntactic development in L2.

KEYWORDS

syntactic complexity, L2 proficiency, L2 development, genre, academic writing

Introduction

Writing has often been considered the most challenging skill to acquire even in L1. However, the task gets doubly challenging when it comes to skill development in academic writing in second language acquisition. In this very connection, writing competence has always remained a widely debated and discussed issue within academic settings which gained special attention in applied linguistics. L2 writing performance and development from multiple angles and within various contextual settings have been the areas of research during the last couple of decades. Out of various levels of proficiency, linguistic and syntactic complexity gained more prominence within academic research. Syntactic complexity may be viewed as the variety and intricacies of grammatical resources that are exhibited in the creation of a language in general terms. All modern definitions of high currency among second language (L2) scholars encompass synonyms and other features including variety, diversity, and elaborateness of deployed grammatical elements which are often encountered. As a dependent variable, it is generally examined in terms of the quality of language output that is predicted to consistently fluctuate in response to various external factors (Ortega, 2003).

Afzaal et al. (2021) pinpointing the dimensions of coherence in academic writing suggest that English has turned out to be a dominant language in academic research in writing. Adding, they remark that competence to write not only coherently but also cohesively in English has become a compulsion in academia today. Mohan and Lo (1985) (as cited in Afzaal et al., 2021), make it more explicit stating that students employ a bunch of linguistic markers augmenting the voice of writers within their work, e.g., native writers follow conventions of academic writing instinctively, for instance, incorporation of clarity, discourse markers, hedges and other cohesive transitions. However, within the context of syntactic complexity, a large set of linguistics features, such as length of syntactic unit, amount of embedding, range of structural types, and sophistication of structures, are used to gauge the degree of syntactic complexity. Many researchers have attempted to investigate syntactic complexity in one way or another, as the growth of syntactic competence has been considered essential to an overall development in the target language (Ai and Lu, 2013). Unfortunately, due to the lack of reliable computation system for syntactic complexity analysis, most of the previously conducted studies owe to very few measures and relatively small amount of data.

As per the previously conducted research (Biber and Clark, 2002; Ortega, 2003; Bell, 2007; Daller and Xue, 2007; Biber and Conrad, 2009; Bjork et al., 2009; Adel et al., 2012; Bjorkman, 2013; Lu, 2017; Bulté and Housen, 2018; Kyle and Crossley, 2018; Liu and Afzaal, 2021), any increases in syntactic complexity that are observed—whether cross-sectionally or longitudinally—must be seen as a reflection of the interplay of the following elements at the very least: taught development, first language, and mode of

communication. Any of these elements might be considered independent variables in and of itself, deserving further investigation. Any of these dimensions can be viewed as a moderating factor at various points throughout time. Recent corpus-based L2 writing studies have increased our understanding of the link between syntactic complexity and quality of writing in L2, as well as the influence of other task factors on this relationship; thanks to the development of computational tools for syntactic complexity analysis. This on-going line of study has provided valuable first insights into how to improve the operationalizations of syntactic complexity in L2 writing evaluation by discovering additional sources of information. Ortega (2003) reviewed 25 studies which all attempted to measure learners' language development and found that those studies only used three kinds of syntactic complexity measures in average and examined samples whose total numbers range from 16 to 300. Bulté and Housen (2018) are of the view that second language development, and particularly L2 complexity growth, is viewed as a dynamic process that can progress gradually or abruptly, but can also be marked by phases of backsliding and stasis. Even while broad developmental patterns and trends may arise among learners (i.e., in groups of learners), there is no such thing as “the typical learner,” and the developmental routes of individual learners must be researched to have a comprehensive understanding of the developmental process.

However, within second language acquisition, linguistic (or structural) complexity and its subcomponent syntactic complexity have been investigated for a variety of reasons and from a variety of theoretical perspectives, employing a variety of methodological approaches (Ortega, 2003; Bulté and Housen, 2018).

Most of the studies that have delved deeper into the development of L2 complexity and its relationship with overall L2 proficiency, and L2 development are witnessed to be entirely cross-sectional in nature and have not examined the actual development of individual learners with a passage of time. Only a very small number of studies have researched into longitudinal development; either encompassed a relatively short span of time, taken into account only very few data collection points, or comprised only a small number of learners (Larsen-Freeman, 2006; Verspoor et al., 2008; Byrnes et al., 2010; Spoelman and Verspoor, 2010; Polat and Kim, 2014).

Syntactic complexity in academic writing

The topic of complexity in language has been investigated and addressed from several angles in previous studies such as Milroy and Milroy (1985), Mauranen (2003, 2009, 2012, 2017), Ortega (2003), Norris and Ortega (2009), Ranta (2013), Pallotti (2014), McCambridge (2015), Mur-Duenas (2015), Politzer-Ahles et al. (2016), and Bulté and Housen (2018). For example, in SLA research, syntactic complexity is employed as an indicator of learners' language proficiency (Crossley and McNamara, 2014), to measure

language proficiency (Ferris, 1994; Ortega, 2003), and to test the effectiveness of specific pedagogical interventions (Wolfe-Quintero et al., 1998; Ellis and Ferreira-Junior, 2009; Ong and Zhang, 2010; Crossley and McNamara, 2014). These studies highlighted that the syntactic complexity is based on “looking at the number of linked elements in a structure, and length of the sentences.” These linked components can be phrase length, phrase number per clause, and clause number per unit (Neary-Sundquist, 2017).

The pertinent interest of the previous studies was on the difference in syntactic complexity between native speakers (NS) and non-native speakers (NNS) in terms of length of production unit, amount of subordination, amount of coordination, and degree of phrasal complexity (Swales, 1990; Seidlhofer, 2004, 2005, 2011; Foster and Tavakoli, 2009; Seidlhofer and Widdowson, 2009; Römer and Wulff, 2010; Tang, 2012; Ai and Lu, 2013; Mancilla et al., 2017). However, due to genre variations, the findings of these research studies have not been consistent. NNS utilize more coordination and complicated words but less subordination than NS in online conversations, however high level NNS writing approaches NS writing in terms of subordination (Mancilla et al., 2017). NNS generate shorter clauses, sentences, and T-units, less subordination, and fewer noun phrases than NS in college-level writing (Ai and Lu, 2013).

Handling grammatical complexity is a challenging task when two competing aims in academic writing are at stake: explicitness and conciseness (Sawyer et al., 2008; Biber and Gray, 2010). It should be emphasized that the term “explicitness” is borrowed from Mauranen (1993), who claims that an explicit communication is overt and simple, making it easy to comprehend and absorb. On the one hand, sophisticated syntactic structures like nominal phrases in sentences and T-units help academic writers achieve a certain level of conciseness.

In addition, scholars have also identified that academic writing is distinguished by lengthier sentences and T-units, as well as a high number of subordinations and nominalizations (O'Donnell, 1974; Brown and Yule, 1983; Hughes, 1996; Halliday 1993; Martin 1993). By minimizing duplication, these grammatical features make the writing more succinct. Complex syntactic structures that are compressed, on the other hand, may diminish the clarity of the intended meaning, which contradicts the objective of explicitness in academic writing. For example, Biber and Gray (2010) suggest that the substantial phrasal complexity, particularly noun-noun phrases, makes the statement of logical relationships between parts in academic writing implicit rather than apparent. Furthermore, complicated grammatical patterns may make research publications difficult to understand (Rottensteiner, 2010; Otto et al., 2012; Dolnicar and Chapple, 2015).

However, most research on the growth of L2 complexity and its link with overall L2 competence and L2 development has been cross-sectional in character and has not managed to examine the actual progress of individual learners over time. The few studies that have looked at longitudinal development either spanned a

relatively short period of time, had a limited number of data collecting sites, or involved a small number of learners (Larsen-Freeman, 2006; Verspoor et al., 2008; Byrnes et al., 2010; Spoelman and Verspoor, 2010; Polat and Kim, 2014).

In addition, most studies of syntactic complexity have only been carried out in a small number of writing samples by English as a foreign language (hereafter EFL) learner based on a limited set of indices. Paucity of literature investigating syntactic complexity is found in university students' L2 language production employing a large set of syntactic complexity indices by investigating a considerable amount of corpus data.

Against this background, the present study aims at addressing this disparity by clarifying the syntactic complexity changes that have occurred in the academic writing of Japanese university students (Non-native English learners), including undergraduate, graduate, and PhD students. A substantial number of essays written by Japanese university students and native speakers were investigated with the use of a large set of syntactic complexity measures.

The following questions were investigated:

- What is the influence of SC in the writing of Japanese university students observed across different academic levels?
- What kind of SC differences, if any, are identifiable in the comparative analysis of Japanese university students' writing and that of native speakers? What is the degree to which these differences instantiate in the writing samples analyzed in this study?

Corpus of the study

The study uses Nagoya Interlanguage Corpus of English (NICE) developed by Sugiura in 2015. The corpus comprises argumentative essays written by Japanese undergraduate, graduate, and PhD students, letting us observe the changes of syntactic complexity from a pseudo-developmental perspective. They were tasked to write on the given topic in 1 h without consulting dictionaries.

The NICE also provides the sub-corpus of essays written by native English-speaking writers. Therefore, the essays were also compared to essays written by natives. Data in Nagoya Interlanguage Corpus of English was not collected under perfect uniform conditions. Some participants were asked to choose topics that they favored from a topic list including 11 social issues (e.g., divorce, suicide, and crime), whereas some were not allowed the freedom and could only write to the ones chosen by supervisors. Meanwhile, proportions of the essays collected from each grade were not balanced, and essays written by the first-year students at university accounted for the largest proportion. However, the ones examined were not influenced by the topic or amount of the essays significantly. Also, measures have been taken to eliminate the negative

TABLE 1 Sample distribution in NICE.

Grade	NNS							NS		
	U1	U2	U3	U4	M1	M2	D	U	M	D
Number of texts	108	85	22	28	49	32	15	113	63	34
Average length	307.13	294.71	337.82	393.71	379.77	434.53	385.60	621.67	571.53	546.32
SD of length	99.81	106.04	122.58	145.76	130.26	106.33	145.75	181.58	73.11	54.93
Words in total	33,171	25,051	7,432	11,024	18,609	13,905	5,784	70,249	36,007	18,575

“NNS” stands for “Non-native English speakers (Japanese L2 learners of English);” “NS” stands for “Native English speakers,” “U” stands for “Undergraduate students,” “G” stands for “Graduate students,” “M” stands for “Graduate students” “D” stands for “Doctoral students,” numbers stand for different grades.

TABLE 2 Types, tokens, and Guiraud index in essays by grade.

Grade	NNS			NS		
	Type	Token	Guiraud	Type	Token	Guiraud
U1	1,741	33,171	9.56	5,168	70,249	19.5
U2	1,636	25,051	10.34			
U3	927	7,432	10.75			
U4	1,238	11,024	11.79			
M1	1,751	18,609	12.84	3,551	36,007	18.71
M2	1,480	13,905	12.55			
D	1,052	5,784	13.83	2,534	18,575	18.6

influence when deemed necessary. The overall distribution of the data is given in the Table 1, 2.

Research method

Studies on syntactic complexity have grown tremendously over the last decades, spawning various kinds of assessment rubrics. Measures such as T-unit complexity ratio (number of clauses per T-units), the dependent clause per clause ratio (number of dependent clauses per clauses), and the dependent clause per T-unit ratio (number of dependent clauses per clauses) were considered to be effective measures of syntactic complexity (Wolfe-Quintero et al., 1998, in Knoch, 2009). Incorporating as many effective indices as possible may lead to higher reliability in the evaluation of syntactic complexity. Therefore, we used 14 measures of syntactic complexity by L2 Syntactic Complexity Analyzer (Lu, 2010).

The system embedded in L2 Syntactic Complexity Analyzer enables automatic analysis of L2 written production, producing 14 indices of syntactic complexity based on the 14 measures shown in Table 3 below. Among those measures, six of them were chosen from the large set of measures which have been reviewed in research synthesis studies by Wolfe-Quintero et al. (1998) and Ortega (2003), another five measures were selected as they have been shown by at least one previous study to have at least a weak correlation with proficiency. In addition, three other measures that have not been explored in previous studies but recommended by Wolfe-Quintero et al. (1998) to pursue further have also been selected. Third-party

tools, Stanford parser and Tregex, are involved in this system to analyze the syntactic structure of every sentence and calculate the appearance of different kinds of units and syntactic structures.

Results and discussions

This part elaborates on the findings and discussion of the two study questions already established in “Results and discussions”.

Changes in syntactic complexity by different levels

Pearson correlation coefficient were computed to assess the relationship between learners’ levels and the 14 syntactic complexity scores of their essays via SPSS. Table 4 shows the correlations among individual syntactic complexity indices and grade. It was found that learners’ grades and all the 14 syntactic complexity indices of Japanese learners’ essays were positively correlated. A correlation coefficient ranges from 0.6 to 1.0 indicates a strong linear relationship between variables, 0.4 to 0.6 a moderate correlation, 0.2 to 0.4 a weak correlation, and 0.0 to 0.2 negligible or no correlation. Accordingly, indices such as MLS [$r(337)=0.446$, $p<0.01$], MLT [$r(337)=0.447$, $p<0.01$], MLC [$r(337)=0.428$, $p<0.01$], and CN/T [$r(337)=0.407$, $p<0.01$] show moderate correlations with grade. And indices of C/S [$r(337)=0.205$, $p<0.01$], VP/T [$r(337)=0.240$, $p<0.01$] and CP/C [$r(337)=0.274$, $p<0.01$] indicate weak correlations as grade goes up. Scatter diagrams in Figures 1, 2 are those indices which have moderate and weak correlations to grades. According to these results, a larger proportion of Japanese university students in higher grade tend to produce writings of high syntactic complexity. Another important finding is that other indices, namely C/T [$r(337)=0.176$, $p<0.01$], DC/C [$r(337)=0.140$, $p<0.01$], DC/T [$r(337)=0.166$, $p<0.01$], T/S [$r(337)=0.122$, $p<0.01$], CT/T [$r(337)=0.143$, $p<0.01$], demonstrate nearly no linear relationship between grades. A possible explanation for these results may be that even syntactic knowledge of Japanese university learners in higher grade is rather limited and cannot properly utilize complicated syntactic structures such as dependent clauses and complex T-units.

TABLE 3 A description of indices in L2 Syntactic Complexity Analyzer.

Abbreviation	Index name	Index definition
MLC	Mean length of clause	Number of words/ number of clauses
MLS	Mean length of sentence	Number of words/ number of sentences
MLT	Mean length of T-unit	Number of words/ numbers of T-units
C/S	Sentence complexity ratio	Number of clauses/ number of sentences
C/T	T-unit complexity ratio	Number of clauses/ numbers of T-units
CT/T	Complex T-unit ratio	Numbers of complex T-units/numbers of T-units
DC/C	Dependent clause ratio	Number of dependent clauses/numbers of clauses
DC/T	Dependent clauses per T-unit	Number of dependent clauses/numbers of T-units
CP/C	Coordinate phrases per clause	Number of coordinate phrases/numbers of clauses
CP/T	Coordinate phrases per T-unit	Number of coordinate phrases/numbers of T-units
T/S	Sentence coordination ratio	Numbers of T-units/ number of sentences
CN/C	Complex nominals per clause	Numbers of complex nominals/number of clauses
CN/T	Complex nominals per T-unit	Numbers of complex nominals/numbers of T-units
VP/T	Verb phrases per T-unit	Number of verb phrases/number of T-units

Based on data from Lu (2010).

The gap of syntactic complexity among Japanese learners and native speakers

Within SLA research, Linguistic (or structural) complexity, and its subcomponent syntactic complexity, have been emphasized a great deal. And this is perhaps because of a variety of reasons and owes to a variety of theoretical perspectives, employing various methodological approaches (Ortega, 2003; Bulté and Housen, 2018). Linguistic complexity, in most of the cases, seems to have been measured as a dependent variable in L2 research designs, where it has been used as an indicator of L2 performance and L2 proficiency or as an index of L2 development. Ortega (2003) traces a considerable number of authentic empirical

evidence in the SLA literature and further confirms a strong association between the (syntactic) complexity of learners' L2 production and their overall level of L2 development and/or L2.

To explore whether Japanese university students' use of syntactic structures approaches that of native speakers, an independent-sample t-test was conducted to compare the syntactic complexity indices of the essays written by native speakers and Japanese university students *via* SPSS. Results are presented in Table 5.

According to the results, all syntactic complexity values of Japanese learners' written production are significantly lower than that of native speakers' essays, i.e., there are gaps concerning every aspect of syntactic complexity among Japanese learners and native speakers.

A further step of statistical calculation was made to gauge how significant the gap between native and Japanese university students is concerning their syntactic knowledge. The percentage of difference is obtained when dividing native speakers' syntactic complexity value by its corresponding mean difference. For instance, the percentage of difference in terms of TS is -3% , implying that students' T/S value is 3% lower than that of native speakers in average. We can therefore have a basic understanding concerning how huge the gap is even though mean can be misleading occasionally, and the data of this very nature needs to be interpreted with caution. A meticulous approach, in this connection, is recommended. The results suggest that gap exists between the writing of learners and native speakers in terms of all indicators. The subject study, in all the above-mentioned stated dimensions, is an endeavor to fill this gap and chart down a roadmap for future research.

The gap in the first few indicators is relatively small, while gap in the last few indicators is significantly huge (Table 6).

Taken together, two third of the syntactic complexity indices of Japanese university students' writing production is proved to moderately or weakly correlate with students' grades. About 40% of students in higher grades can use more complicated structures such as MLT, MLS, MLC, and CN/T than those in lower grades; an even smaller part of Japanese university students slightly improved in CS, VPT, CPC, and CNC. Meanwhile, the syntactic complexity level of learners' writing production is found to be significantly lower than that of native speakers. Syntactic structures such as CN/C, DC/T, MLT, CP/C, MLS, CN/T and CP/T seem to be rather difficult for students to utilize.

A significant number of studies, keeping primary research foci into consideration were conducted in pursuit of L2 complexity and its development with the passage of time; usage-based theories of SLA or those adopting a dynamic systems theory (DST) approach are some of the examples (Larsen-Freeman, 2006; Verspoor et al., 2008; Spoelman and Verspoor, 2010; Vyatkina et al., 2015). These studies clearly reflect that although the complexity of L2 learners' performance increases along with their overall L2 proficiency with the passage of time and during the process of L2 development, linguistic complexity and proficiency are witnessed to be not always on the increase in

TABLE 4 Pearson's correlation between grades and syntactic complexity indices.

Variables	2. <u>MLS</u>	3. <u>MLT</u>	4. <u>MLC</u>	5. <u>C/S</u>	6. <u>VP/T</u>	7. <u>C/T</u>	8. <u>DC/C</u>	9. <u>DC/T</u>	10. <u>T/S</u>	11. <u>CT/T</u>	12. <u>CP/T</u>	13. <u>CP/C</u>	14. <u>CN/T</u>	15. <u>CN/C</u>
1. Grade	0.446**	0.447**	0.428**	0.205**	0.240**	0.176**	0.140**	0.166**	0.122*	0.143**	0.317**	0.274**	0.407**	0.382**
2. <u>MLS</u>		0.938**	0.652**	0.733**	0.758**	0.642**	0.596**	0.616**	0.436**	0.597**	0.543**	0.373**	0.788**	0.598**
3. <u>MLT</u>			0.719**	0.598**	0.774**	0.659**	0.619**	0.641**	0.107*	0.578**	0.607**	0.430**	0.873**	0.686**
4. <u>MLC</u>				−0.021	0.273**	−0.035	−0.016	−0.037	0.026	−0.045	0.576**	0.604**	0.655**	0.803**
5. <u>C/S</u>					0.775**	0.896**	0.816**	0.866**	0.552**	0.841**	0.186**	−0.050	0.457**	0.084
6. <u>VP/T</u>						0.834**	0.769**	0.817**	0.173**	0.741**	0.319**	0.109*	0.592**	0.272**
7. <u>C/T</u>							0.921**	0.980**	0.131*	0.893**	0.232**	−0.036	0.550**	0.135*
8. <u>DC/C</u>								0.964**	0.108*	0.921**	0.209**	−0.039	0.538**	0.169**
9. <u>DC/T</u>									0.103	0.909**	0.209**	−0.050	0.551**	0.146**
10. <u>T/S</u>										0.212**	−0.007	−0.036	−0.003	−0.060
11. <u>CT/T</u>											0.186**	−0.053	0.495**	0.131*
12. <u>CP/T</u>												0.947**	0.464**	0.414**
13. <u>CP/C</u>													0.315**	0.386**
14. <u>CN/T</u>														0.891**
15. <u>CN/C</u>														1

** $p < 0.01$ and * $p < 0.05$. The value of p shows that significant level of correlation which is necessary to be shown in the table.

parallel. Also, the increase in complexity is neither linear, constant nor guaranteed for all layers (lexical, morphological, and syntactic) and sub-dimensions (e.g., diversity, compositionality, and sophistication) of linguistic complexity. Instead, following most instances of natural development, it is characterized by variability and change (Lowie and Verspoor, 2015). It is also important to mention that the significant bondage between different dimensions and layers of complexity can be both supportive and competitive (complexity trade-offs), and their correlation can change as the time proceeds. High degree of variability between individual learners and the non-linearity or temporal variation of their individual developmental trajectories were also the outcome of some of the studies. Keeping this very perspective into consideration, the entire process of second language development, and L2 complexity development, is a dynamic process, at times, found to be proceeding gradually, but with sudden spurs in some cases. Some of its other attributes comprised stages of backsliding and stagnation too. Despite emergence of general developmental patterns and trends across learners (i.e., in groups of learners), the idea of “the average learner” could not be witnessed. However, it is pertinent to mention that the developmental pathways of individual learners need to be investigated to establish a connection with the developmental process.

Discussions

This section discusses the comparative data and addresses the research objectives stated earlier. Since the study is directed to investigate variations observed in syntactic complexity development, we expected the learners' overall L2

proficiency, including their knowledge and mastery of syntax, to increase over time, given the significant accumulative amount of L2 English input that the learners in this study were exposed to, as well as the length of exposure each one of them possessed. The rationale why Japanese language learners lag in productive syntactic competence and why the syntactic complexity indices witness different level of improvement is given as under which is in complete consonance with research questions stated above:

Language learning environment

The restricted response of target language may be the primary barrier which hinders the development of Japanese university students' syntactic competence. One of the major differences which distinguishes English Taught as a Second Language (ESL) and English Taught as a Foreign Language (EFL) is that learners in EFL environment receive quite a limited exposure to the target language, let alone the opportunity to interact with native speaker (Lightbown et al., 1993). Students learning English in Japan, a typical EFL environment, are hardly exposed to proper English settings. They may experience no difficulty in understanding the varied grammatical structures, but barely use them when speaking or writing English. Therefore, the syntactic complexity in their writing has not grown significantly even they have been learning English for many years. Meanwhile, university students not planning to work or study overseas may lack motivation to advance their English proficiency. As mentioned above, participants majored in quite diversified fields, and most of them are non-English majors. Possibly only those with higher motivation kept learning English and achieved relatively notable

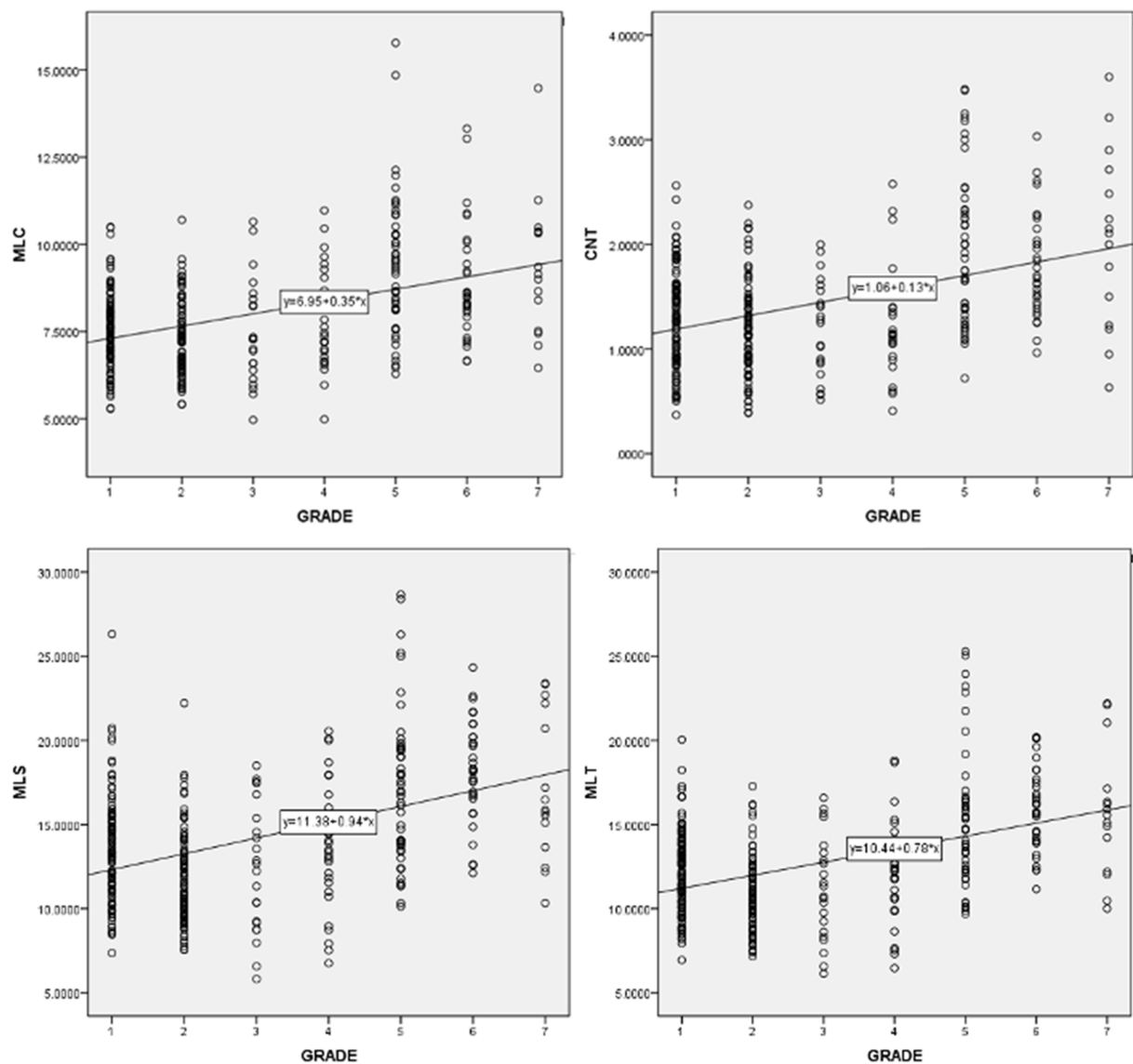


FIGURE 1
Scatter diagrams of indices which moderately correlate with grades.

improvement in syntactic competence, whereas the others' language proficiency has stalled.

Cognitive complexity

Among the 14 syntactic complexity indices, the gap between Japanese university students and native speakers is different. Some of them witnessed narrow gaps between students' performance and that of native speakers, whereas the others showed significantly huge gap. It is possible to hypothesize that these differences here are likely to be contributed by the different cognitive complexity level of each syntactic structure. For instance, the grammar of complex clauses, such as subordination, is not frequently used in

natural language and relatively difficult to process (Givón, 2009). Those marked clause-types may require extensive cognitive processing load.

Conclusively, when syntactic complexity researchers look beyond structural and formal approaches, they can investigate functional motivations for syntactic complexity while keeping an eye out for developmental interfaces with semantic, morphological, and discourse-pragmatic areas of the language that are also subject to developmental explanations. This analytical developmental method opens new avenues for research connecting syntactic complexity with lexical complexity and accuracy, which is currently understudied, however, will be worth investigating in the future. It expands the scope of what may be examined along the whole developmental trajectory within a specific sort of complexification method.

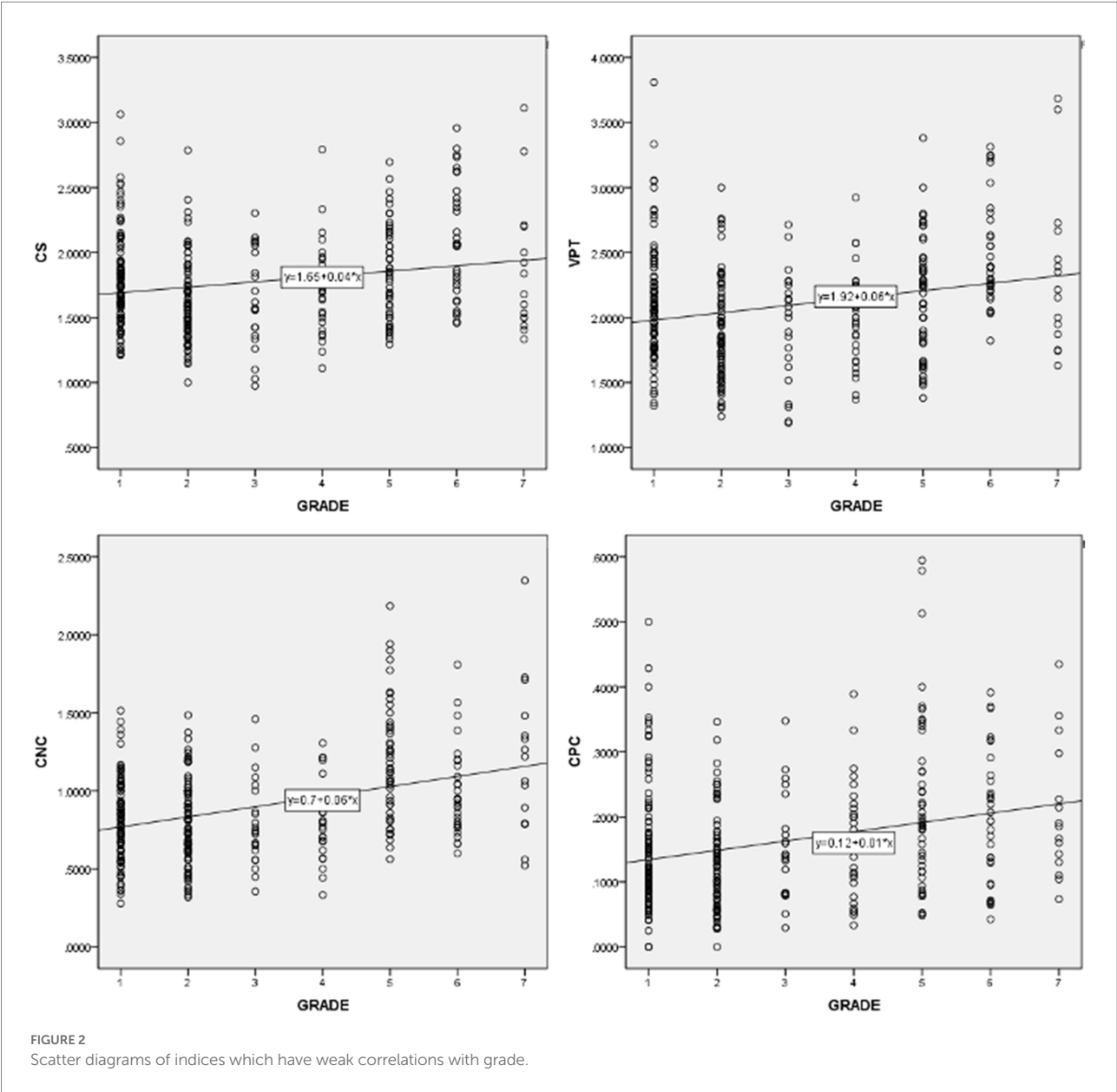


TABLE 5 Independent sample test.

Variables	MLS	MLT	MLC	C/S	VP/T	C/T	DC/C	DC/T	T/S	CT/T	CP/T	CP/C	CN/T	CN/C
<i>T</i>	−15.947	−15.663	−13.442	−9.239	−9.293	−8.805	−8.297	−8.744	−3.849	−6.758	−11.713	−8.731	−11.128	−8.270
<i>df</i>	547	547	547	547	547	547	547	547	547	547	547	547	547	547
Value of <i>p</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Conclusion

The aim of the present research was to examine the development of Japanese university students' productive syntactic competence. This study has shown that a relatively

small proportion of Japanese university students in higher levels tends to use more complicated and diversified syntactic structures. Moreover, the research has also clarified the significant difference among the use of syntactic structures by native speakers and Japanese university students. As per the

TABLE 6 Percentage of differences.

Grade	Mean difference	Value of native speakers	Percentage of differences (%)
T/S	−0.0363307	1.145719	−3
C/T	−0.2636488	1.857302	−14
VP/T	−0.4158671	2.506286	−17
C/S	−0.3609946	2.133125	−17
DC/C	−0.0782718	0.420855	−19
CT/T	−0.1000529	0.536758	−19
MLC	−1.8834714	9.873938	−19
CN/C	−0.2506051	1.145445	−22
DC/T	−0.2485603	0.823141	−30
MLT	−5.6449353	18.362660	−31
CP/C	−0.0759919	0.238088	−32
MLS	−6.8765018	21.023880	−33
CN/T	−0.7117902	2.151029	−33
CP/T	−0.1821987	0.439451	−41

findings of this study, the conceptualization of syntactic complexity in L2 writing research comprises a more comprehensive and fine-grained collection of characteristics than those examined in theoretical frameworks for writing evaluation or in L2 writing rating scales, respectively. Moreover, it supremely emphasizes on the sophistication component of syntactic complexity, which is lacking from holistic scales putting forth a new dimension to the existing research on syntactic complexity. It also provides more precise definitions of syntactic complexity, which may be useful in the development of an automated analysis of syntactic complexity.

All the explicitly elaborated modalities of the method and framework and findings completely conforming to the research objectives will be of interest to teachers and textbook compilers in Japan who are all set to incorporating fundamental changes in the teaching methods of English writing. Further studies, examining data from developmental learner corpus, could open new avenues to the developmental pattern of learners' syntactic competence.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Enhancing English as a foreign language university students' writing through explicit instruction of conjunctions as cohesive devices: An experimental study

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Cohesion has long been regarded as one of the main components of successful writing. The basic assumption of this concept is that the interpretation of one element in a text is based on the interpretation of another in the same text. It has been noticed that Saudi EFL students seem to lack some basics in writing a cohesive paragraph. Certain conjunctions were overused, underused, or misused. The present empirical study, therefore, attempted to investigate the impact of explicit teaching of conjunctions as cohesive devices on the development of paragraph writing. The subjects of this study were 43 EFL students at a Saudi University studying in the first year. Data were collected from pre and post tests and analyzed qualitatively and quantitatively. Results showed significant differences between the experimental and control groups in the post test. Pedagogical implications are presented.

KEYWORDS

EFL, ESL, cohesive devices, conjunctions, paragraph writing, TESOL

Introduction

In the context of teaching English as a foreign language (EFL) and English as a second language (ESL), one of the main language skills is writing. Developing writing skills is regarded to be very complicated to both EFL learners and teachers. It was found that in their writings, learners found difficulties in arranging their ideas logically (Khelifi, 2014). Holloway (1981) maintained that students should be urged to ensure that their content flows through a succession of phrases while conveying meaningful concepts in writing. As a result, it is critical to steer them to the concepts they intend to communicate as well as words that effectively express their thoughts.

The challenges that are encountered by EFL/ESL students when writing have been the subject of numerous studies recently. Cohesion, in particular, has received considerable attention. A significant amount of research on ESL and EFL writing has been based on Halliday and Hasan's (1976) approach to cohesion and coherence. In this regard, Halliday and Hasan (1976) argued that cohesiveness and coherence, as two fundamental textual aspects, have long been recognized as important characteristics of effective writing. As a result, language learners must invariably compose clear and cohesive writings if they want to demonstrate that they are qualified English writers. It is therefore important for EFL teachers to promote cohesion and cohesive devices in their students' writings, as this is key to writing logically arranged paragraphs.

In teaching writing in the Saudi Arabian context where English is the medium of instruction in higher education, the majority of teachers were found to be more concerned with the sentence level instead of the discourse level (Alshalan, 2019). This finding suggests that cohesiveness is only marginally dealt with in the Saudi EFL classroom. In her study, Alshalan (2019), p.49 recommended that teachers focus more on raising learners' attention to the usage of cohesive devices and provide more hands-on training sessions to their students.

It has been observed that EFL students in their first year of study in Saudi Arabia lack some basics in writing a cohesive paragraph. They tend to overuse, underuse, and misuse certain conjunctions. The present study sought to contribute to finding a strategy that could enhance students' knowledge and develop their writing skills. Accordingly, the main purpose of this investigation was to examine whether explicit instruction of conjunctions as cohesive devices affects EFL students' paragraph writing abilities.

The present study is administered at the Preparatory Year Program (PYP), Prince Sattam bin Abdulaziz University, Saudi Arabia. It is the first year in which all students take the same courses. A key purpose of this program is to enable students to smoothly transition from high school at which Arabic is the medium of instruction to higher education where English is the medium of instruction, with emphasis on enhancing English language skills. There are two tracks in PYP: the health colleges track and the science and engineering colleges track. The former leads to a college of medicine, dentistry, pharmacy, or applied medical sciences. As for the latter, it leads to a college of engineering, computer science and engineering, or a college of sciences (Alalwi, 2021). Yee Siu and Afzaal (2022) underscored the importance of writing for entrants in the engineering market. In the present study, 43 female students enrolled in the engineering

track participated in order for us to investigate the following research questions:

- (1) What is the impact of the explicit instruction of the conjunctions as cohesive devices on Saudi university EFL students' paragraph writing performance?
- (2) Do the post-test results of the experimental group and control group show any statistically significant difference?

Prior to identifying the materials and methods that were used in this study, a closer look at the definition of paragraph writing and the cohesion theory is briefly introduced followed by a review of previous studies.

Creating an essay requires students to understand how words are used to construct sentences, sentences to construct paragraphs, and paragraphs to construct essays (Folse et al., 2020). Boukra et al. (2019) suggested that writers must adhere to certain stages in order to develop and articulate their ideas properly before presenting them to the reader. These include several operations such as brainstorming, outlining, preparation, organization, and revision. Generally, writing is considered a challenging skill. It is a complex skill, even in one's native language, hence, EFL learners face additional difficulties. Many English teachers have observed that learning a skill such as writing is more challenging than learning any other language skill (Rassouli and Abbasvandi, 2013). Furthermore, Alsmari (2019) stated that it takes mental effort to plan the sentences and connect them to make writing meaningful and communicative.

A paragraph is a fundamental component of all written composition as maintained by Kolin (2001), who described the paragraph as a set of connected sentences organized logically to give readers comprehensive information about a specific topic. Basically, a paragraph consists of linked sentences that address a single topic. The length depends on the topic, obviously, but it must be sufficiently developed to support the main idea. In this regard, Oshima and Hogue (2006) suggested that the paragraph could be composed of one or ten sentences. It can be said then that the paragraph length is not significant; it should, however, illustrate the main idea. In addition, there is a specific way that a paragraph is organized. The logical structure of a paragraph allows readers to follow the writer's thoughts. Zemach and Rumisek (2003) indicated that a proper paragraph should begin with a clear topic sentence which is supported with background information and some details, and should end with a concluding sentence.

Boukra et al. (2019) stated that effective paragraphs are characterized by being unified, coherent, cohesive, complete, and varied. Writers are, therefore, advised to build their sentences that are related to the main topic. Each of these sentences must flow smoothly within the text, and the sentences should be connected through different cohesive devices. Writers

should develop their ideas in a complete way to avoid any dissatisfaction about the quality and quantity of the writing. Moreover, writers are encouraged to use various types of sentences in order to show more varied and unique way of writing. Nevertheless, cohesion is of paramount importance (Du et al., 2022).

The concept of cohesion originated from Halliday and Hasan (1976) theory. Apparently, the premise of cohesion is not that the text is merely a unit of form, but also that it is a reflection of meaning relations within the text. As such, the text is regarded as a semantic unit that shows dependency between the interpretations of elements in a discourse. In order to be able to interpret these semantic relationships within and across sentences, readers must take into account all the other contextual details contained in that text. According to Halliday and Hasan (1976), cohesion requires employing cohesive devices that fall under two categories: lexical and grammatical. Lexical cohesive devices are based on the meaning of words, rather than their form, as opposed to grammatical cohesive devices, which emphasize the relationship between sentences. Table 1 summarizes Halliday and Hasan's (1976) classification of cohesion and its subcategories. Since the present study's main objective is to examine the role of conjunctions and the explicit instruction thereof on EFL learners' writing development, a detailed explanation of conjunctions will be provided.

Halliday and Hasan (1976) observed that conjunctions express some cohesive relation in an indirect way through certain meanings. Other components of the discourse are presupposed by these meanings. Thus, they treated conjunctive elements as cohesive ties. Conjunction, as they suggested, is a type of cohesion in which sentences in a text are linked together using a set of ties. The conjunction defines a relationship between two ideas in a discourse; understanding the first idea is essential to understanding the second, and reflect the logical-semantic relationship across sentences in a text (Halliday and Hasan, 1976). Put simply, using conjunctions can help writers in organizing the content in a way that the readers can understand. In Halliday and Hasan's (1976) framework for categorizing conjunctive relations, four categories are described: additive, adversative, causal, and temporal, each category is further subdivided. The categories and subcategories of each type of conjunction are shown in Table 2.

One of the most extensively explored subfields of second language writing is cohesion. However, Saudi EFL learners are still underrepresented (Alshalan, 2019). Needless to say, Halliday and Hasan's (1976) framework has been widely adopted in research on cohesion and coherence in ESL/EFL. Although several researchers reached similar conclusions, in some cases the results of these studies were quite contradictory. Several studies have found no difference between good and bad manuscripts in terms of the use of cohesive devices (Al Shamlatm and Ghani, 2020). On the contrary, Alshalan (2019) found that the use of cohesive devices is one sign of high-quality

texts. Her study indicated that high-scoring essays seemed to have more cohesive devices than low-scoring ones.

Alqasham et al. (2021) conducted a study to look at the coherence and cohesiveness of Saudi EFL tertiary students' essay writing. To investigate the cohesive devices, they included both quantitative and qualitative tools. As part of the study, the written work of 50 Saudi EFL students at Qassim University served as the corpus of the study. They applied Halliday and Hasan's (1976) framework of cohesion to analyze the essays. Frequency counts were used to monitor the students' use of cohesive devices. They found out that students' performance was typically low. It was also noticed that students lacked the ability to employ cohesion in their writings. They suggested that rather than depending just on accurate spelling and grammar, EFL students can undertake continuous writing exercises to enhance their writing abilities and create effective texts (Alqasham et al., 2021).

In the same vein, Alshalan (2019) conducted a study in an attempt to examine how often the cohesive devices were used by students, along with their association with the writing quality. One hundred EFL students at Al Imam Muhammed Ibn Saud Islamic University were included in her study. Alshalan employed a mixed methods approach in which the students' essays were studied in terms of the textual meta-function of cohesive devices by using systemic functional linguistics (SFL). The results of her study indicated that Saudi students tend to frequently use repetition in their writing. Moreover, she found out that there were positive correlations between the writing scores of the students and the length of their essays. In addition, there were positive correlations between the scores and the use of cohesive devices, as well as between the length and the use of cohesive ties.

Most recently, a study was conducted in Sudan by Yousif (2021) who sought to examine the extent to which EFL learners might employ cohesive devices. A test on cohesive devices was given to 150 students. The study employed an analytical descriptive method to evaluate the test, and the data was analyzed using SPSS. In her study, Yousif (2021) found out that nearly 60% of students passed the exam, while 40% failed. She concluded that cohesive devices continue to be a source of difficulty for many EFL students.

While the studies above explored both types of cohesive ties in students' writing, other researchers focused on one type or even a subtype. A study carried out by Abdelreheim (2014) examined the use of grammatical cohesive devices by Emirati eighth-grade EFL learners in expository texts. He employed Halliday and Hasan's (1976) grammatical cohesion model to evaluate a sample of 30 written expositions produced by learners. A mixed-methods study was performed to determine the most commonly used device based on percentages and numbers, and to identify problems that learners had when working with these devices. In his study, Abdelreheim (2014) found out that all types of grammatical cohesion were

TABLE 1 Types of Cohesion based on Halliday and Hasan (1976) (Adapted from Tsareva, 2010, p. 10).

Cohesion				
Grammatical			Lexical	
Reference	Exophoric [situational]		Reiteration	Repetition
	Endophoric [textual]			Synonyms
	Anaphoric [to preceding text]	Cataphoric [to following text]		Superordinate
Ellipsis		General word		
Substitution			Collocation	
Conjunction				

TABLE 2 Halliday and Hasan's classification of conjunction (Adapted from Tsareva, 2010, p.31).

Types of conjunctions

Additive	Adversative	Causal	Temporal
Simple: and, nor, or complex: moreover, in addition, besides that, additionally	Proper: yet, but, however Contrastive: but, on the other hand, in fact, actually, at the same time	General: so, because of, thus Specific: for this reason, as a result, for this purpose	Simple: then, next, afterward Complex: at once, this time, the last time, meanwhile, at this moment, until then
Comparative: likewise, similarly, on the other hand Appositive: I mean, in other words, for example, thus	Corrective: instead, on the contrary, at least Dismissive: in any case, anyhow, at any rate	Conditional: then, under the circumstances Respective: in this respect, with regard to this, otherwise	Sequential/conclusive: at first, in the end; finally, at last “Here and now”/summarizing: up to now, up to this point; to sum up, briefly

employed: references, substitutions, ellipses, and conjunctions. Conjunctional devices were largely used followed by references, while elliptic and substitutional were rarely employed.

Aziz and Nuri (2021) studied the use of conjunctive adverbs in essays written by Iraqi Kurds EFL learners. In order to find out which types of conjunctive adverbs are overused, underused, or misused and in which position in sentences, they created a corpus of 50 students' writings and analyzed the data quantitatively using AntConc, a corpus analysis software. The results showed that students used more sequential and additive conjunctive adverbs than adversatives and causative adverbs. Aziz and Nuri (2021) also found that learners relied mainly on conjunctive adverbs in the initial position.

In their study of English major Jordanians, Al Shamlatm and Ghani (2020) conducted a study to examine the effect of conjunction use on overall writing quality. They employed a quantitative design to examine how cohesive devices, specifically conjunctions, are used in essays that are written argumentatively by sixty Jordanian English majors. They used written essays and interviews to collect data, which was then analyzed with SPSS. The findings of their study revealed that using conjunctions as cohesive devices had a weak negative but insignificant correlation with writing quality. This suggests that students' regular use of such devices in their writing had no effect on the quality of their writing under any circumstances.

Additionally, some peculiar features have been observed in the writing of ESL/EFL students. As part of a study conducted in Tabuk, Saudi Arabia, Othman (2019) examined the grammatical

cohesive devices errors committed by students and the types, frequencies and causes of such errors. He found that the students repeatedly committed errors related to the use of a conjunction as a cohesive device. Othman (2019) further added that such errors were committed due to several factors including the students' lack of knowledge of such devices, their poor vocabulary, the mother tongue interference, and the language background. In the same regard, Arabi and Amin Ali (2014) investigated Sudanese students' use of the cohesion subset of conjunctions. The results revealed that the majority of errors were created by additives, followed by causals and adversatives. They assumed that students transferred some characteristics from their mother tongue into English. However, Adiantika (2015) found out in his study EFL students that their errors were due to the lack of training on the appropriate use of cohesive devices.

The previous studies reviewed above have shown that conjunctions are important for writing and that EFL learners have considerable difficulty applying them. Research suggests that EFL instructors can use several approaches to motivate students to learn cohesion and to be better writers. Providing more detailed explanations of how to use cohesion is one example. This will help minimize mistakes made by students when they write a text in the future (Abdelreheim, 2014; Adiantika, 2015; Othman, 2019; Alqasham et al., 2021). A study conducted by Boukra et al. (2019) examined the effectiveness of explicit instruction of grammatical cohesive devices on students' paragraph writing quality by adopting a quasi-experimental

design to compare compositions produced by students who had instruction to compositions produced by students who did not. The study samples consisted of forty students at L'Arbi Ben Mhidi University who were enrolled in the EFL program for the first year. They were equally divided into two groups. Based on the quantitative analysis of the data, it was verified that the instruction improved the writing quality of the students.

The present study employed the explicit instruction of conjunctions as a means to enhance the EFL students' paragraph writing, and the context is explained below.

Materials and methods

Design

In order to investigate the effectiveness of explicit instruction of conjunctions as cohesive ties in developing paragraph writing skills in Saudi EFL students, an experimental and control group design with a pre- and post-test was adopted. Before the experiment began, both groups were required to have a paragraph writing test as well as a written diagnostic test. Then, the experimental group underwent an intervention where instruction of conjunctions was employed whereas the control group studied the same course material without any additional intervention.

Participants

The participants of this study were 43 EFL students at Prince Sattam bin Abdulaziz University studying at the preparatory year program (PYP), Saudi Arabia. One of the main courses is Writing Skills Eng1220, which aimed at enhancing students' writing abilities in the target language. In the present study, participants were selected randomly from two classes and divided into two groups: an experimental group ($n = 21$) and a control group ($n = 22$). Further, to ensure homogeneity and comparability in terms of English language proficiency between the two groups, participants underwent an Oxford Placement Test (OPT).

Instruments

Oxford placement test

All participants took the Oxford Placement Test (OPT) at the beginning of the study. Students at PYP are required to take this test to determine their English proficiency level. Based on the Common European Framework of Reference (CEFR) (Council of Europe, 2020), results demonstrated that nearly 71% of the participants were English basic users or lower with 8% of the students are starters (Pre-A), 37% are beginners (A1), 26%

elementary learners (A2), 15% lower intermediate learners (B1), 8% upper intermediate learners (B2), and 4% advanced (C).

Written diagnostic test

A written diagnostic test on conjunctions, adopted from Yousif (2021), was administered pre and post the instruction. This test measures the students' competence regarding conjunction. It has three sections. The first section is a completion question concerning different types of conjunctions, the second question consists of ten connectors and their functions to be identified, whereas the third one is a multiple-choice question.

Paragraph writing test

The students in both groups were asked to write a paragraph of about 100–150 words before and after the intervention in order to compare and assess the effectiveness of the instruction on the students' writings. This test measures the students' ability to use conjunctions appropriately in their writing, and how such cohesive devices contribute to developing their performance. A writing rubric was adopted from Abdelreheim (2014) for this purpose.

Procedures

To elaborate more on what has been mentioned above, the present study was conducted in three stages: pre-tests, intervention, and post-tests. First, in order to ensure the groups' homogeneity, both groups were required to undergo pre-tests to measure their ability to compose cohesive paragraphs and to assess their knowledge regarding conjunctions as cohesive devices as mentioned above. Second, the intervention was applied exclusively to the experimental group. As for the control group, there was no explicit instruction. Finally, post-tests were administered to determine whether such intervention had any significant difference.

As for the intervention, the experimental group students received five oral sessions on conjunctions, one session per week. Each session lasted 30 min. In the first session there was an introduction to the concept of cohesion and its different grammatical and lexical types. For the remaining four sessions, students were given a detailed explanation of conjunctions in particular, including their types, meanings, functions, and uses. The objective of the treatment was that by the end of these sessions, students would be able to understand all types and subtypes of conjunctive devices, and they would be able to use them appropriately.

Moreover, lessons were enriched with hands-on training to enhance students' relevant skills. For instance, students were required to read a passage and identify additive conjunctive ties. Also, they were required to connect two sentences using various devices. In another activity, they were asked to use temporal conjunctions in a story they would narrate.

Halliday and Hasan's (1976) taxonomy of conjunctions was used as a basis for developing the lessons as it provides a clear and comprehensive overview of conjunctions. (Shown in Table 2).

Data analysis

Data were analyzed qualitatively and quantitatively. The results of pre- and post-WDT were analyzed quantitatively using *t*-test with SPSS. As for the PWT, paragraphs were analyzed qualitatively as frequencies of conjunctions were counted and their appropriateness was evaluated by a panel of experts using the rubric mentioned above.

Results and discussion

Aiming to improve EFL students' writing, this study explored the potential benefits of teaching conjunctions explicitly. Using Halliday and Hasan's (1976) conjunctive framework, this study analyzed students' use of cohesive devices before and after intervention. A combination of quantitative and qualitative methods was used to analyze the pre- and post-tests data. Moreover, in order to have a well-rounded understanding of students' performance, samples of their writings are provided below where necessary.

Results of written diagnostic test

Pre-test

Before any intervention, a pre- WDT was administered to all participants to ensure that both groups were on the same level and had equivalent knowledge of conjunctions. An independent samples *t*-test was used to assess whether the control group ($n = 22$) and the experimental group ($n = 21$). Based on the result shown in Table 3, both groups had almost identical mean scores in the pre-test (11.1 and 9.5, respectively) regarding their knowledge of connectors. In this case, the *p*-value detected ($p = 0.314$) is greater than the pre-determined significant level ($p < 0.05$). Hence, the values obtained for both groups revealed that there was no statistically significant difference prior to the intervention.

Post-test

The mean scores of the experimental group and control group on post-WDT have been compared using an independent samples *t*-test. The findings, shown in Table 4, showed a statistically significant difference in the scores for the experimental group (Mean = 17.76, SD = 6.04) and the control group (Mean = 10.68, SD = 6.21) in favor of the experimental group. The *p*-value detected ($p = 0.000$) is smaller

than the pre-determined significance level ($p < 0.05$). Hence, the values obtained for both groups revealed that there was a statistically significant difference. By implementing explicit conjunction instruction, the mean score of the experimental group increased significantly, indicating the potential for accelerated improvement in writing skills.

To determine whether the mean scores of each group had changed significantly after the intervention, paired sample *t*-tests were utilized, that is, measuring the differences between pre and post tests for each group. In Table 5, a comparison of the experimental group's pre- and post-test results shows that students' mean score increased significantly. In the pre-test, the mean score was (Mean = 11.14), while in the post-test, the mean score was (Mean = 17.76). The obtained *p*-value ($p = 0.000$) is smaller than the pre-determined significance level ($p < 0.05$), indicating a significant difference in the mean scores. These results support the previous findings and suggest the potential effectiveness of teaching conjunctions explicitly as cohesive devices (Abdelreheim, 2014; Adiantika, 2015; Boukra et al., 2019; Othman, 2019; Alqasham et al., 2021).

TABLE 3 Independent samples *t*-test for the difference in the mean scores of (WDT) pre-test for the experimental group and the control group.

Group	Number	Mean	Std. deviation	T	Sig.(2 tailed)
Experimental	21	11.1429	4.95236	1.020	0.314
Control	22	9.5	5.56990		

TABLE 4 Independent samples *t*-test for the difference in the mean scores of (WDT) post-test for the experimental group and the control group.

Group	Number	Mean	Std. deviation	T	Sig.(2 tailed)
Experimental	21	17.7619	6.04901	3.783	0.000
Control	22	10.6818	6.21355		

TABLE 5 Paired Samples *t*-test for the difference in the mean scores of (WDT) pre and post-test for the experimental group.

Group	Number	Mean	Std. deviation	T	Sig.(2 tailed)
Experimental pre-test	21	11.1429	4.95236	-8.462	0.000
Experimental post-test	21	17.7619	6.04901		

TABLE 6 Paired Samples *t*-test for the difference in the mean scores of (WDT) pre and post-test for the control group.

Group	Number	Mean	Std. deviation	T	Sig.(2 tailed)
Control pre-test	22	9.5	5.56990	-1.919	0.069
Control post-test	22	10.6818	6.21355		

Despite a slight improvement, the control group's post-test results indicate no statistical significance, as shown in **Table 6**. In the pre-test, the mean score was (Mean = 9.5), while in the post-test, the mean score was (Mean = 10.65). The obtained p -value ($p = 0.069$) is greater than the pre-determined significance level ($p < 0.05$).

Results of paragraph writing test

Pre-test

Table 7 presents the conjunctive ties used by participants in their pre-PWT, with the frequencies in each group as well as percentages of the four conjunction subcategories. Causative devices (34.72%) were the most used subclassification, followed by additive ties (31.94%), temporal ties (30.56%), and adversative ties (2.78%).

According to the pre- PWT results, participants had a limited understanding of conjunctive devices and could use some of them in their writing. Indeed, it is not surprising that students tended to find it easier to connect pieces of their writing with simple words rather than longer phrases since the majority of them (71%) were only basic users as mentioned

TABLE 7 Conjunctive ties used by students in their pre (PWT).

Type of conjunction	The conjunctive tie	Frequency in experimental group	Frequency in control group	Percentage
Additive	In addition	1	1	31.94%
	For example, For instance	3	0	
	And	2	0	
	Also	5	11	
Adversative	But	1	0	2.78%
Causal	However	1	0	34.72%
	Because	11	9	
	So	3	1	
Temporal	For these reasons	0	1	30.56%
	First, second, third.	3	0	
	In the beginning, to begin with	0	3	
	Then	2	0	
	Finally	3	5	
	In the end	2	1	
	Lastly	0	1	
	In short	2	0	
Total	72	39	33	100%

earlier. Some students may have been unfamiliar with more complex conjunction devices or found them difficult to use. When it comes to additive devices, the most common cohesive tie was “also”, whereas items like “further” and “moreover” were never used. Among all forty-three students, the only adversative ties used were “but” and “however”, with each used only once. “Because” was the most frequently used causal tie, followed by “so”. Regarding temporal ties, students used the words “first”, “second”, “finally”, and “in the end” to indicate the order of their thinking more often than others.

Further, the results of the pre-PWT showed that Saudi EFL learners overused causative devices (34.72%) in contrast with other studies where causal devices ranked third (Abdelreheim, 2014; Aziz and Nuri, 2021) or even the fourth (Alshalan, 2019). The following script from a student's paragraph shows that the causal item “because” was found to be repeated multiple times in a short script.

Example:

Paragraph 19: "I will choose pink color because it is associated with girly things. Also, I will choose blue because it expresses joy. The last color is violet because it is comfortable for eyes."

Likewise, some students used the additive tie “also” inappropriately. Here is an example:

Paragraph 14: " If I start my own business, I prefer to open a beauty and care store. I will add a lot of lavender flowers all over the place. Also, I will choose the white color for the walls because I feel peace and calm. Also, I will add paintings."

Another example of inappropriate use of the temporal tie “then” is shown here:

"...they can read digital books and search for information easily. Also, then classroom is available in Blackboard of Education."

Although students' showed use of the condictions (**Table 7**), analysis of their writing as just discussed above revealed the students' poor knowledge and improper use of conjunctive devices. The students' writing lacked cohesion and clear connection of ideas in a paragraph.

Post test

Table 8 shows that participants in both groups used more conjunctive ties in the post- PWT. However, the experimental group performed significantly better than the control group. The experimental group applied 124 ties, while the control group applied only 53.

Despite the distinctions between the four types, learners adopted 177 different devices in total. They depended most heavily on additives, as they represent (36%) of the total cohesive relations generated. Temporal is ranked second (31%), followed by causal (22%), while adversatives are ranked fourth (9.6%). Regarding the ranking of the categories, these findings concur with Abdelreheim's (2014) study, but contradict with Aziz and Nuri's (2021) findings, which indicated that temporal

TABLE 8 Conjunctive ties used by students in their post (PWT).

Type of conjunction	The conjunctive tie	Frequency in experimental group	Frequency in control group	Percentage
Additive	In addition	8	1	36.16%
	For example,	14	6	
	For instance			
	And	7	7	
	Besides	3	0	
	In other words	2	0	
	Moreover	2	0	
	Or, or even	2	0	
	Furthermore	1	0	
	Plus	1	0	
	Also	5	2	
	I mean	0	1	
	In the same way	1	0	
	Similarly	1	0	
Adversative	But	4	3	9.60%
	However	4	0	
	Not only but also	1	0	
	Instead	0	1	
	On the other hand	3	0	
Causal	In fact	1	0	22.60%
	Because	11	9	
	So	6	6	
	As a result	3	0	
	Therefore	2	0	
	Due to	1	0	
Temporal	For these reasons	2	0	31.64%
	First, second, third.	21	9	
	Then	1	1	
	Finally	6	3	
	In the end	2	1	
	Today, nowadays	2	1	
	In this time	0	1	
	Briefly	1	0	
	In the beginning	0	1	
	In short	2	0	
	In conclusion	3	0	
	To sum up	1	0	
Total	177	124	53	100%

was the most frequently used category by Kurd Iraqi learners. However, the findings of these studies and the present study show that adversative ties were scarcely employed. One possible interpretation is that a text's type could affect the percentages attributed to conjunction subclassifications, as suggested by Abdelreheim (2014) and Afzaal and Xiangyi (2020).

Table 8 indicates that *for example* and *for instance* were the most frequently used additive devices followed by *in addition*. This might be attributed to the text nature as the students were required to respond to the following question "How do companies become popular" and they provided several examples to support their ideas. The items *and* and *also* came next. It is thought that the students were familiar with employing these items more than others. Various additive items such as: *besides*, *in other words*, *moreover*, *plus*, *furthermore*, and comparative devices such as: *in the same way*, *similarly* were also employed in the writings produced by the experimental group students. Regarding the adversative devices, the learners depended mostly on the item *but* to establish an adversative relation between their sentences. This could be because the item *but* is more common than other items. The item, *however*, was also employed four times by the experimental group students. They were able to employ other items including: *on the other hand* and *in fact*.

In order to establish a causal relationship between their sentences, students tended to use the words *because* followed by *so*. Obviously, these items were more prevalent than others. In the experimental group, students were able to employ other items such as: *therefore*, *for these reasons*, *as a result* and *due to* appropriately after the treatment. Furthermore, Table 8 demonstrates that students used temporal items *first*, *second*, *third* and *finally* the most. This indicates students' comprehension of how to begin and end their paragraphs. By establishing a cohesive relation between the sentences in the texts, readers can anticipate the inclusion of other points or ideas. Several temporal items that indicate summarizing such as: *briefly*, *to sum up*, and *in short* were employed by students in experimental group.

As can be seen from the results discussed above, results from the post- PWT supported the post- WDT results, as students in the experimental group were able to successfully and more frequently identify the relationship between sentences in their paragraphs and determine the appropriate item to link the sentences. This benefits the reader in connecting parts of the paragraph. Analysis of students' compositions in the post-WDT showed that they seemed to be more cohesive, unified, and easier to read, encouraging the reader to explore the writer's ideas as the message swiftly move from one thought to another. This finding concurs with Adiantika (2015) and Alqasham et al. (2021).

Furthermore, the students were able to display a variety of conjunctive items instead of relying solely on simple ones. This makes their paragraphs more interesting for the reader. Prior to the experiment, items such as "I mean", "in other words", "on the other hand", and "as a result" were difficult to find. Here are some samples of the students' composition after being taught conjunctions explicitly:

Example 1:

Paragraph (13) "... we always hear about the competition between Pepsi and Coca-Cola. In KSA, we prefer Pepsi more than Coca-Cola. On the other hand, Brazilian people prefer Coca-Cola over Pepsi, and this is because of the marketing."

Example 2:

Paragraph (12) "... One example of a popular company is Uber, the main reason of its popularity is the good service they offer, and where they started. Besides offering a special service, going viral helps a lot. For instance, flix's jump made a soft drink company popular."

Example 3:

Paragraph (17) "... We may expect that the great succession in companies is due to the products. In fact, it is a relatively correct idea, however, there are basics and strategies."

Example 4:

Paragraph (15) "... To sum up, doing something surprising is a good way to make a product popular."

The control group, in contrast, continued to use simple conjunctive items. With a slight increase in the frequency.

As can be seen above, the results of both post- WDT and post- PWT showed a remarkable improvement in favor of the experimental group. The students' mean scores changed significantly following explicit instruction. Not only did students' scores increase, but also the quality of their writing. The students were able to compose more cohesive, unified, and interesting paragraphs despite the fact that the majority of the learners in the present study were beginners. It seemed that students' competence to employ cohesive devices effectively increased by conscious understanding of their forms and implications. The findings of the present study confirmed Alshalan (2019) who maintained that using cohesive devices in writing can be one indicator of high-quality writing. This use, however, must be appropriate in order to increase the quality of the paragraph.

Conversely, the results of the post-test for the control group were almost the same as the pre-test regarding WDT. Moreover, even while the post-test findings for PWT showed a slight increase in the quantity of conjunctive items utilized, they remained much lower than that of the experimental group. Besides, students in the control group continued to employ simple items regularly.

Based on the discussion above, the experimental group participants made significant progress in paragraph writing, and this is believed to be due to the explicit instruction of conjunctions, especially in terms of cohesion.

Conclusion

The primary goal of the present study was to investigate the effectiveness of explicitly teaching conjunctions as cohesive

devices on enhancing students' paragraph writing. In order to achieve this objective, an experiment design with pre- and post-tests was used, and data was analyzed both quantitatively and qualitatively. The present study concluded that the intervention that was employed had a positive effect on students' performance. Cohesion, as one indicator of effective writing, was achieved to through the use of conjunctions taken into consideration the low level of proficiency of the population. The post-test results of WDT revealed that the mean scores of the experimental and control groups were statistically significantly different, suggesting that the students of the former have remarkably improved in terms of comprehension and application of conjunctions as part of the cohesiveness concept. Moreover, the results of post-PWT revealed that the experimental group successfully identified the relationship between sentences in their paragraphs and, for the most part, chose the appropriate item to connect the sentences.

The current study has provided an important insight by exploring the role of explicit instruction of conjunctions on developing students' writing. Such instruction might contribute to a development in the context of teaching as well as learning writing, especially that previous studies have demonstrated that EFL learners struggle with the use of cohesive devices, particularly conjunctions (Arabi and Amin Ali, 2014; Othman, 2019; Alqasham et al., 2021).

It is recommended that instructors be encouraged to explicitly teach EFL students how to use conjunctions appropriately to develop their paragraph writing. Designers of textbooks should also be aware of the advantages of integrating such devices into writing classes and assign tasks that call for their use. Needless to say, although the present study has shed some light on an underrepresented population, it is suggested that research on larger samples and at different levels of study can be conducted to generalize the results. Also, the current study was confined to conjunctions as a predictor of cohesion in students' writing. More studies might be done to look at additional types of cohesiveness and uses such as complementary use of conjunctions.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation

and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

Author contributions

Both authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

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Can second language metaphorical competence be taught through instructional intervention? A meta-analysis

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Background: For a long time, the traditional view regarded metaphor as merely a rhetorical device that served to enrich linguistic expression. With the continuous development of cognitive linguistics, foreign language educators began to realize the vital role of metaphor in foreign language education.

Objectives: This study looked at how well pedagogical interventions improve metaphorical competence by looking at how well teachers teach metaphors.

Methods: After a rigorous literature search and selection process from the Chinese and English databases, 13 Chinese and 7 international studies with 51 effect sizes were included in this meta-analysis. With the help of the meta-analysis 3.0 software, the literature and heterogeneity tests were performed to ensure that the meta-analysis results were as accurate and valid as possible.

Results: The effect size tests revealed that the metaphorical instructional intervention was significantly effective in general and produced a large effect size ($d = 0.888$) on improving learners' metaphorical abilities. Meta-regression analyses were also conducted to examine how other factors might change the effects of the interventions.

Findings: Research has shown that instructional interventions that combine prolonged input of metaphorical concepts with reinforcement of metaphorical practice can help second language learners develop metaphorical competence. Teaching puts more pressure on teachers and the learning environment, and the results of this study could help teachers teach metaphors in the future.

KEYWORDS

metaphorical teaching, competence, second language, instructional intervention, meta-analysis

Introduction

Metaphor, a cognitive tool for cross-domain mapping between different conceptual domains, is widely recognized as the primary and fundamental means of human existence. Second language learners talk using the target language's vocabulary and structure; they are sometimes accustomed to thinking and behaving in terms of their native language's conceptual system, resulting in a large number of "unnatural" expressions (i.e., Charteris-Black, 2002; Jarvis and Pavlenko, 2008; Littlemore et al., 2018). Theoretical and empirical studies illustrated that the competence of understanding and producing metaphors in the target language is essential for language learning from vocabulary learning, reading comprehension, and writing production (Kathpalia and Carmel, 2011; Wang and Cheng, 2016; Hoang and Boers, 2018). Relationships between metaphorical competence and language proficiency, cognitive style, cognitive ability, gender, age, language transfer, and creativity were under consideration (e.g., Chiappe and Chiappe, 2007; Kenett et al., 2018; Fattahi and Nushi, 2021).

The ability to generate and understand metaphors in second language learning can help us understand, expand ideas, and clarify old problems and concepts, as metaphors are common in our daily lives (Abdul-Zahra, 2015). Researchers demanded that they interpret and write target expressions literally and metaphorically into a short passage (Card, 2015; Afzaal and Xiangyi, 2020; Haberman et al., 2020). It is claimed that metaphor can be found in almost every third English sentence (Arif and Abdullah, 2017). Azuma (2004) and Kanglong and Afzaal (2020) designed various metaphorical ability tests, including the receptive and productive tests. Researchers' perspectives on the components of metaphorical competence differ due to differences in research focus and objectives.

Several examples illustrate that the use of metaphor is pervasive in everyday language, which reflects how we think and act. (Karadag, 2015). With the deep influence of both traditional and cognitive views, metaphor is not only seen as a rhetorical device in language but, more importantly, a way for people to recognize new things related to human cognition (Haji, 2011). Norafkan (2013) introduced the concept of metaphorical competence into second language acquisition and foreign language teaching. It is believed that metaphorical competence involves metaphorical awareness, comprehension, and expression strategies, and it is advocated that all second language learners need to develop some skills related to metaphor (Pavlenko, 2009; Li, 2010). Tafazoli and Piri (2018) stressed that metaphorical competence should include the ability to understand and learn metaphors passively as well as the ability to use metaphors creatively. Soureshjani and Safikhani (2012) conducted an empirical study and reported that the receptive metaphorical competence of Chinese learners could correlate with their reading proficiency. Toyokura (2016) examined four aspects of metaphorical skills: metaphorical

fluency, metaphorical flexibility, metaphorical originality, and metaphorical elaboration, and showed that English proficiency could determine metaphorical creativity to some degree. Studies propose that metaphorical competence in an EFL context should concern learners' ability to recognize metaphorical expressions in listening and reading materials, apply appropriate metaphorical terms in oral or written form, and comprehend concepts behind metaphorical expressions (Hussey and Katz, 2006; Galantomos, 2019; Liu and Hsieh, 2020).

Metaphor learning is relatively flexible, requiring second language learners to change their view of traditional language learning focused on grammar and language forms. The metaphor may help L2 writing instructors analyze student needs, boost metacognition, and delve into aspiring economics instructors' personal and emotional metaphors about the roles they would play as teachers (Mellado et al., 2021; Yang and Peng, 2021). Studies investigated whether embodiment or abstraction is used in processing Chinese verbal metaphors and used event-related potential testing to compare the electrophysiological processing of scientific metaphors in Chinese and English to understand better the differences between the processes of perceiving figurative language (Alfadda et al., 2022; Hu et al., 2022; Li et al., 2022; Tang et al., 2022). By putting metaphorical ideas into practice and using them in teaching, students can see and experience new metaphorical ways of thinking, which helps them form metaphorical ways of thinking habits.

Study statement

The importance of developing learners' metaphorical competence is self-evident, given the crucial role of metaphorical competence in many aspects of language teaching and learning. However, in recent decades, there has been less discussion about the feasibility and impact of a pedagogical intervention on the development of metaphorical competence. The investigation adds to the understanding of the L2 learners' metaphorical competence by improving instructors' metaphor knowledge and increasing metaphor awareness in L2 writing, teaching, and learning (Lu, 2021). The previous study explored hemispheric differences in the processing of metaphors by introducing scientific metaphors as new metaphors and providing orientation mapping from the particular and known domains to the abstract and unfamiliar domains (Huang et al., 2022). However, many attempts have been made to further define the idea of metaphorical competence due to the differences in research focus and objectives; researchers have different views on the components of metaphorical competence to fill the research gap. This study collects, sorts out, synthesizes, and analyzes the results of multiple similar studies in the existing empirical literature and then carries out the qualitative and quantitative analysis in a more overall and systematic way using a meta-analysis approach. In recent years, meta-analysis has

gradually emerged in second-language research abroad, but this method needs to be better known in the L2 research field in China. So, this research tries to improve the way metaphors are studied by using meta-analysis, which is one of the new things about this research.

Literature review

The study highlighted the learner's ability to use metaphor as a core ability in second language learning. The study tried to analyze Bachman's widely used model of communicative language competence (Littlemore and Low, 2006). The findings revealed that metaphorical competence was highly relevant to grammatical, textual, illocutionary, sociolinguistic, and strategic competence. Chen (2019) explores how metaphorical competence is related to language proficiency. A study was done to compare the high-level and low-level groups. The results showed that the high-level group gave more metaphorical answers on the sentence cloze test. This meant that high-level learners were better at using metaphors than low-level learners (Mehdipour et al., 2021).

Similarly, Aleshtar and Dowlatabadi (2014) found a positive relationship between scores on OPT and metaphorical competence among Iranian EFL students. The study investigated the effect of proficiency level on metaphorical competence among Greek learners and drew similar conclusions on the positive relationship of proficiency level with previous literature (Galantomos, 2019). By identifying and quantifying learners' metaphorical expressions, they concluded that the density of metaphorically used words and phrases increased systematically by the year of level and that learners' performance in writing was correlated to their use of metaphorical expressions (Hoang and Boers, 2018). Fattahi and Nushi (2021) recently concluded that upper-intermediate students used metaphors in their writing better than intermediate students.

In China, the discussion on this topic was widespread and pointed out that the relationship is not static but dynamic (Younas and Qingyu, 2021). With increased English proficiency, metaphorical competence significantly improves. This influence has a decreasing trend and further explains that learners lack the awareness to construct an L2 metaphorical system because the learning environment does not pay much attention to developing metaphorical competence (Xiaofang, 2021). An empirical study reported that the receptive metaphorical competence of Chinese learners could correlate with their reading proficiency, and those good at reading showed a high level of metaphorical competence. Chinese learners were still at a low or middle level in metaphorical competence (Zhao et al., 2014). The study examined four aspects of metaphorical competence: metaphorical fluency, metaphorical flexibility, metaphorical originality, and metaphorical elaboration,

and showed that English proficiency could determine metaphorical creativity to some degree (Wang and Cheng, 2016).

The case study in China verified that cognitive style had a motivating function for metaphorical competence. Style learners were more sensitive to conceptual metaphors, and analytic style learners performed better in metaphorical comprehension (Wang and Hao, 2013). The study explores metaphorical development from the perspective of cognitive styles, and findings showed that holistic learners performed better with conceptual metaphor instruction. In contrast, instruction with metaphorical mappings is more suitable for analytic learners (Chen et al., 2014). An empirical study (Hashemian, 2018) examines the differences in how people with different learning styles understand metaphors and how affective factors might be related to metaphorical competence.

Metaphorical competence has been shown to play a prominent role in SLA. Theoretical and empirical studies demonstrate that metaphorical competence is closely related to language learning. Charteris-Black (2002) designed their research based on the Boers' analysis, added high- and low-language-level groups, and examined the effect of metaphorical awareness on word form and meaning retention. Interactive and cultural characteristics of the metaphorical cognitive mechanism indicate that the cultivation of metaphorical competence should be crucial for foreign language teaching (Younas and Noor, 2021). They believed that metaphor could contribute to cultural comprehension and the actual use of language. Education of the target language can be achieved through teaching metaphors.

Chen et al. (2014) pointed out that schema mapping of metaphor was a scaffold for learners to deal with discourse and understand the target domain. The cognitive process of metaphor in discourse comprehension has pedagogical value and suggests teaching the target language's culture through metaphor. Empirical studies of English learners in China (Kathpalia and Carmel, 2011; Zhao et al., 2014) found a strong link between learners' receptive metaphorical competence and reading skills. This was done by encouraging people to think about and talk about the world in metaphors.

Research methods

After clarifying the Research Topic and proposing specific research questions, concrete meta-analysis procedures were applied, as meta-analysis is a method of research integration that involves extracting data analysis results from previous empirical studies. Study coding and effect size analysis followed strict guidelines, including literature search, inclusion and exclusion, study coding, and effect size analysis (Sánchez-Meca and Marín-Martínez, 2010).

A meta-analysis is a statistical tool for summarizing and synthesizing data from several investigations (Koizumi and

Tomita, 2019). Ortega and Norris (2006) mentioned that meta-analysis is a method of research integration that involves extracting data analysis results from previous empirical studies for secondary analysis and processing. Several studies are combined; this method may aid in consolidating commonalities and explaining contradictory results (Chong and Plonsky, 2021). It is difficult to evaluate if particular factors aid language learning based merely on statistically significant data from a single study, as different studies may produce contradictory results. A meta-analysis helps synthesize study findings to see whether certain aspects are successful.

Literature search process

Literature at home and abroad from 2006 to 2020 was searched to find all eligible studies related to the research question as much as possible and ensure that the research results will not be biased due to the omission of specific studies. Literature was mainly searched in three crucial academic databases: CNKI, WAN FANG, and WEI PU. Literature databases include were not limited to Web of Science, Scopus, JSTOR, ScienceDirect, Education Resource Information Center (ERIC), Google Scholar, Academic Research Library (Pro-Quest), and Wiley Online Library. Keywords included 隐喻能力, 概念流利, and corresponding English keywords had metaphorical competence, conceptual metaphor, and conceptual fluency.

Inclusion and exclusion criteria

By using these Chinese keywords, “隐喻能力” or “概念流利,” 644 documents were searched. Qualitative analysis and reviews were excluded after further reading abstracts and full texts. The meta-analysis looked at 13 pieces of research, leaving out duplicate data and unqualified research.

For English databases, the search keywords (metaphorical ability, conceptual fluency, and conceptual metaphor) were used, and a total of 93,175 documents were retrieved. To facilitate the screening process, we narrowed the research field to include pertinent subfields, including language acquisition, linguistics, education, pedagogy, and psychology. Reading the titles and abstracts of studies, we were able to narrow our search down to 77, which examined the impact of educational intervention on metaphorical ability after discarding duplicates and irrelevant literature. Seven pieces of international literature were included in this meta-analysis which is shown in Figure 1.

Coding of studies

Coding for studies allows researchers to clarify the conditions under which different research results were derived. Features served as moderators of effect size by examining and explaining how effect size varies with research characteristics. Coding in the meta-analysis focused on capturing the most likely relevant factors in the change of effect size (Pigott and Polanin, 2020). Features of the study are shown in Table 1.

Computation of effect size

All included studies reported the standard deviation and mean value of the experimental group and the control group or the difference between the same group of subjects before and after the intervention. The study used Cohen's d as the statistical indicator of effect size. d is a commonly used effect size to calculate the difference between groups, which is calculated by combining the standard deviation of the mean difference. The meta-analysis will convert other statistics into d values using Comprehensive Meta-Analysis V3.0 to unify effect size. The same article reported on several aspects of metaphorical competence; each study and task in this literature will be treated as a separate study. Effect sizes are calculated and labeled separately, and the calculation formula for d is as follows:

$$d = \frac{\bar{X}_1 - \bar{X}_2}{SD_{within}} \quad (1)$$

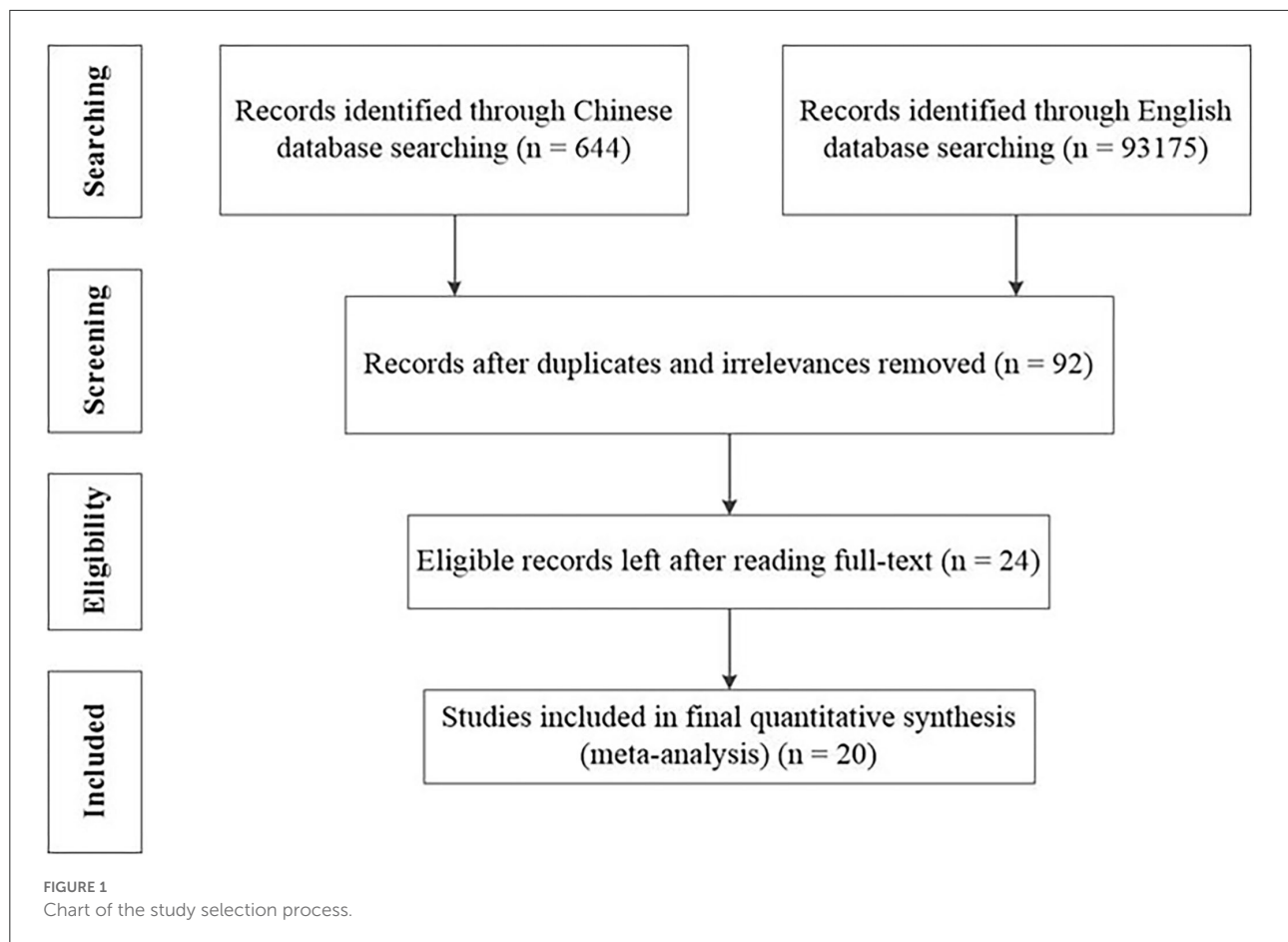
$$SD_{within} = \sqrt{\frac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{n_1 + n_2 - 2}}, \quad (2)$$

where $\bar{X}_1$ and $\bar{X}_2$ are the sample means of the two groups, respectively, and SD_{within} represent the within-group standard deviation.

Results

Heterogeneity test

The heterogeneity test was a crucial step in synthesizing the effect sizes of individual studies into the overall effect size and is essentially a test of whether the studies belong to the same distribution. Heterogeneity analysis is commonly evaluated using the Q test and the I^2 test. The Q -test is based on the total variance, assuming that the effect sizes come from the chi-square distribution, and if $p < 0.05$, the study is heterogeneous. The I^2 describes the percentage of total variation due to individual studies and not a sampling error, with $I^2 = 25\%$ indicating low heterogeneity, $I^2 = 50\%$ indicating moderate heterogeneity, and $I^2 = 75\%$ indicating high heterogeneity.



According to [Table 2](#), the Q value of the present study equals 557.286, and $P = 0.000 < 0.05$. The Q values reached the significance level. In addition, the I^2 value was $91.028\% > 75\%$, indicating high heterogeneity, which further justifies the choice of the random effect model.

Assessment of publication bias

By observing the funnel plot shown in [Figure 2](#), most of the independent samples were distributed at the top of the funnel plot and located on both sides of the total effect size. This distribution feature suggests that studies may not have a significant publication bias. While considering those deviating points on the right side, the conclusion should be further checked.

The funnel plot can only initially observe publication bias from a subjective qualitative point of view. Quantitative methods such as Rosenthal's Classic Fail-Safe N and Egger's regression are needed to provide factual data about the degree of publication bias. In the present meta-analysis, the Nfs is 6,382, much larger than $5k+10$ (255). It indicates that there is no significant publication bias. At least 6,382 more studies are needed to

overturn the results of this study. If linear regression yields an intercept close to 0 and is not significant, then the risk of publication bias is low.

The study used the random effect model to synthesize the overall effect size of explicit instruction on fostering L2 metaphorical competence. Independent studies were included in the meta-analysis, involving a sample size of 851. [Table 3](#), the test results showed that the summary effect was $d = 0.88$ ($p < 0.001$). According to the effect size evaluation criteria, the immediate effect obtained from the study was more significant than 0.8, indicating that the overall impact of the intervention reached a significantly high level. The 95% confidence interval of the immediate effect size of the intervention was 0.654, 1.123, which does not contain 0. The 95% CI of the effect sizes were all >0 , and the horizontal line in the forest plot does not intersect the null vertical line. It is to the right of the invalid vertical line and suggests that the effect can be considered as not occurring by chance. The summary effect supports the claim that the current instructional intervention improves learners' metaphorical competence.

Moreover, the effect size and confidence interval found in the individual studies are presented in [Figure 3](#).

TABLE 1 Study characteristics.

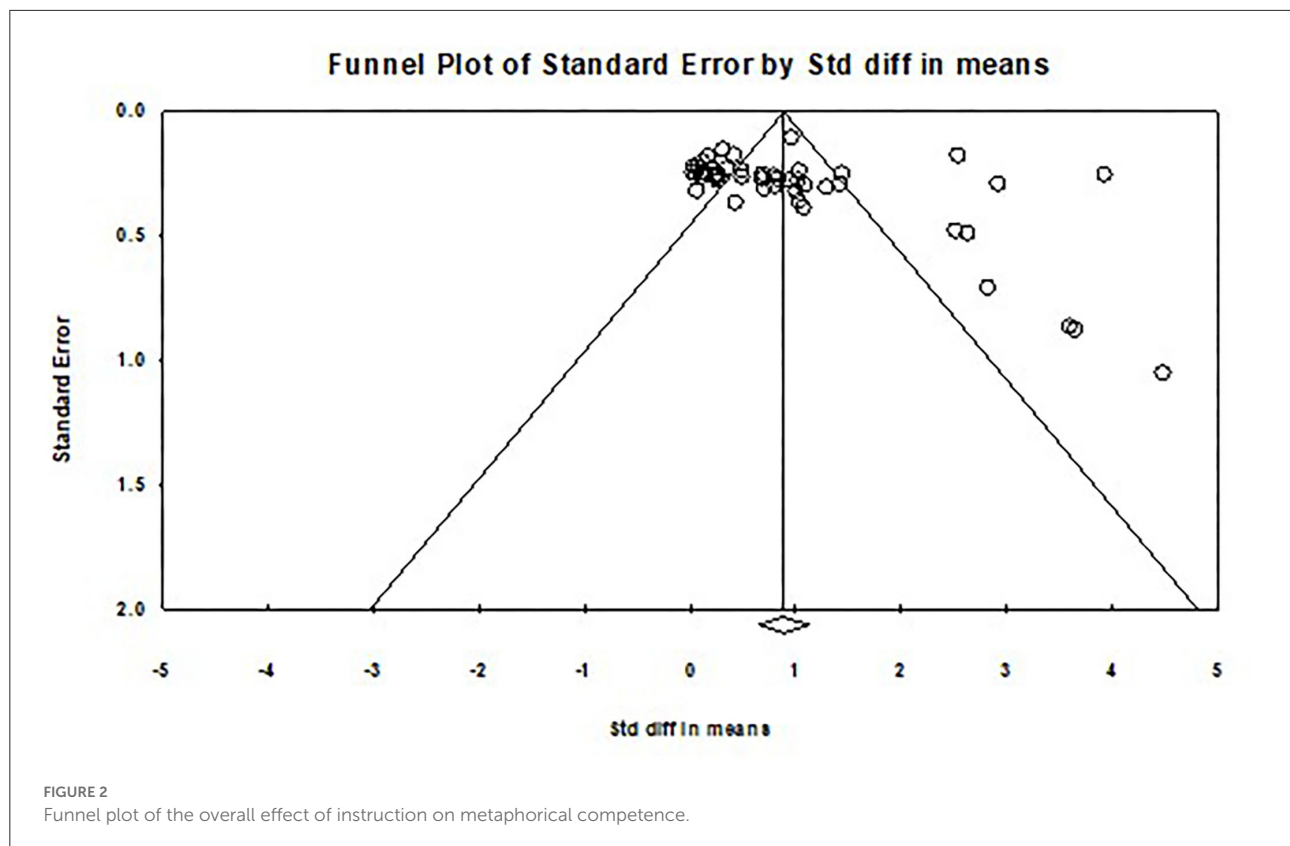
Study name	Sample size	Region	Target language	Type of MC	Intervention length	Test form	Control group	Source
Lang and Yi (2019)	30	China	Chinese	Identification, interpretation, production	16w	Test score	With	Journal
Qing (2014)	100	China	English	General	16w	Test score	With	Journal
Dandan (2019)	90	China	English	General	16w	Test score	With	Journal
Yuanyuan (2020)	81	China	English	General	13w	Test score	With	Journal
Ting (2020)	82	China	English	Production	7w	Metaphor density	With	Journal
Yuanlian (2012)	80	China	English	Production, comprehension	Immediate	Test score	Without	Journal
Ming (2009)	66	China	English	Identification comprehension Interpretation	16w	Metaphor density	With	Journal
Jinfang (2015)	50	China	English	General	6w	Test score	Without	Journal
Liang (2013)	66	China	English	Identification interpretation production	16w	Test score	With	Journal
Shan (2016)	60	China	English	Identification, comprehension production	4w	Test score	With	Thesis
Di (2013)	40	China	English	identification interpretation, comprehension production	14w	Test score	With	Thesis
Qinghua (2006)	32	China	English	production, identification, comprehension	24w	Test score	With	Thesis
Wang and Cheng (2016)	91	China	English	Identification	2w	Test score	With	Journal
Chen and Lai (2015)	68	China	English	Identification	2w	Test score	Without	Journal
Hashemian (2006)	139	INT	English	Identification, comprehension production	–	Test score	With	Journal
Ashraf and Majeed (2011)	60	INT	English	General	14w	Test score	With	Journal
Abdul-Zahra (2015)	40	INT	English	Comprehension	–	Test score	With	Journal
Shirazi and Talebinezhad (2013)	20	INT	English	Production	4 sessions	Metaphor density	Without	Journal
Norafkan (2013)	53	INT	English	Production	8w	Metaphor density	With	Thesis
Toyokura (2016)	66	INT	English	Interpretation	12w	Test score	Without	Journal

TABLE 2 Results of the homogeneity test.

	N	Q	Df	P	I ² (%)	Tau ²
Intervention effect	51	557.286	50	0.000	91.028	0.629

Effects of moderators

The heterogeneity between individual studies justifies further analysis of moderator factors. A subgroup analysis will be conducted to determine whether the variables of type of



metaphorical ability, region, experimental design, and source of literature moderated the effect of improving learners' second language metaphorical ability by instruction.

Effects of metaphorical competence type

Through a review of the literature included in the analysis, researchers may have different approaches to evaluate the metaphorical ability of second language learners. The discussion of metaphorical competence in the included literature can be concluded into five types: the competence of metaphorical identification, metaphorical interpretation, metaphorical comprehension, metaphorical production, and general metaphorical competence. Subgroup analysis of the kinds of metaphorical competence indicated that teaching interventions could generate varying degrees of effect on different types of L2 metaphorical competence ($Q_B = 24.070$, $df = 4$, $P = 0.000 < 0.01$). The specific data in Table 4 shows that teaching interventions have a significant impact on metaphorical comprehension ($d = 0.762$), production ($d = 1.286$), and general metaphorical competence ($d = 1.425$). The average effect of an instructional intervention on metaphorical identification is at a medium level ($d = 0.448$). A small effect ($d = 0.295$) was shown in the improvement of metaphorical interpretation. Moreover, there is significant heterogeneity in the effect sizes for three

types of metaphorical competence (comprehension group: $Q_w = 189.399$, $p = 0.000 < 0.01$; general group: $Q_w = 129.292$, $p = 0.000 < 0.01$; production group: $Q_w = 107.400$, $p = 0.000 < 0.01$), which means other moderating variables could influence the effect within the subgroup.

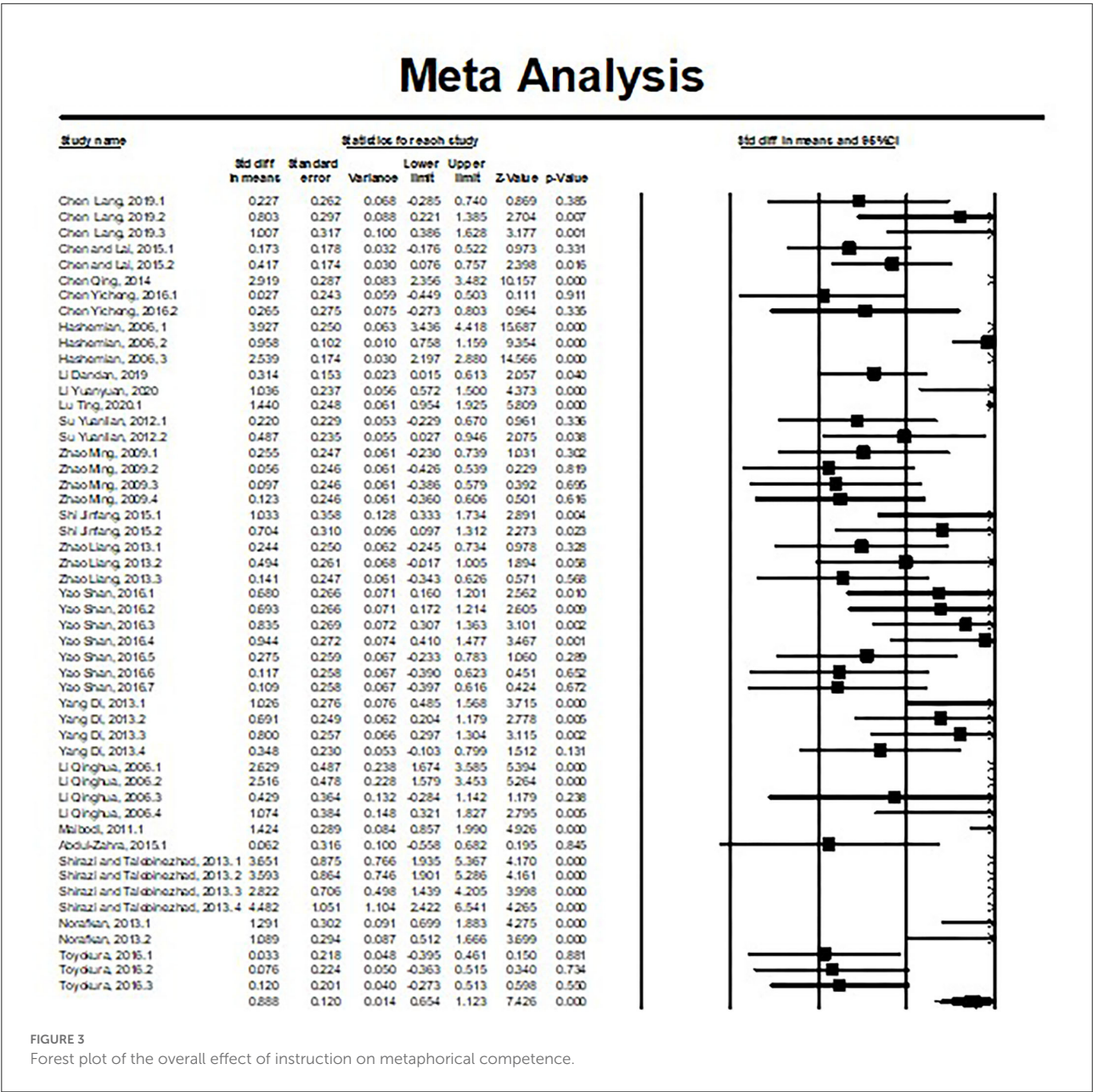
Most of the methods to test metaphorical ability are to use comprehensive test papers; there are mainly two methods for measuring metaphorical production: (a) calculating the metaphor density in subjects' expressions and (b) evaluating based on a more comprehensive test paper. A subgroup test can be further checked. Results show that the measurement method is a statistically significant moderator of the effect ($Q_B = 10.515$, $P = 0.001 < 0.01$). In 16 studies related to metaphorical production, seven studies using metaphor density as an indicator show a higher effect ($d = 2.193$) than nine studies using test papers ($d = 0.805$). The two subgroups have heterogeneity, suggesting the difference in effect may be caused by other moderators. Specific results are shown in Table 5.

Effects of nation/region

As shown in Table 6, regarding region factors, the average effect of 37 domestic studies was $d = 0.644$, and that of 14 international studies was larger with $d = 1.670$. The effect of explicit instruction on L2 metaphorical competence has a

TABLE 3 Summary effect of the intervention on metaphorical competence.

Model	Effect size and 95% confidence interval					
	Number studies	Point estimate	Standard error	Variance	Lower limit	Upper limit
Fixed	51	0.743	0.035	0.001	0.676	0.811
Random	51	0.888	0.120	0.014	0.654	1.123



medium impact in China but increases significantly in global regions. The table shows $Q_B = 8.508$, $p = 0.004 < 0.01$, which means that the moderating variables' region influences the effect. A further evaluation indicates that there is significant heterogeneity in the effects of both China ($Q_w = 175.530$, $p < 0.01$) and international groups ($Q_w = 310.182$, $p < 0.01$). Other moderators also influence the difference in effect for both groups.

TABLE 4 Moderator analysis of metaphorical competence type.

Groups	Effect size and 95% confidence interval						Test of null(2-Tail)		Heterogeneity			
Group	Number studies	Point estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	P-value	Q-value	Df (Q)	P-value	I-squared
Fixed effect analysis												
comprehension	9	0.803	0.089	0.008	0.629	0.976	9.063	0.000	189.399	8	0.000	95.776
general	7	1.348	0.086	0.007	1.180	1.516	15.721	0.000	129.292	6	0.000	95.359
identification	12	0.423	0.070	0.005	0.286	0.561	6.046	0.000	18.439	11	0.072	40.345
Interpretation	7	0.276	0.090	0.008	0.100	0.451	3.076	0.002	9.808	6	0.133	38.824
production	16	0.882	0.064	0.004	0.756	1.008	13.746	0.000	107.400	15	0.000	86.033
Total within									454.338	46	0.000	
Total between									102.948	4	0.000	
Overall	51	0.743	0.035	0.001	0.676	0.811	21.478	0.000	557.286	50	0.000	91.028
Mixed effects analysis												
Comprehension	9	0.762	0.433	0.187	0.087	1.610	1.76	0.078				
General	7	1.425	0.415	0.172	0.612	2.238	3.436	0.001				
Identification	12	0.448	0.093	0.009	0.266	0.63	4.831	0.000				
Interpretation	7	0.295	0.116	0.013	0.069	0.522	2.556	0.011				
Production	16	1.286	0.2	0.04	0.893	1.679	6.419	0.000				
Total between									24.070	4	0.000	
Overall	51	0.522	0.066	0.004	0.392	0.652	7.869	0.000				

TABLE 5 Moderator analysis of measuring method.

Groups	Effect size and 95% confidence interval						Test of null (2-Tail)		Heterogeneity			
Group	Number studies	Point estimate	Standard error	Variance	Lower Limit	Upper limit	Z-value	P-value	Q-value	Df (Q)	P-value	I-squared
Fixed effect analysis												
Metaphor	7	1.567	0.150	0.023	1.272	1.861	10.432	0.000	25.785	6	0.000	76.707
test paper	9	0.729	0.071	0.005	0.590	0.868	10.274	0.000	56.201	8	0.000	85.765
Total within									81.959	14	0.000	
Total between									25.441	1	0.000	
Overall	16	0.882	0.064	0.004	0.756	1.008		0.000	107.400	15	0.000	86.033
Mixed effects analysis												
Metaphor	7	2.193	0.370	0.137	1.468	2.918	5.929	0.000				
Test paper	9	0.805	0.216	0.046	0.382	1.227	3.734	0.000				
Total between									10.515	1	0.001	
Overall	16	1.157	0.186	0.035	0.792	1.522	6.212	0.000				

Effect of experimental design

From the perspective of experimental design, most researchers choose to set up experimental and control groups in their studies. By implementing the teaching intervention in the experimental group and comparing learners' scores in the post-tests, the effect of instruction on L2 metaphorical competence can be evaluated. Some researchers have no control group but choose to

compare the performance of the same group in pre- and post-tests. The analysis is conducted according to the two types of experimental designs (with and without control groups).

Results in Table 7 indicate that the presence or absence of a control group does not generate statistically significant effects on the outcomes ($Q_B = 0.146$, $p = 0.702 > 0.05$).

Further tests for heterogeneity in the effect sizes under the two experimental designs were carried out separately. The

TABLE 6 Moderator analysis of nation/region.

Groups	Effect size and 95% confidence interval					Test of null (2-Tail)			Heterogeneity			Tau-squared		
	Number studies	Point estimate	Standard error	Variance	Lower limit	Upper limit	Z-value	P-value	Q-value	Df (Q)	P-value	I-squared	Tau squared	Standard error
Fixed effect analysis														
China	37	0.547	0.042	0.002	0.465	0.628	13.103	0.000	175.530	36	0.000	79.491	0.251	0.079
International	14	1.179	0.062	0.004	1.057	1.300	19.005	0.000	310.182	13	0.000	95.809	1.400	0.818
Total within									485.712	59	0.000			
Total between									71.574	1	0.000			
Overall	51	0.743	0.035	0.001	0.676	0.811	21.478	0.000	557.286	50	0.000	91.028	0.629	0.170
Mixed effects analysis														
China	37	0.644	0.094	0.009	0.46	0.828	6.864	0.000						
International	14	1.67	0.339	0.115	1.005	2.334	4.926	0.000						
Total between														
Overall	51	0.717	0.09	0.008	0.540	0.894	7.929	0.000	8.508	1	0.004			

results all showed significant heterogeneity (with the control group: $Q_W = 456.414$, $P = 0.000 < 0.01$; without the control group: $Q_W = 65.582$, $P = 0.000 < 0.05$). This implies that there are still differences between effect sizes within subgroups of the two experimental designs, possibly influenced by other moderating factors.

Effect of literature source

Regarding literature sources, there were 16 studies from dissertations and 35 journal articles in the collected literature. Table 8 indicates the mean effect size for journal articles was $d = 1.052$. In contrast, the mean effect size for the academic thesis was $d = 0.593$, which shows a difference between the mean effect sizes in academic thesis and journal articles. It can also be seen that on the variable of article source, $p = 0.016 < 0.05$, the article source has a significant effect on the metaphorical competence intervention.

Meta-regression analysis

In terms of the continuous variable, this study conducted a meta-regression test to explore the intervention length's effect on improving L2 metaphorical competence. A total of 41 individual studies reported the size of teaching interventions ranging from 2 to 24 weeks, with the average length being 9.12 weeks. Results showed that while intervention length positively impacts improving L2 metaphorical competence, the impact could be more considerable. The regression equation in Table 9 is $Y = 0.0481X + 0.2521$. This means that when the intervention length increases, the effect of the intervention on L2 metaphorical competence will become more significant to some degree.

The meta-regression results showed that the effect of a short intervention was not significant, further validating that the improvement of metaphorical competence is considered a long-term process.

Based on the Figure 4, literature included in the present meta-analysis and the best effect was achieved when the length of the intervention was around 16 weeks, which is consistent with the study design of most studies. Results were significant ($Q = 452.82$, $df = 42$, $p = 0.0000 < 0.01$), suggesting that the moderating variable intervention length did not explain all of the variances and that there may be other moderating variables.

Discussion

A widely accepted idea is that metaphorical competence is teachable. Researchers have attempted to verify the possibilities of L2 metaphorical competence cultivation from both

TABLE 7 Moderator analysis of experimental design.

Groups		Effect size and 95% confidence interval					Test of null (2-Tail)		Heterogeneity			
Group	Number studies	Point estimate	Standard error	Variance	Lower Limit	Upper limit	Z-value	P-value	Q-value	Df (Q)	P-value	I-squared
EG-CG	38	0.852	0.039	0.002	0.775	0.628	21.619	0.000	456.414	37	0.000	91.893
No control	13	0.377	0.072	0.005	0.236	1.300	5.219	0.000	67.582	12	0.000	82.244
Total within									523.997	49	0.000	
Total between									33.289	1	0.000	
Overall	51	0.743	0.035	0.001	0.676	0.811	21.478	0.000	557.286	50	0.000	91.028
Mixed effects analysis												
EG-CG	37	0.644	0.094	0.009	0.46	0.828	6.197	0.000				
No control	14	1.67	0.339	0.115	1.005	2.334	4.079	0.000				
Total between									0.146	1	0.702	
Overall	51	0.844	0.114	0.013	0.621	1.068	7.409	0.000				

TABLE 8 Moderator analysis of literature source.

Groups		Effect size and 95% confidence interval					Test of null (2-Tail)		Heterogeneity			
Group	Number studies	Point estimate	Standard error	Variance	Lower Limit	Upper limit	Z-value	P-value	Q-value	Df (Q)	P-value	I-squared
Fixed effect analysis												
Journal Paper	35	0.808	0.041	0.002	0.728	0.888	19.811	0.000	519.279	34	0.000	93.452
Thesis	16	0.577	0.065	0.004	0.449	0.706	8.818	0.000	29.077	15	0.016	48.412
Total within									548.356	49	0.003	
Total between									8.931	1	0.000	
Overall	51	0.743	0.035	0.001	0.676	0.811	21.478	0.000	557.286	50	0.000	91.028
Mixed effects analysis												
Journal Paper	37	1.052	0.167	0.028	0.724	1.379	6.297	0.000				
Thesis	14	0.593	0.091	0.008	0.414	0.772	6.49	0.000				
Total between									5.806	1	0.016	
Overall	51	0.699	0.08	0.006	0.541	0.856	8.716	0.000				

TABLE 9 Regression results of intervention length and intervention effect.

Main results for model 1, random effect (ML), Z-distribution, Std diff in mean						
Covariate	Coefficient	Standard error	95% Lower	95% Upper	Z-value	2-Sided p-value
Intercept	0.2521	0.2545	−0.2466	0.7508	0.99	0.3218
Lenght	0.0481	0.0194	0.0100	0.0862	2.47	0.0134

Statistics for model 1.

Test of the model: simultaneous test that all coefficients (excluding intercept) are zero.

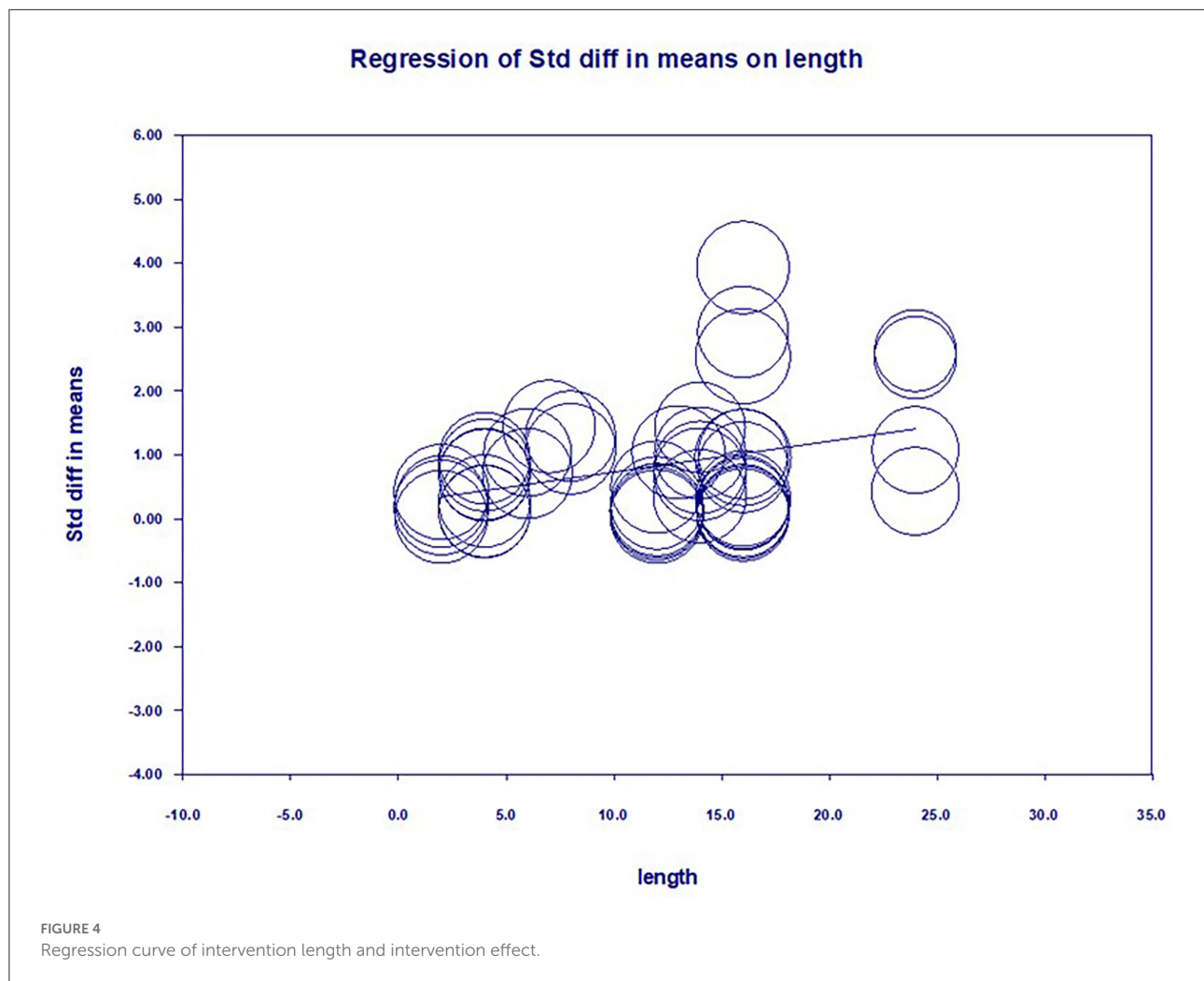
Q = 6.12, df = 1, p = 0.0134.

Goodness of fit: test that unexplained variance is zero.

Tau² = 0.5659, Tau = 0.7375, I² = 90.72%, Q = 452.82, p = 0.0000.

theoretical and empirical perspectives (Boers and Littlemore, 2000; Yasuda, 2010). Teaching activities were based on the idea that they made learning idioms simpler and boosted retention; they learned to infer the meanings of new orientation idioms from their settings and utilize them more effortlessly

(Karatay et al., 2022; Younas et al., 2022a). Most instructional interventions for L2 metaphorical competence follow a similar path. This study tried to analyze the metaphors used by language students who preferred the situational learning style to their current cognitive learning (Pishghadam et al., 2009). Firstly,



learners were introduced to the concept of metaphor and related knowledge of metaphor to increase their metaphorical awareness, and then they were given exercises to improve their metaphorical competence. The main effect was tested to draw a general conclusion on the impact of metaphorical competence interventions. The findings showed that the overall development of the 51 individual studies reached a considerable level ($d = 0.88$), and the 95% confidence interval was $[0.654, 1.123]$, which indicated that the existing metaphorical competence interventions indeed achieved a significant effect. It was consistent with the conventional view that interventions for L2 metaphorical competence are effective. Liu et al. (2020) utilized a modified Stroop paradigm to study how Chinese culture metaphorically translates abstract moral notions into tangible referents. Chen et al. (2018) also revealed that the source domain's relationship to the destination domain affects the development of metaphor. The study employed a variant of the Stroop paradigm to investigate how the Chinese language is used to provide concrete metaphors for abstract moral principles (Liu et al., 2020). In the by Shirazi and Talebinezhad

(2013), the subjects discussed a topic in the pretest. They were asked to have another discussion on the same issue after the instructional intervention. As the subjects already knew the content of the test well, the difficulty of the two trials was different for them.

In contrast to nominal metaphors, which employ figurative language based on nouns, predicate metaphors involve the metaphorical abstraction of concrete verbs, which often include more significant action and motor simulation than nouns. An analysis of metaphorical competence indicated that metaphorical teaching interventions reflected different effects on metaphorical ability with different focuses ($Q_B = 24.070$, $df = 4$, $P = 0.000 < 0.01$). A large-level effect could be seen in improving metaphorical comprehension ($d = 0.762$), production ($d = 1.286$), and general metaphorical competence ($d = 1.425$). The average effect on metaphorical identification was at a medium level ($d = 0.448$). In comparison, the improvement of metaphorical interpretation was the least effective ($d = 0.295$). It may be strongly related to the interference of native language concepts. Zhai et al. (2018) clarified how

cognition and emotion process vertical and spatial metaphors of moral concern. Following advancements in language teaching and learning, metaphor analysis is used indirectly to analyze university students' views on learning and teaching (Pishghadam and Pourali, 2011). These two equally impact the metaphorical relationship between morality and verticality, but emotion is procured quickly. Verbal metaphors are processed *via* simulation and abstraction, and their meaning is linked with the phrase's meaning (Li et al., 2022). Learners often rely on their native language, using the familiar concepts in the native language system to project the corresponding categories in the second language learning (Feng and Zhou, 2021; Noor et al., 2022).

Both sign and spoken languages use metaphors. Sign languages use metaphors differently than spoken languages. In this study, we compared sign and spoken metaphors (Meir and Cohen, 2018). When dealing with metaphorical expressions, they may activate their metaphorical knowledge system, facilitating their comprehension and production (Chen and Lai, 2015). The role of intervention is evident.

Nevertheless, in metaphor interpretation, subjects depend more on their cognitive abilities and should put in more effort to understand unfamiliar concepts. A regression test was conducted to examine the effect of the intervention length on the development of L2 metaphorical competence. A total of 41 studies reported the size of teaching interventions ranging from 2 to 24 weeks, with the average length being around 9 weeks. The meta-regression results showed a positive relationship ($P = 0.0134 < 0.05$). According to the regression equation $Y = 0.0481X + 0.2521$, it could be seen that for each unit increase in intervention length, the corresponding effect of the intervention increased by an average of 0.0481 units. However, the degree of variation was relatively small. The linear regression table for the intervention period showed that the best effect sizes for the L2 metaphorical intervention were found at around 16 weeks, which was in line with the intervention design of most studies.

A view argues that it is almost impossible to understand and use foreign concepts in the same way as native speakers of a foreign language; several studies have proved that the development of metaphorical skills is a gradual process and can be developed through conscious instruction and practice. Not only did the intervention have an effect immediately, but it also positively affected the learner's future language learning (Yang and Peng, 2021; Younas et al., 2022b). The previous study explains that conflict intensity modifies the temporal trajectory of metaphor processing in Mandarin, and animacy violation may assist the integration of the reanalysis stage for metaphorical understanding (Ji et al., 2020). Shen et al. (2015) examine if mental imaging ability impacts sensory-motor participation during action metaphor understanding. The results showed that the students realized

that the root systematic metaphor method was helpful for vocabulary acquisition. After the intervention, their attitude toward the critical role of metaphor learning changed positively, and they showed a strong desire for metaphor learning. Appropriate metaphorical teaching does not add an extra burden to learners but rather positively impacts them. From this perspective, metaphorical instruction should be given enough attention. Compared with traditional language teaching, metaphorical instruction places greater demands on teachers. They have a long way to go in improving learners' L2 metaphorical competence to achieve the higher goal of second language education. In the future, more research on the effectiveness of metaphorical teaching interventions is needed to find better ways to use metaphors to teach Chinese as a second language.

Conclusion

This meta-analysis showed that the current instructional intervention on L2 metaphorical competence had a significant effect. It indicated that explicit teaching methods were effective in raising learners' metaphorical awareness and could improve their L2 metaphorical competence to a certain extent. Subgroup analyses were conducted to further explore the moderating factors' effects, and results indicated that direct teaching interventions effectively improved different aspects of metaphorical competence. A significant effect could be found in the abilities of metaphorical comprehension, production, and general metaphorical competence. The least effect of instructional interventions was demonstrated in metaphorical interpretation skills.

Regarding the two methods of measuring metaphorical production, the metaphor density task could generate a higher impact than the sentence task. The experimental design did not have statistically significant effects on the results. Both these two kinds of experimental designs have shown a relatively large effect. The region had a significant moderating effect on the L2 metaphorical competence intervention. The impact of metaphorical competence intervention in international nations was significantly better than in China. Using a metaphor is one thing, but using an emotionally positive metaphor is something else. Since, in this study, the emo-sensory nature of language was not taken into account, another study can be done to measure it (Akbari and Pishghadam, 2022; Pishghadam et al., 2022). The literature source was an essential moderating factor in the size of the effect of the metaphorical competence intervention. The meta-regression showed that the length of the intervention had a positive effect on the effect of improving metaphorical competence.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by School of Foreign Languages, East China Normal University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

XZ collected data and wrote the article. MY collected the data and guided the psychological perspective and methodology. LG analyzed the data. LG and AO contributed to the discussion section. AO helped with major revisions and proofread and finalized the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

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Discourse markers in TV interviews: A corpus-based comparative study of Chinese and the western media

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This article, which is part of an on-going large-scale study, quantitatively explores and compares the frequency, patterns, and positions of the three most frequently used discourse markers (DMs): *so*, *and*, *but* in TV interviews. The data comprise three corpora consisting of three media programs from China, the US, and the UK. Results show that there is a statistically significant difference in the frequency of the DM *so* and the DM *and*, with each DM having the highest frequency in a specific corpus. Four co-occurring strings ("*and so*," "*and but*," "*so but*," "*but so*") are identified in the three corpora with the DM co-occurrence "*and so*" having the highest frequency in the American program, supporting the claim that this combination is a typical use in American English. The general positional distribution of the three DMs is similar with the highest tendency in the initial position, which can be attributed to the program's interactivity. The findings will enhance our understanding of the three DMs used in media discourse and should be of practical significance to media hosts and guests in achieving better bilateral communication.

KEYWORDS

discourse marker (DM), DM frequency, DM pattern, DM position, TV interviews, corpus-based comparative study

Introduction

Signals, such as discourse markers (DMs), are frequently utilized by speakers in utterances to direct the hearer through the process of interpretation (Foolen, 2011). Lexical expressions that are predominantly produced from conjunctions, adverbials, and prepositional phrases are referred to as DMs within the subclass of pragmatic markers (Fraser, 1996, 2009). Schifffrin (1987) defines DMs as sequentially dependent elements that bracket units of talk. The three monosyllabic DMs—*so*, *and*, *but*—have been chosen as the central focus in this study given their high frequency and keyness, as evidenced by spoken corpora (Rühlemann, 2019) such as British National Corpus 64 (BNC64) and British National Corpus 2014 (BNC2014), in which the three selected DMs rank

first on the frequency list. Moreover, according to Fraser's (2009) taxonomy, the three DMs belong to distinct groups; *so* is an inferential discourse marker (IDM); *and* is an elaborative discourse marker (EDM); *but* is a contrastive discourse marker (CDM).

Against this backdrop, the current study aims to explore media talk, specifically TV interviews. Media talk, as a particular genre, provides insights into the nature of mass communication and serves as a bridge between the media, public opinion, and public knowledge. Recently, media talk has begun to be studied as a phenomenon in its own right (Hutchby, 2006). Studies on media talk have been carried out focusing on the spoken discourse, such as radio talk shows (Hutchby, 2006; Tolson, 2006), television talk shows (Ilie, 2001; Lauerbach and Aijmer, 2007), quiz shows (Culpeper, 2005), and web page talk (Kopf, 2022). Created in the 20th century, TV interview, as a semi-institutionalized socio-cultural practice, has grown more popular and received consistently high ratings over the years (Ilie, 2001). This type of program frequently demonstrates stringent host-initiated queries, typically including face-threatening activities such as direct and unpleasant questions (Furkó and Abuczki, 2014). These features are attributable to the program's discursive and linguistic qualities.

The characteristics of the program reveal the use of a set of pragmatic language realizations, such as the use of discourse markers (DMs) (Furkó and Abuczki, 2014). DMs can process pragmatic inferences by reducing the hearer's processing effort (Aijmer and Simon-Vandenberg, 2004; Furkó and Abuczki, 2014). DMs can function on the politeness level (Östman, 1981), phatic level (Aijmer, 2002), as a face mitigator (Crible, 2018), and for weakening the illocutionary force (Leech, 2014). In addition, the high frequency of DMs appearing in spoken genres makes their use a distinctive feature and a pivotal role in spoken English (Carter and McCarthy, 2006; Farahani and Ghane, 2022). TV interview is a type of oral interaction between the host and the guest that provides a good opportunity to examine DMs in spoken discourse (Oyeleye and Olutayo, 2012). As a result, an increasing number of studies have been dedicated to the investigation of DM in media discourse with DM function being the most explored area, such as the mapping of the DM functional spectrum in media discourse (Furkó, 2015), the examination of DM types and functions in mediatized interviews (Furkó and Abuczki, 2014), talk shows (Kang, 2018, 2019), and interview videos (Tsoy, 2022). Despite the widespread interest in DMs, other aspects such as frequencies, patterns, and positions have received less attention in the literature, particularly in the context of TV interviews. The current study, which is a part of an on-going large-scale comparative project examining DMs in media discourse, attempts to contribute to the existing literature by exploring from a quantitative perspective.

Previous studies

In the past, there has been a great deal of interest in the theoretical study of DMs, with much of that interest focusing on their definition, meaning, and functions. For instance, the majority of the studies tend to advocate for different interpretations of DMs, such as discourse connectives (Blakemore, 2002), discourse particles (Schourup, 1999), and connect a variety of theoretical models, like Redeker's (1990) model and Schiffrin's (1987) five distinct planes. The last few years have witnessed an increase in the number of empirical studies examining the role of DMs in various circumstances, such as mediatized institutional political interviews (Furkó and Abuczki, 2014), scientific papers (Rezanova and Kogut, 2015), Asian presidents' addresses (Banguis-Bantawig, 2019), therapeutic interviews (Cepeda and Poblete, 2006), academic spoken English (Farahani and Ghane, 2022), and laboratory experiments (Holtgraves and Bonnefon, 2017). Another emerging trend in DM research is a growing interest in comparing the use of DMs in terms of functions and frequency between English native speakers (NSs) and non-native speakers (NNSs) from a variety of L1 backgrounds (Müller, 2005; Aijmer, 2011; Asik and Cephe, 2013; Al-khazraji, 2019; Şahin Kızıl, 2021).

Previous research on the three selected DMs has also examined their functions in structural relations, cohesive relations, and interactional relations, particularly their role in achieving discourse coherence. These studies use either natural data, such as sociolinguistic group interviews in which several people are invited to prompt one another to speak (Schiffrin, 1987), a film description experiment in which discourse markers are elicited from native American English speakers' descriptions of films that they have seen to others without having watched (Redeker, 1990), or constructed examples created by the scholar for the purpose of examining DMs (Fraser, 1999, 2009). According to Huang (2019), corpus methodology is frequently used in DM research, which is supported by Schiffrin's (1987) interview data, who also proposes that corpus is useful for analyzing discourse markers. Moreover, with the employment of corpus, Schirm (2012) examines Hungarian DM *hát* in semi-guided informal conversations and job interview dialogues; Furkó and Abuczki (2014) compare six DMs (*I mean, of course, oh, well, I think, you know*) in BBC and CNN political interviews; Huang (2019) and Buysse (2020) compare the use of DM *well* in a spoken learner corpus between NSs and NNSs.

Studies on DM *so* can be classified into two types. One is the investigation of the multifunctionality of the DM *so* in various contexts, and the other is primarily employing the comparative approach. The exploration of the function of the DM *so* has been conducted in learner corpora (Buysse, 2007; Algouzi, 2021), in naturally occurring face-to-face and telephone interactions (Bolden, 2008, 2009; Barske and Golato, 2010), in seminar talks (Rendle-Short, 2003), in video-mediated communication

(Collet et al., 2021), and in English TV programs (Li and Xiang, 2020). On the other hand, comparative studies on the DM *so* have focused exclusively on comparing *so* with other DMs, while others have been particularly interested in comparing how the DM *so* is used by NSs and NNSs. Bolden (2006) compares the interactional role of the DM *so* and *oh* in a corpus of everyday face-to-face and telephone conversations. Nneka (2022) analyzes and compares the function and frequency of DM *so* and DM *well* in a small corpus of three presidential chats, showing that the two DMs can be used to effectively manage the discourse flow, with the DM *so* occurring more frequently than the DM *well*. Lam (2007) compares the frequency, functions, and positions of the DM *so* and the DM *well* between the Hong Kong Corpus of Spoken English (HKCSE) and British National Corpus (BNC) and discovers that the function and frequency of *so* vary according to text genre. Algouzi (2021) analyzes the frequency of the functional distribution of the DM *so* in the LINDSEI-AR sub-corpus. Some comparative studies on the DM *so* in learner corpora are also reported in Müller's (2005), Buysse's (2012, 2014), and Liu's (2017) studies. Studies examine the function of the DM *and* tend to rely on loosely extracted examples from multiple sources, such as examples retrieved from the spoken learner corpora (Heng, 2005), showing that the DM *and* can serve as an addition, a comparison, and a delaying device. Research on the DM *but* focuses on how it functions across a range of genres and literary forms, such as oral narratives (Norrick, 2001), a diachronic corpus of Northern English conversations (Hancil, 2018), and on comparisons between the DM *but* and its counterparts in other languages (Alsager et al., 2020; Khammee, 2022; Shirzadi et al., 2022).

TV interviews have been studied from the im/politeness, language, and ideological perspectives, such as how im/politeness models and strategies are used (Culpeper, 2005; Cook, 2014; Fedyna, 2016; Rabab'Ah et al., 2019; Damayanti and Mubarak, 2021; Sitorus et al., 2022) linguistic features (Ilie, 2001), the representation of ideologies and power relations (Bilal et al., 2012; Sharifi et al., 2017), the host's role in managing discourse (Oyeleye and Olutayo, 2012), structural units (Kamil Ali, 2018), and guests' non-serious responses (Sheikhan and Haugh, 2022), to name but a few. However, as previously stated, few studies have focused specifically on DMs in the context of TV interviews. Notable exceptions are Cook (2014), Fedyna (2016), and Kamil Ali (2018), who indirectly show the DM role and functions. There are a number of additional studies, which, however, focus on the qualitative analysis of the DM functions, seldom do they explore the frequency, patterns, and position from quantitative and comparative perspectives, exceptions can be found in the investigation of Korean DM position (Kim et al., 2021a,b), the examination of co-occurrences of Persian DM *vae*, equivalent to English DM *and* (Kazemian and Amouzadeh, 2022), the DM combination "*and now*" (Shirtz, 2021), the DM sequence "*and so*" and "*so and*" (Koops and Lohmann, 2022),

and the frequency of "*so*" (Algouzi, 2021) and "*just so*" (Kaltenböck and Ten Wolde, 2022).

Discourse marker co-occurrence is pervasive and relatively frequent, but little work has been done on their ability to combine (Fraser, 2015), and it has been somewhat overlooked until recently (Cuenca and Crible, 2019). For example, Fraser (2010, 2013) examines the acceptability of CDM in examples drawn from COCA (Corpus of Contemporary American English) and BNC (British National Corpus), as well as discussing general functions of the DM *but*. In addition, Fraser (2015) extends the scope by investigating the combination of CDM and IDM, showing acceptable cases for such combinations. Although Fraser's studies on DM cluster are insightful, he did not provide satisfactory explanations for such co-occurrences, and he also failed to explore the combination of EDM with the other two types. In view of this, quite a number of underlying motivations for such combinations are explored, such as syntactic and functional criteria (Cuenca and Crible, 2019), multifunctionality for certain DM clusters (Crible and Degand, 2021; Shirtz, 2021; Koops and Lohmann, 2022). However, the co-occurrence of the three types of DMs is still overlooked. As a result, the current study intends to embark on this perspective and investigate the possibility of combining EDM, CDM, and IDM, but the investigation of reasons is beyond the scope of this study and will not be discussed further here. Apart from this, many comparative studies rely extensively on existing corpora (Müller, 2005; Lam, 2007; Liu, 2017; Hancil, 2018; Huang, 2019; Buysse, 2020; Algouzi, 2021; Koops and Lohmann, 2022) and rarely build their own. This study, guided by the two research questions below, will build three corpora based on TV interviews from China, the US, and the UK to conduct a quantitative analysis of the frequency, patterns, and positions of the three DMs. The examination and comparison of the use of the three DMs in the three corpora will shed light on DMs in greater detail.

- 1: What are the frequencies, patterns, and positional distributions of the three DMs in the three corpora?
- 2: What are the similarities and differences (if any) of the three DMs across the three corpora in terms of the above-mentioned aspects?

Materials and methods

Corpora of the study

The study uses three corpora of TV interviews from China, the US, and the UK. One representative program is chosen from each of the three countries. The three programs are highly representative with a combination of global vision and unique local characteristics, in which celebrities from various fields

are interviewed. Each of the three programs begins with a concise introduction with some background material, and then they move on to the conversation with challenging questions and discussions; the total running time of each episode is no more than 30 mins. *The Point with Liu Xin* has been selected as the Chinese TV interview. The data of this interview consist of two episodes, which are together referred to as the Chinese Corpus. *Amanpour and Company* is a global-news interview program on public broadcasting service (PBS). Two episodes are selected as the sample data, termed the US Corpus. *HARDtalk* is a BBC television and radio program that airs on BBC News Channel. Likewise, the data from this interview also comprise two episodes and is coded as the UK Corpus. The data for this study are randomly extracted from an ongoing large-scale project of 120 episodes (almost 3,000 mins). The composition of the three corpora is shown in **Table 1** in terms of text code, number of tokens, and proportion of each episode. The data in the present study consist of 20,517 tokens. Due to the balanced sample size and interviewed guests, the three corpora are quite comparable despite their small scale. Each corpus, for example, comprises two interviewees, one of whom is a politician and the other a researcher, resulting in unbiased topics. Furthermore, it is possible to conduct media discourse analysis with small sample size. Cook's (2014) analysis of politeness and DMs in one episode of a talk show, and Crible and Degand's (2019) investigation of DM functions in 7,545 words, are two typical illustrations. Therefore, the sample size in this study is acceptable and manageable.

Methodology

The corpus method complements quantitative and qualitative approaches and often works well and effectively in conjunction with them (Handford, 2015). The application of the corpus technique in the field of pragmatics is both productive and potent due to the automatic search functions (Bonelli, 2010). The availability of corpora has been of great help to

recent research on DMs, which has benefited considerably from it. A case in point is the investigation of politeness, hedges, boosters, DMs, deixis, and speech acts (Aijmer and Simon-Vandenberg, 2004). The three corpora are built individually and make use of analytical tools, such as LancsBox (Brezina et al., 2021) and iFLYTEK's Hearing App. The first one is for corpus construction, while the second one is for data transcription. LancsBox is a user-friendly, new-generation software package with multiple functions for analyzing corpus and language data. The iFLYTEK's Hearing App enables multi-terminal, multi-language, multi-scenario, and multi-form voice-to-text transcription. As stated in the last section, six episodes are collected for corpus building, two for each corpus, as the first step. The transcription system, in line with Müller's (2005), is implemented thoroughly to ensure consistency. After the transcription work is complete, the text needs to be cleaned up because the manually entered text may have some non-standard symbols and formats (Liang et al., 2019). Due to the computer's inability to detect errors, manual checking is required for verifying each transcription, including spelling, enclitic form, punctuation, anonyms, and proper nouns (Leech, 2005). The following step is to add markup and annotations. Although LancsBox can perform the majority of automatic annotations, some cannot be performed accurately due to the complexity and ambiguity of language (Leech, 2005). For example, syntactic annotation (segmentation) and prosodic annotation (pauses) are conducted. To clearly define the category and identify the corpus, descriptive metadata is presented in a separate file, including the file name, setting, speakers, and length (Reppen, 2010). The names of both the host and the guest are documented so that they may be identified easily. Then the following step is to save the content in a format known as plain text (Wynne, 2005). In the end, each set of texts is uploaded to LancsBox on its own, resulting in a total of three corpora: the Chinese Corpus (6,539 tokens), the US Corpus (5,781 tokens), and the UK Corpus (8,497 tokens). The detailed procedures are outlined in **Figure 1**. As shown in the subsequent section, a quantitative method is used to compare the three DMs across the three corpora in terms of their frequencies, patterns, and positions. The study uses normalization (Brezina, 2018) and the UCREL log-likelihood test (Rayson, 2016) for the quantitative analysis of the corpora.

TABLE 1 The composition of the three corpora.

	Text code	Number of tokens	Proportion (%)
Chinese Corpus	C_1	3437	52.56
	C_2	3102	47.44
	Total	6539	100.00
US Corpus	A_1	2955	51.12
	A_2	2826	48.44
	Total	5781	100.00
UK Corpus	B_1	4238	49.88
	B_2	4259	50.12
	Total	8497	100.00

Procedures

The corpora were built for the examination of the frequency, patterns, and position of the three selected DMs, due to the importance of the spoken corpus in DM research (Aijmer, 2015). First, using the KWIC tool in LancsBox (Brezina et al., 2021), a list of all instances of *so*, *and*, *but* in the form of concordance lines in the three corpora can be drawn. The corresponding generated concordance lines are saved



FIGURE 1

Stages in the development of corpora.

for subsequent analysis. The frequency of detected DMs is calculated through statistical procedures such as the calculation of the absolute frequency of the three DMs, which include both DMs and non-DM uses, and then the DM frequency is calculated in line with Fraser's (2009) DM definition and criteria. During this process, cases are excluded if *so* is a pro-form (I guess *so*), degree adverb (*so* good), or in fixed patterns (*so...that*); if *and* connects elements below the clause level; if *but* in fixed expressions (*all but*).

Second, all the concordance lines registering with the co-occurrence of the three DMs are extracted *via* the filter function. The co-occurrences can also be visualized using the GraphColl tool, through which collocations are identified and displayed in a collocation graph, which visualizes the collocates' strength, frequency, and position. The combination of the three DMs can be generated by excluding the non-DM clusters. Using the filter and GraphColl function, the collocation frequency is identified, enabling the investigation of the co-occurrence of the three DMs.

Third, the positional distribution of the three DMs can be observed and counted using the search results for DM frequency. The operational definition of DM position is in line with Fraser's (2009) and Koops and Lohmann's (2022) criteria: a complete utterance is a linguistic unit expressing a complete proposition. For example, Fraser (2009) shows that a DM can appear in the initial position (*But*, we arrived on time.), medial position (We, *however*, arrived on time.), and final position (We arrived on time, *however*). Using the KWIC function, the positional distribution of the three DMs in particular concordances in the three corpora was extracted, and their frequency was calculated.

Finally, regarding the comparison of the frequency of the three DMs across the three corpora, normalization is used to allocate the frequency of the specific word to a common basis (Liang et al., 2019). Counts correspond to linear distributions, and normalization is an appropriate methodological choice (Baker, 2006). To enable comparison across corpora of different sizes, the normalized frequency is calculated and 1,000 was used as the common basis for normalization (Brezina, 2018).

The frequency ranking can be calculated by comparing the normalized frequency. The log-likelihood test was used to determine whether there is a significant difference in the frequency of the DM *so*, *and*, *but* across the three corpora. The log-likelihood statistic is preferred in frequency comparisons between corpora, as demonstrated in Aijmer's (2011) study. Using the UCREL log-likelihood wizard (Rayson, 2016), the

significance test in frequency between two corpora was performed. Based on the results, the statistical significance can be calculated.

Results

Frequency of *so*, *and*, *but* in the three corpora

There are 60 instances of *so* in the Chinese Corpus. Forty-five instances are used as DMs, while the other 15 instances are non-DM. The DM *and* occurs 162 times in the corpus, of which 82 instances are excluded; hence, *and* as DM occurs 80 times. There are 31 instances of *but* in total, of which four are excluded; thus, *but* as DM occurs 27 times. The frequency of the three DMs in the Chinese Corpus is shown in Table 2.

In the US Corpus, the DM *so* occurs 55 times in total, of which 37 are used as a DM. The DM *and* occurs 253 times in total, with 155 of those instances being used as a DM. There are 29 instances of *but* in the corpus, except for six cases; thus, *but* as DM appears 23 times.

Altogether, Table 2 shows that there are 31 instances of *so* in the UK Corpus, 22 are used as DMs when the remaining nine instances are excluded. There are 182 instances of *and*, of which 87 instances are used as a DM after excluding 95 cases. There are 54 cases of *but*, with 47 cases used as DM when the other seven non-DM uses are excluded.

TABLE 2 The frequency of the DMs *so*, *and*, *but* in the three corpora.

	Total	DM	Non-DM	DM (%)
Chinese Corpus				
<i>so</i>	60	45	15	75.00
<i>and</i>	162	80	82	49.38
<i>but</i>	31	27	4	87.10
US Corpus				
<i>so</i>	55	37	18	67.27
<i>and</i>	253	155	98	61.26
<i>but</i>	29	23	6	79.31
UK Corpus				
<i>so</i>	31	22	9	70.97
<i>and</i>	182	87	95	47.80
<i>but</i>	54	47	7	87.04

Patterns of *so*, *and*, *but* in the three corpora

The patterns discussed in the present study are the co-occurrence/combination of DMs or DM clusters. The frequency of the combination of the three selected DMs in the Chinese Corpus can be seen in [Table 3](#), which demonstrates that there are two co-occurrences (“*so but*,” “*and so*”) that each occurs only once. In other words, the DM cluster “*and so*” is an example of EDM-IDM, while “*so but*” is a DM cluster of IDM-CDM. The visualization of the combination of “*so but*” is shown in [Figure 2](#).

Similarly, the collocation in the US Corpus can be obtained by employing the filter and GraphColl function. By analyzing the concordance lines with the three DMs as the nodes, 12 instances of EDM-IDM co-occurrence (“*and so*”), one example of CDM-IDM co-occurrence of (“*but so*”), and one instance of

the combination of EDM-CDM (“*and but*”) are identified. The number of DM clusters and the collocation of the searched node are shown in [Table 3](#) and are visualized in [Figure 3](#).

The co-occurrence of the DMs *so*, *and*, *but* in the UK Corpus can also be obtained by using a similar method. However, no instances of DM clusters were generated when the DM *so* was searched as the keyword. There is only one co-occurrence of the DM cluster “*and but*” in the extracted concordance line. This collocation can be visualized through the GraphColl function in [Figure 4](#).

Positions of *so*, *and*, *but* in the three corpora

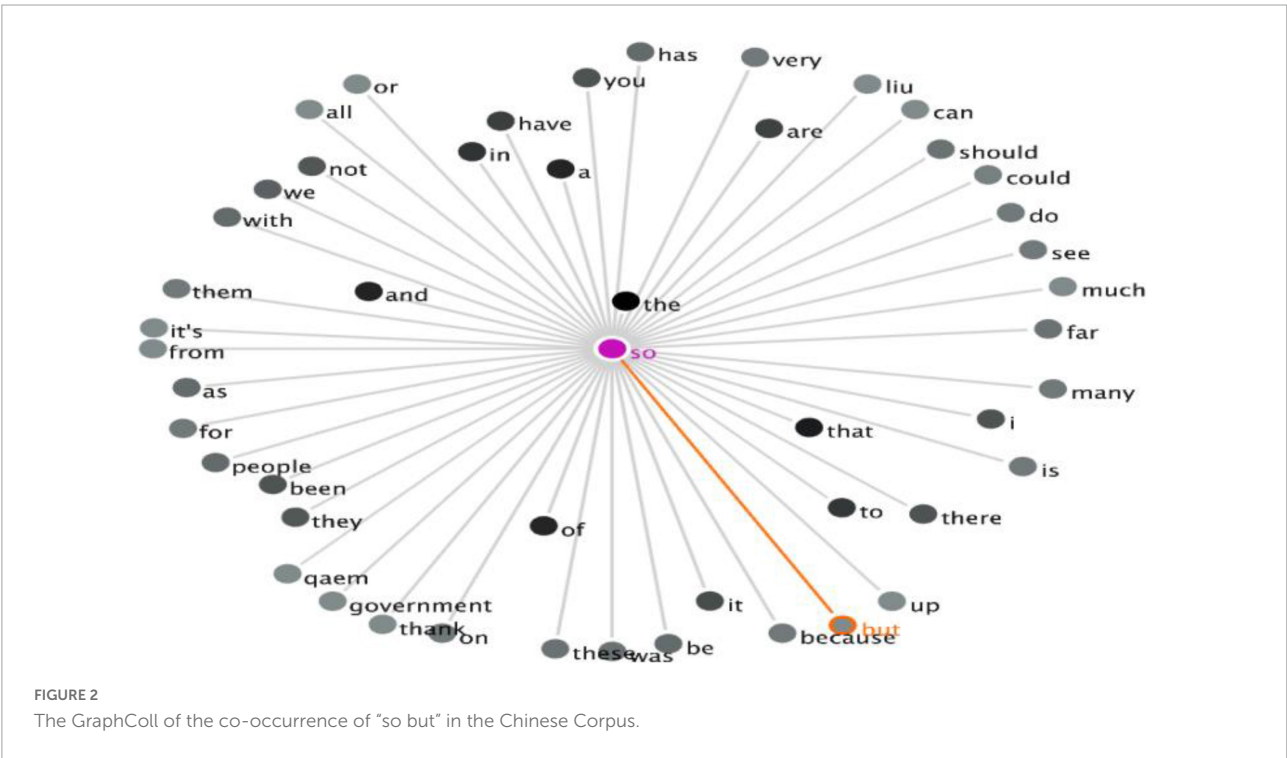
[Table 4](#) displays the frequency of the positional distribution of the DMs *so*, *and*, *but*. We can see that the three DMs have a similar distribution in terms of the overall position. According to [Fraser’s \(2009\)](#) study, the frequency of appearing in the initial position accounts for a larger proportion, followed by the medial position and the final position. The distribution of the three DMs in the UK Corpus serves as a good illustration.

TABLE 3 Co-occurrence of the DMs *so*, *and*, *but* in the three corpora.

	DM clusters	Node	Frequency
Chinese Corpus	so but	so/but	1
	and so	so/and	1
US Corpus	and so	so/and	12
	but so	so/but	1
	and but	but/and	1
UK Corpus	and but	and/but	1

Comparison of *so*, *and*, *but* in the three corpora

A comparison of the frequency of the three DMs in each corpus reveals two common features. One is that the DM *and*



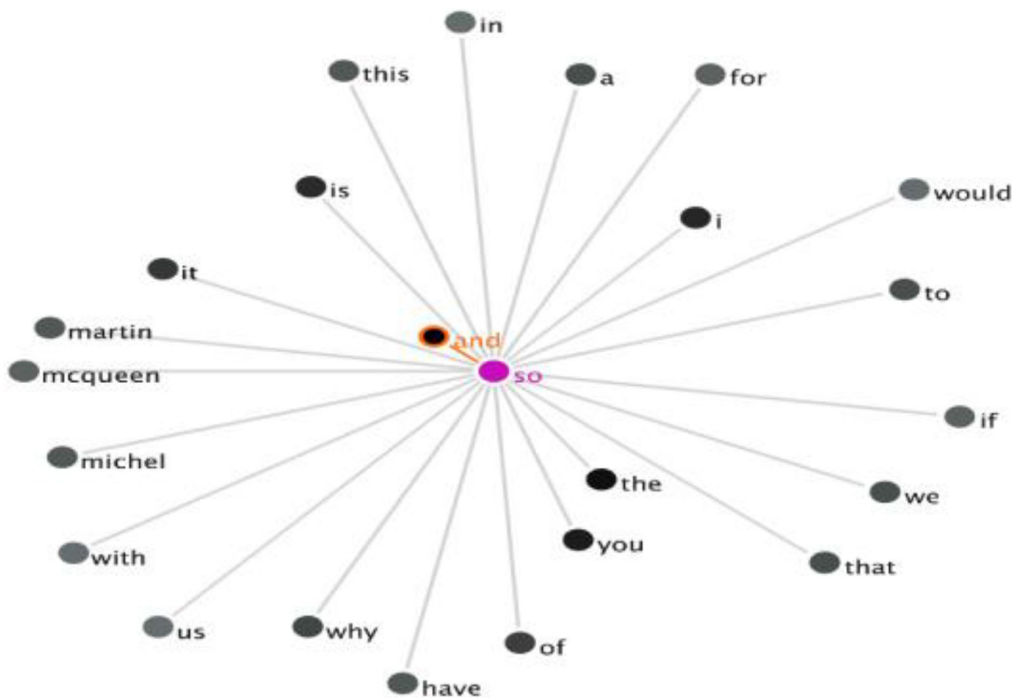


FIGURE 3
The GraphColl of the co-occurrence of “and so” in the US Corpus.

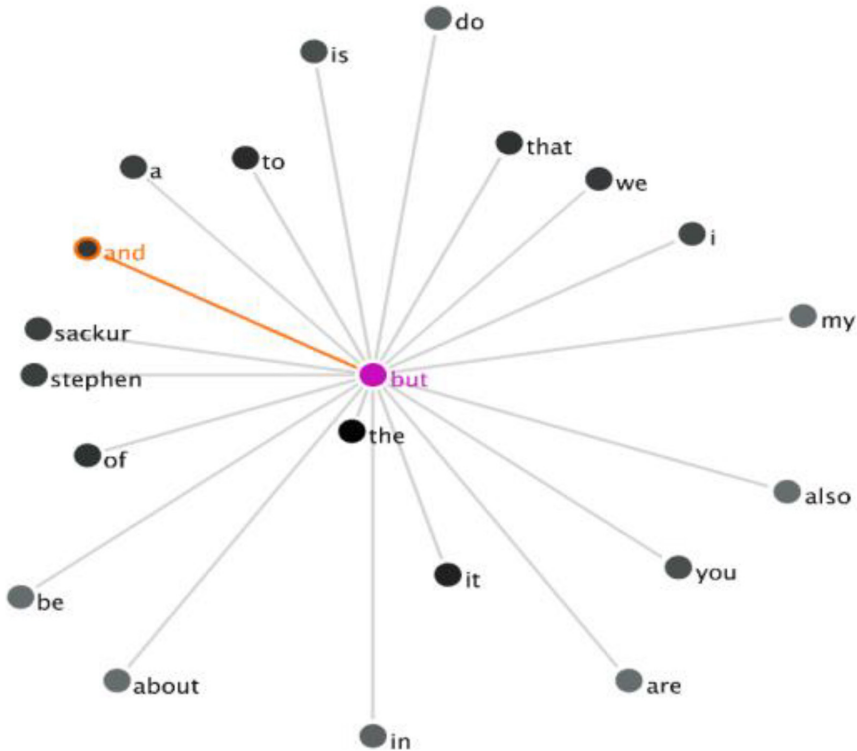


FIGURE 4
The GraphColl of the co-occurrence of “and but” in the UK Corpus.

TABLE 4 The frequency of DM position in the three corpora.

	DM	Initial (%)	Medial (%)	Final (%)
Chinese Corpus	so	36 (80%)	9 (20%)	0
	and	39 (48.75%)	41 (51.25%)	0
	but	14 (51.85%)	13 (48.15%)	0
US Corpus	so	29 (78.38%)	8 (21.62%)	0
	and	39 (25.16%)	116 (74.84%)	0
	but	8 (34.78%)	15 (65.22%)	0
UK Corpus	so	20 (90.91%)	2 (9.09%)	0
	and	46 (52.87%)	37 (42.53%)	4 (4.60%)
	but	26 (55.32%)	21 (44.68%)	0

occurs more frequently than the other two DMs (*so*, *but*). The other one is that the frequency ranking of the three DMs is the same in the Chinese Corpus and the US Corpus. For instance, *and* appears 80 times, followed by *so* (45 times) and *but* (27 times) in the Chinese Corpus (Table 2). Similarly, there are 155 instances of the DM *and*, followed by the DM *so* with 37 instances and the DM *but* with 23 instances in the US Corpus (Table 2). A minor distinction in the UK Corpus is the ranking order of the DM *but* and the DM *so*: *but* has a higher frequency (47 times) than *so* (22 times; Table 2). The frequency ranking can be calculated by comparing the normalized frequency (Table 5).

Table 5 above indicates that the DM *so* occurs the most frequently in the Chinese Corpus, followed by the US Corpus and the UK Corpus; the DM *and* has the highest frequency in the US Corpus, followed by the Chinese Corpus and the UK Corpus; and the DM *but* ranks the first in the UK Corpus, followed by the Chinese Corpus and the US Corpus.

The log-likelihood formula shows that the LL (log-likelihood) must be above 3.84 for the difference to be significant at the $p < 0.05$ level. The greater the LL score, the more statistically significant the result. Table 6 shows that there is a statistically significant difference between the Chinese Corpus and the UK Corpus (LL = 15.23) and between the US Corpus and the UK Corpus 3 (LL = 11.81) regarding the frequency of the DM *so*. Regarding the frequency of the DM *and*, there is a statistically significant difference between the Chinese Corpus and the US Corpus (LL = 34.49) and between the US Corpus and the UK Corpus (LL = 54.48). Table 6 shows the results of the significance test of the DM *and* between corpora. However, no statistically significant difference was observed in the frequency of the DM *but* across the three corpora.

The above pairwise comparison displays that there is a statistically significant difference between corpora regarding the use of DM *so*, DM *and*. However, no statistically significant difference is found between corpora in terms of the frequency of DM *but*.

As shown in Table 3, the most frequently occurring combination among the emerging patterns is “*and so*,” which occurs once in the Chinese Corpus and 12 times in the US

Corpus. However, it never appears in the UK Corpus. As for the other identified sequencing patterns, “*so but*” only appears once in the Chinese Corpus, “*but so*” only occurs once in the US Corpus, “*and but*” occurs only once in both the US Corpus and the UK Corpus. The comparison of the frequency of the combinations of the three DMs can be visualized in Figure 5.

Figure 6 shows that the positional distribution of the DM *so* is quite similar across the three corpora since it has a higher frequency of appearing in the initial position followed by the medial position in all three corpora. As for the DM *and*, the positional distribution in the Chinese Corpus and the US Corpus is quite similar because the DM *and* has a higher

TABLE 5 The normalized frequency of the three DMs in the three corpora.

Corpus	Absolute frequency of DM <i>so</i>	Number of tokens in corpus	Normalized frequency
Chinese Corpus	45	6,539	6.88
US Corpus	37	5,781	6.40
UK Corpus	22	8,497	2.59

Corpus	Absolute frequency of DM <i>and</i>	Number of tokens in corpus	Normalized frequency
Chinese Corpus	80	6,539	12.23
US Corpus	155	5,781	26.81
UK Corpus	87	8,497	10.24

Corpus	Absolute frequency of DM <i>but</i>	Number of tokens in the corpus	Normalized frequency
Chinese Corpus	27	6,539	4.13
US Corpus	23	5,781	3.98
UK Corpus	47	8,497	5.53

TABLE 6 The frequency comparison of the DM *so*, *and* between the corpora.

Corpus	Frequency of the DM <i>so</i>	LL	Significance
Chinese Corpus	45	15.23	$p < 0.05$
UK Corpus	22		
US Corpus	37	11.81	$p < 0.05$
UK Corpus	22		

Corpus	Frequency of the DM <i>and</i>	LL	Significance
Chinese Corpus	80	34.49	$p < 0.05$
US Corpus	155		
US Corpus	155	54.48	$p < 0.05$
UK Corpus	87		

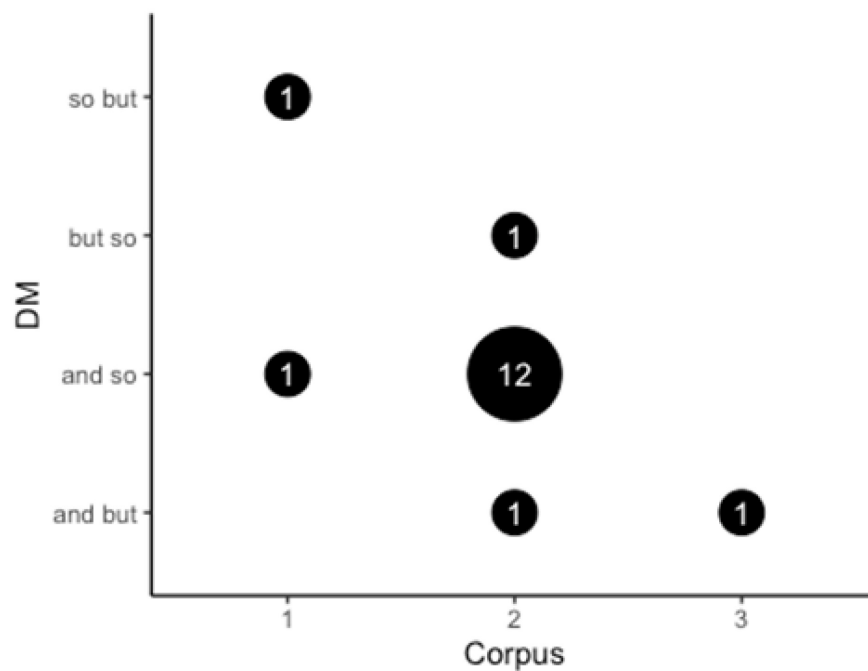


FIGURE 5

The frequency of the co-occurrences of the three DMs in the three corpora. (1-the Chinese Corpus, 2-the US Corpus, 3-the UK Corpus).

frequency in the medial position followed by the initial position, notably in the US Corpus. However, the number of occurrences of the initial position of the DM *and* in the UK Corpus is, however, higher than that in the medial position. Another intriguing feature in the UK Corpus is that only the DM *and* appears four times in the final position. In the US Corpus, the DM *but* has a higher frequency in the medial position followed by the initial position, as seen in Figure 6. This is in contrast to the positional distribution in the other two corpora, where the DM *but* occurs more in the initial position followed by the medial position.

Discussion

The present study compares the frequency of the three selected DMs, their co-occurrences, and their positions in the three corpora by adopting a corpus-based approach and a quantitative method. The results, to some extent, offer some evidence for the comparability of the three corpora.

First, three DMs are the top three in each of the three corpora in terms of frequency, confirming previous research that they are frequently used in the spoken genre (Carter and McCarthy, 2006). The resemblance can be found between the present study and previous studies (Redeker, 1990; Asik and Cephe, 2013; Crible, 2018) and BNC64 and BNC2014 is that the DM *and* ranks first. However, there are slight differences in the ranking order. For instance, the ranking order of the Chinese

Corpus (Table 2) and the US Corpus (Table 2) corresponds to Asik and Cephe's and Redeker's studies, as well as spoken BNC64—that is, the DM *and* ranks first, followed by the DM *so* and the DM *but*. Whereas the ranking order of the UK Corpus (Table 2) is consistent with Crible's (2018) study and BNC64—which shows that the DM *and* ranks first, followed by the DM *but* and the DM *so*. When the frequency of the three DMs is compared across the three corpora, the DM *so*

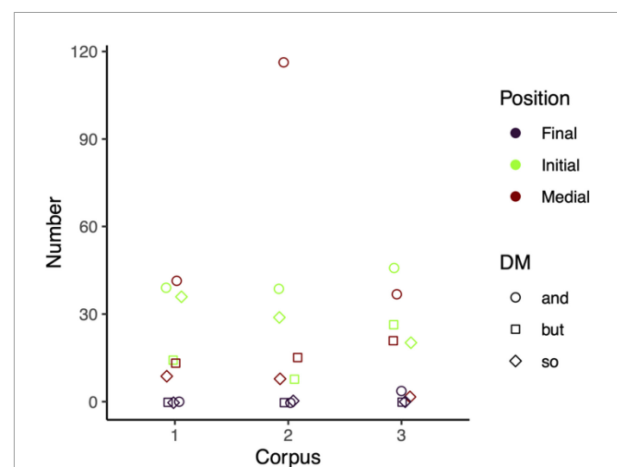


FIGURE 6

The positional distribution of the three DMs in the three corpora. (1-the Chinese Corpus, 2-the US Corpus, 3-the UK Corpus).

appears the most frequently in the Chinese Corpus (Table 5), the DM *and* occurs the most frequently in the US Corpus (Table 5), and the DM *but* has the highest frequency in the UK Corpus (Table 5). This indicates that inferential expressions associated with the DM *so* are most frequently used in the Chinese interview, elaborative expressions embedded with the DM *and* occur relatively more frequently in the American interview, and contrastive expressions with the DM *but* are used the most in the British interview. In line with previous studies (Lam, 2007; Liu, 2017), some DMs' observed differences are statistically significant. For example, there is a statistically significant difference between the Chinese Corpus and the UK Corpus (Table 6) and between the US Corpus and the UK Corpus (Table 6) regarding the frequency of the DM *so*. The difference in the rate of the DM *and* between the Chinese Corpus and the US Corpus (Table 6) and between the US Corpus and the UK Corpus (Table 6) also achieves a high statistical significance. However, no statistically significant difference is observed in the frequency of DM *but*. Gender is one of the variables accounting for the frequency of DM use. For example, it is typically women's language (Östman, 1981). However, the current study cannot draw such firm conclusions because the presented DM frequency is used by both men and women. The Chinese Corpus, for example, has one female host and two male guests; the US Corpus includes one female host, one male guest, and one female guest; and the UK Corpus consists of one male host and two male guests. As a result, further research is required to interpret this phenomenon.

Previous studies have reported that the DM cluster is a frequent phenomenon that is not random and has some discourse-functional motivation (Crible, 2018). Crible and Degand (2021) disentangle some linguistic features that constrain DM clusters and propose a reasonable rule that governs this integration. The three DMs in the present study can be combined to form six co-occurring strings: "*and so*," "*and but*," "*so but*," "*so and*," "*but and*," "*but so*." The results (Figure 5) show that four out of the six patterns occur among the three corpora. The combination "*and so*" occurs the most frequently in the US Corpus. Crible's (2018) study on the frequency of English DM clusters echoes the same finding, revealing the possibility of the combination of EDM and IDM. In contrast to the current study, Lam's (2007) research does not appear to demonstrate a clear preference for this combination in terms of DM collocations, which is contradictory. Another intriguing aspect is that Fraser's (2015) study does not find evidence of the possibility of IDM and CDM working together (referred to here as "*so but*"), which is demonstrated in the present study. The results of the patterns reveal a solid tendency for the combination of different types of DMs. Koops and Lohmann's (2022) general order principle can be used to explain this integration—different DM

patterns achieve different effects. In other words, the earlier DM constrains the interpretation of the later one. The DM co-occurrence "*and so*" indicates that the upcoming utterance is a result or conclusion, while "*so and*" marks a topic shift. The one that should be placed first or second is determined by DM functions. The DM sequencing "*and so*" indicates that it is frequently used to start a new topic or turn, particularly in the US corpus. In addition, "*and so*" is regular use in American English (Koops and Lohmann, 2022), which explains the higher frequency of its appearance in American interview. These may be preliminary explanations for speakers' preference in choosing the DM pattern. Overall, given the frequency of DM clusters in the present study, it does not show a high consistency with previous studies that DM co-occurrence is a frequent phenomenon, or at least it is not as frequent as claimed in previous studies, which may be attributed to the small data set.

Finally, the general positional distribution of the three DMs across the three corpora is quite similar—with the initial position having the highest proportion, followed by the medial position and the final position (Table 4). This is in line with Crible's (2018) finding that utterance initial is the most typical use of DM followed by utterance medial and final. Moreover, a higher rate of their occurrence in discourse initial position also echoes previous studies (Fraser, 2009; Alsager et al., 2020). Despite the general consistency in the distribution pattern, there is a certain degree of disparity in the proportions of the DM *and* in the Chinese Corpus (48.75 vs. 51.25%) and the US Corpus (25.16 vs. 74.84%) and the DM *but* in the US Corpus (34.78 vs. 65.25%), in which the medial proportion is greater than that of the initial position. As shown in Figure 6, the positional distribution of the DM *so* is less flexible than that of the other two DMs, whose initial position is always the first. This finding, however, contradicts Lam's (2007) study, which shows that the DM *so* in the utterance medial position constitutes a greater proportion. Moreover, they rarely occur in the utterance final position. Only the DM *and* appears four times (4.6%) in the final position in the UK Corpus (Figure 6). Thus, we may draw a preliminary conclusion that the DM positional distribution does not exhibit a high degree of positional freedom as reported in previous studies (Tanghe, 2016; Bordería and Fischer, 2021). The DM positional distribution can be attributed to different variables. Register plays a crucial role, specifically in the degree of interactivity: the more interactive the register, the more frequently it occurs in the initial position (Crible, 2018). Three interviews are all interactive, interpreting their higher proportion of the occurrence in the initial position. In addition, their rare appearance in the final position is also due to the limited number of tag questions in the three corpora (Crible, 2018). More thorough larger-scale research is required to better understand this phenomenon.

Conclusion

The present study examined and compared the frequency, patterns, and positional distribution of the three DMs in the three corpora. The study concluded that there are statistically significant differences and marginal variations within and between corpora in different aspects. The study differed most significantly from previous ones in terms of the data type and objectives. While previous studies concentrated more on qualitative analysis of DM functions in academic settings or only one of the above-mentioned aspects, this study attempted to investigate all three aspects in one single goal in media discourse from a quantitative perspective. The study revealed that DM *so* occurs most frequently in the Chinese Corpus; the US Corpus has the highest frequency of the DM *and*; and the UK Corpus has the highest frequency of DM *but*, which provides a basis for a more productive analysis of the types of DMs used in media talk. Do all IDMs, for example, appear frequently in Chinese media discourse? Or are there more EDMs in American interviews? Or are CDMs more likely to occur in British media discourse? The article found that the DM cluster “*and so*” is most frequently used in American interviews, confirming that this combination is typical use in American English. The higher frequency of DMs appearing in the initial position also confirmed that the more interactive the genre, the more likely DMs appear in the initial position.

Hence, the study contributes to the existing literature by filling the gap and adding more insights into the field of discourse markers. Apart from academe, the study also sheds light on the role of DMs in interviews, which may inspire hosts and guests to consider how to achieve the best bilateral communication by using certain DMs. Despite the foregoing insights, this study falls short of expectations and does have some limitations. The findings in the present study cannot be generalized due to the small data set. Although this study provides some preliminary explanations for the differences, it fails to account for more specific variables due to the small sample size and the scope of this study. This opens new avenues for the future research in encompassing both the large corpus

and another genre in order to address this problem. It is intended that the results presented in this study would be of benefit not only to individuals who conduct interviews for the media and those who are interviewed for the media, but also to those who aspire to be successful doing DM research in media settings.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

Both authors listed have made a substantial, direct, and intellectual contribution to the work, and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Pragmatic functions of evidentiality in diplomatic discourse: Toward a new analytical framework

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This paper examines the pragmatic functions of evidentiality categories in diplomatic discourse by illustrating a new classification of English evidentiality. It adopts a data-based approach by analyzing a corpus of thirty English political speeches from three US presidents (including Bush, Obama, and Trump). The results show that: (i) Evidentiality can be classified into three categories: personal sources; shared sources and other sources. (ii) Besides the function of (de)legitimation, evidentiality can also be used to normalize the speaker's ideology. (iii) Shared sources of evidentials reflect the speaker's ideological bias, because they encode the speaker's presupposition of authority, facts, or shared knowledge. (iv) Personal sources of evidentials mean that the speaker is more willing to take verbal responsibility. (v) Other sources of evidentials reflect the speaker's lower responsibility for the information he/she offered. (vi) The use of the three evidential sources reflects the speakers' different responsibilities for their propositions and reveals their subjective or intersubjective stance.

KEYWORDS

evidentiality, diplomatic discourse, analytical framework, pragmatic functions, normalization of ideology, legitimation

Introduction

Evidentiality has been studied widely since [Boas \(1938\)](#) first discussed it in linguistic studies. Traditionally, evidentiality can be referred to as “sources of information” (e.g., [Jakobson, 1957](#); [Willett, 1988](#)) or “source of evidence” ([DeLancey, 2001](#), p. 369) or “the linguistic coding of source and reliability of information” ([Mushin, 2000](#), p. 927) or “evaluation of evidence” ([Portner, 2009](#), p. 263). In addition, evidentiality can also indicate the speaker's cognitive justification for his or her propositions ([Boye and Harder, 2009](#)). Indeed, the linguistic domain of evidentiality not only allows speakers to mark their source of knowledge (information) but also shows how they assess this knowledge in terms of reliability and reveals the speakers' communicative purposes with regard to its pragmatic functions.

The previous studies of evidentiality, however, have focused on “its formal or semantic properties in grammaticalized systems” ([Mushin, 2000](#), p. 927), while few researchers focus

their attention on the pragmatic functions of evidentiality in specific discourse contexts (e.g., Mushin, 2000; Hart, 2011; Marín-Arrese, 2011b; Reber, 2014; see “background: evidentiality in discourse studies” for details).

Evidential types¹ have also been a subject of comprehensive investigation from different perspectives (e.g., Anderson, 1986; Chafe, 1986; Willett, 1988; Nuyts, 1992; De Haan, 1999; DeLancey, 2001; Plungian, 2001; Aikhenvald, 2004; Bednarek, 2006; Squartini, 2008; Whitt, 2010; Hart, 2011; Marín-Arrese, 2011a,b; Mushin, 2013). For example, Willett (1988, p. 57) divided evidentials into “direct” and “indirect” evidence. Based on Willett’s (1988) evidential types, Plungian (2001, p. 352) classified indirect evidence into two types: “reflected” and “mediated” evidence. Chafe (1986, p. 263), however, proposed a broader category of evidentials, including “source of knowledge,” “mode of knowing,” and “knowledge matched against verbal resources or expectations.” It can be seen from the previous studies that the classification of evidentiality is often concerned with “source of evidence (knowledge)” (e.g., Frawley, 1992, p. 413), or “mode of knowing” (e.g., Willett, 1988), or both (Chafe, 1986, p. 263), but their interaction has seldom been mentioned in the previous studies except for Botne (1997, p.523-524); and Squartini (2008, p. 918). Therefore, this paper will argue that the source of evidence and the mode of knowing are inseparable and should be integrated in the study of evidentiality to gain a better understanding of the domain (Squartini, 2008, p. 917).

CDA (Critical Discourse Analysis) aims to reveal “traces of ideological bias” in various discourse contexts (Widdowson, 2007, p. 71). However, ideological bias can often be disguised as facts or common knowledge by the speakers with the help of various linguistic strategies including evidentiality. However, the role of evidentiality relating to persuasive strategies has largely been ignored in previous studies, and therefore deserves attention in this paper.

This paper argues that different types of evidentials can be adopted to examine the underlying ideology of the speaker during the process of communication by addressing their pragmatic functions. It aims to demonstrate how evidentiality can be treated as strategic tools in English diplomatic discourse. In particular, two research questions will be discussed in this paper: How can English evidentiality be classified according to “information sources” and “modes of knowing”? What functions do different types of evidentials have in the context of diplomatic discourse?

The data of this paper include three cases of English diplomatic speeches² from three US presidents: George W. Bush, Barack Obama, and Donald Trump. Each case consists of a corpus of 10

speeches (around 32,500 words) from the same politician, with topics focusing on diplomatic relations and foreign policies. The reason why the author chooses the diplomatic speeches of the three US presidents is that these speakers have been recognized as among the most influential or controversial political speakers. Therefore, it would be interesting to investigate how these political speakers persuade or manipulate their audiences through evidentiality.

This paper takes a data-based approach in retrieving evidential markers manually from the data by three independent annotators.³ These markers are then annotated with innovative codes of nine types of evidentials (see “An Analytical Framework of English Evidentiality” for details). After that, the annotated data are used to do both qualitative and quantitative analysis.

In what follows, we will first provide a brief review of previous studies about evidentiality in discourse studies, particularly focusing on its classifications and functions. Then we will introduce our framework of studying English evidentiality, with most examples from the annotated data on diplomatic discourse. We will examine how evidentials function in maintaining or shaping foreign relations. Finally, we will draw the conclusions and discuss the possible application of this framework for relevant studies.

Background: Evidentiality in discourse studies

Evidentiality is often categorized by its reliability or subjectivity (e.g., Hart, 2011; Marín-Arrese, 2011b), and treated as a tool of rhetorical persuasion (Antaki and L, 2001, p. 468) or a device of manipulation (e.g., Mushin, 2000; Berlin and Prieto-Mendoza, 2014) in discourse studies. It is even more prominent in strategic discourse including diplomatic discourse, because hearers can easily identify the reliability or validity of evidence, even though they do not trust the speakers at all (Sperber, 2006, p. 184).

For example, Bednarek (2006) observes the role of evidentiality as “epistemological positioning” and proposes four types of evidence in terms of knowledge in media discourse: PROOF, PERCEPTION, PUBLIC KNOWLEDGE, and OBVIOUSNESS. However, her classification has semantic overlapping, especially in “PROOF and OBVIOUSNESS,” which both involve in the forms of evidence concerning with experience (Marín-Arrese, 2011b, p. 792).

1 Evidential types refer to the subcategories of evidentiality, which have been studied from various perspectives, such as ‘type of evidence’ (cf. Anderson, 1986, p. 274), or ‘source of evidence (knowledge)’ (cf. Frawley, 1992, p. 413).

2 The detailed information of their speeches is shown in the Appendix.

3 The annotators are the author and her two fellow researchers. Each evidential will be annotated by abbreviations in two aspects: ‘speaker’s commitment to information sources’ and ‘modes of knowing’. For example, “I saw” will be annotated as (P.P.), which means **Personal Perceptual Evidentials**. The process of annotation is very complicated. Some controversial evidential markers need group discussion and careful reconsideration.

Based on Bednarek's work (2006), Hart (2011, p. 760) associates six categories of evidence, by adding two categories, including EXPERT KNOWLEDGE and EPISTEMIC COMMITMENT, according to the reliability of evidence and the degree of subjectivity. Furthermore, Hart (2010, 2011) treats evidentiality as a legitimizing strategy of "objectification" in immigration discourse. Objectification refers to a legitimizing device by using evidence (evidentials) to manifest its source and reliability to display its objective stance (Hart, 2010, p. 173).

Marín-Arrese (2011b) also investigates the legitimizing strategies from the perspective of cognitive linguistics by analyzing evidentiality and epistemic modality in diplomatic discourse. She proposes that the speakers have an impact on the addressees' "exercise of epistemic vigilance" by using epistemic positioning strategies, therefore the addressees will accept the speakers' propositions as true (Marín-Arrese, 2011b, p. 791). Her classification of evidentials (including personal and mediated evidentiality) is concerned with evaluating their validity and (inter)subjectivity (Marín-Arrese, 2011b, p. 793).

Hart (2011) and Marín-Arrese's (2011b) work provides a sufficient starting point for studying the reliability/validity and (inter)subjectivity of evidence. This paper holds that epistemic modality and evidentiality fall into two different semantic or grammatical domains (see De Haan, 1999; Aikhenvald, 2004; Hart, 2010), because evidentiality focuses on the source and the validity of the evidence, while epistemic modality involves with the speakers' justification or evaluation toward the evidence.

In addition to the functions of legitimation (persuasion) and stance-taking, evidentiality has also been studied from the perspective of manipulation. Mushin (2000, p. 927), for example, discusses the deictic function of evidentiality in discourse and demonstrates how the speakers manipulate different evidentials to manifest information or knowledge from various perspectives. In particular, Berlin and Prieto-Mendoza (2014) observe that evidentials can be treated as a strategic device of manipulation in political discourse.

Though the above previous studies bring many valuable insights for this study, they failed to provide a clear and workable analytical framework of evidentiality. Therefore, this study will work out a new classification of English evidentiality so as to analyze evidentiality from a new perspective.

An analytical framework of English evidentiality

As mentioned in the introduction, the previous studies often use "source of knowledge" or "mode of knowing" (or "forms of access to the information") in the classification of evidentiality. These two notions may cause confusion and misunderstanding to this domain. It is therefore necessary to clarify their relations before proposing a new classification of evidentiality. This paper argues that these two notions are inseparable in classifying

evidentials as they are two aspects of the same body. For example, the evidential "I see" not only indicates its mode of knowing as "direct perception" but also marks the speaker's high commitment to the source of evidence (treated as "personal sources" here). Similarly, the evidential "it is said that" indicates both its mode of knowing as "hearsay" and its source as "the speaker's low commitment" (treated as "other sources" here). However, the evidential "we know" indicates both its mode of knowing as "indirect evidence assumed from common knowledge" and its source as "shared by the speaker and his/her addressees" (treated as "shared sources" here).

Based on "speaker's commitment⁴ to information sources" and modes of knowing (Squartini, 2008, p. 918), we put forward a new classification of English evidentiality integrating these two notions. The evidentials indicating sources of information can be divided into three types as "personal sources," "shared sources," or "other sources," depending on speaker's commitment to the information source. The distinction of "personal sources" and "other sources" lies in whether the speakers take high or low responsibility for information sources, while shared source refers to the information or knowledge assumed to be shared by both the speakers and their addressees.

The trichotomy of sources of evidence is inspired by notions of subjectivity, objectivity and intersubjectivity.⁵ The evidentials from "personal sources" indicate the explicitness of the conceptualizer, which means that the speaker is willing to make full commitment to the source of information. However, evidence of "personal sources" is often only known to the speaker himself or herself, which is hard to get attested for the addressees, so it is more subjective. The evidentials from "other sources⁶," on the other hand, indicate the implicitness of the conceptualizer, which means the speaker intends to "stand back" and let the evidence "speak for itself" (Hart, 2010, p. 173), they are therefore more objective (Marín-Arrese, 2011a, p. 214). As to evidentials from "other sources," the speaker stands back and makes low commitment to its reliability, just as Aikhenvald (2004, p. 136) claims that "when you might want to distance yourself, when you do not want to take full responsibility for your words," you may use a quotative or reported evidential. The evidentials from "shared source" mark the information potentially shared by others (intersubjectivity; Nuyts, 2001) and generally assumed as common knowledge or facts by the speaker.

Based on the theories of "direct and indirect evidence" (Willett, 1988, p. 57; Hart, 2011, p. 758), "personal evidentiality"

4 Speaker's commitment draws on Marín-Arrese's idea of "personal responsibility for the communicated proposition" (2011a, p.214).

5 This idea is inspired from the notions of personal vs. shared responsibility vs. objectivity (Marín-Arrese, 2011a, 2013, p. 424).

6 "Other sources" refer to the information sources that the speaker stands back and takes no responsibility for their reliability.

(Marín-Arrese, 2011b, p. 793), and the notions of INFERENCE, ASSUMPTION, and QUOTATIVE (Aikhenvald, 2004, p. 367), and according to the theory of “mode of knowing,” each source can be classified into three categories: direct evidentials, inferential evidentials, and assumed evidentials. Therefore, based on the interplay of “speaker’s commitment to information sources” and “modes of knowing,” the evidentials can be further classified into nine categories:

1. **Personal perceptual evidentials (P.P.)**, indicating evidence from sources based on personal sensory perception (Willett, 1988, p. 57) (e.g., I’ve seen; I saw).
2. **Personal inferential evidentials (P.I.)**, indicating evidence from sources based on personal mental (metaphorical) perception (Greenbaum, 1969, p. 205) or INFERENCE based on visible or tangible evidence (Aikhenvald, 2004, p. 367) (e.g., I can see; it seems to me; it is clear to me) or logical reasoning (Willett, 1988, p. 57; Hart, 2011, p. 758) (e.g., I realize; I’m convinced).
3. **Personal assumed evidentials (P.A.)**, indicating evidence from sources based on assumed personal knowledge or belief (Marín-Arrese, 2011b, p. 793) (e.g., I know; I believe; I think).
4. **Shared perceptual evidentials (S.P.)**, indicating evidence from sources based on shared sensory perception (e.g., you have heard; we have seen).
5. **Shared inferential evidentials (S.I.)**, indicating evidence inferred from shared mental (metaphorical) perception (Greenbaum, 1969, p. 205) or “INFERENCE based on visible or tangible evidence” (Aikhenvald, 2004, p. 367) (e.g., we are seeing; we saw; clearly; it was clear that; it seems that) or logical reasoning (Willett, 1988, p. 57; Hart, 2011, p. 758) (e.g., we realize; we are convinced).
6. **Shared assumed evidentials (S.A.)**, indicating evidence from sources based on general knowledge (Aikhenvald, 2004, p. 367) (e.g., we know; you know; everyone knows).
7. **Quotative evidentials (Q.E.)**, indicating evidence that clearly refers to the source cited (Aikhenvald, 2004, p. 367) (e.g., says; saying; said).
8. **Other inferential evidentials (O.I.)**, indicating evidence inferred from reports or results (Willett, 1988, p. 57; Hart, 2011, p. 758; Marín-Arrese, 2015, p. 213) (e.g., the report indicates; the figure reveals).
9. **Hearsay evidentials (H.E.)**, indicating “reported information with no reference to whom it was” (Aikhenvald, 2004, p. 367) (e.g., some people think; it is said that).

The analytical framework of evidentiality can be illustrated briefly in Figure 1, see the following section for the annotated examples and their pragmatic functions in the context of diplomatic discourse.

“Strength of evidence” is used to assess the reliability or persuasiveness of evidentials. It is concerned with “the extent of validity” of evidentials, which represents the differences between various sources of evidence or modes of knowing (Hart, 2011).

The strength of evidence can be expressed by distance, measured as the relative distance from the center of certainty or truth. In other words, weak evidence means far from certainty or truth. For example, for perceptual categories, the marker “I’ve seen” is stronger in evidence strength than “I’ve heard” because the former is closer to certainty or truth. Again, the latter is more reliable than “I feel.” Evidence from reports is more reliable than anecdotal evidence from other sources. In other words, the weaker elements are less certain and therefore farther from the center of truth. However, it is dangerous to associate strength of evidence to its source type (Fitneva, 2001, p. 404) or mode of knowing, though in general the reliability of the first category in each source is stronger than that of the second one. We need to take its “context-specific grammatical formatting and semantics” into consideration (Reber, 2014, p. 357).

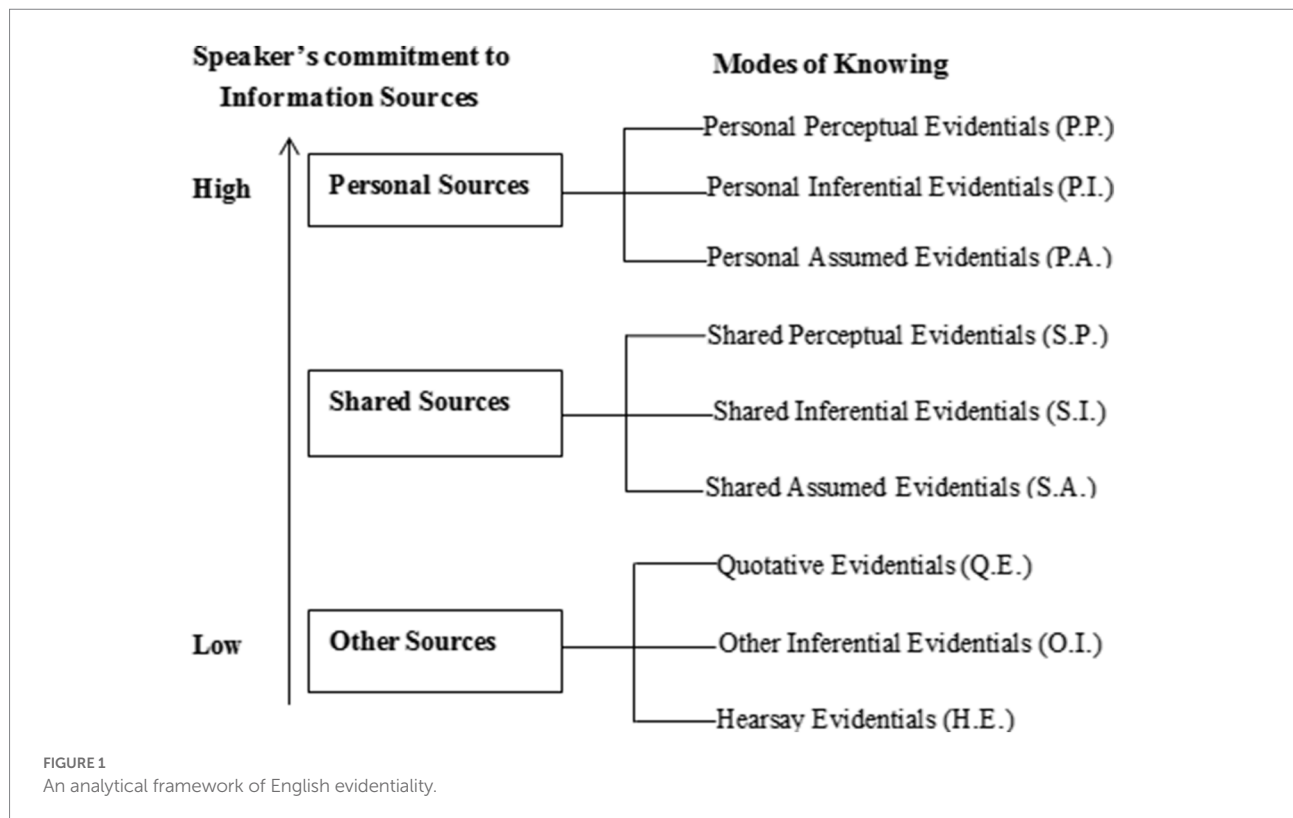
Pragmatic functions of evidentiality in diplomatic discourse

As mentioned above, evidentiality has been studied as legitimization strategies (Hart, 2011; Marín-Arrese, 2011b) or as a tool of manipulation in discourse studies (Mushin, 2000; Berlin and Prieto-Mendoza, 2014). However, it remains unclear about which type of evidentials can be used to persuade or manipulate the addressees and the ideological bias hidden in those evidentials in diplomatic discourse.

Hart (2014, p. 3) proposed that language influences social behaviors and relationships in two key ways: one is the way of normalizing ideology; another is the way of legitimizing action. In other words, normalizing ideology and legitimizing actions may provide a tool for the speaker to influence the addressees’ social behaviors and social relations in specific discourse contexts. However, evidentiality has never been studied from the perspective of the “normalization” of ideology.

In what follows, we will investigate the nine types of evidentials from the perspective of pragmatic functions as effecting foreign relations and actions through legitimation and “normalization” of ideology, as well as uncovering the speakers’ ideological bias and their intentions.

7 “Normalization of ideology” has never been defined before. In this paper, it refers to the process when the speaker uses linguistic strategies (including evidentiality), consciously or unconsciously, to convince his/her addressees that his/her ideological bias hidden in the propositions is normal and should be treated as facts, truth or common knowledge.



Evidentials from personal sources

Personal evidentials indicate that the speaker is solely or highly responsible for the information provided, because the evidence is derived from the speaker's own experience or knowledge. This type of evidence is more subjective than the other two because it is difficult for the audience to verify the source of their information. In the following, several typical examples of personal sources of evidentials will be illustrated to investigate their discourse functions in diplomatic discourse. This type of evidentials has three subcategories: Personal Perceptual Evidentials (P.P.), Personal Inferential Evidentials (P.I.), and Personal Assumed Evidentials (P.A.).

Personal perceptual evidentials

Personal Perceptual Evidentials indicate evidentials that come from direct evidence of the speaker's self-perception. Such evidentials indicate direct evidence and more reliable than the other two types of personal sources, but they are rarely used in the corpus of diplomatic speeches.

For examples:

1. *I also saw* < Personal / P.P. > that President Trump had also put my story on the Instagram, so I cried again. (Trump; 2 February 2018)⁸

⁸ Example (1) comes from other sources as there are no such examples in the data.

2. *I often hear* < Personal / P.P. > it said that we need moral clarity in this fight. And the suggestion is somehow that if I would simply say, these are all Islamic terrorists, then we would actually have solved the problem by now, apparently < Shared / S.I. >. (Obama; 3 February 2016)

In Example (1), one of North Korean Defectors mentioned that he cried again when he saw President Trump had put his story on the Instagram when he was interviewed at the meeting. By using the Personal Perceptual Evidential "**I saw**," the speaker provided the direct visual evidence relating to Trump. It is a typical way for describing one's experience, though no such evidentials (personal visual evidentials such as **I see** or **I saw**) are found in our data in the diplomatic context. As can be seen in the data, the politicians prefer to use shared visual evidentials such as "**We have seen**" rather than personal visual evidentials.

The evidential "**I hear**" In Example (2), however, indicates that the opinion "we need moral clarity in this fight" is not Obama's own idea. Obviously, this type of evidentials helps the speaker explain the reason why he would do so. In this way, Obama legitimizes his action of war and eases the diplomatic tensions with Islamic countries. Moreover, the strength of this type of evidentials is much weaker than the one in Example (1) as auditory or tactile perception is less dependable than visual perception (Sweetser, 1984, p13).

Personal inferential evidentials

According to Greenbaum (1969, p. 205) and Bednarek (2006, p. 640), perceptions can be classified into two categories: **sensory perception** (e.g., I saw; I've heard) and **mental perception or inference** (e.g., obviously, clearly, apparently, it seems).

However, in our corpus, we discovered that most sensory perceptual evidentials are used in a metaphorical way (see examples in Section "Shared inferential evidentials" for details), which are equivalent to the mental perception or inference described by Greenbaum (1969, p. 205) and Bednarek (2006, p. 640). Thus, we reclassify this kind of evidentials as Personal Inferential Evidentials, which indicate evidence from sources based on personal mental (metaphorical) perception or INFERENCE based on visible or tangible evidence (Aikhenvald, 2004, p. 367). This category also includes inferential evidence based on logical reasoning (e.g., I realize; I'm convinced), which implies that there is certain evidence in the context. Unfortunately, we did not identify any examples of visual perception used as personal mental perception in the data, except for those inferential evidence based on logical reasoning.

For examples:

3. Again **I saw**<Personal/P.I. > that under the sun the race is not to the swift, nor the battle to the strong, nor bread to the wise, nor riches to the intelligent, nor favor to those with knowledge, but time and chance happen to them all. (Cited from the *Bible*)
4. Some have argued we should wait— and that is an option. In my view, it is the riskiest of all options, because the longer we wait, the stronger and bolder Saddam Hussein will become. We could wait and hope that Saddam does not give weapons to terrorists, or develop a nuclear weapon to blackmail the world. But **I'm convinced**<Personal / P.I. > that is a hope against all evidence. (Bush; 7 October 2002)

As shown in Example (3), the visual perception "**I saw**" is used metaphorically or rhetorically in which the speaker's own opinion or stance is implanted. It is equivalent to "I see this fact metaphorically," and it reflects the speaker's own ideology.

Similarly, the evidential "**I'm convinced**" used in Example (4) implies that the reason why Bush would hold the opinion is that he was convinced by the evidence comes from his logical reasoning, which has been shown in his previous arguments in the example and in the context of his speech on "Iraq's threat." However, we know that most of Bush's arguments in the speech can be treated as a legitimizing strategy in terms of legitimation by construing a "threat" to "the self" according to the theory of "proximization" (Hart, 2014, p. 167; also see Cap, 2008, 2013). The evidential "**I'm convinced**" also implies that there are tangible evidence in the context, so it can also be seen as a linguistic strategy of persuasion.

Personal assumed evidentials

Personal Assumed Evidentials indicate that the information provided is assumed based on one's own beliefs, knowledge, or thoughts. Generally, those evidence derived from one's beliefs or thoughts is less dependable than those from knowledge (see Chafe, 1986, p. 263; Marín-Arrese, 2011b, p. 794). For examples:

5. **I know**<Personal / P.A. > that many of the issues that I've talked about lack the drama of the past. And **I know**<Personal / P.A. > that part of Cuba's identity is its pride in being a small island nation that **could** stand up for its rights, and shake the world. But **I also know**<Personal / P.A. > that Cuba **will** always stand out because of the talent, hard work, and pride of the Cuban people. (Obama; 22 March 2016)
6. The Palestinian Authority has rejected your offer at hand, and trafficked with terrorists. You have a right to a normal life; you have a right to security; and **I deeply believe that**<Personal / P.A. > you need a reformed, responsible Palestinian partner to achieve that security. (Bush; 24 June 2002)

The triple repetition of the evidential "**I know**" in example (5) means that the speaker has solid evidence in his mind about the information he provides. That is because "**know**" refers to the cognitive process of knowing the truth. Therefore, this kind of premise is very common in the diplomatic speeches of politicians, which can persuade and manipulate the audience by presupposing a certain point of view or stance as fact. However, one cannot see or testify the speaker's knowledge, so the modal marker can only be seen as subjective modality. In fact, this knowledge reflects speaker's ideology (cf. Afzaal et al., 2022) and foreign policy about Cuba. By adopting three evidentials "**I know**," Obama expresses his willingness to reshape or restore the political relationship between US and Cuba. Quantitative studies show that Obama used this marker 17 times, compared with five times for Bush and three times for Trump.

The evidential "**I deeply believe**" in Example (6) indicates the evidence comes from the speaker's thoughts, beliefs or opinions (Chafe, 1986, p. 264). This evidential is seen as more subjective and less reliable than the evidentials in Example (5). Therefore, the proposal "*you need that security*" is based on Bush's own thoughts, which encodes his ideological bias that "Palestinian government is not responsible and needs to reform." In other words, Bush normalizes his idea about Palestinian government by using the evidential "**I deeply believe**."

In sum, despite of the different reliability of evidentials, all the personal evidentials show the speakers' high commitment to their information sources, which may help the speaker to establish an identity as a "responsible" or "authoritative" leader, particularly in the case of Obama.⁹

⁹ Obama used far more personal evidentials than the other two speakers.

Evidentials from shared source

Evidentials from shared source often presuppose common knowledge or truth shared by the speaker and the addressees (Hart, 2010, p. 95). They can evoke collective responsibility between the speaker and the addressees (Marín-Arrese, 2011b, p. 794) which are often adopted to legitimize the speaker's position or viewpoint from the perspective of intersubjectivity. Besides, evidentials from shared sources often encode ideology, which “derives from the taken-for-granted assumptions, beliefs and value-systems” shared by social groups (Simpson, 1993, p. 5). In this section, we will investigate the examples from three types of shared evidentials, particularly explaining how they normalize ideology and legitimize diplomatic policies and actions in diplomatic speeches.

Shared perceptual evidentials

Shared Perceptual Evidentials usually indicate the evidence based on facts or truth perceived by common senses. Sensory perception is the most direct evidence a person can possess (Whitt, 2011, p. 8), especially “visual and auditory perception” (Palmer, 2001, p. 43), and is therefore generally considered more reliable than indirect evidence.

For examples:

7. We've experienced the horror of September the 11th. **We have seen** <Shared / S.P. > that those who hate America **are willing to** crash airplanes into buildings full of innocent people. Our enemies would be no less willing, in fact, they would be eager, to use biological or chemical, or a nuclear weapon. (Bush; 7 October 2002)
8. The United States and South Korea have made great progress in reducing our trade imbalance and unleashing new prosperity for both of our countries. And, **as you heard** <Shared / S.P. >, **your great ambassador and our great ambassador say** <Other / Q.E. > we have reduced the number to by about 60 percent, which is pretty — pretty great. (Trump; 30 June 2019)

Example (7) is a typical example of shared perception, and the evidential “**We have seen**” indicates that what follows it is a fact that can be seen by everybody. It is true that we can see the tragedy of 9/11. This evidential, therefore, shows the most reliable information source. However, this evidence which Bush used to legitimize his proposal of “war on Iraq” is inadequate, because the tragedy of 9/11 cannot prove Iraq will be using “biological or chemical, or a nuclear weapon” toward America or Iraq has possessed these weapons. Therefore, this kind of evidentials is a powerful strategy which can be used to persuade or manipulate the addressee in legitimizing the speaker's proposal.

The evidential “**hear**” is normally less reliable than “**see**” as the former evidence is indirect and the latter one is direct. However, the evidential “**you heard**” in Example (8) has been reinforced by a quotative evidential “**your great ambassador and our great**

ambassador say,” which can be attested by the addressees. Therefore, when we evaluate the reliability of information sources in discourse interpretation, we need to take the context into consideration.

Shared inferential evidentials

Shared Inferential Evidentials indicate evidence inferred from shared mental (metaphorical) perception (Greenbaum, 1969, p. 205) or the information comes from tangible evidence (Aikhenvald, 2004, p. 367) or logical reasoning. Such evidence suggests that it can be inferred from sensory or reasoning evidence shared by the speaker and the addressees, which is often used as a tool to persuade or manipulate the audience into accepting the speaker's views as fact or truth, in order to normalize the speaker's ideology or legitimize his/her proposals or actions. However, because the source of these data elements is unclear, they are less reliable than the previous one.

For examples:

- 9.¹⁰ When we look around this city—so beautiful and **we see** <Shared / S.I. > people of all faiths engaged in reverent worship, and schoolchildren learning side-by-side, and men and women lifting up the needy and forgotten, **we see** <Shared / S.I. > that God's promise of healing has brought goodness to so many lives. **We see** <Shared / S.I. > that the people of this land had the courage to overcome the oppression and injustice of the past and to live in the freedom God intends for every person on this Earth. (Trump; 23 May 2017)
10. **It is now clearer than ever** <Shared / S.I. > that Hezbollah militias are the enemy of a free Lebanon -- and all nations, especially neighbors in the region, have an interest to help the Lebanese people prevail. (Bush; 18 May 2008)

Perceptual evidentials are often found to be used as mental perceptions in our diplomatic discourse corpus. For example, two of “**we see**” in Example (9) are both used metaphorically instead of sensorily, because we cannot see “God's promise” and “people's courage” directly. This kind of evidentials actually function as effective linguistic strategies in normalizing the speaker's ideology as people often regard visual perceptions as facts or reality. Therefore, the audience tend to believe and accept his words. In this case, this type of evidentials is an effective strategic tool for strengthening the diplomatic relations with the United States and Israel.

As shown in Example (10), the evidential marker “**It is now clearer than ever**” can be treated as the inference based on visual or tangible evidence (Aikhenvald, 2004, p. 367), though it is less reliable than the evidentials in Example (9).

¹⁰ The Example (9) comes from other sources as there are no examples of ‘shared visual perception used in a metaphorical way’ found in the data.

Shared assumed evidentials

Shared Assumed Evidentials often indicate evidence based on general knowledge (Aikhenvald, 2004, p. 367) shared by both the speaker and the hearers. This type of inferential evidentials has been used much more frequently than the previous two categories as it often presupposes the propositions which follow the evidentials as truth without having to make the sources clear. The evidentials in this category are a typical device used by the politicians to manipulate or persuade the addressees to accept their opinions as common knowledge. But it is often less reliable than the previous two categories since its source and reasoning process are both implicit. For examples:

11. And, as **we know** <Shared / S.A. >, in 2011, America hastily and mistakenly withdrew from Iraq. As a result, our hard-won gains slipped back into the hands of terrorist enemies. (Trump; 21 August 2017)
12. We have taken these positions because **we believe** <Shared / S.A. > that freedom and self-determination are not unique to one culture. These are not simply American values or Western values—they are universal values. (Obama; 25 September 2012)

The evidential “**we know**” used in Example (11) presupposes the proposition ‘in 2011, America hastily and mistakenly withdrew from Iraq’ as a fact. But actually, “in 2011, America withdrew from Iraq” is a fact, but whether America withdrew from Iraq “*hastily and mistakenly*” is not certain. It is only the speaker’s own political stance, which also encodes his ideology toward the issue of Iraq war. By adopting the evidential “**we know**,” Trump tried to normalize his own ideology, thereby delegitimizing the political action of Obama about the withdrawal from Iraq.

The Shared Assumed Evidential “**we believe**” in Example (12) reflects the beliefs or ideology shared by the speaker and the addressee, which is often less reliable than the evidential “**we know**.”

In sum, shared evidentials are the most typical evidentials used by the speakers to normalize their ideology or legitimize their proposals/actions. For example, Trump tried to delegitimize Obama’s political action by using shared assumed evidentials in Example (11). We learned that the facts or truth can also be manipulated or presupposed by using shared evidentials.

Evidentials from other sources

Evidentials from other sources usually mark the speaker’s minimum responsibility for the information he/she provides, because the speaker takes a back seat in the process of discourse generation (Marín-Arrese, 2011b, p. 794). Compared with shared source and personal source of evidentials, this kind of evidentials can prove or legitimize the speaker’s viewpoint or position from a

more objective perspective. In this section, we will investigate some typical examples which illustrate how the evidentials from other sources can reflect or normalize the speaker’s ideology and legitimize diplomatic actions.

Quotative evidentials

Quotative evidentials often indicate evidence which clearly points to the citation source (Aikhenvald, 2004, p. 367). The source of this type of evidence is the most explicit and authoritative (Aikhenvald, 2004) among the nine evidential categories, which is often used to justify or legitimize the speaker’s own propositions/proposals or actions. For examples:

13. If this organization is to have any hope of successfully confronting the challenges before us, it will depend, as **President Truman said** <Other / Q.E. > some 70 years ago, on the “independent strength of its members.” (Trump; 19 September, 2017)
14. **The Bible says** <Other / Q.E. >, “I have set before you life and death; therefore, choose life.” The time has arrived for everyone in this conflict to choose peace, and hope, and life. (Bush; 24 June 2002)

The quotative evidential “**President Truman said**” in Example (13) is used to justify the speaker’s opinion that the hope of successfully confronting the challenges will depend on the “independent strength of its members.” “**The Bible says**” in Example (14) is used by Bush to legitimize his proposal and normalize his ideology. In the context of this speech, Bush holds that if the Palestinian people want peace, hope, and life, they need to accept his proposal of electing a new leader. Both the evidentials indicate that there are explicit and authoritative sources for the evidence, which can add much credibility for the speakers’ opinions, therefore making the two speakers’ stance more objective.

Other inferential evidentials

Other Inferential Evidentials often refer to the linguistic markers indicating “report-based inferences” (Marín-Arrese, 2015, p. 219) or result-based inferences (Willett, 1988, p. 57; Hart, 2011, p. 758). In general, such evidence derived from reports or results is indirect evidence. However, the specific authority and source reliability of such evidentials should be judged according to the context. For examples:

15. But I do not want to put the cart before the horse. We do not have a strategy yet. I think what I’ve seen in **some of the news reports suggests** <Other / O.I. > that folks are getting a little further ahead of where we are at than we currently are. And I think that’s not just my assessment, but the assessment of our military as well. (Obama; 29 August 2014)
16. Today, **estimates indicate** <Other / O.I. > that Iran is only 2 or 3 months away from potentially acquiring the raw

TABLE 1 The distribution of sources of evidentials in three cases.

Speakers	George W. Bush		Barack Obama		Donald Trump	
Sources of evidentials	No.	Percent	No.	Percent	No.	Percent
Personal	18	11.54%	66	35.87%	23	20.91%
Shared	68	43.59%	72	39.13%	66	60%
Other	70	44.87%	46	25%	21	19.09%
Total	156	100%	184	100%	110	100%

materials that could be used for a single nuclear bomb. (Obama; 2 April 2015)

The evidential marker “**some of the news reports suggests**” in Example (15) is aimed to provide the evidence for legitimizing the speaker’s own assessment that “*folks are getting a little further ahead of where we are at than we currently are.*” However, the source of the new reports is not quite clear. In the same way, the evidential “*estimates indicate*” shows that the source of information is the report, which is used to prove Obama’s point of view “*Iran is only two or three months away from potentially acquiring the raw materials that could be used for a single nuclear bomb*” in Example (16).

The evidential in Example (16) indicates lower credibility or weaker strength compared with that in Example (15), since the source of the estimates is implicit. The speaker may adopt it deliberately as a manipulation or persuasion tool to mystify the responsibility of his stance (Marín-Arrese, 2011b, p. 794) or avoid the possible conflicts. Moreover, this type of evidentials clearly helps the speakers in normalizing their own judgments or ideological bias to legitimize their proposals.

Hearsay evidentials

Hearsay Evidentials indicate that evidence is transmitted information without clear source (Aikhenvald, 2004, p. 367), which is often considered as “the most prominent form of indirect evidence” (Whitt, 2011, p. 9). The source of the information for this type of evidentials is often unknown or intentionally hidden by the speaker. It is often treated as the least reliable (Whitt, 2011) among the three categories of other source. The most popular expression of this type of evidentials is “it is said that.” For examples:

17. **Some in China think that** <Other / H.E. > America will try to contain China’s ambitions; **some in America think that** <Other / H.E. > there is something to fear in a rising China. I take a different view. (Obama; 27 July 2009)
18. **It was said** <Other / H.E. > during World War I, the Canadians never budge. (Bush; 1 December 2004)

The evidentials in examples (17) and (18) are the weakest evidence, because the speaker is not clear about the source of the information, which makes the information they provide less

reliable and convincing. Such evidentials indicate that the source of information is intentionally hidden by the speaker during the transmission of the information, making it difficult for the audience to verify the source and authenticity of the information. Interestingly, this kind of evidentials is also a persuasion strategy and is often used to delegitimize other people’s opinions (which are often different from the speaker’s). As in Example (17), Obama explicitly said “I take a different view.” By denying these two opinions from unknown sources, Obama sought to ease the diplomatic tensions between China and the United States.

Quantitative analysis of evidential categories in diplomatic discourse

Sources of evidentials

As illustrated in Table 1 and Figure 2, Obama ranks first in the total numbers of evidentials (184 counts) among three speakers, followed by Bush (156 counts) and Trump (110 counts). With respect to the distributions of sources of evidentials, shared evidentials take the first position in the cases of Trump (60%) and Obama (39.13%). However, Bush is the only speaker who used more other evidentials (44.87%) than shared evidentials (43.59%) and personal evidentials (11.54%).

In order to compare the frequencies of evidential types among the three cases, I also worked out the figures of per 1000 words (henceforth, ptw) for each evidential type and their average figures based on the original size of data.¹¹ As demonstrated in Table 2 and Figure 3, Obama ranks first in terms of the frequencies of evidential sources both in total (5.6 ptw) and in personal sources (2.01 ptw) and shared sources (2.19 ptw). Following Obama, Bush comes second in the total number of evidentials (4.84 ptw), but he used the most other evidentials (2.17 ptw) among three speakers. It is interesting to see that although Trump used much less other evidentials than Bush and Obama, he adopted more personal evidentials than Bush. Overall, the differences of the total evidentials and the other categories are significant among three speakers except shared evidentials.

Types of evidentials

In terms of the quantitative analysis of evidential types, it can be seen in Table 3 and Figure 4 that evidentials of S.A. (Shared Assumed Evidentials) and S.I. (Shared Inferential Evidentials) take up the first and second positions in both cases of Trump and Bush. However, in the case of Obama, evidentials of P.A. (Personal

¹¹ The total number of words of the data is 97,496 words, with 32,226 words in Bush’s speeches, 32,825 words in Obama’s speeches and 32,445 words in Trump’s speeches, respectively. For details, please refer to the tables in the Appendix.

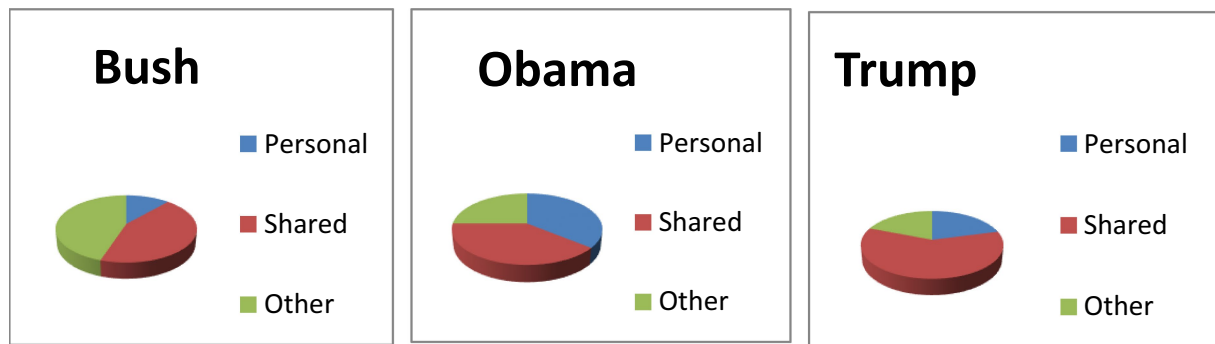


FIGURE 2
The distribution of sources of evidentials in three cases.

TABLE 2 A comparison of sources of evidentials in three cases.

Speakers	George W. Bush		Barack Obama		Donald Trump		P-value	SoD.
Sources of evidentials	No.	ptw.	No.	ptw.	No.	ptw.		
Personal	18	0.56	66	2.01	23	0.71	5.672e-09	Yes
Shared	68	2.11	72	2.19	66	2.03	0.9065	No
Other	70	2.17	46	1.40	21	0.65	1.521e-06	Yes
Total	156	4.84	184	5.6	110	3.39	0.000126	Yes

If p -value is less than 0.05, then the difference of the relevant category among three speakers is significant.

Assumed Evidentials) ranks first (32.61%), followed by evidentials of S.I. and S.A. Interestingly, Obama used the least S.P.(Shared Perceptual Evidentials), and P.P. (Personal Perceptual Evidentials) as the same as Bush, while P.I. (Personal Inferential Evidentials) and O.I. (Other Inferential Evidentials) are adopted the least in the case of Trump.

As shown in Table 4 and Figure 5, Obama takes up the first position in nearly half of the categories of evidential types in terms of frequencies, including the evidentials of P.I., P.A., S.I. and Q.E., while Bush ranks first in the use of Q.I. and H.E. evidentials among the three speakers. It is surprising to see that Trump adopted far less evidentials in most types compared with the other two speakers, though he used the most S.P. and S.A. evidentials.

Overall, statistical analyses manifest that the differences of most evidential types in frequencies among three cases are not significant except the categories of P.A., Q.E., O.I. and H.E. evidentials.

Evidence from different sources shows that speakers bear different degrees of discourse responsibility for their opinions, and reflect their different ways of persuasion or manipulation. In other words, speakers often use different categories of sources (evidentials) to normalize their ideology and to legitimize their proposals or actions (including the delegitimization of views that are different from their own). For

example, according to the quantitative analysis, shared evidentials come first in the corpus of Trump (57.98%) and Obama (38.92%). However, Bush used more evidentials from other sources (70 counts) than shared evidentials (68 counts), but the difference is not significant. The results show that evidentials from shared sources is a typical tool of manipulation in diplomatic discourse since the information provided are often presupposed as facts or truth or general knowledge.

For example, Trump used far more shared evidentials (69 counts) than personal evidentials (29 counts) and other evidentials (21 counts). Take his speech “to the 73rd Session of UN General Assembly” for example (No. 7 speech in Appendix Table 3), Trump used 7 counts evidentials from shared source to legitimize his opinion to persuade his addressees, such as “**we see**,” “**we have seen**,” “**we know**,” and “**we believe**.”

Using more evidential markers from personal sources usually means that the speaker is more willing to take verbal responsibility for his opinion or that he is more confident in his own credibility. For example, Obama used far more personal evidentials than the other two speakers (67 counts vs. Trump, 29 counts and Bush: 18 counts). For instance, in his speech to “Representatives of the African Union” (No. 6 speech in Appendix Table 2), Obama used personal evidentials for 19 counts, including “**I believe**” (13 counts), “**I think**” (2 counts), “**I know**” (1 count), and “**I’m convinced**” (1 count). This means that he is confident in his own words and willing to take the rhetorical responsibility for his point of view. These facts help Obama establish a more reliable and intimate relationship with his audience. This also helps in constructing his identity as an authoritative leader (cf. Reber, 2014).

However, evidentials from other sources usually reflect that the speaker is less willing to take responsible for his or her words. This often helps the speaker mystify the responsibility for his/her own stance-taking acts (Marín-Arrese, 2011b, p. 794). It also means that the speaker adopts a more authoritative and objective style of speech. For example, Bush used more other evidentials than the other two politicians (Bush: 70 counts; Obama: 46 counts; Trump 21 counts). In his speech “Address to the United Nations General Assembly in 2002” (Appendix Table 1 No. 3 speech), Bush uses 12 other sources to legitimize his

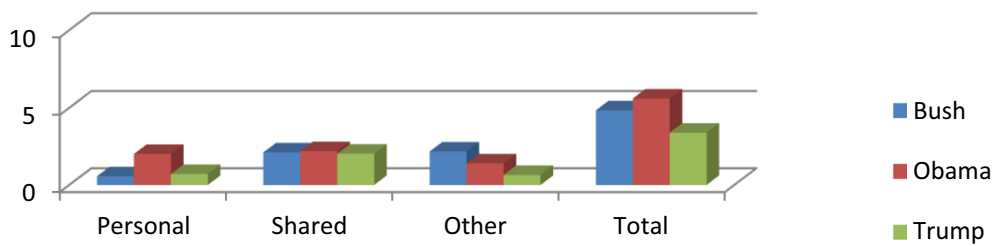


FIGURE 3
A comparison of sources of evidentials in three cases.

TABLE 3 The distribution of types of evidentials in three cases.

Speakers	George W. Bush		Barack Obama		Donald Trump	
Types of evidentials	No.	Percent	No.	Percent	No.	Percent
P.P.	0	0	2	1.09%	2	1.82%
P.I.	3	1.92%	4	2.17%	0	0
P.A.	15	9.62%	60	32.61%	21	19.09%
S.P.	1	0.64%	1	0.54%	4	3.64%
S.I.	30	19.23%	39	21.20%	24	21.82%
S.A.	37	23.72%	32	17.39%	38	34.54%
Q.E.	23	14.74%	24	13.04%	5	4.54%
O.I.	17	10.90%	5	2.72%	1	0.91%
H.E.	30	19.23%	17	9.24%	15	13.64%
Total	156	100%	184	100%	110	100%

proposal, such as: “The council said,” “The U.N. Commission on Human Rights found,” “The Secretary General’s high-level Coordinator for this issue Reported “and” the Iraqi Regime said.” This means that Bush deliberately insulates himself from the responsibility of discourse generation by providing authoritative sources of evidence, thereby making his proposals appear more objective and reliable. These evidentials helped him win public and coalition support for starting the Iraq war.

In addition, there are elements of different sources and intensities which capture the subjectivity and intersubjectivity of the speaker’s positions. According to Portner (2009, p. 131) and Verhulst et al. (2013, p. 211), subjectivity refers to a speaker’s commitment to the power of a claim (see Searle and Vanderveken, 1985). Intersubjectivity refers to the shared commitment of both speaker and listener to the power of a claim. Rather, the difference between subjectivity, intersubjectivity, and objectivity lies in the degree to which the speaker is committed to the power of the claim he is making, which can be judged by different conventions. The scope of subjectivity and intersubjectivity includes “the extent to which the speaker/author is personally responsible and accountable for the information provided (subjectivity), or whether the information is potentially shared by others (intersubjectivity)” (Marín-Arrese, 2011b, p. 794; See Nuyts, 2001). In addition, evidentials from different sources also reveal

the speaker’s stance in the way of subjectivity or intersubjectivity. Drawing on Portner (2009, p. 131) and Verhulst et al. (2013, p. 211), subjectivity here refers to speaker’s commitment to the force of an assertion¹² (see Searle and Vanderveken, 1985), and intersubjectivity refers to the shared commitment of speaker-hearer to the force of an assertion.

Particularly, different sources of evidentials can differentiate or evaluate the stance of subjectivity, intersubjectivity, and objectivity by analyzing the speaker’s respective responsibility toward his/her assertion. The scale of subjectivity and intersubjectivity involves “the degree to which the speaker/writer assumes personal responsibility and accountability (subjectivity) for the information proffered, or whether the information is presented as potentially shared by others (intersubjectivity)” (Marín-Arrese, 2011b, p. 794; also see Nuyts, 2001). The interaction of sources of evidence and the subjectivity and intersubjectivity can be illustrated as Figure 6.¹³

That is to say, justified by personal evidentials (e.g., *I think*), the speaker’s stance is more subjective as the speaker takes the sole responsibility for his or her proposition, while the stance backed by shared evidentials (e.g., *We’ve seen*) is intersubjective because the information is assumed to be shared by the speaker and his or her addressees. However, the stance supported by other evidentials (e.g., *It is said that*) is more objective since the verbal responsibility has been deliberately hidden or mystified by the speaker.

Conclusion

Overall, this paper proposed an analytical framework of evidentiality in English diplomatic discourse by taking both

¹² Here the force of an assertion refers to the illocutionary force which is beyond the content of a proposition. In this paper, it refers to the speaker’s stance towards the assertion, including the modal stance and evidential stance. That’s because modal markers can be part of implicit performatives and carry illocutionary force (also see Boyd and Thorne, 1969).

¹³ This scale is inspired by the subjectivity/intersubjectivity scales of Marín-Arrese (2013, p. 429–430).

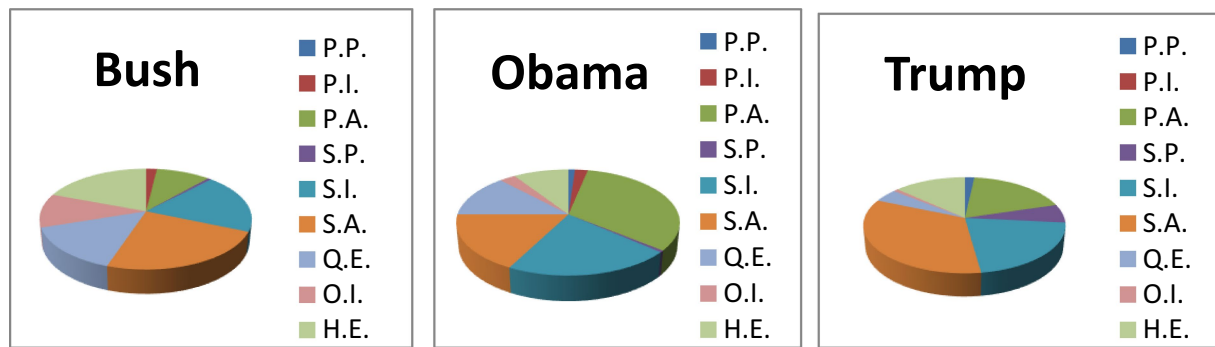


FIGURE 4
The distribution of types of evidentials in three cases.

TABLE 4 A comparison of types of evidentials in three cases.

Speakers	George W. Bush		Barack Obama		Donald Trump		P-value	SoD
Types of evidentials	No.	ptw.	No.	ptw.	No.	ptw.		
P.P.	0	0	2	0.06	2	0.06	0.3725	No
P.I.	3	0.09	4	0.12	0	0	0.1589	No
P.A.	15	0.47	60	1.83	21	0.65	1.303e-08	Yes
S.P.	1	0.03	1	0.03	4	0.12	0.2217	No
S.I.	30	0.93	39	1.19	24	0.74	0.1765	No
S.A.	37	1.15	32	0.97	38	1.17	0.7095	No
Q.E.	23	0.71	24	0.73	5	0.15	0.001409	Yes
O.I.	17	0.53	5	0.15	1	0.03	0.0001022	Yes
H.E.	30	0.93	17	0.52	15	0.46	0.0356	Yes
Total	156	4.84	184	5.6	110	3.39	0.000126	Yes

If *p*-value is less than 0.05, then the difference of the relevant category among three speakers is significant.

‘speaker’s commitment to sources of knowledge’ and ‘modes of knowing’ into account. It demonstrated how nine different types of evidentiality function in diplomatic discourse by a data-based approach, especially in terms of speaker commitments and normalization of ideology and (de)legitimation of proposals. It also examined the use of different sources and types of evidentials in three corpuses of English diplomatic speeches.

The most striking results are:

1. According to “the speaker’s commitment to the sources,” evidentiality can be classified into three categories: personal sources; shared sources, and other sources.
2. According to “mode of knowing,” each source can be classified into three categories: direct evidentials, inferential evidentials, and assumed evidentials. Based on the interplay of “speaker’s commitment to information sources” and “modes of knowing,” the evidentials can be further classified into nine categories: Personal Perceptual Evidentials, Personal Inferential Evidentials, Personal

Assumed Evidentials, Shared Perceptual Evidentials; Shared Assumed Evidentials; Quotative Evidentials, Other Inferential Evidentials, Hearsay Evidentials.

3. The main functions of evidentiality in diplomatic discourse are: to persuade or to manipulate the addressees; to normalize the speaker’s ideology; to legitimize the speaker’s proposals or actions; to delegitimize other people’s different views.
4. Trump used far more shared sources of evidentials than the other two sources. Shared sources are the most frequently used strategies of persuasion or manipulation in diplomatic discourse, allowing the audience to mistake the speaker’s opinions for facts. Meanwhile, such evidentials reflect the speaker’s ideological bias, because they encode the speaker’s presupposition of authority, facts, or shared knowledge.
5. Obama ranked first in using personal sources, which means that he is more willing to take verbal responsibility for his ideas or he is more confident in his own credibility, which helps him build a closer relationship with the audience.
6. Bush used the most other sources of information, which reflects his lower responsibility for the information he offered. This helps him avoid his verbal responsibility. On the other hand, it means that he has adopted a more objective and authoritative style of speech.
7. Different sources of evidentials can reflect the speakers’ corresponding responsibility for their propositions and reveal their subjective or intersubjective stance.

In sum, the evidential categories proposed in this paper may shed light on exploring the pragmatic functions of evidentiality in various discourse contexts, especially for strategic discourse, such as media discourse, war discourse, racial discourse, courtroom discourse, and religious discourse.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

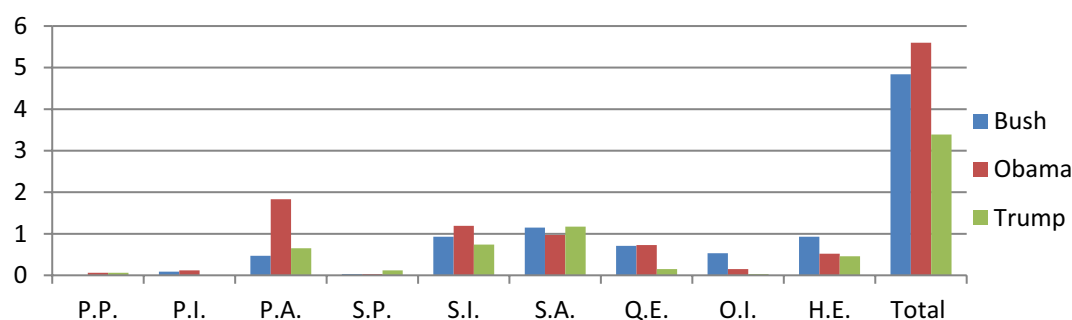


FIGURE 5

A comparison of types of evidentials in three cases.

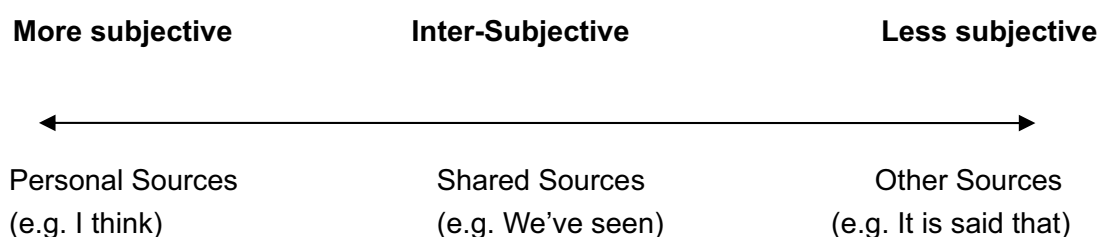


FIGURE 6

The scale of (inter)subjectivity vs. the source of evidence.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1019359/full#supplementary-material>

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Contextualizing assessment feedback in translation education: A corpus-assisted ecological approach

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Despite its powerful influence on student learning, assessment feedback has received relatively less attention in translation education. The mainstream assessment practices in translation education have relied mainly on a static approach to translation competence. The consequences of a static approach include a partial representation of translation competence development and a deficit view of students and their learning. Alternatively, this paper argues for an ecological approach to contextualize assessment feedback in translation education. The ecological approach emphasizes the spatial and temporal context for translation assessment. While detailed contextual information is essential to the ecological assessment approach, assessing translation performance across tasks and time is a considerable challenge. In response to such a challenge, this conceptual paper proposes a corpus-assisted approach to translation assessment. It discusses how a longitudinal student translation corpus can be developed to assist ecological assessment feedback on translation performance. A project in progress based on a translation education program is reported as a case in point for illustrative purposes. The paper has suggested ways forward for future assessment feedback practice and research in translation education.

KEYWORDS

ecological perspective, translation assessment, translation education, sociocultural theory, dynamic assessment, longitudinal translation corpus

Introduction

Assessment feedback has been recognized as a powerful influence on student learning (Hattie and Timperley, 2007). It has been shown that proper assessment can promote student learning, whereas improper assessment can inhibit student learning (Wiliam, 2011). Despite an increasing body of research on assessment feedback in areas such as second language (L2) writing (Ruegg, 2015; Falchikov and Goldfinch, 2016; Double et al., 2019; Yang et al., 2021), relatively few studies have investigated assessment feedback in translation education. This lack of research is surprising, considering the

centrality of assessment feedback in translation education (e.g., Albir and Pavani, 2018; Shorofi et al., 2020). Assessment of translation is different from L2 writing assessment. It involves judgment of the level of correspondence between the source text and the translation (Han and Lu, 2021). In the few studies on translation assessment (e.g., Yu et al., 2019; Ge, 2022; Li and Ke, 2022), assessment feedback centered on translation tasks and was implemented following the traditional static approach that focuses on current or actual levels of competence for summative assessment purposes (Haywood and Lidz, 2007). In these studies, student performance was often treated with the same assessment standard across tasks and time in the name of test validity and reliability. This seeming objectivity has, however, been questioned from a sociocultural perspective on learning (van Lier, 2004; Lantolf and Poehner, 2013; Poehner and Wang, 2020). It has been argued that students do not develop their abilities at the same pace, and their performance is subject to the environment where they perform the specific task (van Lier, 2004; Larsen-Freeman, 2019). Even if students have the same difficulty, they might require different forms of support at different points in time (Aljaafreh and Lantolf, 1994). However, the existing approaches to translation assessment, with their focus on validity and reliability, often ignore individual differences and their varied performance across contexts.

This paper proposes an ecological approach to assessment feedback as a contextualized practice in translation education to support student development. The paper is inspired by ecological approach to language learning of van Lier (2004). The ecological approach highlights the relationships between learners and their surrounding environment and considers learners as agentic participants of activities in their spatial and temporal context. It is change-oriented and critical of the implications for research and practice. While the ecological approach has the potential for translation assessment, it remains unclear how assessment feedback can be practiced following this ecological approach. This conceptual paper seeks to address two questions crucial to ecological assessment feedback:

1. Is it possible to access the information required to evaluate students' translations in their spatial and temporal context? And how?
2. How can an ecological approach be integrated into assessment feedback in translation education?

In answering these questions, this paper reports on a project in progress that aims to develop a corpus-assisted approach that gathers rich contextual information for practicing ecological assessment. The proposed design of a student translation corpus and the accompanying analytical tools under construction are presented to describe how this corpus-assisted approach can be implemented in a translation education program. The paper has suggested ways forward for future assessment feedback practice and research in translation education.

An ecological perspective on language learning

The ecological perspective on language learning is not “a grand theory” but a coherent and consistent worldview based on ideas, practices, and evidences from different theoretical orientations (van Lier, 2004). One prominent theoretical orientation is the sociocultural theory (SCT), an overall approach to human sciences whose goal is to explain the relations between mental functioning and the cultural, institutional, and historical situations in which this functioning occurs (van Lier, 2004). SCT conceptualizes language learning as a mediated process: learning is mediated through various forms of physical and symbolic tools, artifacts, and social interactions (Lantolf, 2000). From an SCT perspective, there is a fundamental difference between learning and development. Learning occurs when learners can complete a task with external mediation, while development takes place when learners can self-regulate without external mediation (Lantolf, 2000). Learning reflects the abilities that have begun to emerge but have not yet fully developed, whereas development indicates those that have fully developed at the time of the assessment. Thus, the assessment of learning involves a consideration of an individual's responsiveness to mediation, such as reminders, hints, models, and feedback provided during the assessment as difficulties arise (Poehner and Wang, 2020). Assessment of development, on the other hand, is performed when an individual independently completes a task. A second theoretical approach is the complexity theory perspective on language learning (Larsen-Freeman, 1997, 2011). Complexity theory views language as a dynamic set of patterns emerging from use. Language learning emerges when relatively simple elements combine to form a higher-order system that is more than the sum of its parts.

Drawing on these theoretical orientations, van Lier (2004) proposed a set of criteria for the application of an ecological perspective to research and practice (p. 193):

1. It is contextualized, focusing on relationships in the setting.
2. It includes both spatial and temporal dimensions.
3. It is interventionist, i.e., change-oriented and critical.
4. It is ecologically valid, particularly in correspondence between researchers' and participants' situation definitions.

The ecological perspective contextualizes learning and development. It conceptualizes language as relations between people and the world and language learning as ways of relating more effectively to people and the world. These relations provide an affordance that signals an opportunity for or inhibition of action. The unit of learning is the learner in action in a learnable environment. Language learning is an area of activities, and learners develop by participating in these activities. The context for language learners is not just something that surrounds language, but that defines language, and, at the same time, is defined by it. Learners are considered autonomous and agentic

individuals who can define the meaning of their acts within their social context.

The ecological perspective considers not only factors of space (e.g., the physical, social, and symbolic affordances of the learning environment) but also the temporal dimension for learning and development. It postulates that language learning is not gradual, linear acquisition, but emergence, which happens when relatively simple elements combine to form a higher-order system, as noted above. The new system is on a different scale, and has different meanings and patterns of functioning than the simpler ingredients from which it emerged. The complexity of development over time inevitably results in variability in the paces and trajectories of learning. The ecological approach addresses this variability issue not by treating learners all the same but considering the many differences among learners relevant to their learning opportunities. Given the vast diversity among learners, the ecological perspective embodies the value of diversity, recognizing the heterogeneity of the population of learners, and giving legitimacy to having different learners in the same educational setting and different kinds of people in a society. It is worth noting that the temporal dimension extends the notion of variability from the individual differences in students' formed abilities to the paths and paces of their development.

Language teaching and research from an ecological perspective are change-oriented and critical. Such a perspective aims to introduce a change, fix a problem, or transform a piece of reality. Education's primary objective is to benefit students' lifelong careers and well-being. However, what we consider worthwhile outcomes are not free from values. The consideration of values is referred to as a critical perspective in the ecological approach, defined as "any approach (scientific or otherwise) to a state of affairs that applies an explicit and overt rational, moral and ethical stance to the treatment, interpretation, and documentation of that state of affairs" (van Lier, 2004, p. 168). The ecological approach considers all actions and practices as value-laden, value-driven, and value-producing. From an ecological perspective, language education is always a science of values. In other words, educational assessment is not necessarily about objective facts. A critical perspective on language education calls for a constant examination of the extent to which educational practices, including assessment, make for the specific goals and ideals that have been established and pursued. One educational ideal is to benefit the students and enhance their well-being (e.g., Chau et al., 2022). However, the so-called high education standards do not necessarily lead to good results or pleasant educational experiences because the quality of educational experience is differentiated by educational standards.

The final criterion is ecological validity. According to Bronfenbrenner (1979), ecological validity is "the extent to which the environment experienced by the subjects in a scientific investigation has the properties it is supposed or assumed to have by the investigator" (p. 29). In other words, the analytic notions and constructs researchers and teachers use should correspond to those used by participants and students in the same setting. In the case of language teaching and learning, teachers and students

should have the same understanding of language and language learning and the same metalanguage to talk about these two things.

Drawing on the ecological approach to language learning, language researchers have developed an ecological perspective on assessment feedback (e.g., Han, 2019; Chong, 2021; Man et al., 2022). The ecological perspective emphasizes the role of contextual factors and individual differences in shaping feedback practices. The context includes a range of temporal, spatial, material, and social factors (Gravett, 2022), and the individual differences concern learners' proficiencies, goals, beliefs, and experiences (Chong, 2021). While this ecological perspective has found its way into assessment feedback research, relatively few studies have considered how to apply this ecological perspective in practice. To date, the assessment approach reported in research on Dynamic Assessment (henceforth DA) can be called ecological, though without explicit use of the term. The DA approach emphasizes the context. It considers the mediation learners receive in their developmental process and conceptualizes mediation as a means to close the gap between the actual and potential levels (Vygotsky, 1978). The distinctive feature of DA from static assessment is that it is committed to extending observations from an individual's independent task performance to collaborative performance with others (Lantolf and Poehner, 2013). DA in the language classroom has two functions: (1) to assess mediated learning performance and (2) to promote student learning through mediation. In other words, mediation is not only meant to scaffold individuals to complete tasks but also to help determine the minimum level of support they need for successful completion (Lantolf and Poehner, 2013).

While the ecological perspective has received considerable attention in language education research (Kramsch, 2002; Han, 2019; Poehner and Wang, 2020; Chong et al., 2022; Man et al., 2022), only a handful of studies have attempted to apply an ecological approach to translation education. For example, in a conceptual paper, Mo and Man (2017) discussed how an ecosystem view could inform the design of an environment for the cultivation of technological competence. A more recent study by Shorofi et al. (2020) examined the effect of Group Dynamic Assessment on student translators' bilingual sub-competence development. While these studies have revealed the value of an ecological perspective for translation education, little is known about how the ecological perspective can be applied to the assessment of translation performance. As Han and Lu (2021) have pointed out, the assessment of translation competence requires evidence-based judgment of translation performance. The accumulating research on translation education using an ecological perspective needs to move beyond the macro level to the micro level of translation performance assessment.

Toward an ecological approach to translation assessment

Developing students' translation competence is central to translation programs. The literature has documented multiple

methods of assessing translation competence (Schäffner and Adab, 2000; PACTE, 2014; Albir et al., 2020). For example, one approach that has been repeatedly used, though mostly in experimental research, is to triangulate multiple sources of data (e.g., students' screen recordings, reflective journals, and questionnaire responses; e.g., PACTE, 2014; Albir et al., 2020). Recent endeavors have also aimed to develop level descriptors that describe and measure translation competence levels (e.g., Bai et al., 2018; PACTE, 2018). While these methods consider both the translation products and the translation process, the considerable time involved in triangulation often determines that the assessment can only be conducted a limited number of times for a relatively short period. Given the non-linear developmental path of student learning (Larsen-Freeman, 2011, 2019) and the diverse contextual factors that could influence the development (van Lier, 2004; Chong et al., 2022), evaluation of students' translation competence must cover a relatively long period, with full attention to the spatial and temporal context wherein translation is produced.

This paper proposes an ecological approach to assessment feedback in translation education. From an ecological perspective (van Lier, 2004), translation competence develops in a non-linear manner and emerges from learners' interaction with and within their context (Kiraly, 2015). Student learning is measured by their efforts to complete translation tasks with external mediation, such as technical assistance, peer feedback, and teacher support (Lantolf, 2000). In contrast, development is evidenced by the closure of the gap between the actual level reflected in independent task performance and the learning potential reflected in collaborative performance supported by external mediation (Lantolf, 2000). Therefore, this ecological approach to assessment feedback involves considering translation performance across tasks and time. By doing so, assessment feedback recognizes students' learning efforts and internalized development.

The four criteria of van Lier (2004) recommended are considered in translation assessment: contextualized relationships, spatial and temporal dimensions of context, change-oriented, and ecological validity. In the first place, ecological assessment feedback considers the contextual factors and supports using environmental affordances to foster student learning and development. Second, the evaluation of learning progress considers the external mediation (e.g., teacher feedback, peer support, and technical assistance) that students receive before, during, and after their translation task. The development is also considered on a temporal dimension to account for variability across time. Third, the purpose of assessment feedback is to bring about change in students' translation learning. The influence of the implemented assessment is critically and continuously evaluated to determine if the original intentions are fulfilled. Finally, the assessment criteria are aligned with students' conceptions of learning and development, or at least the assessment criteria are explained to students to ensure correspondence between assessors' and students' definitions.

Despite their potential, implementing the four criteria of the ecological perspective is not without challenges. The immediate challenge in assessing translation performance in its spatial and temporal context is to access and compare a wide range of information on learner data across tasks and time. The diversity and variability further complicate this challenge in learning and development, reflected by a wide range of behavioral performances and measured by a diversity of indicators such as holistic human ratings, linguistic analyses, and translation errors. Given the large number of students and the many thousands of words of translation they must complete as part of their program objective, the workload that arises from sorting out all this information for assessment is formidable. Technological affordance is desired to assist this assessment process.

Corpus linguistics is a powerful tool to assist the storage, retrieval, and analysis of translation texts produced across tasks and time. While the idea of building up a dataset of longitudinal student translator data is not new, longitudinal corpora of student translation are still very rare (Göpferich, 2013). The existing student translator corpora are at best cross-sectional (Espunya, 2014; Alfuraih, 2020; Granger and Lefer, 2020). In the following section, we will discuss a longitudinal database of student translation in construction for ecological assessment purposes. We report on this project in progress for illustrative purposes.

Constructing a longitudinal corpus of student translation

What we call a database is an accumulating archive of data that includes a variety of information in addition to student translation. These include the source texts to be translated, the feedback that students' translations will receive, and the descriptions of the translation processes.

Principles and procedures

Student translation corpora can be considered two-in-one resources, as they contain systematic collections of authentic and contextualized written translations produced by trainee translators (Granger and Lefer, 2020). According to Sinclair (2005), the most relevant principles for developing a corpus are:

1. Representativeness: select participants and contents to be as representative as possible.
2. Content selection: select corpus contents based on external criteria (communicative function of the texts) and not internal criteria (the language of the texts).
3. Topic: select the subject matter of the corpus based on external criteria.
4. Contrast: compare only those sub-corpora that have been equally designed.

- Documentation: fully document the contents of the corpus (i.e., metadata).

The student translation corpus to be built combines a parallel corpus (Baker, 1995) and a learner corpus (Granger and Lefer, 2020). Thus, the corpus construction needs to consider the principles of these two types of corpora. In addition, as the corpus under construction, in the present study is to assist ecological assessment feedback on students' translation competence development, the corpus will contain and provide the following information:

1. Metadata about the translation texts.
2. Information about the source texts to be translated.
3. Information about external mediation in the learning progress (e.g., feedback).
4. Spatial and temporal contextual information on translation performance.
5. Illustrated assessment criteria aligned with students' conceptions of learning and development.

Following these principles for corpus construction, we have designed a set of procedures for data collection. It should be noted

that the data will be collected from students of a translation education program through an online platform. Figure 1 presents the procedures of data collection and retrieval. More details will be presented in the section on corpus design.

Data collection

This ongoing project is based on a 2-year master's program in translation at a Chinese university. This program enrolls around 120 students each year, and students must complete translation practice of a minimum of 150,000 words between Chinese and English before they defend their dissertation. During their translation practice, students choose the translation directions and materials at their discretion and then complete the translation exercise with the assistance of translation tools and resources. Once the online platform is ready, students will be required to submit their translations and the original texts to the platform at different points in time throughout their 2 years of study. The submitted translation products will be archived in a principled manner to form a longitudinal student translation corpus. The students will also receive feedback from various sources (i.e., teacher feedback, peer

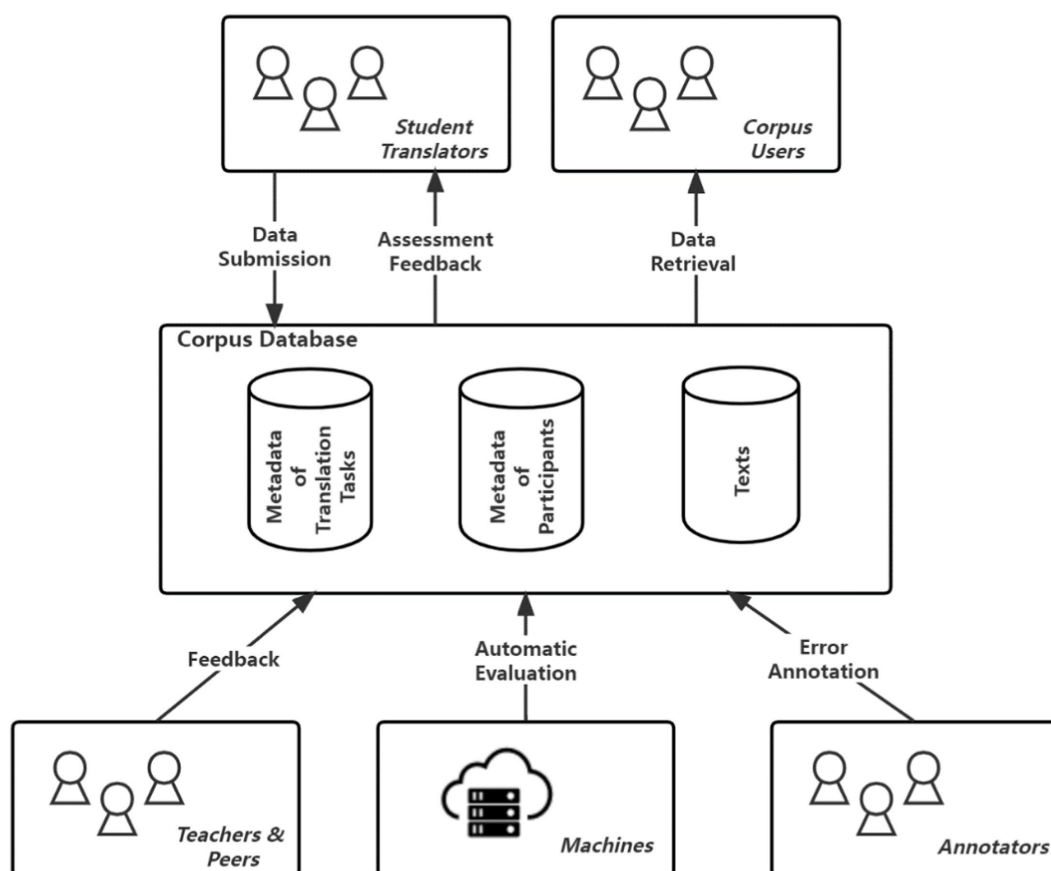


FIGURE 1
Procedures of corpus construction.

TABLE 1 Metadata for source texts.

Metadata	Description
Source Text ID	
Timestamp	00:00:00, dd-mm-yyyy
Language	English, Chinese
Text title	
Language Type	General/Specialized
Genre	General (e.g., journalistic texts and fiction) Specialized (technical report and academic prose)
Topic	Education, Entertainment, Finance, etc.
Length	Word/character number

feedback, and computer-generated feedback) on their translation performance. Such feedback information reflects students' developing translation competence and indicates the learning potential of students to complete translation tasks independently.

Corpus design

All the texts will be submitted to the online platform with rich metadata. These include the topic, genre, source of source texts, conditions under which the translation is produced, and demographic information on the translators, annotators, and feedback givers. More details about the metadata are presented as follows.

The metadata of source texts

The metadata of the source texts provides a wide range of information. These include Source Text ID, Language (i.e., Chinese or English), Title, Genre, Topic, and Language Type (see Table 1). General language comprises texts written in a non-technical language, such as journalistic and fiction texts. In contrast, specialized language comprises texts written in a technical language, such as academic prose and instructional texts (instructions and manuals; Granger and Lefer, 2020). A set of topics are provided to allow students to label their source texts (e.g., Education, Entertainment, and Finance). Students can also add topics if the default topic tags do not describe their source texts. Students provide information such as title, topic, and language type, and other information, such as Length (i.e., the number of words or characters), Timestamp, and Source Text ID are automatically recorded in the system.

The metadata of target texts

The metadata of target texts records details about the translation tasks and the translation products (see Table 2). Some of the metadata information can be presented by students when they submit their translation, for example, Task Type (e.g., an in-class activity or a home assignment), Translation Direction (i.e., Chinese to English or English to Chinese), Task Duration (e.g.,

TABLE 2 Metadata for the translation process.

Metadata	Description
Target Text ID	
Timestamp	00:00:00, dd-mm-yyyy
Type of Task	In-class activity, examination, home assignment, voluntary exercise, and mixed
Duration of Task	Timed, untimed, and duration in minutes
Tools and Resources	Monolingual dictionaries, bilingual dictionaries, glossaries, and terminological databases, translation forums, bilingual concordancers, SL and TL general or specialized corpora, CAT tools with TDB, CAT tools with TM, CAT tools with both TDB and TM, machine translation, internet/web
Rate	Yes/No
Annotation	Yes/No
Length	Word/character number

TABLE 3 Metadata for students.

Metadata	Description
Student ID	
Gender	Male, female
Age	
Grade	e.g., first year, second year
Prior Education Background	Majors: e.g., English, medicine, and engineering
Working Experience	Yes/No
Number of Years Learning English	
Whether or not they stayed in an	Yes/No
English-speaking country	
Self-rated English proficiency	Intermediate, advanced, and native
Test-based English proficiency	CET/TEM/IELTS/TOFEL scores

timed, untimed, or duration in minutes), and Tools and Resources used in the translation task. The computer can automatically generate other information, such as word counts. Because teachers and fellow students can grade or comment on the translation through the online platform, ratings and feedback comments are archived along with the translation and its original texts.

The metadata of students, instructors, and annotators

Informed consent will be obtained from students and teachers before their particulars are recorded on the platform. Identifying information will be kept to a minimum to protect the users' privacy. The required information includes gender, age, school year, educational background, and working experience (see Table 3).

Information about potential feedback sources is also included. In line with previous studies (e.g., Alfuraih, 2020), information about teachers and program administrators who provide feedback is collected (see Tables 4, 5). This metadata information provides a context for interpreting the feedback and assessing the level of external mediation.

TABLE 4 Metadata for teachers and program administrators.

Metadata	Description
Instructor ID	
Gender	Male, female
Age (years)	
Major	
Degree	Bachelor, Master, PhD
Teaching experience	

TABLE 5 Metadata for Annotator.

Metadata	Description
ID	
Gender	Male, female
Age (years)	
Grade	e.g., first year, second year
Major	

Corpus annotation

The corpus will be coded and annotated to allow multiple ways of text analysis (Hunston, 2002). Firstly, the English texts in our corpus will be pre-processed with word tokenization, lemmatization, and POS tagging, whereas the Chinese texts will be processed with word segmentation and POS tagging. The Stanza, a computational linguistic toolkit for many human languages developed by Stanford NLP Group (Qi et al., 2020) will be employed for these purposes. Second, part of the corpus will be coded for translation errors. A module will be designed, and taxonomy will be provided for manual annotation of translation errors. The module allows researchers or teachers to customize the taxonomy of translation errors for annotation purposes (e.g., Espunya, 2014; Zhao et al., 2018; Granger and Lefer, 2020; Qian et al., 2022). The advantage of the module is that it is open, and the coding system will be developed and revised iteratively as the annotation process proceeds.

Metrics from machine translation systems

Manual evaluation of a large amount of translation data produced by students takes considerable time, even with the assistance of corpus tools. However, students often expect immediate feedback after they complete a translation task. A possible means to fulfill such expectations is to produce computer-generated feedback using machine translation systems. Recent studies have shown the potential and feasibility of machine translation metrics to evaluate student translation (Chung, 2020; Han and Lu, 2021). When electronic texts are archived and accessible through a computer, machine translation metrics can be automatically generated to assist in analyzing the translation products. The generation of feedback from automatic translation evaluation requires only the input of one or more reference translations as the baseline for evaluating the quality of candidate translation texts.

The machine translation metrics used to evaluate student translation in the present study include such metrics as Bilingual Evaluation Understudy (BLEU; Papineni et al., 2002), Metric for Evaluation of Translation with Explicit Ordering (METEOR; Lavie and Agarwal, 2007), Translation Edit Rate (TER; Snover et al., 2006), and BERTCORE (Zhang et al., 2019). BLEU and METEOR are two algorithms based on a generalized concept of n -gram matching. They calculate scores to measure the similarity between a candidate translation text and the reference text(s) purposely chosen for comparison. The scores fall between zero and one, with values closer to zero representing less similar texts. TER is also a metric that can be used to assess the similarity between a candidate text and a reference text. However, unlike BLEU and METEOR scores, TER scores are measured by counting the number of edits (e.g., insertions, deletions, shifts, and substitutions) required to transform a candidate text into a reference text. A smaller TER score shows a higher similarity between the two texts. In addition to the three primary metrics, a neural network-based metric, BERTCORE, will be used in the present corpus. BERTCORE has recently been shown to correlate better with human evaluations than the three primary metrics (Zhang et al., 2019). Its calculation relies on pre-trained BERT contextual embeddings (Devlin et al., 2018) to first encode candidate and reference sentences and then compute their cosine similarity. Together all four metrics above serve as immediate feedback for students. The four metrics measure the correspondence between student translations and reference translation texts, complementing human ratings and translation error annotations. The students, teachers, and program administrators can choose the reference texts according to their purposes.

The online platform under development will feature an interface that connects the corpus and an automated evaluation system. When a piece of translation needs automated evaluation, the interface will employ the designated algorithms (e.g., BLEU and METEOR), compare the translation under evaluation and the reference translation, and produce a holistic score. The reference translation has two sources. One is from machine translation, when students select the texts to be translated by their own choice. Because the platform does not include a ready-made reference translation, API (Application Programming Interface) for machine translation (e.g., Google Translate and DeepL) will be exploited to produce a translation as the reference. In a second scenario, students translate a task designated by the teacher. A model translation will be provided as the reference translation.

Data retrieval

This corpus features a simple syntactic expression formula that allows the combined use of Chinese character strings, English word strings, POS symbols, wildcard characters, and set symbols

TABLE 6 Query syntax.

Type	Explanation	Examples
String	Chinese character string or English word string. Chinese character strings require no segmentation.	“make a promise” “许下承诺”
POS symbol	POS tag for each word	“V. a promise” “V. 承诺”
Wildcard character	Placeholder represented by a single character	“make a _” “许下_”
Set symbol	Within the symbol “[],” multiple strings of characters or words, separated by a “/,” indicating that they can correspond to any of the items in brackets.	“[make/have] a promise” “[许下/作出]承诺”

(see Table 6). The rules of corpus search are compatible with mainstream corpora such as the *Corpus of Contemporary American English* and *The British National Corpus* but are kept to a minimum level of sophistication. An interactive retrieval interface is also included to allow users to filter search results by metadata such as genre and topic. Users can set the number of concordance lines per page in the display settings. All retrieved concordances can be saved and exported to a designated format (e.g., excel document) for later use.

A corpus-assisted approach to ecological assessment in translation education

The following sub-sections discuss how an ecological perspective can inform assessment feedback in translation education and how the corpus can be used to assist ecological assessment feedback. Assessment feedback has two purposes: (1) to assess the learning and development of students and (2) to support student learning and development. The former is often called *assessment of learning* and the latter *assessment for learning* (William, 2011). How the corpus-assisted approach to ecological assessment can fulfill these two purposes is explained below.

Corpus-assisted ecological assessment of learning

An ecological approach emphasizes the temporal and spatial context for assessment feedback. From this perspective, the assessment results reflect students' learning potential and already achieved development, look beyond learner-independent performance, and consider task performance with external mediation (Poehner, 2011). In line with the ecological approach, assessment feedback in translation education entails close attention to three factors: context, variability, and diversity.

The longitudinal student translation corpus provides a context for assessing student translation performance. This context includes temporal and spatial dimensions. The temporal dimension traces the changes in the various indicators of student performance, including human ratings, feedback comments, and computer-generated evaluation metrics. In this sense, the performance at a specific time has its temporal context. The spatial dimension reveals the conditions under which a piece of translation is produced. The metadata would reveal the genre and difficulty of the source text, the use of translation tools and resources, and the feedback from peers, teachers, or technology.

When student learning is examined in its temporal and spatial context, considerable variability in student performance will emerge. Students vary from each other in their translation performance at different points in time and in their own developmental path. Program administrators can assess the effectiveness of the program by measuring changes in student performance from their enrollment to their graduation.

Corpus-assisted ecological assessment for learning

In line with the ecological approach, assessment for learning is concerned with using assessment to support student learning. In this paper, learning is conceptualized as areas of activity, learners as agents of learning, and assessment feedback as one environmental affordance to promote student learning (van Lier, 2004). Assessment feedback facilitates student learning in several ways. The first way assessment feedback promotes learning is to increase learner motivation by showing them the progress they make. The graphs of the progress of individual learners can work as a guide and stimulus to action (Fuchs and Fuchs, 1986). With the assistance of computer software, the longitudinal student translation corpus can provide relevant data on students' progress. Such positive feedback can encourage translation students and counteract the setbacks and stresses they could experience in their challenging translation practice.

Secondly, assessment feedback helps close the gap between the current level of performance and learning potential through external mediation. An ecological perspective emphasizes the complex relations between people and the world and recognizes the variability among learners. Therefore, assessment practice is continuously provided and individualized according to students' specific needs and developmental levels (Orlando, 2011). In addition, highly rated translations can be developed into exemplars, which serve as model translations for students' consideration. The longitudinal student translation corpus can not only allow teachers to continuously provide feedback on the translations of individual students but also achieve these translations as learning materials for students and teaching materials for teachers.

The longitudinal student translation corpus can also assist in the implementation of dynamic assessment. It can be used to

develop an interventionist approach: computerized dynamic assessment. Persistent difficulties identified in students' performance serve as the basis for developing prompts along a continuum of mediation. First, given the diversity of text types and a large number of learner translators, the corpus constitutes a wealth of learner data. This rich data provide an empirical basis for identifying the characteristics of student translation as students develop their translation competence throughout different periods. Second, the corpus comprises translated texts of the same translator over 2 years, enabling educators to track the developmental curve of the translation competence of their students at the individual level. The developmental curve can also be explained by identifying the factors contributing to the acquisition of translation competence with the rich metadata in the corpus.

Conclusion

As van Lier (2004) noted, educational practices are value-laden and value-driven. The ecological approach to translation assessment discussed in this paper has important implications for translation teaching and research. The spatial and temporal dimensions of the context in which translation is produced merit attention. The level of external mediation a student requires to complete a translation task reveals his or her developmental potential. Past experiences provide a basis for charting his or her development. The longitudinal student translation corpus design proposed in the present paper makes it feasible to implement the ecological approach to assessment feedback, which constitutes an alternative to the traditional contrastive approach to translation assessment. Traditionally, student translators were evaluated against professional translators, assuming there is one ideal standard for translation learning. While translation education aims to train students to become professional translators, education *in situ* seeks to promote personal growth. The gap between achieved learning and the ideal standard, though answering the question "where to go," could demotivate student translators at the low-intermediate levels. Before students meet the ideal standard, their learning performance will be defined as deficient. The ecological approach to assessment feedback addresses two problems of the traditional approach. First, it reiterates the developmental function of assessment and considers it as a tool that aids learning rather than a mere grading system (Galán-Mañas and Albir, 2015). Second, it shifts the focus from the assessment of performance to the assessment of learning and development by adding a temporal dimension. The objective of assessment feedback in education is to assess what a student has learned at the end of a given period. Students' initial performance provides a benchmark against which their progress during the program can be measured. Using the initial state as the comparison benchmark would result in a qualitatively different portrait of the developmental curve of translation competence.

The paper has suggested ways forward for future assessment feedback practice and research in translation education. The focus of

future assessment feedback may shift from current levels of performance to achieved development and learning potential, as well as the influencing contextual factors. There is a constant critical evaluation of the assessment feedback practice to check whether it has fulfilled the educational aim of promoting student development. Similarly, future research on assessment feedback in translation education may give due consideration to the complex contextual factors that contribute to translation competence development. Longitudinal research designs can be readily integrated with qualitative methods such as ethnographies and case studies.

The longitudinal student translation corpus to be compiled has the potential for technological innovations. The corpus is potentially helpful in developing an Automatic Translation Evaluation (ATE) system. The corpus data can be used to train machine learning with its translation divided into proficiency levels and annotated with various kinds of assessment feedback. To date, some machine translation metrics (e.g., BLEU, TER, and BERTSCORE) have been trialed in evaluating students' translation and interpretation (Chung, 2020; Han and Lu, 2021). By machine learning techniques, a large quantity of student data can be used to enhance the accuracy of ATE. The platform under construction and the corpus to be compiled have the potential to contribute to the advancement of machine learning.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

DM, CZ and MHC contributed to the conception and design of the study and wrote and revised the manuscript. EM contributed to addressing the technical aspects of corpus construction and reviewed the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Mourning the lost: A social actor analysis of gender representation in the @FacesofCovid's tweets

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When COVID-19 swept the world at the end of 2019, it changed life as we knew it. With about 600 million positive cases (both recovered and active) and approximately 6.5 million deaths due to the disease, people worldwide have been affected physically, psychologically, economically, and socially by the pandemic. Amid such difficult times, @FacesofCovid—a Twitter account with more than 150,000 followers—was launched in March 2020 with the mission of honoring the lives of those lost to COVID-19 instead of presenting them as mere statistics. The account is a demonstrative example of the mourning genre as primarily exhibited through concise tweets grieving the deceased. As such, it offers a novel case of a public online mourning platform through microblogging, an understudied research area that merits further examination. A self-built corpus of 280,536 words was built from more than 7,000 tweets on the public account. The analysis presented in this paper focused on how people are constructed in the language of their loved ones as they are mourned through these tweets. Drawing on insight from van Leeuwen's social actor representation and corpus linguistics, the analysis was conducted using the #LancsBox corpus processing software package. The findings indicated that gender asymmetry persists within this corpus. Therefore, this paper adds to the rich body of literature documenting gender imbalance across different genres and domains. Men are far more present than women and are constructed through functionalization for the most part, whereas women are less functionalized and represented primarily through relational identification. In light of this, it is argued that while sometimes, gender asymmetry can intentionally be ideologically loaded and may serve hidden agendas, at other times, it may inherently and subconsciously be passed on through spontaneous language use.

KEYWORDS

mourning discourse, Twitter, COVID-19, corpus linguistics, social actor representation

Each person's grief is like all other people's grief; each person's grief is like some other people's grief; and each person's grief is like no other people's grief.

—William Worden (2009, p. 7).

Introduction

Nearly 3 years after the novel coronavirus 2019 (COVID-19) first swept the world, humanity is gradually regaining its feet. The pandemic's rather apocalyptic arrival brought with it a shadow pandemic of dysfunctional grief worldwide (Neimeyer et al., 2021). Not only was this expressed directly through the tremendous loss of life accompanying the pandemic's arrival but it was also tangibly illustrated by the ever-expanding amount of indirect casualties at the psychological, mental, economical, and social levels. It is estimated that each death caused by COVID-19 affected approximately nine people (Verderer et al., 2020). Undoubtedly, this—coupled with the radical restrictions imposed upon almost every aspect of life as we know it (Lee et al., 2021)—will mark future generations (Gotlib, 2021) as they try to unfold its audacity. Various forms of support are a critical need for bereaved family members. Therefore, such grief should be presented as a pressing public health issue that is no less critical than the pandemic deaths (Morris et al., 2020). In fact, some scholars have argued that COVID-19-related grief is even more severe than other types of grief (Lee et al., 2021). However, grief can be perceived as a paradoxical construct with both universally and individually unique features. Such a view does not come across as simple or straightforward; therefore, this grief should be addressed with a multidisciplinary perspective and *via* different sources.

A significant form of support has been made readily available through the affordances of the internet *via* the creation of virtual support communities with different motivations. One such example is @FacesofCovid (FoC), a Twitter account with the mission of honoring the lives of those lost to COVID-19 in the form of micro-eulogies. This study uses a combination of corpus tools and social actor representation analysis to examine how these tweets construct the deceased concerning gender-based categorization. This section offers an up-to-date background on relevant research in discourse studies. Given the interdisciplinary core of the current paper, relevant areas within the literature of discourse on grief and gender as socially constructed constructs are reviewed. This information is linked to the hybrid nature of microblogging as a genre as well as the theory laying the groundwork for social actor representation (van Leeuwen, 1996, 2008) as an analytical framework.

Grief is not merely an internal process; it is often presented in the relevant literature as an intricate, socially constructed construct (Neimeyer et al., 2014). This suggests that grief can

be presented from a constructionist perspective, which denotes that—despite its universal and biological roots—grief can also be subjected to socially and culturally shared norms and values. Mourning is a specific kind of grief that follows the death of a loved one. Neimeyer et al. (2014, p. 487) linked mourning, as a communicative event, to narrative activities since the mourner becomes involved in “storying” processes in search of the meaning behind their loss. However, this is not the sole function achieved by such an act, as indicated by the rich body of related research. Therefore, while people mourn to make sense of fate (Davis et al., 2016) or process their loss (Böhme, 2017), they also resort to it to ease their grief (Harris, 1999), foster familial resilience (Barboza et al., 2022), create bonds with other bereaved people (Church, 2013), build communities (Jensen et al., 2003), offer emphatic support (Cupit et al., 2021), give advice (Foss, 1983), or even call for action (Jensen et al., 2003). However, it is clear that the primary function of mourning is honoring and praising the deceased (Kent, 1991), a process that sometimes idealizes them (Hayes, 2016). This multifunctional conception transforms grief, and mourning in particular, into an event of its own (Merrin, 1999), thus granting grief discourse key significance in social constructionist research.

While mourning might take several communicative forms, eulogies are the most prominent. Eulogies are “a genre, or specific type, of the rhetorical form” (Davis et al., 2016, p. 317) serving a multiplicity of purposes—as examined above—that are inevitably dictated by varying factors across time and space. In the conventional sense, eulogies are often delivered by relatives, friends, or clergy members (Stevens, 2008), thus making them an instance of ceremonial discourse. While a plethora of research on grief discourse is predominantly based on psychological theory (e.g., Hayes, 2016; Lessard et al., 2016), eulogies have not been sufficiently addressed in the recent linguistic literature. For instance, Mohammed and Khudher (2018) contrasted the long history of eulogies, which can be traced back to the ancient Greeks, with the limited number of recent research works in the genre. Nevertheless, several interdisciplinary discourse studies can be identified, primarily those examining the eulogies of celebrities and politicians (e.g., Sanderson and Hope Cheong, 2010; Szeligowska, 2014; Williams, 2014). However, discourse works with corpus-based motivations are almost non-existent, with the exception of Slavickova's (2013) work on presidential Memorial Day speeches in the US. This highlights the need for motivating discourse studies that adopt a corpus-based approach as they analyze eulogies addressed in memory of non-famous individuals.

Regarding gender-related research, often, gender asymmetry and sexism predominate. As such, more awareness toward such asymmetry is needed given that gender is culturally constructed and exhibits variations across different contexts (Baker, 2003), unlike sex, which is determined biologically. This constructionist take on gender, however, has not always been approached as such in the relevant literature, and there has been

a dispute over the nature of gender. Thus, it is also possible to consider gender from an opposing perspective, i.e., the essentialist take on gender, which presupposes a predominantly genetic mapping of how it can be perceived. Baron-Cohen (2004), for instance, highlighted the biological differences between female and male brains, stating that the former is hard-wired predominantly for empathy while the latter is more biologically geared toward understanding and building systems. Similarly, Bem's (1974) gender theory and sex role inventory, which has gained popularity over the last few decades, presupposes different social and psychological constructions of men and women based on biological classification. The problem with such essentialism, however, is that it overlooks the potential of context, both social and psychological, in shaping the roles expected to be played by both genders and, consequently, how this is mirrored in discourse.

A more inclusive perception of gender is highlighted in Eagly and Wood's (2012) social role theory. Within this conception, biology works alongside psychology to determine the gendered performance of social roles. This signifies the constructionist take on gender while still adhering to biological determinism (Wood and Eagly, 2012). Several other theories, however, reject the notion of the gender binary altogether (Hyde et al., 2019) and argue for problematizing biologically based gender construction. A well-known example is Butler's (1999); (Butler, 2006) call for the notion of gender trouble within the last century, which has shaped much of the research in that direction (Morgenroth and Ryan, 2018). The current paper adheres to the more inclusive view of gender established above. By highlighting the biological mapping of gender while still acknowledging the impact of social shaping in its construction, the social constructionist aspect of the discourse is also pinpointed and maintained throughout the analysis.

In gender-based discourse studies, corpus tools have been extensively applied since the 1980s. With the emergence of big data and natural language processing, works such as Kjellmer's (1986) started to appear and document gender asymmetry in language. In Kjellmer's study, the Brown corpus revealed more instances of *he* than *she*. By the same token, to name a few, Cameron (1992), Sutton (1995), Romaine (1999), Holmes and Sigley (2001), Pearce (2008), Baker (2010), Caldas-Coulthard and Moon (2010) and Moon (2014) have conducted other corpus-based studies in which similar asymmetries were documented between men and women. As more corpus research is conducted, such imbalances continue to appear, documenting the fruitful application of corpus tools in revealing even subtle gender differences in language (Carroll and Kowitz, 1994). Indeed, irrespective of the advancements made in advocating women's rights and women's empowerment, stereotypical portrayals and underrepresentation of women persist (Vu et al., 2018). A detailed examination of the relevant literature primarily documents that women are less present in language use (Baitinger, 2015). The rich body of research in this

particular area reveals this to be the case across different areas of research in discourse studies, including political discourse (Grunenfelder, 2013), academic writing discourse (Brooke, 2020), literary discourse (Eberhardt, 2017), and even women's empowerment discourse (Brun-Mercer, 2021). However, within the discourse on grief and mourning, and in eulogies, in particular, there seems to be a gap in gender-based analysis. Therefore, the current study will contribute significantly to this body of research.

Note that as a corpus-assisted discourse study, interdisciplinary analysis and multiplicity of frameworks appear to be the norm. With this in mind, the current study has another cornerstone, which follows the constructionist nature of gender and grief as social constructs. In particular, the social actor representation analytical framework (van Leeuwen, 1996, 2008) seems fit for purpose given the interplay of such factors. According to the latter (p. 67), this model presents a socio-semantic perspective on discourse, bringing together "what linguists tend to keep separate." In such a conception, meaning is deeply rooted in culture rather than language or individuals. As it stands, the model offers an extensive list of transformations to account for how diverse social actors are constructed in text in a hierarchical fashion. The framework starts with inclusion and exclusion across varying levels of representation and through a diversity of role allocation. As a result of its breadth, the application of social actor representation in the literature on discourse studies seems relatively common, including works on execution (Utama et al., 2020; Chaemsaitong, 2021), terrorism (Rasoulkolamaki and Kaur, 2021), disability (Ang and Yeo, 2018), and politics (Asad et al., 2019; Surjowati, 2020; Diamante, 2021), as well as those with corpus-based motivations (García-Marrugo, 2013; Bakar, 2014; Fadanelli et al., 2020).

The above discussion offered a concise background on the different cornerstones that ground the current research work. This was achieved by focusing on discourse on grief, mourning, and eulogies while highlighting relevant literature on gender construction through discourse as well as social actor representation as a socio-semantic framework to underpin discursive constructions. However, the remainder of this section tailors the discussion to address the virtual component of this study. To illustrate, the plethora of research on online discourses asserts the immediacy and easy availability of online practice in a time- and effort-consuming manner (van Leeuwen et al., 2022), as social media posting is quite common nowadays (Cupit et al., 2021).

Scholarly interest in microblogging, a form of social media posting, has skyrocketed since its conception (Liu et al., 2011). Zappavigna (2014, p. 209) defined microblogging as "the act of posting short character-constrained messages to the Internet." The act comprises unique features, such as a constrained message length, support for mobile phones, and access to open and free online publishing (Oulasvirta et al., 2010); it

is a distinct form of two-way communication (Morehouse and Crandall, 2014). Despite being a novel genre in the new millennium, microblogging can be linked to older forms of human communication due to its inherently interpersonal nature. Zappavigna (2014), for instance, linked it to the Firthian perspective (Firth, 1964, p.112), contending that the “promotion, establishment and maintenance of communion of feeling is perhaps four fifths of all talk.” This also corresponds to Malinowski’s (1972) notion of phatic communion. With this in mind, the utilization of microblogging as an outlet to communicate feelings seems inevitable. However, this may not be the only gratification associated with microblogging.

This notion can be considered in light of the uses and gratification theory, a well-known theory of communication in media psychology literature. Emerging in the 1940s and expanding in the 1970s, the uses and gratifications theory suggests that people prefer to use certain media platforms, as they expect such use to satisfy certain gratifications consistent with the use of these platforms (Ruggiero, 2000). While this theory places its primary attention on the consumer of such platforms more than the conveyed messages, certain implications can be drawn here. In particular, while most relevant literature on discourse studies acknowledges the interpersonal functions expressed in microblogging, research in other disciplines denotes other gratifications. For instance, the use of microblogging within educational research has proven to offer language learners increased engagement and expanded knowledge (Gant and Hadley, 2014). In another contrastive study (Li et al., 2019), the use of different cultural contexts and microblogging applications, such as Twitter and its Chinese counterpart, Weibo, led to different gratifications for the followers of sport organizations. In particular, while Twitter microbloggers were microblogging to express their support of their teams, Weibo followers were microblogging to obtain more information or pass the time.

By the same token, another contrastive study reported different gratifications satisfied by the users of Twitter and Weibo within the microblogging discourse of disaster following two major industrial accidents in the United States and China (Wu and Montgomery, 2021). Here, Twitter users were utilizing microblogging to create a supportive community for those suffering after the incident much more than Weibo users. In this sense, it is possible to see the link between research on microblogging discourse and what Palen and Hughes (2018) referred to as crisis informatics. In crisis informatics, the analyst is concerned with the communicative response of people on social media following a given crisis or disaster. Within grief discourse, in particular, microblogging is not used solely for sense-making, bonding, or creating communities but is also used for other, unexpected functions. This is evident, for instance, when examining the analyses of grief discourse regarding deceased celebrities. In their examination of more than 50,000 tweets following the death of Michael

Jackson, Lee and Goh (2013) revealed categorizations that were not normally associated with grief discourse, such as spamming and the spreading of rumors or hatred.

This diversity of perspective should not undermine the dominant interpersonal vein established earlier within the discourse on microblogging. Various studies have shown that many people are increasingly inclined to share their feelings, whether positive or negative, online (Brubaker et al., 2012). With this in mind, Selfridge and Mitchell (2021) argued that the private becomes public on social media platforms, while Morehouse and Crandall (2014) highlighted the move from private to public expression online. To elaborate, with the advent of microblogging, the expression of grief, which used to be an almost exclusively private process, is gradually being transformed into a public process. To understand this perspective, the affordances of social media platforms that support the creation of virtual communities around a particular topic or event should be considered. Zappavigna (2014, p. 211) linked this to the notion of “ambient” affiliation, in which a direct interaction, such as a conversation, between the participants in that community is not necessarily presumed. Such affiliation can also be achieved by simply discussing a particular topic around the same time, which was the case with FoC. As people sent their mourning tweets to the account to be posted or retweeted, they were allowing even those who were unrelated to the deceased to express their reactions since they were ambiently affiliated. Morehouse and Crandall (2014) drew attention to the fact that what used to be considered trespassing on people’s private lives is now being normalized. Despite cyber security and privacy risks (Oukemeni et al., 2019), participants and followers of such platforms continue to publicize their private content. This move away from privacy can also be linked to another inherently available social media tool, i.e., the use of hashtags. With hashtags, microbloggers intentionally link their content to an even wider audience, creating what Boyd (2011) referred to as a networked public in the sense that even the “ordinary” becomes visible to everyone (Oulasvirta et al., 2010, p. 238).

Considering the above discussion of grief as an internal, social, and cultural construct, it could be proposed that the inherently intricate nature of grief denotes that the boundaries between what is private and what is public are blurred; the connection between these two should not be conceptualized as a binary but rather as a continuum. Thus, it is not surprising that online grief is common during times of stress or disaster. In fact, Kakar and Oberoi (2016) formalized it as a death ritual in our modern world. However, this move should not be seen as a rejection of conventional communicative forms of grieving, such as traditional face-to-face eulogy delivery (Lingel, 2013). Instead, it is a complementary parallel form of grieving in response to modern-day affordances and the availability of social media in discourse construction and circulation. This idea of complementary parallelism is supported by the fact that while

traditional eulogies offered during funerals can help provide closure, online mourning through social media platforms can be shared with a wider audience and is definitively engraved virtually as endless (Morehouse and Crandall, 2014).

This has led to the emergence of “digital memorialization” as a form of online grief (Church, 2013, p. 184). The latter, drawing on Roberts’s (2004) virtual cemeteries, explores the links between the material and demolishing event of death and the ever-existing display of online grief through the affordances of social media. Such digital memorialization has been the subject of attention in several discourse studies utilizing a variety of semiotic frameworks, such as the works by Church (2013), Visa and Briones-Vozmediano (2020), and Cupit et al. (2021). However, the current paper proposes that the utilization of microblogging through tweets on Twitter in the form of concise eulogies results in the hybrid genre of micro-eulogy. In micro-eulogies, the person delivering the eulogy—in this case, the original writer of the tweet—produces a short text that corresponds to moves identified in the traditional eulogy genre while being confined by the character count limitation imposed by Twitter. This inevitably produces a more concise and content-based text while devaluing rhetorical and stylistic features often associated with the eulogy genre.

This detailed review is meant to pave the way toward an understanding of the rationale behind the current study’s data selection, collection, and analysis methodology. Considering the problem stated at the outset of this paper, the following research questions (RQs) frame this study:

RQ1: Using corpus tools, which linguistic constructions are established most frequently in the FoC? Which nouns and adjectives are predominantly used from such perspectives?

RQ2: Using corpus tools, what collocational patterns are associated most frequently with gendered terms in the FoC?

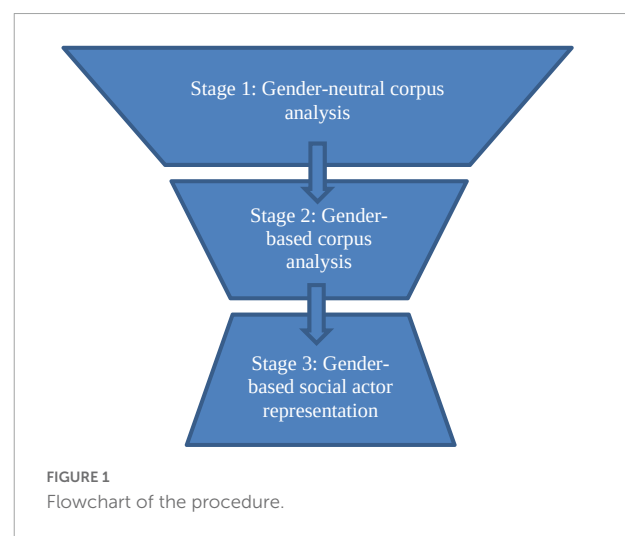
RQ3: What kinds of social actor representations are associated most frequently with gendered terms in the FoC?

Methodology

The affiliation between corpus linguistics and discourse studies has strengthened since the emergence of automatic language processing within the last century, and the bond between these fields continues to grow as more published research advocates such an affiliation (Liu and Afzaal, 2021; Afzaal et al., 2022; Du et al., 2022). Indeed, the utilization of corpus tools along with other linguistic frameworks for discourse studies has helped overcome certain subjectivity issues

that are often brought up when only alternative approaches, such as content analysis, are implemented (Baker and Levon, 2015). This is not to say that empirical data in both quantitative and qualitative forms cannot be obtained through such approaches; however, automatizing them through corpus tools significantly improves objectivity (Afzaal et al., 2019). In light of this strong bond and given the RQs, a corpus of 280,536 words was created from the official FoC Twitter account. More than 7,000 tweets posted between March 2020 and February 2022 were extracted from Twitter Premium API using TrackMyHashtag, a third-party tool. The data exhibited several informal features associated with microblogging genres, such as the use of symbols (Herdagdelen, 2013), warranting their cleaning. The data were then transformed into corpus-friendly plain texts. Later, the texts were imported into the #LancsBox (Brezina et al., 2021) corpus processing software. These tweets were already publicly and freely available online, and the account creator, @alexjgoldstein, was informed about this project and approved the analysis of the tweets as a public source. In accordance with the copyright concerns, no tweets have been reproduced here since the processes undertaken in corpus-based works often transform such texts into disjointed words and phrases in search of linguistic patterns. In addition, no names or identities have been disclosed or reproduced.

The study was designed to comprise three stages, each of which corresponded to one of the RQs, allowing for triangulation (Baker and Levon, 2015) of the analysis (Figure 1). To elaborate, stage 1 was devised to address RQ1, stage 2 to address RQ2, and stage 3 to address RQ3. In stage 1, the analysis utilized a gender-neutral corpus analysis in a top-down fashion. By examining the corpus as a whole using the Words tool in #LancsBox and identifying the most frequent nouns and adjectives, this stage aimed to reveal descriptive information concerning the general themes occurring in the FoC tweets. Establishing the general linguistic representations



in the FoC tweets, irrespective of gender, was necessary to proceed with the following stages. First, this was to highlight linguistic constructions that were rather common to both genders and associated with eulogies in general; second, this allowed for further investigation of the interpersonal aspect of microblogging. In stage 2, the same top-down approach was applied, as the *KWIC* and *GraphColl* tools were used to examine both the concordance lines of the gendered terms in the FoC tweets, such as *he*, *she*, *man*, and *woman*, and their collocations. In stage 3, manual analysis was adopted. Using the *RANDOM* function in Excel, 100 random tweets mourning men and 100 random tweets mourning women were examined in detail. This process was conducted in a bottom-up fashion within the framework of social actor representation (van Leeuwen, 1996, 2008). As stated previously, this is an extensive framework; therefore, only certain representations bearing significance to the current research problem were examined. Categorization and nomination were chosen as primarily substitution levels (van Leeuwen, 2008, p. 40-53). Categorization can be expressed through functionalization (e.g., *guardian* or *pianist*), appraisal (e.g., *good*, *bad*, or *admired*), or identification. Identification can be further expressed through classification (e.g., *Muslim* or *woman*), relational identification (e.g., *friend* or *mother*), or physical identification (e.g., *blonde* or *chubby-cheeked*). Nomination can be expressed through formalization (surname only), semi-formalization (given name and surname), or informalization (given name only). It can also be expressed through titulation—through honorification (e.g., *Dr.*) or affiliation (e.g., *Auntie*)—or detitulation (i.e., when no

titles are used). Figure 2 below is adopted and modified from van Leeuwen's (2008, p. 52).

Results

Stage 1

The analysis started with taking a gender-neutral perspective on the dataset and top-down processing of the FoC tweets. Using #LancsBox, the dataset was processed *via* the *Words* tool to generate the most frequently used words in the tweets. However, this process resulted in an extremely large amount of types (26,167 words) that could not be analyzed in total for reasons concerning practicality, significance, and indication. Consequently, the option for list sorting on #LancsBox was shifted from types to lemmas. A lemma in corpus linguistics refers to a word's head entry in a dictionary (Baker, 2006); for instance, the words *play*, *plays*, *played*, and *playing* belong to the same lemma (*play*). By sorting the list in such a way, variations in the same words were combined to reduce duplication. Then, the *Words* tool tagged these lemmas for their parts of speech as they were sorted. Accordingly, the top 50 nouns and top 50 adjectives in the most frequent lemmas are identified in Table 1. Verbs were excluded from this section, as they bore less relevance to the RQs. Note that like all corpus-assisted discourse studies, function words, e.g., articles, prepositions, and pronouns, appeared more frequently in this list than content words, e.g., nouns, adjectives, and verbs. Function words usually

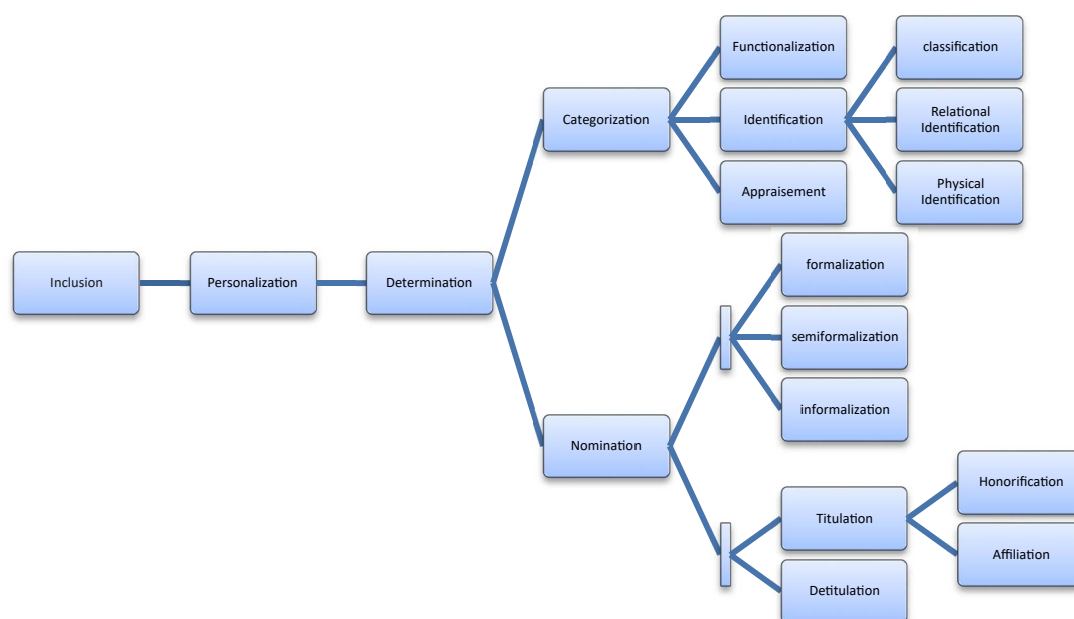


FIGURE 2

Social actor representation, adopted and modified from van Leeuwen's (2008, p. 52).

TABLE 1 The 50 top nouns and 50 top adjectives in the FoC.

Nouns				Adjectives			
Lemma	Frequency	Lemma	Frequency	Lemma	Frequency	Lemma	Frequency
Covid/Covid19	5,593	Florida	346	More	588	Wonderful	99
Rt	2,537	Community	341	Beloved	517	Long	97
@FacesofCovid	1,645	Dad	335	Many	463	Generous	96
Family	1,310	Dec.	330	Good	432	Positive	94
Year	1,024	May	325	Great	280	Former	89
Life	961	Love	323	Loving	234	Single	88
April	936	Husband	323	Kind	198	Full	84
New	707	Teacher	315	Much	197	Past	84
One	665	Man	308	Other	176	Funny	82
Day	650	Grandchild	304	Local	170	Same	81
People	624	Son	304	First	161	Few	79
Friend	576	Nurse	303	Submitted	142	Avid	79
March	549	July	298	Amazing	136	Human	77
Child	528	California	290	Old	133	Most	77
Wife	481	Heart	290	Beautiful	119	Grateful	76
@alexgoldstein	452	Mom	278	High	115	Able	74
Time	444	Nov.	274	Young	114	Social	74
Father	441	Virus	268	Big	112	Happy	68
Jan.	439	Death	257	Special	110	Kind	65
School	435	City	254	Hard	108	Strong	63
Texas	396	World	252	Own	107	Sweet	63
Daughter	376	Loss	234	Proud	106	Next	60
Veteran	375	Person	232	Devoted	105	Caring	57
York	374	Hospital	227	Real	105	Favorite	56
Mother	353	Everyone	224	Important	101	Healthy	54

dominate the top places in frequency lists; as a result, the first content word in the FoC list (i.e., *die* as a lemma) came in fifth place after *of*, *a*, *the*, and the conjunction *and*. However, function words were excluded at this stage for the sake of analysis and clarity of presentation.

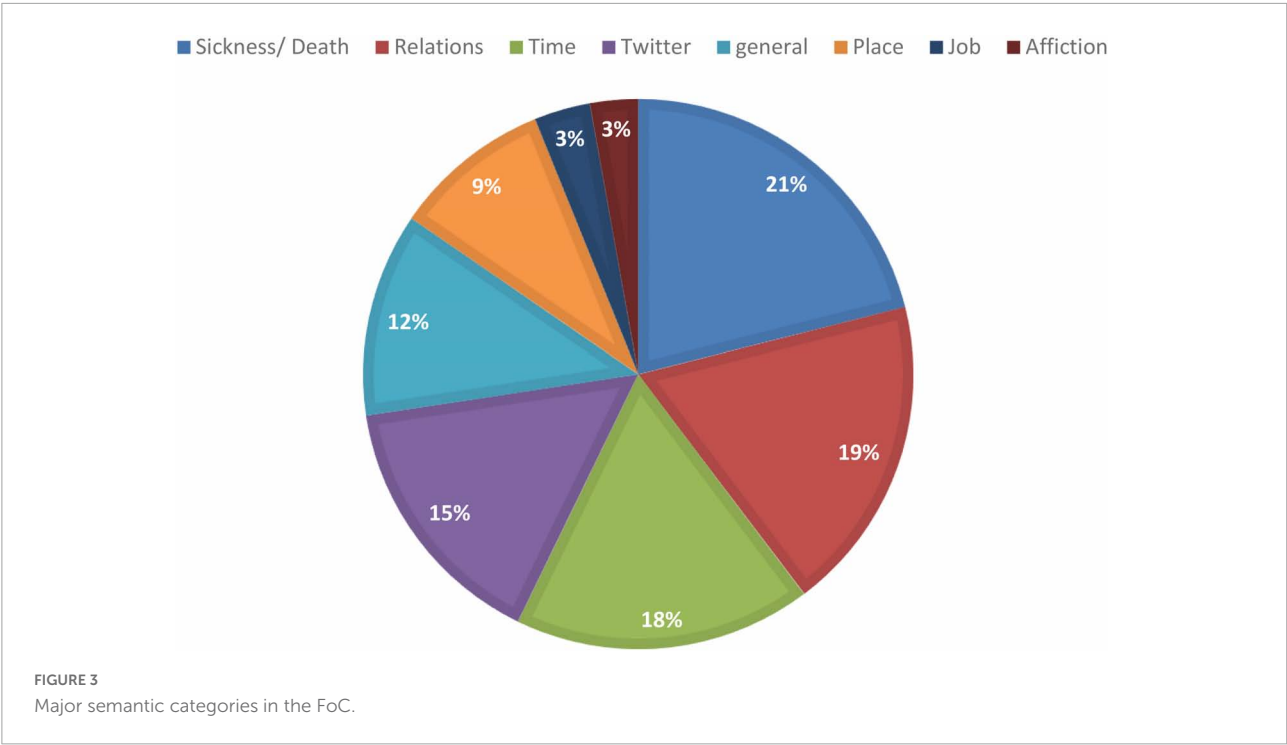
Nouns

The identified nouns could be further grouped semantically into eight major categories, as demonstrated in [Figure 3](#). The chart was created by compiling all of the nouns denoting a particular semantic group in relation to the total number of tokens for the top 50 nouns identified in [Table 1](#) (30,106 tokens). Unsurprisingly, given the focus and scope of the FoC account, nouns related to the pandemic, such as *COVID-19* or *death*, took the lead, accounting for more than 21% of the top 50 nouns. In the second place, at roughly 19%, came words denoting the relations expressed by the tweets to describe the deceased's relationship with the person submitting the tweet, such as familial terms, *friend*, and *child*. Within this category, the vast majority of words (>90% of cases) signified

familial relations, while the remainder referred to a friend. Identification of time and space with relation to the time/place of death, origin, or residence of the deceased was among the major semantic themes, occupying the third (18%) and sixth (9%) places, respectively. In fourth place (15%), there were three nouns bearing strong indications of the microblogging genre on Twitter, i.e., *rt* (meaning a retweet of a previous tweet) and mentions of two Twitter users (@FacesofCovid and @alexgoldstein [the creator of the FoC Twitter account]). A general category was created for words with rather general semantic references, such as *life* and *people*; this category came in fifth place at 12%. The last two categories, job and affection, were included as well, with roughly 3% of related words for each. In the affection category, nouns such as *love* were included, while the job category included nouns such as *veteran*, *teacher*, or *nurse*.

Adjectives

The top 50 adjectives were grouped based on their semantic meaning similar to the process conducted in the previous



section. The initial analysis of these adjectives and utilization of the KWIC tool of #LancsBox revealed that it was possible to identify the adjectives that were explicitly indicative of quantities, e.g., *more*, *many*, and *few*. These came in second place, with 23% of the 6,945 adjective tokens identified in Table 2. Similarly, it was possible to identify the adjectives related to describing details concerning age and time, such as *old*, *young*, and *past*, which came in fourth place at 7%. Adjectives with more than one semantic meaning were classified according to their evaluative content. To illustrate, certain words, including *beloved*, *loving*, and *kind*, were directly assigned positive polarity. However, for many of the adjectives identified on this list, the textual context as expressed in the concordance lines revealed conflicting polarities.

For instance, *big* (112 tokens) as a lemma for *big*, *bigger*, and *biggest* revealed 89 cases with positive polarity signifying big personalities, big hearts, or big presence while the remaining 23 cases were rather relatively neutral as in “big brother.” Similarly, *special* (110 tokens) was used neutrally (57 tokens) and in collocations with special needs, special education, and Special Olympics but was also used positively in the remaining 53 cases. *Social* (74 tokens) revealed similar patterns where it was used neutrally in conjunction with the social worker, social distancing, or social media but also signified positive polarity when acknowledging the lost ones’ social outgoing nature. *Hard* (108 tokens) expectedly signified negative polarity (61 tokens) but also denoted a positive one (47 tokens) when signifying the quality of being hard working. By the same token, *positive* (94 tokens), denoted naturally positive polarity as in positive

personality (37 tokens), but given the focus of the FoC, the remaining cases (57 tokens) all referred to a positive COVID-19 test, thus entailing a negative polarity. This positive/negative polarity is also exhibited in *able* (74 tokens) when narrating the morning families’ sorrows for the inability to be by the lost ones in their last moments due to pandemic restrictions or their gratitude for being able to say goodbye. Finally, the

TABLE 2 Top content word collocates of she was and he was in the FoC.

He was		She was	
Type	Token	Type	Token
Beloved	192	Beloved	80
Father	116	Nurse	77
Veteran	101	Mother	66
Man	62	Teacher	51
Husband	57	Loving	40
Loving	51	School	36
Retired	51		
Kind	50		
Teacher	47		
Loved	43		
Firefighter	38		
Best	37		
Years	35		
Devoted	33		
Owner	31		

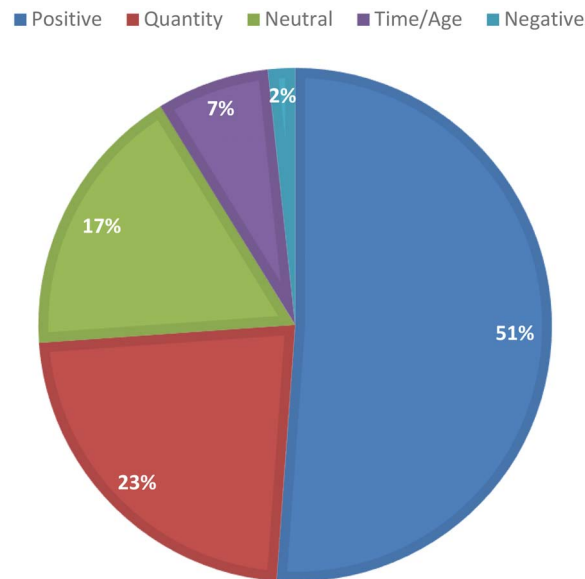


FIGURE 4
Major semantic categories for the top 50 adjectives in the FoC.

same (81 tokens) was used primarily neutrally (55 tokens) on the same day but could also signify negative polarity when tweets narrate that things are no longer the same for the mourning families (26 tokens).

All this was regrouped accordingly into five major areas as in **Figure 4** below, which clearly signifies the dominance of positive polarity in more than half of the identified adjectives. However, note that while this analysis attempts to reveal the patterns identified in FoC, corpus analysis in such a way approaches the dataset from a top-down perspective and is better aided by more bottom-up processing to confirm the findings within a more contextualized environment. The following sections offer a micro-level analysis with a special focus on gender differences, if any, in the FoC.

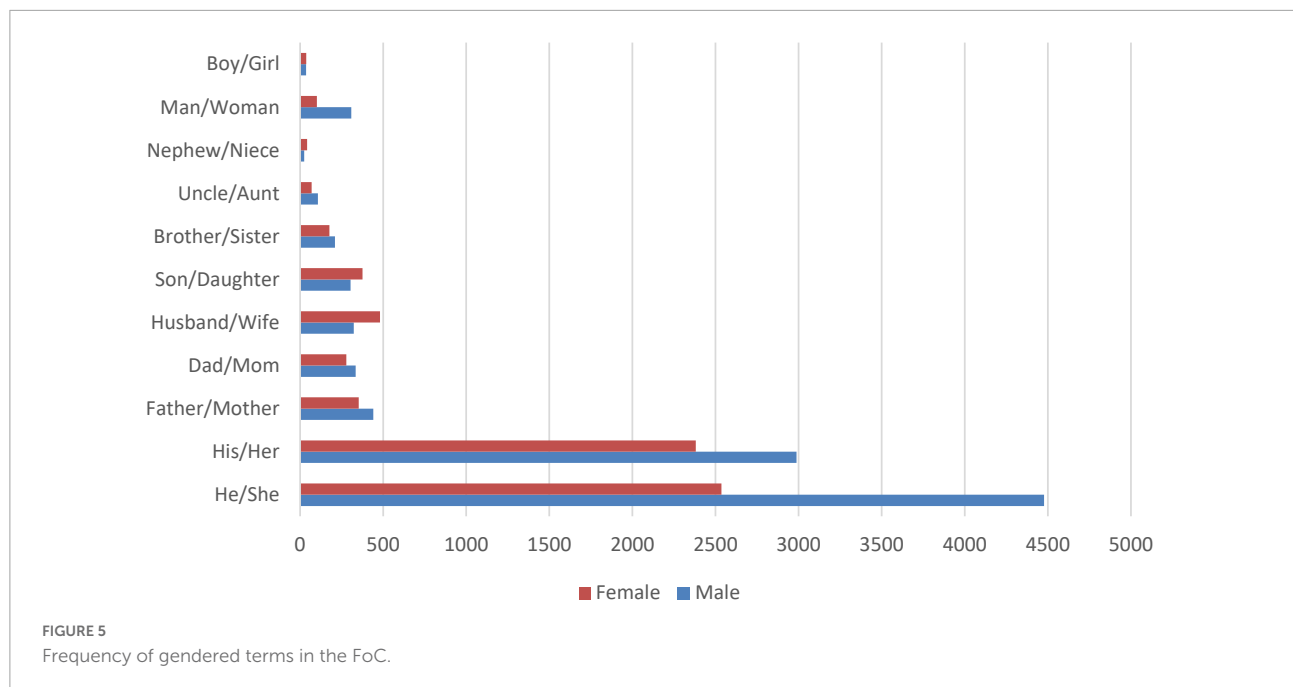
It was evident based on these findings that certain linguistic patterns persisted throughout the entire corpus and were detected in both the examined nouns and adjectives. However, note that in addition to the positive polarity and semantic diversity established in the representation of the deceased throughout the analysis, the findings at this stage clearly signified the interpersonal aspect of the FoC tweets. This was evident in the extensive utilization of many inherent features of microblogging, as discussed in the literature review. Consulting the KWIC tool for mentions (@), for instance, resulted in 5,499 tokens, with @FacesofCovid (1,645) and @alexgoldstein (452) at the top of this list (**Table 1**). Another repeatedly used inherent feature was the hashtag, whose affordances were discussed earlier in Section 1. More than 460 hashtags were used repeatedly in the FoC tweets, such as #covid, #covid19, and #facesofcovid. While the intensive use of mentions served

to create links within the community established by the FoC account, the use of hashtags had the potential to expand those links outside of that space.

Stage 2

With a more specific focus, this stage attempted to identify whether there were any differences in the reporting of the tweets based on the gender of the deceased. However, note that while working in stage 1, function words, such as pronouns, were excluded to allow for a content-based coverage of the patterns expressed in the tweets. This section starts by identifying gendered lemmas and their frequencies. Examination of the frequency list generated by the Words tool in **Table 2** revealed the profound presence of the third-person masculine and feminine pronouns *he* and *she*, respectively, along with their corresponding possessive pronouns, *his* and *her*, respectively. **Figure 5** illustrates the frequency of these lemmas as well as of other gendered words, such as *mother*, *father*, *brother*, and *sister*, and how they were distributed. With the exception of *he/she* and *man/woman*, none of the pairs revealed statistically significant differences between the male and female counterparts. However, this should be understood in light of the fact that these terms did not necessarily refer to the deceased; for instance, they could be referring to other relevant family members involved, as in examples 1 and 2 below.

1. She is survived by her parents, her *son*, and her sibling.
2. . . ., a humorist who was brilliant at political cartoons and was as crazy a dog lover as his *wife*, . . .

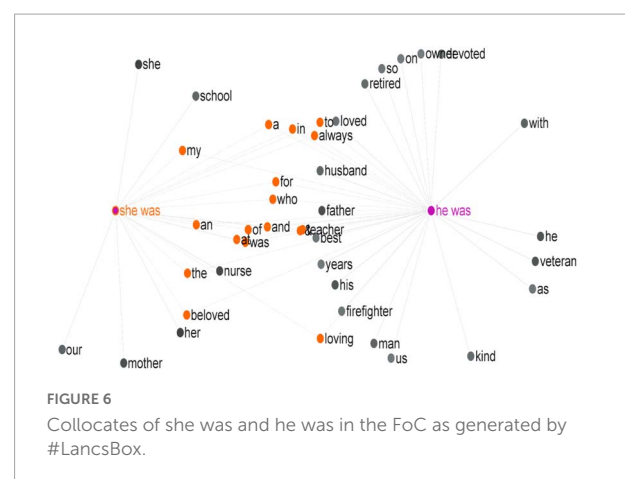


It appeared from this data analysis and corpus processing that stories related to male death cases were submitted more frequently than stories related to female death cases. With this in mind, it was essential to consult the KWIC tool to reveal which concordance lines actually described the dead. In doing so, it was evident that the use of a combination of the third-person pronoun and past form of *be* (i.e., *he + was* and *she + was*) was efficient in generating concordance lines describing the deceased in particular. A *he + was* search resulted in 1,839 occurrences, while a *she + was* search resulted in 1,003 occurrences. This was consistent with the results found earlier with regard to the number of posted tweets for the two genders. These occurrences were processed by the *GraphColl* tool to generate which collocations occurred most frequently with each structure.

To start, note that not all tweets contained the phrases *he was* or *she was*; however, this construction should provide a representative sample of the tweets. In light of this, the right span in the *GraphColl* tool was set to zero words, while the left was set to five words. Larger numbers resulted in busier graphs that could not be analyzed efficiently. The threshold was set to 30, meaning that a word had to occur at least 30 times in the tweets to be considered a collocate of *he was* or *she was*. Figure 6 demonstrates the 36 collocates of *he was* and the 23 collocates of *she was* as well as their overlapping collocates. The difference in the number of collocates was consistent with the difference in the number of occurrences of *he + was* and *she + was*.

Focusing on content words only (Table 2), these figures revealed some similarities and differences in the results. For instance, *beloved* dominated these two lists identifying an evaluative adjective along with other affect- and judgment-based

modifiers concerning the deceased. Among these, *loving* was dominant within the tweets for both genders, while *kind* and *devoted* were identified as collocates with *he + was* only. Family roles, e.g., *mother*, *father*, and *husband*, were also common, as shown in Table 2, which was consistent with the findings of stage 1. Words denoting job descriptions were more prominent in this list compared to those identified in stage 1, which barely comprised 3%. This prominence, in particular, was more evident with *he + was* collocates. However, Table 2 confirms a traditional perception of how professions are assigned to the two genders, with *she + was* collocating with *nurse* and *teacher* and *he + was* collocating with *veteran*, *firefighter*, and *owner*. The next section targets such a difference from a more specific perspective, adopting social actor representation as a framework for analysis rather than utilizing corpus tools.



Stage 3

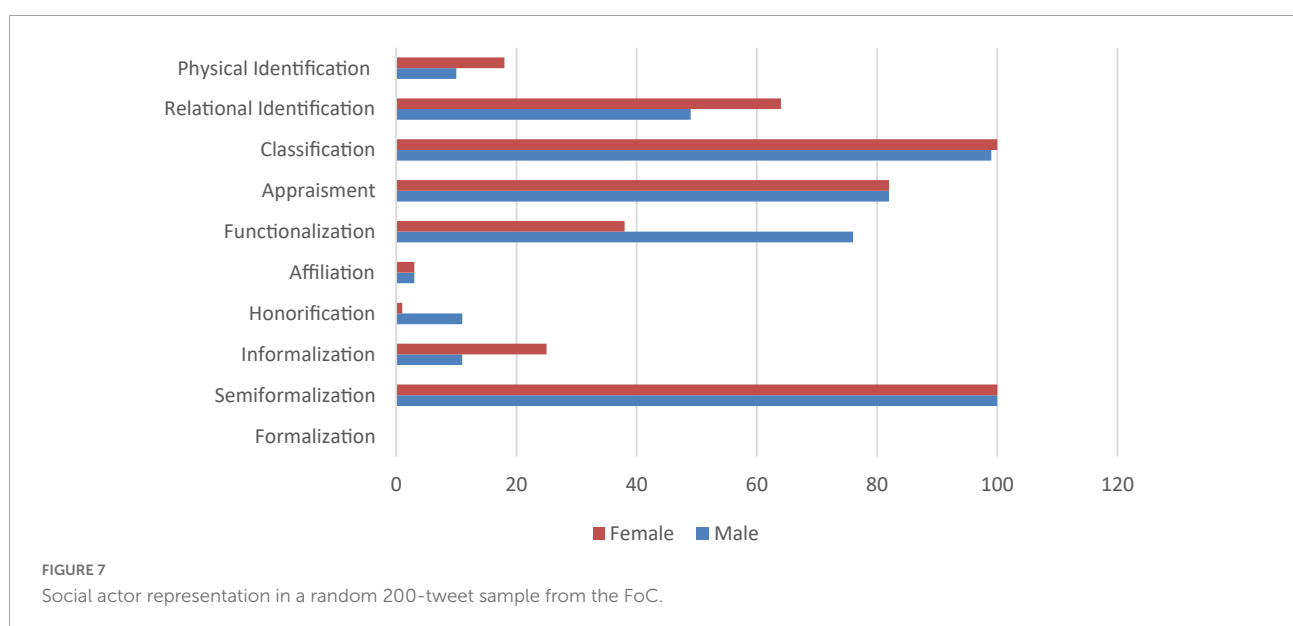
The last stage of the analysis was conducted with a social actor representation perspective, examining 200 random tweets from the FoC account (100 eulogizing men and 100 eulogizing women). To start, note that almost all of the mourning tweets, regardless of the gender of the deceased, followed the same pattern. Examples 3 and 4 below demonstrate a case for each gender, with the proper names identified in the tweets omitted. The tweets started with the full name (given and surname), age, and city/state of origin/residence, followed by the date of death. The remainder of the tweets described the deceased in the language of each tweet's original writer, i.e., the person sending the content to the account with the intention of sharing it *via* that platform.

1. ** **, 70, of *****, New Mexico died of COVID on Jan. 29, 2021. He spent 45 years as a heavy equipment operator and loved smoking meat.
2. "Of all the things that ** was, the thing he did the very best was being a father"
3. ** **, 79, of Ohio, died of COVID on April 26, 2021.
4. "** loved pretty things and enjoyed shopping for a bargain to decorate her home and tabletops. She also liked watching the Cleveland Browns, Cavs, and Indians and Ohio State Buckeyes"

Due to this pattern, it is unsurprising that in almost all of the examined tweets, semiformalization and classification by age, residence, or origin were always present, irrespective of gender. However, informalization with given names/nicknames seemed to be more common for women than for men. On the contrary, honorification, primarily with titles such as *Dr.*,

were almost exclusively used for men only. This was primarily linked to the fact that while the use of words denoting jobs was confirmed for both genders in previous stages, the detailed analysis in this section revealed double the functionalization cases in male micro-eulogies (76%) compared to female ones (38%) in this random sample. This differed from the results for relational identification, which appeared to be more prominent in female micro-eulogies (64%) while it occurred in slightly less than half of the male micro-eulogies. Interestingly, physical identification revealed similar patterns favoring female micro-eulogies at 18% of their tweets compared with 10% for the male ones. In all 200 examined tweets, physical identification was used primarily to denote the deceased's *beautiful smile* or, in fewer cases, to comment on their health conditions prior to their loss. Both appraisal and affiliation were used equally for men and women despite the prominence of appraisal (82% each) compared to the scarcity of affiliation (3% each). **Figure 7** summarizes these findings.

This, however, is not to say that similarities were impossible to detect in this analysis. **Figure 7** clearly demonstrates areas wherein both men and women had extensively similar representation. This was particularly evident in the case of semi-formalization, whereby all deceased were referred to by their given names and surnames, irrespective of gender, as well as in the case of categorization. Nevertheless, such similarities should be examined in light of the aforementioned fact that all of these mourning tweets conformed to the same pattern of representation. Appraisal, however, which was used at a similar frequency for both genders, represented a solid construction that is usually associated with eulogies. This focus on appraisal provided consistent findings that were established in stages 1 and 2 as well. This suggested that while these stages were separated for the sake of clarity



of presentation and analysis, they were approached from an inclusive perspective in search of recurrent patterns. Thus, the findings are discussed collectively in the following section.

Discussion

Based on the detailed examination of the FoC and considering the RQs, the findings of the three stages of the analysis revealed some consistencies across the linguistic patterns targeted at each stage. To illustrate, the recurrence of the theme of relationships/kinship was established in both the corpus and social actor analyses. This is prominent in the themes identified with the most recurring nouns in the FoC as well as the collocates of *he was* and *she was*. This was unsurprising considering the communicative functions upon which these micro-eulogies were created. Coupled with the highlighted positive polarity associated with the adjective analysis in stage 1, these results were consistent with what has been reported in the previous literature. Hayes (2016) provided evidence from three experimental studies that prove a pervasive motivational tendency in eulogies to positively praise the deceased—and perhaps even idealize them—irrespective of their close or distant relationship. Further, he added that this is the case as it could mitigate some of the distress caused by death-related reasons. Considering RQ1, for instance, it is possible to view FoC, in general, in light of this common theme. This was also evident in the prominence of appraisal for both genders, which could be linked to the gender similarities hypothesis (Hyde, 2005). While the current paper targeted asymmetries in discursive representations of both genders, common areas of construction should not be downplayed or overlooked.

Considering the motivations shared earlier on the creation of the FoC Twitter account, such findings could be linked to system theory (Bronfenbrenner, 1979). Within such a conception, it is possible to envision a system where people's communicative behavior bonds them; in this sense, parts within that system exist in relation to other parts. This serves to highlight that meaning resides in interactions rather than in people and that it is interactionally constructed (Berger and Luckmann, 1967), which is consistent with the constructionist theories of discourse noted in the introduction. What is created through these tweets—and through the FoC account as a whole—is a virtual system encompassing a virtual community (Al Maghlouth, 2018), where the bereaved look for support and relief and demonstrate what Verma and Neimeyer (2020) classified as collective vulnerability and socially shared grief. In this sense, social media platforms, such as the FoC account, offer a good coping mechanism (Kakar and Oberoi, 2016) in response. The creation of this community has also been supported by the identified inherent features of microblogging, which can be directly linked to the linguistic feature of intertextuality. In intertextuality, texts are linked to

other texts or references outside of their immediate linguistic context (Reisigl and Wodak, 2009). With this in mind, such intertextuality serves to intensify the affiliation created within virtual communities (Zappavigna, 2012, 2014), even in its most basic ambient forms.

Regarding the gender-based examination sought in RQ2 and RQ3, interestingly, this particular dataset did conform to the unanimous findings of gender asymmetry presented in the literature on gendered discourse (Pearce, 2008; Baker, 2010, 2014; Baitinger, 2015). In the FoC, men were more present than women, were constructed *via* more functionalization, and had more honorification than women, who took the lead in relational and physical identification instead. Even in eulogies, women were still found to be constructed through rather stereotypical gender representations, which was consistent with the findings of many corpus-based works (Vu et al., 2018). This is interesting because unlike many ideologically—and, perhaps, intentionally—loaded discourses that often target media discourses to examine gender representations, the representations constructed in the tweets were actually produced as micro-eulogies to memorialize the dead by their loved ones. This could suggest that even with the purest intentions, language—natural and authentic language, in particular—appears to be inherently gendered. This finding conforms to the constructionist view of discourse and gender within wider social and cognitive discursive circles. Gender, which has been established repeatedly in the relevant literature works as socially and culturally constructed (Butler, 1999, 2006; Wood, 2004), remains subconsciously confined to linguistic asymmetry. Considering the more inclusive take on gender established in the literature review and expressed through social role theory (Eagly and Wood, 2012), expecting a parallel asymmetry in corresponding discourse does not come across as surprising.

Moreover, due to the constructionist perspective taken and given the affordances of microblogging communication highlighted earlier, it could be assumed that such gendered representations were demolished or at least constrained. To illustrate, social representations—including those pertaining to gender—are inherently dynamic and subject to change in response to new contexts (Cohen et al., 2022). Earlier discussions of social media as a platform for online grief have presumed that its affordances should lead to bias-free constructions since individuals can access these platforms without the interfering mediums of traditional media outlets (Lingel, 2013). A decade on from such assumptions, the results of this study suggest that this is not the case. These findings highlight that social media platforms offer discourse analysts a natural laboratory to investigate linguistic and social constructions (Herdagdelen, 2013) and that, even within such laboratories, dominant ideologies are still transported to the public on both conscious and subconscious levels (Popa and Gavrilu, 2015). This highlights the ongoing need

to promote awareness of how gender asymmetry is depicted in language. While redressing gender unbalances cannot be achieved overnight, many diachronic studies have documented some improvement toward this goal. This has been evidenced through several discourse analyses within educational fields (e.g., Wharton, 2005; Lee, 2018); it could also be achieved within other domains.

Conclusion

Resorting to social media platforms to express grief has been normalized in recent years within various social contexts. In light of this, this paper examined a corpus of micro-eulogies posted online as memorials of those lost to COVID-19. The multi-level analysis revealed several linguistic patterns associated with positive polarity with regard to the deceased, irrespective of gender. It also highlighted the existence of gender asymmetry and stereotypical constructions within the corpus, confirming the tendency established in the vast majority of discourse studies. The study also acknowledged the constructionist theories of gender and grief as social constructs and, consequently, highlighted the need to promote more awareness of women's constructions in natural language. Based on such theories, the findings implied that this could be an indicator of the inherently gendered nature of language, which continues to be transformed discursively and subconsciously through social interaction. In light of this, further research into discursive studies within eulogy discourse is recommended, especially considering the scarcity of gender-based investigation in this field. Such research should be carried out with an interdisciplinary motivation comprising linguistic, social, and psychological avenues.

This study also illustrated the feasibility of combining corpus tools with other analytical frameworks, such as social actor representation. Despite the potential of corpus processing in providing analysts with an extensive perception of larger sets of natural language data, on its own, corpus linguistics might overlook certain patterns. As a result, the utilization of more bottom-up processing through manual analysis could potentially provide analyses with more depth and intensity.

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Thus, it could be argued that a multi-level take on methodology should always be encouraged in future research in response to such implications, which is more consistent with the inter- and multidisciplinary nature of discourse studies.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

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Perceiving the poetic world: A corpus-assisted transitivity analysis of poetry comics

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While modern adaptations of Chinese classics have drawn keen scholarly interests lately, the comic adaptation of Chinese traditional poetry remains under-investigated. Extending the previous research on intersemiotic translation and comics, this paper, drawing on the analytical framework of systemic functional semiotics, examines distribution of process types of language in poems in comparison with that in comic images in the exemplary case drawn by Cai Zhizhong, using UAM image as the annotation tool. The comic book formulates a multimodal corpus that consists of 1,097 clauses and 605 images. We have manually analyzed the process type of the poems and their corresponding comic panels. Our quantitative and qualitative results show that there are distinct patterns of process-type distributions between verbal poems and images. Poems have been turned into perceptions, actions, and verbal processes in comic strips, which serve various purposes such as construction of the poet's gaze, relations building, storyline development, dramatization, metaphor visualization, etc. The paper is concluded with discussion on how the intersemiotic translation of poems might produce effects on readers.

KEYWORDS

comic adaptation, poetry comics, intersemiotic translation, transitivity, process type

Introduction

Chinese poetic tradition has been one of the longest traditions in the world literature and it has continuously thrived not only in China but also in its neighboring countries and the western countries (Hinton, 2014, p. 1). To make the poetry more accessible to the general public, certain adaptation or translation are needed. One solution is to translate it into modern plain language, an act of intralingual translation. Another approach, as is increasingly well received, is to reconstruct it into a multimodal text, that is, poetry with pictures, the process of which is called intersemiotic translation in Jakobson's (1959, p. 261) term. The appeal of adaptations, argues Hutcheon (2012), "lies in their mixture of repetition and difference, of familiarity and novelty (114)." Thus new forms of poem picture books have never ceased to emerge in recent years to meet the needs of readers of different ages and various kinds (c.f. Zhong et al., 2021a). Among these forms, comic adaptations have stood out as a peculiar type of innovation. The most successful case is Cai Zhizhong's (or

Tsai Chih Chung, hereafter Cai) comic adaptation of Chinese classics. Most remarkably, he managed to adapt Chinese classical poems into comics, which is rarely seen in poetry literature. However, his work of comic adaptation from poems has not been investigated, though there are a few scholars who have conducted scanty research on Cai's comic adaptation of Chinese classics (e.g., Yu, 2019 on *Journey to the West*; Zhong et al., 2021b).

To better understand the phenomenon of intersemiotic translation from poems to comic images, we draw upon the analytical framework outlined in systemic functional semiotics with a specific focus on transitivity systems (Kress and van Leeuwen, 2006; Long and Peng, 2012; Painter et al., 2013; Halliday and Matthiessen, 2014) to examine the semiotic distributions in both verbal and visual resources in Cai's case. The paper will first review relevant studies on intersemiotic translation and comic adaption. Then, the analytical framework of transitivity systems will be introduced before reports on how verbal poems were translated into images quantitatively and qualitatively. Then, we will consider how the intersemiotic translation strategy may produce discursive effects on readers.

Intersemiotic translation and comic adaptation

The phenomena of various forms of adaptation such as film adaptation from literary works, comic adaptation from classics, etc., have been brought to the attention of translation scholarship under the concept of intersemiotic translation. The most cited source of the notion is Jakobson's (1959, p. 261) tripartite definition of translation, namely, intralingual translation, interlingual translation, and intersemiotic translation. Intersemiotic translation, in Jakobson's sense, refers to translation from language to other semiotic systems. Subsequent research attempted to broaden this concept to include translation from one semiotic system to another, not necessarily involving language (e.g., Eco, 1979, p. 71; Dusi, 2015; Mossop, 2019). Intersemiotic translation has been modeled theoretically in different terms such as transposition (Dusi, 2015), and resemiotization (Iedema, 2003; O'Halloran et al., 2016), giving rise to multimodal perspectives in translation studies, or more concisely termed, multimodal translation (c.f. O'Sullivan, 2013; Pérez González, 2014; Zhang and Feng, 2021) or plurisemiotic practices in translation (see Mus, 2021). Given the complexity of expression planes and content planes of two semiotic systems, intersemiotic translation inevitably introduces creation and discrepancies, and may differ from traditional notion of translation by nature. Nevertheless, the notion of faithfulness to the source text remains the central issue in studies on adaptation strategies (e.g., Hutcheon, 2012; Roche et al., 2018). Therefore, comic adaption can also be investigated in terms of faithfulness and transformation to the original verbal text, shedding some light on functional and cultural motivations.

Early research on translation of comics mostly revolved on how multimodal features of comic discourse motivated

translation choices (e.g., Kaindl, 1999; Zanettin, 2008). As Borodo (2015) suggests, the interaction between verbal and visual sign systems on comic pages may be pertinent to translation for reasons such as spatial constraints, verbal-visual incongruence, liberal interpretation of a panel, etc. Recently, there has been a proliferation of studies that investigated how classic texts were translated inter-semiotically into comics and picture books. Some studies are interested in the translation shifts and the motivations underlying these choices. For instance, Chen (2018) found that the visual translation of *Mulan* has been "transformed from a legendary Chinese heroine into a hybrid Americanized tomboy." Other research focuses on equivalence such as Luo (2021), who investigated how verbal rhetorical figures correspond to visual ones in a picture book version of *Art of War*. However, how poems could be visualized into comics has not received much scholarly attention. And the previous studies showed no attempt in drawing on linguistically-minded theories for systemic and quantitative analysis for the semiotic shifts in translation. Therefore, the current study attempts to contribute to this area by analyzing how the experiential meanings of verbal poems were transformed into comic images under the framework of systemic functional semiotics.

In recent years, systemic functional linguistics has already been employed to investigate how classic literary texts are transformed lexicogrammatically and semantically in adapted versions. For example, Huang and Chen (2015) conduct functional linguistic analyzes of the beginning paragraphs of Alice's Adventures in Wonderland and the corresponding simplified versions. Chang (2018) treats different versions of *Pride and Prejudice* as "re-instantiation" and analyzes how the targeted texts are interpersonally and ideationally committed. While these functional studies are concerned with English literary texts, the Chinese classics and their adapted texts remain largely under-investigated. Chen (2018) pioneers this field by comparing the transitivity, projection, and appraisal of the classic Chinese fables and their modern adaptations to reveal how social and semiotic developments might influence the latter. But the study is confined to linguistic analysis. A few scholars have begun to use systemic functional semiotics to investigate comics (e.g., Bateman and Veloso, 2003; Veloso and Bateman, 2013; Wang 2014; Zeng and Yang, 2016). Veloso and Bateman (2013), for example, conduct a multimodal examination on how legitimization has been constructed in Marvel's Civil War comic books. Zeng and Yang (2016) attempt to establish a framework describing how projection (language of speech) could be realized in comics. Despite the keen interests of functional linguists in both adaptations and comics, few of them are concerned with intersemiotic translation in comic adaptations. And it remains a question how poems could be translated into other semiotic systems such as images in picture books and comics. Therefore, this study is an attempt to address the following questions:

1. How are poems translated/resemiotized into comic images?

2. How are the process types distributed in poems in comparison with those in comic images?
3. What are the functions of the processes in images with reference of those in poems?

Theoretical framework and methodology

In this paper, we focus on a particular case of Cai's adaptations, namely, *Tang Shi San Bai Shou: Qian Gu De Jue Chang* (300 Tang Poems: Songs of millenniums). There are a few features in this book that we should mention here. First, there are 140 poems selected into this book although the title claims that there are three hundred. Thus, the number "three hundred" should not be interpreted literally as is often the case in other anthologies of Tang poems. Why these 140 poems have been chosen is not mentioned in the book. But the poems, as indicated in the introduction of the book, are among the most popular ones. Second, each poem is transformed into a comic strip of, in most cases, six panels. Usually, a panel displays one or two lines of the corresponding poem. Third, the general structure of the comic strip is rather fixed. The first panel presents the title of a poem through a speech bubble. Then, the following four panels demonstrate the body of the poem. The last panel provides the explanation of the poem in plain modern Chinese (see Figure 1).

To get quantitative results, we worked under the general framework of systemic functional grammar and the visual grammar that was developed based on systemic functional

linguistics, both of which could also be referred to as systemic functional semiotics (or SFS, see, e.g., Bateman, 2015) or social semiotics (see, e.g., Jewitt et al., 2016, p. 58–85). Since Halliday (1978) outlined his position to study language from a social semiotic perspective, the paradigm of the linguistic theory has been effectively applied to the analysis of other semiotic modes such as images, sound, actions, etc. (Martinec, 1998; Van Leeuwen 1999; Kress and van Leeuwen, 2006; Painter et al., 2013; respectively). There are a few basic assumptions made in systemic functional linguistics which seem to work for other semiotic resources as well. One of the most significant hypotheses is that language has become the way it is because it serves some basic functions that help human beings relate themselves to the ecological and social environment. All these functions are general enough to cover certain clusters of lexicogrammatical systems. The functions are boiled down into three metafunctions, namely, ideational function, interpersonal function, and textual function.

This paper focuses on ideational function, and more specifically, the transitivity system that serves that function. Ideational function means that language helps human beings to communicate and reflect on the physical and abstract world. It provides a theory of human experience (Halliday and Matthiessen, 1999). This function is mainly grammaticalized into transitivity system in which clause components are labeled as participant, process, and circumstance. Process is the core element that determines the configuration of participants and circumstances. Thus, in each clause, we can identify six types of process including material process, mental process, relational process, existential process, verbal process, and behavioral process. The type of process determines how other participants are configured in a clause. For example, a material process may go with a goal (as in *He drove a car*) and a verbal process may go with a metaphenomenon (as in *He says a car is coming*). But it is not possible for a material process to go with a metaphenomenon (**He drove a car is coming*). Therefore, a transitivity analysis reveals how a world is depicted experientially in a particular text. Since the source text is Chinese, we mainly drew upon Long and Peng's (2012) transitivity system in Chinese to annotate the process types in verbal poems. The criteria for coding the process types in language are listed in Table 1. In cases where double coding may apply, the authors will reconcile with each other to determine the particular process in a given clause.

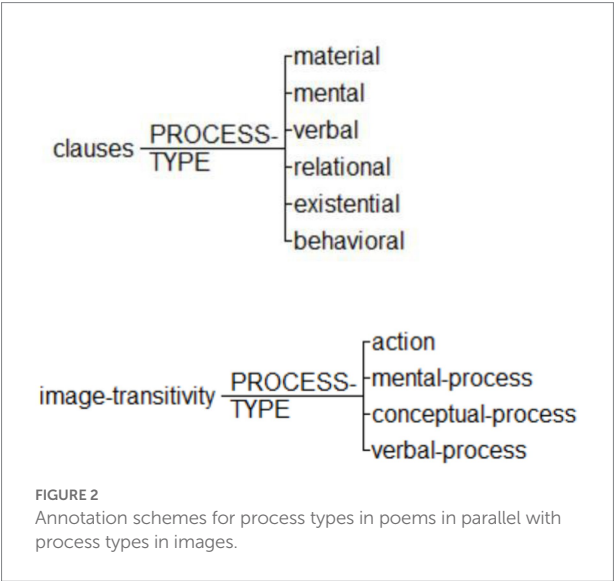
The transitivity system in language has been applied to visual analysis by Kress and van Leeuwen (2006) and Painter et al. (2013). In this study, we mainly adopt the model of Painter et al. (2013). In their framework, the transitivity system of images is described in terms of participants, processes, circumstances, and their inter-relations. We follow specifically how they model different processes, or in Kress and van Leeuwen's (2006) term, narrative processes (see Figure 2). In this framework, there are three major types of processes, namely, Action, Verbal Process, and Mental Process. Notice that these processes are all featured with clear vectors (for example, directions of actions or gazes). When there is no vector, the process will be coded as Conceptual



FIGURE 1
A complete poetry comic strip in Cai (2014, p. 3). Images reproduced with permission from Shang Dong People Press.

TABLE 1 Coding criteria for process types in language.

Process types in language	Coding criteria
Material process	Processes of doing and happening, e.g., creating, cutting, walking, etc.
Mental process	Processes of our consciousness, e.g., thinking, seeing, feeling, etc.
Relational process	Processes of characterizing or identifying, e.g., being, having, etc.
Verbal process	Processes of saying
Existential process	Processes that represent that something exists or happens, e.g., there be
Behavioral process	Processes of (typically human) physiological and psychological behavior, like breathing, coughing, smiling, dreaming and staring.



Process, following Kress and van Leeuwen (2006). Hence, we have a list of process types which are comparable between languages (the poem) and images (the comics), as shown in Figure 3.

With the frameworks mentioned above, we scanned the pages and imported them in UAM Image Tool for annotation (see Figure 4). We manually annotated the process type of each clause in poems and each panel of the comic strips in our case. The comic book generated a small multimodal corpus of 1,097 clauses and 604 images (excluding the first and last panels of each comic strip because they manifest the same content repeatedly and thus would affect our analysis on patterns of transformation). The two authors of this paper conducted a pilot coding of the first 20 clauses and the corresponding images and discussed the discrepancies. Then, the two authors agreed that a few adjustments were needed to tackle the peculiar features of our data. The following criteria are relatively more operable.

First, whether there is a clear vector formulated in the image is the defining feature to separate narrative image from conceptual image (following Kress and van Leeuwen, 2006). When it is judged as a narrative image, we then decide whether the vector is created by actions, mental processes, or verbal processes. Next, the number of these processes will be counted according to the number of entities that produce the vector. Take Figure 4 for example. In the second panel, two men are portrayed as looking at a pagoda on the right side. Based on the vector of gazing and

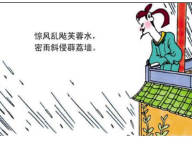
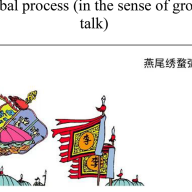
Process types	Example picture
action (vectors created by animate or inanimate participants or behavioral actions such as smiling and crying)	 coded as two actions (one for the dance and the other for the smile)
mental process (vectors created by participants who gaze at an object or process of thinking)	 coded as one mental process
verbal process (vectors created by speech bubbles or sound curves or open mouths)	 coded as one mental process and one verbal process (in the sense of group talk)
conceptual process (no clear vector of action or no clear target of perception from participants)	 coded as one conceptual process (because it is not clear what the participant is looking at)

FIGURE 3
Process types in images following Painter et al. (2013, p. 69). Images reproduced with permission from Shang Dong People Press.

the number of men, we coded this image as two mental processes. However, when a certain object serves as the tool with which the action is carried out, we would not count it in. The reason is that actions of tools should be considered as minor processes rather than major processes (like circumstances in a clause in language, c.f. Halliday and Matthiessen, 1999, p. 217–222). For instance, in Figure 4, the movement of the horse would not be counted as action, but the man riding it would be counted. Moreover, collective actions (such as a group of soldiers fighting in a war) are counted as one action unless a few individuals are foregrounded in the image.

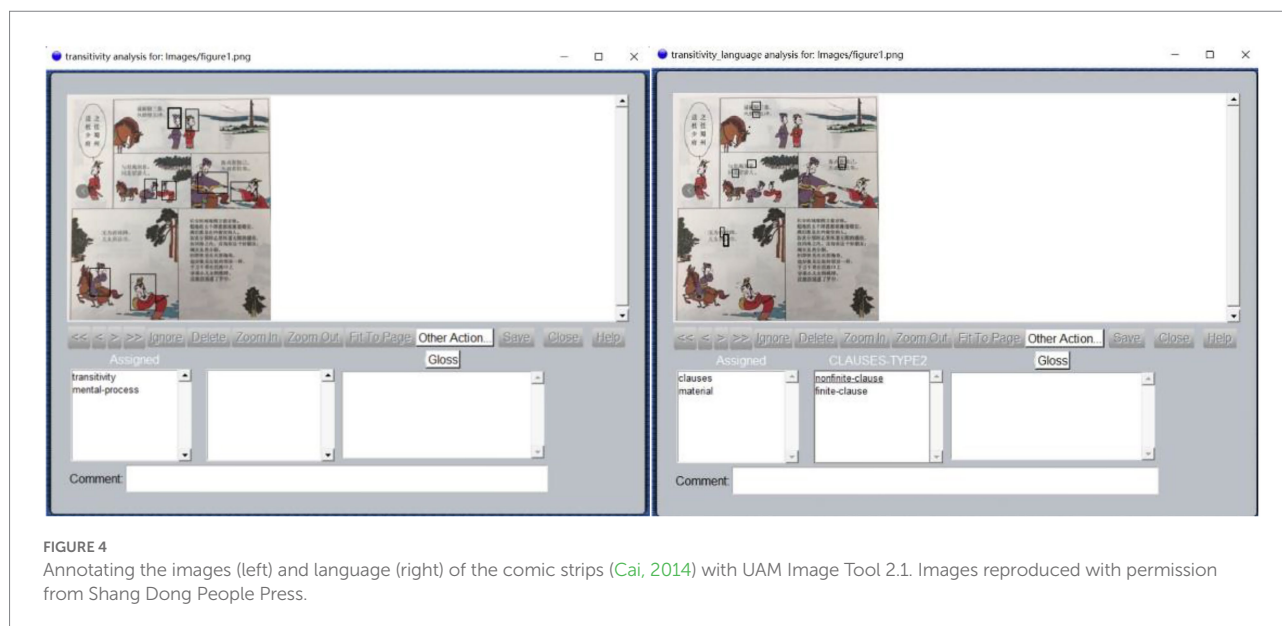


FIGURE 4
Annotating the images (left) and language (right) of the comic strips (Cai, 2014) with UAM Image Tool 2.1. Images reproduced with permission from Shang Dong People Press.

Secondly, conceptual process will be coded only when there is no vector involved in a comic panel. And the image will be coded as one conceptual process no matter how many elements or items are depicted in it. We took this approach because it was difficult to separate conceptual processes from various types of actions in one image, and it is both hard and unnecessary to count the number of conceptual processes. Consider Figure 4 again. If we coded the circumstantial elements such as the pagoda, horses, and trees as conceptual processes, that would have produced too many conceptual processes that are not significant to our analysis. And there is no point in counting how many trees and horses. Therefore, an image without clear vectors will be coded as one conceptual process.

Third, the acts of crying, smiling are coded as action as well, because they are coded as behavioral action in Painter's et al. (2013) model. Furthermore, to address the particular nature of the verbal process in comics, the person who is depicted as saying something with the mouth open with or without the speech bubble would be coded as one verbal process. And the signal of any sound from animate objects (such as birds) or inanimate objects (such as trees or houses) is coded as verbal process as well.

Despite the adjustment of the coding criteria given above, the analysis of the language in Chinese and the images was inevitably subject to subjective interpretations due to the ambiguity in poetic language and visual meanings. Therefore, the two authors coded the data separately to reach inter-rater reliability. It should also be noted that the analytical framework offered above merely focused on the processes in language and images, which represent only one of the many dimensions of meanings, neglecting, for instance, interpersonal meaning, textual meaning, logical meaning, etc. The subsequent analysis thus only shines a light on how poems could be resemiotized into images from a limited perspective.

TABLE 2 Distribution of different processes in poems.

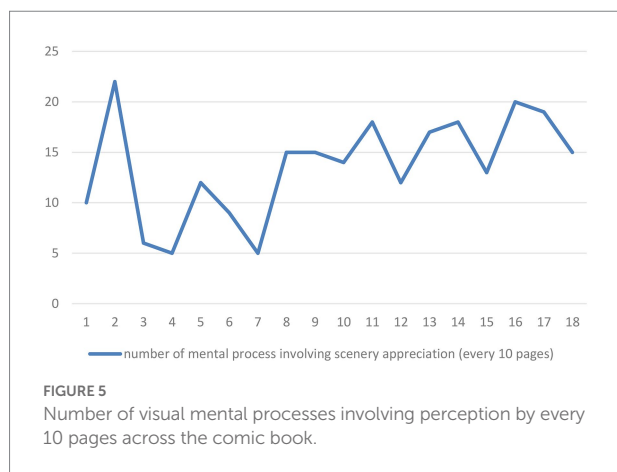
Process types in poems	Count	Percentage
Material process	531	48.40%
Mental process	200	18.23%
Relational process	245	22.33%
Existential process	55	5.01%
Verbal process	54	4.92%
Behavioral process	12	1.09%
Total	1,097	100.00%

Quantitative results

This section will show the statistical result of our quantitative analysis. Table 2 displays the percentage of various processes in poems. It is shown that material process accounts for nearly half of the total (48.4%), followed by relational process (22.33%) and mental process (18.23%). Existential process and verbal process both take up only around 5%. When it comes to processes in images, a clearly similar pattern can be perceived, as shown in Table 3. Mental processes occupy 46.85% of the total, followed by action (43.11%). Most notably, there is only one conceptual process recognized in our data. Verbal process takes up 9.91%. Hence, this preliminary comparison reveals that the relational and existential processes in poems have been shifted to action, mental processes, and verbal processes. The result is plausible because actions and verbal processes are the predominant semiotic resources used to construct events and narratives in comic strips. However, why mental processes were adopted to represent various processes in poems needs close examination. The next section will provide qualitative analysis on the functions of action, mental processes, and verbal processes in images with reference to the processes in poems.

TABLE 3 Distribution of different processes in images.

Process types in images	Count	Percentage
Action	335	43.11%
Mental process	364	46.85%
Verbal process	77	9.91%
Conceptual process	1	0.13%
Total	777	100.00%



Qualitative analysis

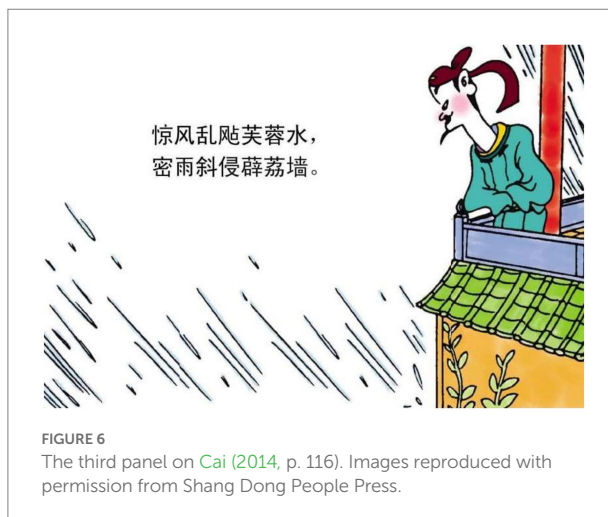
Based on the statistical analysis of our data, we examine, panel by panel, why certain processes in poems are resemiotized into other processes in images. As mentioned above, the general trend is that various processes in poems have been mostly reconstructed as mental processes, followed by actions and verbal processes. Hence, in this section, we will report on discursive features of mental processes, actions, and verbal processes in comic images and their functions, respectively.

Functions of mental processes

A close examination of mental processes in images reveals that the most prominent motivation is that when the poem depicts objects or circumstances that are perceived, the perceiver tends to be foregrounded. In other words, the poet's gaze has been constructed through mental processes of perception. Figure 5 displays the number of visual mental processes involving perception across the comic book.

Hence, it is conceivable that mental processes are often added in images, showing the poet or the protagonist observing the scenery in the poem. For example:

1. 密雨斜侵 薜荔墙 heavy rain attacks creeping-fig wall.
“The heavy rain attacks the wall full of creeping figs.”



The image that depicts the line in example 1 not only displays elements of rain, creeping figs, and the wall, but also shows a man looking down at the rain on the wall (see Figure 6). This is the major reason why the mental process is the most frequent type in images. The poet or the protagonist of the poem is often foregrounded in the image to observe (or, in a few cases, think about) the elements or events portrayed in the poem.

The second motivation, which is less obvious, is to use mental processes of perception to reconstruct the relations between different elements in poems. More specifically, the vector of perception is utilized as a pointer to imply the relations. The relations might refer to more concrete sense of directions or more abstract meaning of interactive status. See the examples below.

2. 皆向沙场老 all toward battlefield old.
“(They) all get old along with the battlefield.”
3. 联步趋丹陛, together walk toward emperor.
分曹限紫微 divide position only fate.
“(We) walk together towards the emperor.
Mere fate divides us into different positions.”

In example 2, the relational process 老 “old” is reconstructed as a soldier who is looking far into the battlefield. The vector of the gaze, thus refers to the relation between the man and the field (see Figure 7). In example 3, the material process 联步 “together walk” is turned into two types of processes in image, viz. action of walking and mental process of perception (see Figure 8). The perception suggests that the two men are connected in terms of their functions to serve the king. Therefore, the invisible line of vector serves to build up the abstract relations between the two protagonists in the poem.

Functions of actions

As shown in the previous section, actions represent the second largest proportion in images. The most important function of actions



FIGURE 7
The forth panel on Cai (2014, p. 30). Images reproduced with permission from Shang Dong People Press.



FIGURE 10
The second panel on Cai (2014, p. 33). Images reproduced with permission from Shang Dong People Press.



FIGURE 8
The second panel on Cai (2014, p. 68). Images reproduced with permission from Shang Dong People Press.

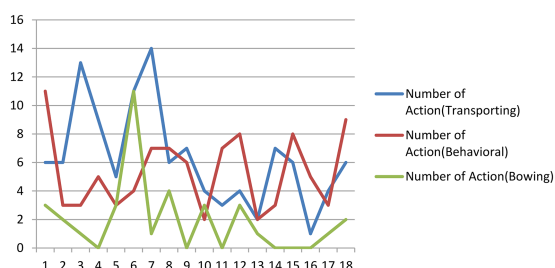


FIGURE 9
Number of actions involving transporting, behavioral and bowing by every 10 pages across the comic book. Images reproduced with permission from Shang Dong People Press.

in the poetry comic book is to construe the “come and go” of characters or poets. They might be portrayed as walking, riding a horse, or sailing on a boat. Figure 9 shows how these actions spread across the comic book. They are the most typical semiotic resources for the comic artist to (i) introduce the characters into the comic strip, (ii) reconstruct how people interact in poems, and (iii) develop the storyline in a comic strip (as exemplified in Figure 1). Figure 9 also shows the distribution of behavioral actions and actions of bowing (typically, two individuals bowing to each other).

Apart from the actions of moving, we have also identified several important motivations for actions. The most obvious motivation is to construct affect and attitude in poems through actions, and more specifically, behavioral actions. This motivation could be best illustrated in examples 4 to 6 below. In example 4, the relational process 为乐 “be happy” is transformed into a smiling face in comics. In example 5, the process 若 “is like” is turned into the action of two men, with tears in their eyes, trying to reach for each other. In example 6, the mental process 不知愁 “does not know worries” is reconstructed as a jubilant dance as shown in Figure 10. Hence, action is an important resource for the comic artist to construct emotions realized directly or indirectly in poems. It is a truism that one of the most important functions of poems is to vent emotions. And it is difficult to visually express the delicate feelings construed in poetic language through comic images. The comic artist in our case is particularly adept at bringing the inner feelings out through facial expressions and actions.

- 烹羊宰牛且为乐， cook sheep cut ox to be happy.
“We are happy to cook sheep and ox”.
- 天涯若比邻 distance is like neighbors.
“We are like neighbors despite the distance between us.”
- 闺中少妇不知愁。
in (her) bower a young wife not know worries.
“A young wife knows no worries in her bower”.

The second motivation that we find is to use actions to signal the change of cognitive status in poems. In this case, the actions of walking in or out of the panel are drawn as a way to represent the sudden change of knowledge or perception of the poet or the protagonist described in the poem. Consider example 7. The mental process 知 “know” in the poem refers to the mental status of the poet. In comics, the cognitive process is transformed into a man rushing out of a house, looking at the flowers. This action of moving into the scene indicates that the man does not know what has happened to the flowers. Similarly,



FIGURE 11
The fifth panel on Cai (2014, p. 21). Images reproduced with permission from Shang Dong People Press.



FIGURE 13
The fifth panel on Cai (2014, p. 136). Images reproduced with permission from Shang Dong People Press.



FIGURE 12
The third panel on Cai (2014, p. 143). Images reproduced with permission from Shang Dong People Press.



FIGURE 14
The forth panel on Cai (2014, p. 52). Images reproduced with permission from Shang Dong People Press.

in example 8, the mental process 闻 “hear” is turned into the action of a man walking swiftly toward the woods of multiple cicadas with parallel curvy lines coupled with Chinese characters indicating the sounds (see Figure 11). The action shows that the poet is rushing out in response to a sound, thus signaling the emotional change. In example 9, the action of stretching arms indicate that the poet suddenly realized there was nobody there to help (see Figure 12).

7. 花落知多少。
Flower fall know how many.
“(I) do not know how many flowers have fallen.”
8. 闻蝉但益悲 hear cicada but more sad.
“(I) feel sad when hearing cicada.”
9. 落叶人何在? Fallen leave person where.
“Where are the people when the leaves fall?”

The third motivation is to use actions to visualize metaphors in poems. It is not surprising that metaphors are frequently used in poems to describe things and circumstances that the poet

comes to perceive. The comic artist may choose to transform the metaphor into actions. Consider the line in example 10.

10. 落花犹似坠楼人 falling flower be like falling people.
“The falling flowers are like people who fall from the mansion.”
11. 汉文有道恩犹薄。
The Emperor Han Wen has a way grace still thin.
“The emperor Han Wen, though a good king, has no mercy.”
12. 道是无晴却有晴 say be not sunny but sunny.
“It is said that it is not sunny but it is.”

The relational process 犹似 ‘be like’ is reconstructed as a lady falling from a mansion (see Figure 13). Hence what should be considered metaphorical has become something perceivable. In example 11, the action of jumping into a river is used to symbolize the ruthlessness of the king (see Figure 14). In example

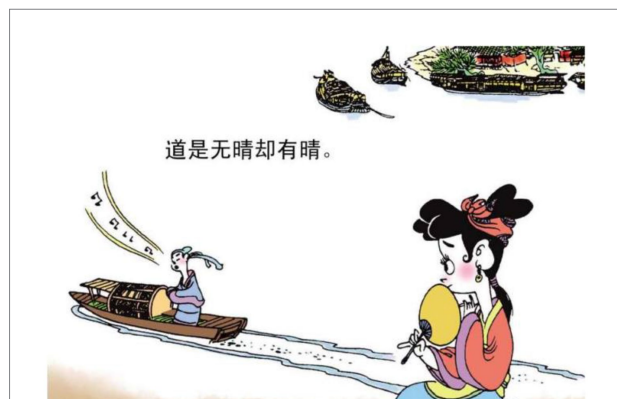


FIGURE 15

The fifth panel on Cai (2014, p. 99). Images reproduced with permission from Shang Dong People Press.



FIGURE 16

The forth panel on Cai (2014, p. 33). Images reproduced with permission from Shang Dong People Press.

12, the relational processes 无晴 “not sunny” and 有晴 “sunny” are used to metaphorically express whether a lover is ruthless or sentimental. The author reconstructs that layer of meaning into a man singing on the boat (see Figure 15). The reader can therefore relate the action of singing and boating to the emotional feature of the man depicted in the poem.

13. 忽见陌头杨柳色 suddenly see wild willow color.
“(She) suddenly sees the vigor of willows in the wild.”

Example 13 shows that the mental process of 见 “see” remains the same in image, representing a lady observing the willow. However, some actions are added in image because a couple are depicted under the willow (see Figure 16). Actually, the lovers are intended to visualize the hidden message in the poem: the vigor of the willow symbolizes the unity of lovers. When the lady sees the willow, the vigor reminds her of her husband who leaves for the battlefield. Hence, the actions here are added to materialize the metaphor of 杨柳色 “willow color”.



FIGURE 17

The fifth panel on Cai (2014, p. 132). Images reproduced with permission from Shang Dong People Press.

The above analysis reveals that actions are used to construct meanings beyond the material processes in poems. They could be deployed to represent attitudes, emotional changes, and metaphors. Through various actions, the comic artist not only makes the poem more dynamic but also uncovers deep messages underlying the poem.

Functions of verbal processes

The visual process of talking, which is typically realized as speech bubbles, should be considered as a distinct feature of comics. The semiotic translation of various processes toward talking are highly motivated. Hence, these cases, though small in number, are worth a few comments.

The first motivation for using verbal processes in images is to provide verbal explanation of the corresponding line in poems. As speech bubbles are semiotic resources to project what the protagonist says, the comic artist may utilize this resource to interpret or explain the poem. This motivation could be clearly observed in the case below.

14. 一片冰心在玉壶。 A patch ice-heart at jade vase.
“A patch of ice-heart is at the jade vase. (A metaphor for being honest and upright).”
15. 赢得青楼薄幸名 earn brothel name of a fickle.
“Known as fickle, even in the Street of Blue Houses.”

In example 14, the relational process 在 “at” is intended to construe a metaphor for one’s integrity. This hidden message is disclosed through the verbal processes of the protagonist in the image. The verbiage in the speech bubble can be generally interpreted as “Tell them I am fair and free from corruption.” In Figure 17, the lady says “你好无情哦!(You are such a fickle)”. This is clearly intended to explain the line of poem in example



15. Thus, speech bubbles are often found in some highly sophisticated poems that deserve interpretation.

Another motivation is that the comic artist uses verbal processes to dramatize the poem. Here, dialogs are more imaginative than interpretive. For instance:

16. 黄金 然 桂尽 gold already spent.
“Money has all been spent.”
17. 人间 能得 几回 闻? Earth can several times hear.
“It is hardly heard on the earth.”

In example 16, the material process of 尽 “spent” implies that the poet was in financial difficulties. In the image, the layer of meaning is transformed into an imaginative event, in which the protagonist is portrayed as shocked while the vendor says “30 cents each.” This could be considered as dramatization of the financial constraint indicated in the poem. The verbal process of the vendor, together with the mental process of the protagonist, reconstructs the material process of the poem. In example 17, the poem describes the difficult life of the common people in that particular historical period. The verbal process 苦啊 (literally translated as “How bitter!”) is used to dramatize this hidden meaning (see Figure 18).

To conclude, speech bubbles play a distinctly different role in poem comics. They might either help the audience interpret a poem or turn it into a drama. The comic artist of the case under examination is especially adept in managing speech bubbles and sound curves in the context of poems.

Discussion

Cai’s classic comics has achieved enormous success. His works have not only been the best-sellers of the kind, but also been included in school textbooks in more than 50 institutions as a pilot

project in Beijing (Zhang, 2014). Cai has also received keen invitations from many renowned publishing houses to adapt more Chinese traditional classics (see, e.g., Chen, 2017). The analyzes above provide detailed semiotic evidence of how classic poetry has been resemiotized into comic images.

First of all, poetry has been transformed into entertaining stories. Semiotically, various processes in language have been reconstructed as actions in comics. Actions have been portrayed in a sequence that by and large conforms to the “comic grammar” as outlined in Cohn (2013), also see Cohn et al. (2017). Cohn (2013) suggests that a comic strip is usually composed of several common steps such as Establisher, Initial, Peak and Release. These steps, from the semiotic perspective adopted in this study, are mainly realized by various actions. The comic strips in our data also manifest similar patterns. Take Figure 1 as an example. The mental processes of perception in the first panel represent the Establisher of the sequence. Then the actions of bowing in the second panel could be considered as initial. The following two panels show more vibrant actions, formulating the Peak, of the strip. The Release of it is realized by the last panel in which explanation is offered of the poem. The poetry comics would therefore draw on the reader’s understanding of the narrative structures to transform poetry appreciation into dramatization (realized through semiotic shifts toward actions and verbal processes as mentioned in Sections 5.1 and 5.4).

Moreover, we have also noted that many of the behavioral actions on face, such as smiling, laughing, panicking, and crying, are added into the comics while there are no such layers of meanings expressed by the corresponding poetry lines. They can be interpreted using the theoretical framework of visual attitude (Economou, 2009, chapter 4). Some of these actions can be understood as an inscribed positive affect, through which the author has managed to outline a more socially and ecologically harmonious world by depicting the relationship between humans and that between human and nature. Different social relationships such as lovers, couples, king-subordinates, colleagues, friends, etc. could be found across the book. The relationship between human and nature, on the other hand, is constructed through how the protagonist observes the world. In this way, the comic adaptation has served the pedagogical function of poems to arouse the pure emotions toward humans and nature (Yi, 2010, p. 106).

The comic adaptation has also made the traditional poetry more accessible by turning it into images. But images are not necessarily more accessible than language (c.f. Newell, 2017, p. 63–98) so in comics, the images have to be accompanied by poems and explanations in order to be fully understood. Here, we posit that comics increase accessibility of poetry with its particular semiotic resources. Comics, as McCloud (1993, p. 31) argues, could focus our attention on the essential meaning of an idea by eliminating details. On the other hand, the simplified icons in comics call for the reader’s participation

and imagination to fill the gutter between the panels (McCloud, 1993, p. 59–61). These characteristics have also been found in our data. First, the part of poem that is more difficult to be understood tends not to be constructed in comics. However, the essential meaning has been preserved by symbolic objects. For instance, metaphors in the poem have been visualized as actions. At the same time, readers have been invited to take the place of the protagonist portrayed in comics to perceive the simplistic objects and circumstances and to imagine the poetic world in the gutter between panels. Comics, in this sense, helps the reader to temporarily get around the incomprehensible part of the poem and forget about the meaning between the lines of poem. Instead, their attention has been shifted, through the semiotic transformation of comics, to the essential meaning and imagery of the poem. When the participatory reading experience is done, the last panel of the comic strip would offer explanation in plain modern Chinese to bring the reader back to the specific meanings of the poem. It is in this sense we argue that comics would alleviate the pressure which the ancient language of poems imposes on the reader. Thus, comics have their unique roles to play in making the Chinese classics more accessible.

Through the intersemiotic translation, the comic artist has also added various elements of traditional culture displaying social etiquettes, conventional clothing, architecture styles, etc. in Tang dynasty. These elements cannot be showcased by a written poem, given its non-visual nature. The social significance of showing these elements should not be under-estimated. Take social etiquettes as an example. Actions such as bowing, toasting, kneeling, etc. are important semiotic resources that the comic artist creates to signal the social order at that time. This is actually a vivid representation of the Confucian thought that focuses on the cultivation of virtue in a morally organized world. Hence these elements, through semiotic processes of action and conceptualization, would infuse the traditional values into the reader.

Despite the additional effects added to the poems, comic images might have translated the poems at the cost of poetry. As American poet Robert Frost put it, “poetry is what gets lost in translation.” Here we argue that poetry is what is lost in intersemiotic translation. If attention were drawn to the visual elements and comic narratives alone, the beauty of poetic meanings and linguistic forms and the imagery therein would be deprived. In this sense, it would be better to treat poetry comics as a gateway to poetic appreciation at the entry level or for the purpose of dissemination.

To sum up, poetry comics have resemiotized the poetic world into an interesting and readable story, which demands greater participation of the reader. In the meanwhile, the visualization of cultural elements helps infiltrate traditional values. Hence, this type of intersemiotic translation has been embraced by the general public and officials.

Conclusion

Comic adaptation of classics has become one of the most important ways to “inherit and develop the traditional culture” in China. However, there have been relatively few studies which offer any insight into this peculiar type of intersemiotic translation. This paper set out by asking how poetry has been semiotically transformed into comics. Drawing on the transitivity system offered in systemic functional semiotics, we examined the distribution of various types of processes in poems and comics in one of Cai’s books, using UAM image as the annotating tool. Quantitatively speaking, some distinct patterns have been recognized. Mental process is the dominant process in images, thus taking readers to perceive the poetic world. In addition to this, relational and existential processes in the poems were transformed into perceptions, actions, and verbal processes in images. Qualitatively speaking, various processes in comics have not only come to construct the poet’s gaze, build relations, dramatize the poem and visualize the metaphor, but also increase the accessibility of it by inviting the reader to grasp the essential meaning and to fill the gutter between the panels with imagination. More specifically, these processes have woven together to develop a storyline, visualize the metaphor, foreground the protagonists and display various significant cultural elements. Our analyzes provide semiotic account for why the adaptation in question has been accepted so widely in China. And it should be noticed that the dissemination effect might have been achieved at the expense of poetry lost in the entertaining images.

Finally, some limitations of the paper should be noticed. First, only one book has been investigated although the size of data is large enough to reveal some patterns. Future research may compare different versions of poetry comics or poetry paintings such as those drawn by Zikai Feng (丰子恺). Second, we only took process type as the mere indicator for the intersemiotic translation. Other systems such as appraisal and logic-semantic relationships could also be explored for future studies. The poetry comic adaptation could also be studied from a cross-cultural perspective, to see, for example, how the comics are interpreted differently by individuals from western cultures.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

ZZ complied with the multimodal corpus and did the statistics and devoted it to Chapters 1 and 2 and Conclusion. SC was devoted to Chapters 3, 4, and 5. All the authors annotated the data, contributed to the article, and approved the submitted version.

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How interaction molds semantics: The mood functions of Chinese “sum-up” adverbs

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“Hezhe” (合着), “ganqing” (敢情), and “nao le bantian” (闹了半天) are common mood expressions in modern Chinese which have a common function of summarizing the information before (so called ‘sum-up’) as well as similar pragmatic functions. Study on these mood adverbs could reveal how the interactional mechanism molds the original semantic meanings of mood words and leads to new pragmatic functions. Five verbal corpora are applied to collect the real materials of usage containing the above three mood adverbs. Functional analysis and data statistics have been carried out to categorize the pragmatic functions of these words, calculate their distributions, and reconstruct their evolutionary approach through an interactional perspective. We have found a core theoretical viewpoint that the similar functions of the three words emerged through the same pragmatic mechanism called “violation”. These functions are: (1) “unexpectedness” from the violation of psychological expectation; (2) “criticism” from the violation of universal principles; (3) “humor” from the violation of communicative principles. A statistic work of several corpora showed that these functions of the above three words appear broadly in verbal materials, with differences in their proportions according to the communication types and genres. In Chinese teaching to speakers of other languages, more attention should be paid to these words stemming from dialects, especially during intermediate and advanced levels.

KEYWORDS

mood adverbs, pragmatics, TCSOL, corpus, modern Chinese linguistics

Introduction

What are “sum-up” adverbs?

As a highly isolated language, Chinese doesn’t have mood inflections like subjunctive expressions in English and other Indo-European languages. However, emotion, attitude, intimacy, judgment, and so on of the speaker could be expressed by some words such as adverbs and some adverbial phrases, known as “mood adverbs.” However, in other situations, an adverb that originally holds a certain meaning could be attached with some “mood meaning,” thus transforming it into a mood adverb. Such transformation would happen habitually during daily communications before it was fixated and became the prevalent or even dictionary meaning of the word itself. In other words, such mood meanings have been molded during language interactions.

In the intermediate and advanced levels of Teaching Chinese to Speakers of Other Language, or TCSOL, sometimes real audio-visual materials are used as pedagogical materials, such as Chinese interview program clips. During class, students often raise questions about the meaning and usage of some words with mood meaning in the materials, usually colloquial rather than formal. These words do not appear in textbooks,

and the TCSOL syllabus does not fully incorporate them. It is difficult for students to fully understand and even master their usage only by consulting dictionaries or other reference books. Especially, some colloquial words originating in dialects have not yet been included in dictionaries. Among them, several such mood adverbs with similar functions have attracted our attention, for example:

- (1) 进我们自己的家, 还需要往你口袋里扔钱,
合着里外都让您赚了, 这合适吗?

jin women ziji de jia, hai
enter our own of home still
xuyao wang ni koudai li
need to your pocket inside
reng qian, **hezhe** liwai
throw money **totally speaking** inside and outside
dou rang nin
all let you
zhuan le, zhe
earn (perfective aspect particle) this
heshi ma?
proper (question article)

To enter our own house, we need to throw money into your pocket, so totally speaking, you earn money either way. Is this proper? (from a news program on CCTV).

- (2) 一千五百块钱, 我还当是稿费, 后来我才看明白,
敢情上杂志上发表您的论文, 是您要给杂志钱。

yiqianwubai kuai qian, wo
1500 (currency unit) money I
hai dang shi gaofei,
originally think be royalties
houlai wo cai kan mingbai,
later I just see clearly
ganqing shang zazhi shang
you dare say go magazine on
fabiao nin de lunwen, shi nin yao
publish you of paper be you need
gei zazhi qian.
give magazine money

I had thought this 1500 yuan was the royalties (given to the author). Only later did I understand, you dare say, that if you'd like to publish your paper on the magazine, it is you who should pay money (from a talk show on Phoenix Satellite TV).

- (3) 闹了半天, 是这么回事儿, 既然这吉祥号这么惹麻烦,
您就不能换一个吗?

Nao le bantian, shi zheme
after so much fuss be so
hui shier,
(measure word) issue
jiran zhe jixiang hao zheme re mafan,
since this auspicious number so incur trouble

nin jiu bu neng huan
you just not can change
yi ge ma?
one (measure word) (question article)

After so much fuss, we finally make out the truth. Since the auspicious phone number incurs so much trouble, why can't you change for another one? (from a news program on Beijing TV).

From the examples above, we can see words and phrases like “hezhe” (合着), “ganqing” (敢情), and “nao le bantian” (闹了半天), and they express a basic meaning similar to “conclude” in colloquial Chinese to summarize the information that appeared before their clause. Yet, they are different from the typical “conclude” adverbs and phrases such as “zongzhi (总之)” (in a word) and “zong de lai shuo (总的来说)” (generally speaking), in that they don't acquire such meaning through the morpheme or elements that they are composed of such as “总” (total) and in that they contain certain kinds of mood besides the basic semantic meaning, e.g., beyond expectation, dissatisfaction, criticism, etc., which the typical “conclude” words don't have. Therefore, these words should form an independent category as they perform similar pragmatic functions during interactions above their basic semantic meaning, that is, these words can be regarded as **mood** adverbs in a broad sense, and at the same time, they all complete the function of summarizing the situation. We refer to these words as “sum-up” mood adverbs.¹

Mood elements in modern Chinese are a kind of collection with different origins, complex internal compositions, and diverse meanings and functions. There are different views on the classification of the Chinese mood system (Lv, 1982; Wang, 1985; Gao, 1986; He, 1992; Qi, 2002) and the classification of mood words (Zhang, 2000; Qi, 2003). In particular, the classification and functional generalization of mood words have been discussed for a long time, but a consensus has not yet been reached. The reason for this complex state is that the “mood” gradually obtains its pragmatic meaning and function in the process of real communication.

Social interaction and communication are the original natural habitat of language. We should understand the structure and application of language from the actual verbal communication (Fang, 2005; Couper-Kuhlen and Selting, 2018; Fang et al., 2018; Zeng, 2021). For every specific language component, their research should not be separated from the conversation environment in which they are located, and we should study “dynamic” language (Zhu, 2021). For various mood adverbs mainly produced and used in spoken

¹ It should be noted that “nao le bantian” is actually a phrase in the perspective of traditional grammar. Yet in this study it perform the pragmatic functions as an integrated entity, just like so-called “discourse marker.” So for the convenience of narrating, in this paper we will call it “mood adverb” as well.

language, their synchronic performance and functions also “emerge” in the communication within a conversation from the diachronic perspective, thus gradually forming and shaping the language system. Although many mood words stemmed from different sources, they gradually form pragmatic conventions through their use in communication, and according to their pragmatic functions, similar mood words can be grouped together. Therefore, it is necessary to study the specific functional categories to which each specific mood word belongs, explain the different “emerging” paths of similar pragmatic functions in the same category, explore the aggregation mechanism of each category, and then piece together the classification panorama of mood words themselves.

To train learners’ oral Chinese communication ability in a real context, it is also necessary to make an in-depth study of these colloquial mood adverbs and analyze their semantic and pragmatic functions by using real corpora. This study, therefore, undertook a pragmatic study on the mood adverbs with “sum-up” meaning such as “hezhe,” “ganqing,” and “nao le bantian” and explained the emergence and development of the pragmatic functions of these words in communication, to provide a reference for international Chinese education.

Research review

This research selected a special category of mood adverbs, whose core meaning can be summarized as “sum-up.” Representative words include “hezhe,” “ganqing,” and “nao le bantian (nao le guiqi).” These words originated from different sources, but they “emerge” with similar pragmatic functions in communication, and their functions have not been accurately recognized or described so far.

Studies on this kind of mood words are few, most of which are dissertations, and their conclusions are quite similar. Qi (2008) defined “hezhe” as a colloquial word in Beijing dialect and summarized its five meanings, of which the last one is “that the speaker makes corresponding reasoning or assumptions about things on the premise of integrating the existing conditions, or knows something according to the summary,” and believes that this usage is equal to “yuanlai” (原来, turn out to be). Qi’s study only listed the different usages of “hezhe” at the semantic level, without considering the pragmatic mechanism. The master’s thesis of Liu (2012) followed the classification of Chinese adverbs from Zhang (2000), classified “hezhe” as a commentary adverb, and summarized its semantic function into two aspects: in terms of message transmission, its function is “interpretation of known real news by tracing its origin,” and in terms of modality, its function is “emphasis” and “in-depth probe.” The pragmatic functions of “hezhe” are the evaluation function, emphasis function, and textual function. Fang (2018) summarized the pragmatic functions of “hezhe” into three categories: “objective description” “subjective cognition,” and

“negative evaluation” in his doctoral thesis, and believed that its expression of negative evaluation is a prescriptive meaning that has “emerged” in interaction.

There are also several specialized research studies on “ganqing.” The master’s thesis of Wang (2014) also followed the theoretical framework of Zhang (2000) and summarizes the function of “ganqing” into two aspects: semantic function and pragmatic function. The semantic function includes communication functions such as explanation, assertion, speculation, and summary, as well as mood functions such as emphasis and in-depth probe. The pragmatic function includes evaluation, indicating presupposition, expression, emphasis, and textual function. Han (2014) summarized the meaning of “ganqing” into three kinds: (1) “tracing the origin thus making explanation,” (2) assertions that reinforce affirmation, and (3) indicating a speculative question. The motivation and mechanism of grammaticalization of “ganqing” mainly include frequency principles, analogy principles, rhythm principles, and pragmatic factors. Wu’s master’s thesis (Wu, 2016) compared “ganqing” with “yuanlai,” and “biding (必定)” (for sure) and “nandao (难道)” (is it really that...?), and held that they have something in common in semantics, but “ganqing” expresses stronger feelings and stronger subjectivity. This research also summarized the main error types of “ganqing” in Chinese as second language acquisition. Nan (2019) summarized the evolving process of “ganqing” from a diachronic perspective and believed that the development of “gan” (dare) and “qing” (emotion) combined from independent words to verb-object phrases, and then evolving into commentary adverbs is the result of the joint influence of the meaning of the words themselves and the external communication situation.

As to other such mood adverbs, no specialized research has been seen. The comparative research of two or more such mood adverbs is also limited to “hezhe” and “ganqing.” Among them, Fang (2018) believes that the two words can be interchanged when expressing the positive judgment function, while when “hezhe” is used as an attitude marker and “ganqing” is used to express the interrogative judgment function, they cannot be replaced with each other. Yang’s master’s thesis (Yang, 2019) conducted a specialized study on these two words and found that they overlap in semantics, but “ganqing” has richer semantic connotations and more flexible syntactic distribution.

Generally speaking, the research on such mood adverbs focuses mainly on the two words “hezhe” and “ganqing.” The conclusions show the following features: (1) Stepping from the parallel summary of multiple meaning items to the distinction between semantic and pragmatic levels; (2) Looking for the motivation of word evolution from the inside and outside aspects of words, and taking context, communication, and interaction into account; (3) Actively exploring other theoretical perspectives outside the framework of traditional Chinese grammar research.

Besides the small scale, existing studies are still wanting in several aspects: First, the scope of words studied is relatively

narrow, and still fewer comparisons among different mood adverbs. Second, the mechanism of pragmatic function is not fully explored, thus lacking a thorough explanation of the motivation behind the gradual occurrence of the various pragmatic functions. Third, is the lack of corpus work. The existing research works using corpora to investigate the meaning and usage of such mood adverbs are limited to dissertations, and most of them wield written corpora. The analysis and statistics from these studies are not comprehensive enough to fully reflect the distribution and use of these kinds of mood adverbs.

Research method

This paper studies the “sum-up” mood adverbs, selecting “hezhe (合着),” “ganqing (敢情),” and “nao le bantian (nao le guiqi) (闹了半天/闹了归齐)” as examples, uses the oral corpora as the research material, explains the pragmatic function and “emergent” principle of each word through the analysis and statistics from oral conversations, and locates the common mechanism behind the clustering of such mood adverbs. We further try to order the semantic and pragmatic conditions of each word and make statistics and induction on the distribution of different usages, so as to provide a reference for TCSOL.

The corpora used in this paper include five parts: (1) the “Media Language Corpus” (MLC) of Communication, University of China, which contains 34,039 transcribed texts of radio and television programs from the year 2008 to 2013, with a total number of 241,316,530 characters. (2) The TV script of <I Love My Family>, the dialogue of which is Beijing dialect in the 1990s, with a total number of 606,950 characters. (3) CCL Corpus of Peking University, “Oral,” “Artistic TV and movie script,” “Crosstalk and short sketch” part of “Modern period,” and “Script” part of “Contemporary period.” (4) General Balanced Corpus of Modern Chinese of China’s National Language Commission. (5) “Dialogue” part from BCC Corpus of Beijing Language and Culture University. Because the above corpora are real or imitations of daily conversations, this study can reflect the use of mood adverbs in real communication. For reference, during the research process, we still deployed the “Ancient Chinese” part of the CCL corpus and the HSK corpus from Beijing Language and Culture University as additional resources of ancient Chinese languages as well as of learners of Chinese as a second language.

The workflow of this study is as follows: (1) search each target word in each corpus, manually filter the cases where it is used one by one and remove the cases that are not the object of this study, such as “他合着眼躺在床上” (“he lies on the bed with his eyes closed” in which “hezhe” means “closing”), leaving only valid cases. (2) Invite two other linguists whose mother tongue is Chinese to select ten cases from each of the three groups of valid cases to discuss their pragmatic functions and unify the criteria for judgment. (3) The author and two judges, respectively, judge

the pragmatic functions of all cases. (4) By comparing the three judgments, each pragmatic function can be determined only after at least two people agree. If there are three different results, the case should be discussed further and then determined (this did not happen in the actual process).

Analysis of pragmatic functions of “sum-up” mood adverbs

Searching through the corpora, 1,284 valid cases were found, including 368 cases of “hezhe,” 833 cases of “ganqing,” and 83 cases of “nao le bantian” (including 1 case of “nao le guiqi”). The following is a semantic and pragmatic analysis of these words combined with examples from the corpora.

Semantic and pragmatic analysis of “hezhe” (合着)

The Modern Chinese Dictionary (7th Edition) (Dictionary Compilation Office, 2016) does not include “hezhe” as a word, which may be because the origin of “hezhe” has a more dialect feature. Based on the basic meaning of “he” (合): amount to, or add up to, combining the previous research and analyzing the frequency distribution of using cases from corpora, we believe that the basic semantic meaning of “hezhe” is “a summary of the above information,” especially the conclusion of digital calculation. This can be regarded as the basic usage of “hezhe” and also the origin of its “sum-up” function. In ancient vernacular from CCL corpus from Ming Dynasty to the year 1949, we found 67 cases of “hezhe” yet all belonged to the basic meaning or served as a simple verbal phrase. Therefore, we believe that this basic meaning was the original point of the other pragmatic functions. In contemporary corpora, this basic meaning is still used in the following examples:

- (4) 年薪4800块, 合着一个月才400元。
 Nianxin 4800 kuai, **hezhe**
 annual salary (currency unit) amount to
 yi ge yue cai
 one (measure word) month only
 400 yuan.
 (currency unit, equal to “kuai”)
The annual salary of 4800 yuan amounts to 400 yuan per month.
- (5) 5个小时, 1200条短信, 这合着4秒钟就发一条短信啊。
 5 ge xiaoshi, 1200 tiao
 (measure word) hour (measure word)
 duanxin, zhe hezhe
 short message this amount to
 4 miao zhong jiu fa yi
 second only send one

tiao duanxin
(measure word) short message

a.

(exclamation mark)

5 hours, 1200 short messages sent, this amounts to 4 seconds per message.

- (6) 王先生首付款才交了18万, 合着首付一成多。

Wang xiansheng shoufu kuan cai
(family name) Mr. down payments only

jiao le
pay (past tense)

18 wan,
ten thousand

hezhe shoufu yi cheng duo.
amount to down payments one 10% more

Mr. Wang just paid 180,000 yuan for down payments, which is only a 10% of the total price.

The above cases use the basic meaning of “hezhe,” in which (4) represents the calculation result of money, (5) represents the calculation result of time, and (6) represents the calculation result of proportion. It should be noted that when “hezhe” is used to represent the calculation result, it is not necessarily the total result obtained by adding, but can be extended to other calculation methods as well. For example, (4) and (5) are the result of division.

In addition to expressing the calculation results, the most common usage of “hezhe” is to convey different pragmatic meanings, including:

- (7) 我选择这两位大爷大娘, 合着他们四个都过关啦。

Wo xuanze zhe liang wei
I choose these two (measure word)

daye daniang,
uncle aunt

hezhe
unexpectedly

tamen si ge dou guoguan
they four (measure word) all pass

le
(past tense and exclamation)

I will choose the uncle and aunt, and unexpectedly they four have all passed the test.

- (8) 合着刚刚放进存款机的16500块, 压根就没存进去。

Hezhe ganggang fang jin
Unexpectedly just now put in

cunkuanji de 16500 kuai,
ATM of (currency unit)

yagen jiu mei cun jinqu.
absolutely just not deposit into

Unexpectedly, the 16500 yuan put into the ATM just now has totally not entered the account.

- (9) 合着里外都让您赚了, 这合适吗?

Hezhe liwai dou rang

Totally inside and outside all let

nin zhuan le.

you earn (past tense)

zhe heshi ma?

This appropriate (question particle)

Totally speaking, in both situation you made the profit. Is it appropriate?

- (10) 合着您养他就是为了吃他, 他是猪还是鸡啊?

Hezhe nin yang ta jiushi

totally speaking you raise he is

weile chi ta,

in order to eat he

ta shi zhu haishi ji

he is pig or chicken

a?

(question particle)

Totally speaking, you brought him up just to depend on him one day. Is he a pig or a chicken?

- (11) 这边写着, 这边手插电板里, 都是这样写稿子, 合着成电动的了。

Zhe bian xie zhe, zhe
this side write (progressive tense) this

bian shou cha dianban li,

side hand stick socket inside

dou shi zheyang xie gaozi,

all are so write article

hezhe cheng diandong

totally speaking become electrified

de le.

(auxiliary word) (past tense)

We will write while the other hand is stuck into the socket, and that's how we write articles. Totally speaking, this has become an electrified way of writing.

- (12) 后来我说合着这花是给你买的我说, 她说来个玫瑰浴自己。

Houlai wo shuo hezhe zhe

After I say totally speaking this

hua shi gei ni

flower is give you

mai de

buy (auxiliary word)

wo shuo, ta shuo lai

I say she say make

ge meigui yu gei ziji.

(measure word) rose bath give self.

Later I said, totally speaking, you bought the flower for yourself. She said she would use the flowers to have a rose bath for herself.

Among the above examples, in (7) and (8) the pragmatic function of “hezhe” is to convey the mood of “unexpected,” and the reason behind “unexpected” is that the information violates the speaker’s psychological expectation. It should be noticed that here we use “expectation” not as “hope” or “wish,” but only when the expression following “hezhe” is against the original guess or imagination of the speaker shall we mark it as “unexpected,” which is different from the situation that the speaker himself/herself have hoped or wished to happen, or what is beneficial to him/her. In detail, “hezhe” in (7) means that “I” didn’t expect old couples could pass the test, and “hezhe” in (8) means that the money I thought I had saved was unexpectedly not deposited. The “hezhe” of (9) and (10) complete a pragmatic function of “criticism,” which is caused by violating the generally recognized common sense. For example, “hezhe” in (9) criticizes that people listening to it should not make money on both sides, and “hezhe” in (10) criticizes that people listening should not regard their son as a source of money. The “hezhe” of (11) and (12) performs the pragmatic function of producing the effect of “humor,” which is based on the intentional violation of communication conventions. In (11), the humorous effect comes from the intentional violation of the common sense shared by both parties (it is impossible to write in this “electric” way), and the humor of (12) comes from the intentional violation of the facts shared by both parties (the flowers are actually bought by her as a present for “me”).

It can be seen that when “hezhe” is used as a pragmatic function, its core mechanism lies in violating people’s particular habitual thinking or certain laws. How did this pragmatic function develop? We believe that this can be traced back to the role of verbal communication. Because the basic meaning of “hezhe” is used to express the results achieved by calculation, and in daily verbal communication, the results of “unconventional” or “beyond convention” will attract people’s attention and have a higher value of information exchange. Therefore, “hezhe” has gradually emerged with a series of pragmatic functions based on “violation” in communication, which has also transformed it from a simple quantitative adverb to a mood adverb. This is a typical example of the effect of verbal communication on the development of the pragmatic function of adverbs.

The above meanings and pragmatic functions of “hezhe” are shown in [Figure 1](#).

Among the 368 cases of “hezhe” in corpora, 77 cases were used as the basic meaning of “conclusion,” while 291 cases were used as pragmatic functions, including 116 cases expressing “unexpected,” 91 cases of “criticism,” and 84 cases of “humor.” Their distribution is shown in [Figure 2](#).

It can be seen that the basic meaning “conclusion” of “hezhe” is still used, yet its proportion ranks lowest compared to other mood functions. Among other usages generated by communication, “unexpected” is the most frequent pragmatic

function, and the proportions of “criticism” and “humor” are a little lower.

In addition to the adverbs of “conclusion,” are there other words that can repeat this path and develop similar pragmatic functions in verbal communication? In the following sections, we will explore the other adverbs with similar functions so as to make sure whether they had the same evolving process as “hezhe.”

Semantic and pragmatic analysis of “ganqing” (敢情)

The basic semantic meaning of “ganqing” in the Modern Chinese Dictionary (7th Edition) is “indicating the information that has not been found before.” According to previous research and case distribution from the corpora, we summarize the basic meaning as “discovery,” and such discovery always happens on the basis of the information before, thus rendering it the basic function of “sum-up.” In the ancient Chinese corpus, nearly two-thirds of the “ganqing” cases belong to this basic meaning. Of the 833 cases in the contemporary corpora, there are 422 cases of this basic usage. For example:

- (13) 记者仔细一问,敢情是家里孩子出状况了!

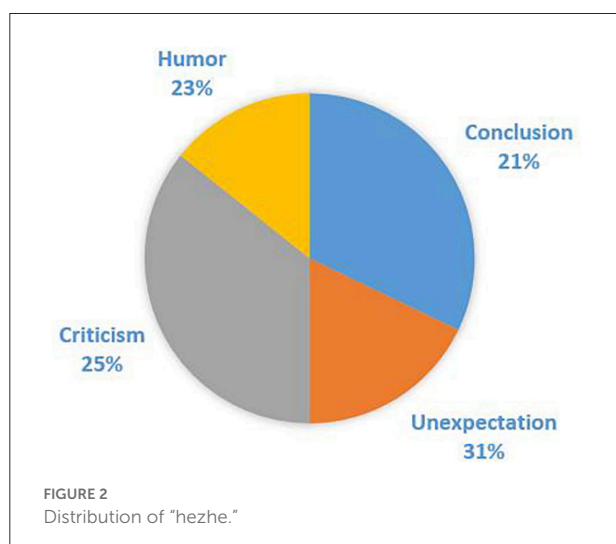
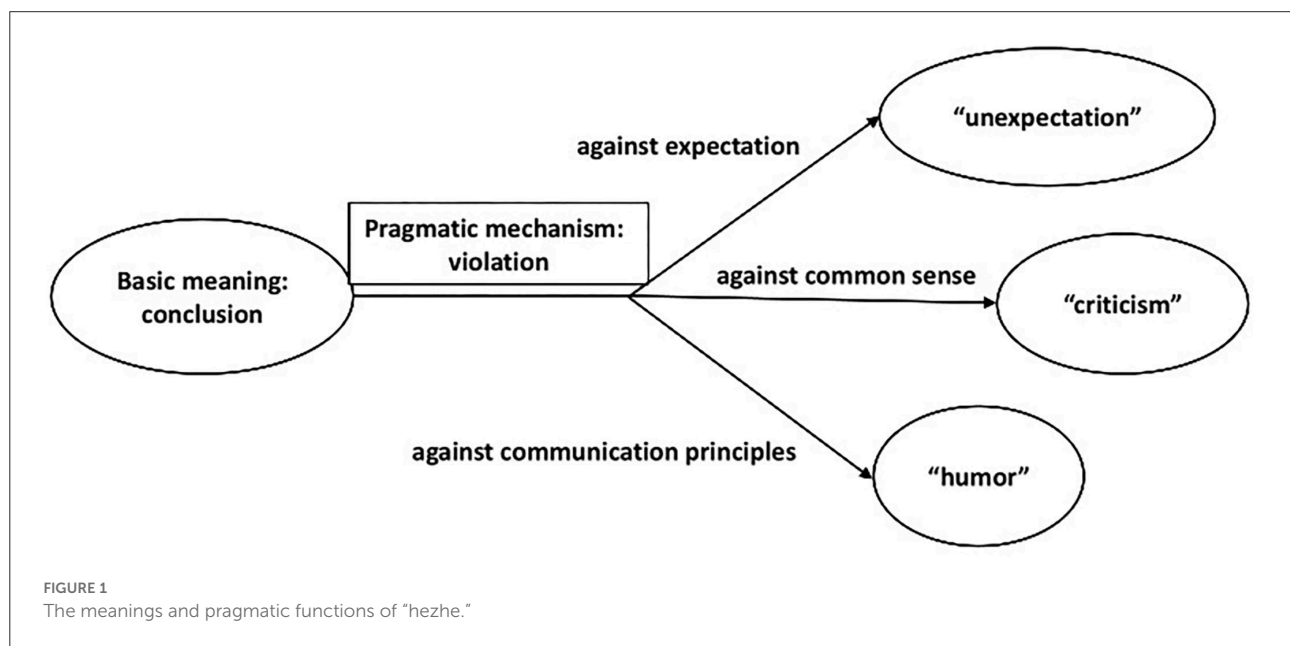
Jizhe zixi yi wen, ganqing
reporter thoroughly once ask the truth is
jia li
home inside
haizi chu zhuangkuang le!
children happen issue (past tense)
The reporter inquired them thoroughly, and found out the truth that their children had some emergent issues at home.

- (14) 听了半天,敢情人家这楼上一一直有个心结。

Ting le bantian, ganqin
listen (past tense) half a day the truth is
renjia zhe
they this
loushang yizhi you ge
upstairs always have (measure word)
xinjie.
obsession
Listening for a long time, we finally found out the truth: the people upstairs have always had something unsatisfied.

- (15) 齐先生一查,原来是当地有人跟他同名同姓,敢情是银行弄错了。

Qi xiansheng yi
(family name) Mr. once



Mr. Qi had made some investigation and it turn out to be that there's a local person with the same name as him, so the truth is that the bank had made a mistake.

The above three cases all indicate that some information was found after certain inquiries or investigations. In actual verbal communication, the information often found is the result that is inconsistent with some expectations held by the speaker before. Therefore, some functions similar to “hezhe” appears in pragmatics, which can be divided into several categories depending on the object it violates. For example:

- (16) 专家的解释我们倒是第一次听说,
以前光害怕手机辐射人了,
敢情人也能干扰手机啊。

Zhuanjia	de	jieshi	women
Expert	of	explanation	we
daoshi	diyici	tingshuo	
are	the first time	hear	
yiqian	guang	haipa	shouji
before	only	fear	cellphone
fushe	ren	le	
radiation	people	(past tense)	
ganqing	ren	ye	neng
unexpectedly	people	also	can
ganrao	shouji		
interfere	cellphone		

a.

(exclamation particle)

The explanation of experts is quite new to us, since we only fear the radiation of cellphones to people before. Unexpectedly, people can also interfere cellphones.

cha,	yuanlai	shi
investigate	turn out to be	is
dangdi		
local		
you	ren	gen
have	person	with
ta	tongmingtongxing,	ganqing
him	have the same name	the truth
shi		
is		
yinhang	nong	cuo
bank	do	wrong
		(past tense)

- (17) 原来光以为执著是个好词儿，
敢情执着如果用错了地方，也会给人惹麻烦。
Yuanlai guang yiwei zhizhuo
before only think persistent
shi ge hao ci'er
is (measure word) good word
ganqing zhizhuo ruguo yong
unexpectedly persistent if use
cuo le difang,
wrong (past tense) place
ye hui gei ren tian mafan.
also will give people add trouble
I only thought "persistent" is a good word before. But unexpectedly, if persistence is used in wrong place, it could make people trouble, too.

- (18) 可让他没有想到的是，
敢情这足球还真不是一般人能搞的，
扔钱都不带响。
Ke rang ta meiyou
but let him not
xiangdao de shi,
expect (auxiliary word) is
ganqing zhe zuqiu hai
unexpectedly this soccer still
zhen bushi yiban ren
really isn't ordinary people
neng gao de,
can do (auxiliary word)
reng qian dou bu dai xiang.
throw money all not with sound.
But something surprised him. Unexpectedly, the soccer is not a sports for ordinary people, to which your invest disappeared without any trace.

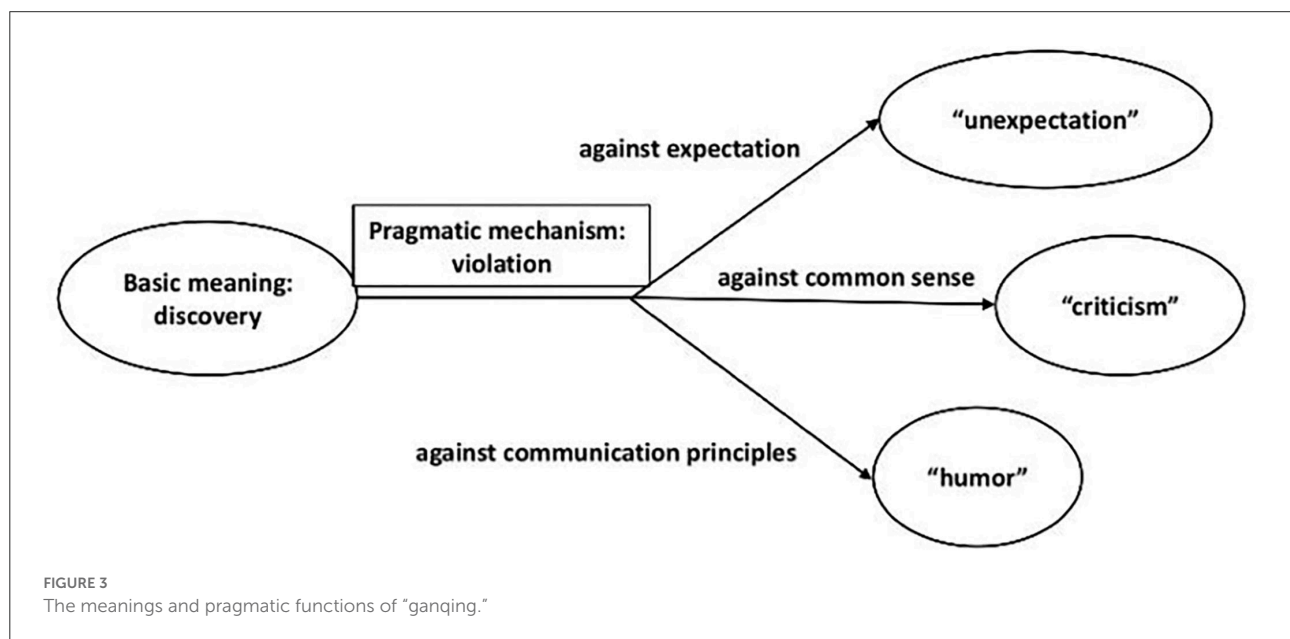
In examples (16–18), the new information found by the speakers is inconsistent with their original cognition, in (16) the speaker thought that “only mobile phones can radiate people;” in (17) the speaker thought that “persistence is a good thing;” and in (18) “he” thought that “ordinary people can invest in football.” Therefore, the pragmatic function of “ganqing” is to highlight the “violation” of these previous expectations. This pragmatic function can be summarized as “unexpectedation,” which is similar to the first type of function developed by “hezhe” in communication. There are 109 cases of these functions in the corpora.

The second kind of pragmatic function of “hezhe,” which indicates the violation of the recognized knowledge of things or actions, resulting in the meaning of “criticism,” also appears in the corpora. For example:

- (19) 毕竟他是经济学博士，行贿的巴能军也是经济学博士，
敢情人家学经济主要脑子用这儿了。
Bijing ta shi jingjixue
after all he is economics
boshi, xinghui de Ba Nengjun
doctor bribery (auxiliary word) (name)
ye shi jingjixue boshi,
also is economics doctor
ganqing renjia xue jingji
you dare say they study economics
zhuyao naozi yong zher le.
mainly mind use here (past tense)
After all he is a Doctor of Economics, so is Ba Nengjun who has committed bribery. You dare say, they study economics just to use their knowledge here.

- (20) 这话翻译过来就是：邮政法只管邮政局，
不管快递公司。乖乖，
敢情邮政法是国家邮政企业的专用马甲。
Zhe hua fanyi guolai jiushi:
this words translate around is
youzhengfa zhi guan
Postal Law only regulate
youzhengju, bu guan
post office not regulate
kuaidi gongsi. Guaguaui,
express company (exclamation particle)
ganqing youzhengfa shi
you dare say Postal Law is
guojia youzheng qiye
country post industry company
de zhuanrong majia
(auxiliary word) specialized tag
These words mean: Postal Law regulates only the post offices, not express companies. Good heavens! You dare say, Postal Law is the special tool of national post companies.

- (21) 教育厅前些日子刚发文说义务教育阶段‘零收费’，
敢情不收学费改卖衣服了。
Jiaoyuting qian
Department of Education before
xie rizi
(measure word of plural form) day
gang fa wen
just publish decree
shuo yiwujiaoyu jieduan
say compulsory education stage
“ling shoufei,” ganqing
zero charge you dare say



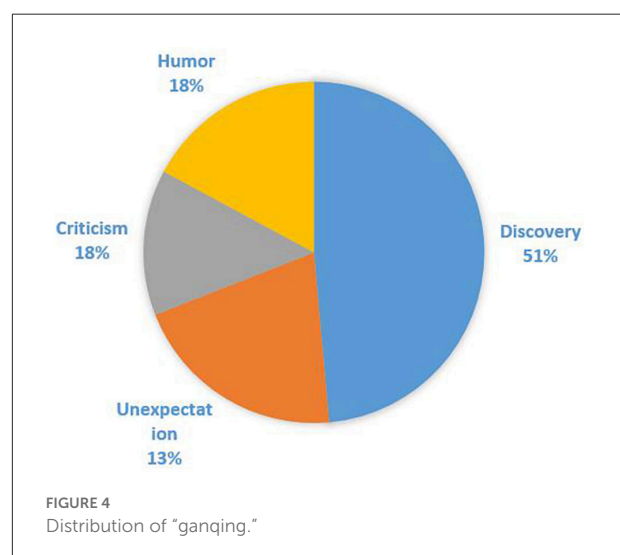
the frequencies of the other three pragmatic functions decrease gradually from “humor” (155 cases), “criticism” (147) to “unexpectation” (109), but there is little difference.

It is the mechanism of verbal communication that enables “hezhe” and “ganqing” with different original meanings to obtain similar pragmatic functions. In real communication, the conclusion of facts and the discovery of new facts from the given information are easy to lead to the function of “sum-up,” then to the violation of some psychological expectations, common sense, and communication conventions. Therefore, the above two words have formed similar pragmatic functions. Whether this inference is true or not, we need to introduce other words to further verify.

Semantic and pragmatic analysis of “nao le bantian(guiqi)” (闹了半天 (归齐))

“Nao le bantian” is also a common colloquial phrase. Its original meaning is “make trouble for a period of time (and get some results)”. In the ancient Chinese corpus, this original usage is seen in almost 70% of all instances. In the contemporary corpora, there are still examples of such usage:

- (25) 咱们吵了半天闹了半天,
最后大家停下来都去捧读曹雪芹的原著,
我的目的就达到了
- | | | | |
|--------------|--------------|--------------|------------|
| Zanmen | chao | le | bantian |
| We | argue | (past tense) | half a day |
| nao | le | bantian, | |
| make trouble | (past tense) | half a day | |



zuihou	dajia	ting	xialai	dou	qu
at last	everyone	stop	down	all	go
peng	du	Cao Xueqin	de		
hold	read	(name)	(auxiliary word)		
yuanzhu					
original work					

wo	de	mudi	jiu
we	(auxiliary word)	purpose	just
dadao	le.		
achieve	(past tense)		

We have argued for a long time, and if at last everyone could stop and take an original work of Cao Xueqin to read, then my purpose will be achieved.

- (26) 因为现在闹了半天,
之所以闹了才派了几十个人去, 做了很大的文章。
Yinwei xianzai nao le
Because now make trouble (past tense)
bantian, zhisuoyi nao
half a day the reason of make trouble
le cai pai le
(past tense) only send (past tense)
ji ge ren qu,
several (measure word) people go
zuo le hen da
make (past tense) very big
de wenzhang.
(auxiliary word) article
Not until the trouble had been made for a long time did several dozen people were sent and made it a big issue.

- (27) 小区的业主委员会就说这个管理公司什么什么有问题,
闹了半天,
闹到最后全部业主同意我们不交管理费。
Xiaoqu de yezhu
housing estate (auxiliary word) owner
weiyuanhui jiu shuo
committee just say
zhege
this
guanli gongsi shenmeshenme
manage company something
you wenti, nao
have problem make trouble
le
(past tense)
bantian, nao dao zuihou
half a day make trouble to last
quanbu yezhu tongyi women
all owner agree we
bu jiao guanli fei.
not hand in manage fee
The house owners of this estate said the management company had all kinds of problems. After making trouble for a long time, at last, all the owners agreed that they wouldn't hand in the management fee.

In these cases, “nao le bantian” is a verb phrase in its original meaning, which has not been integrated into a special mood component. Therefore, it was not included in the scope of effective cases in our analysis and statistics. Except for these, there were still 82 cases of “nao le bantian” used as a mood adverb. In addition, we also found 1 case of “nao le guiqi,” a mood adverb with a similar meaning yet often appearing in the North dialect.

In these cases, the extended meaning closest to the original is the meaning of “conclusion” directly evolving from the meaning of “result,” that is, the meaning of “conclusion obtained over

a period of time” was derived from the “result of trouble over a period of time.” This meaning is similar to the basic meaning of “hezhe.” There are eight such cases in the corpora. For example:

- (28) 老板说得兴起, 可是, 闹了半天,
这价钱怎么样啊, 说着,
老板拿给我们一张价目表。
Laoban shuo de xingqi,
boss say (auxiliary word) excited
keshi, nao la bantian, zhe jiaqian
but to sum up this price
zenmeyang
how
a, shuo zhe,
(question particle) say (progressive tense)
laoban na gei
boss take give
women
we
yi zhang jiamiu biao.
one (measure word) price list
The boss talked excitedly. However, to sum up, how is the price? While talking, the boss gave us a price list.
- (29) 闹了半天, 你拐了半天, 怎么, 结论拐到哪去了?
Nao le bantian, ni guai le
to sum up you go around (past tense)
bantian, zenme, jielun
half a day how conclusion
guai dao na qu le?
go around to where go (past tense)
To sum up, your talking has been winding for a long time, then, what is your conclusion?
- (30) 所以说这事要解决的话, 闹了归齐, 说到底,
还是个公德问题。
Suoyishuo zhe shi yao
So this issue will
jiejue dehua, nao le guiqi,
solve if to sum up
shuo dao di,
speak to essence
hai shi ge gongde
still is (measure word) social morality
wenti.
problem
So if this issue wants to be solved, to sum up, after all, this is a problem of social morality.

In case (28), the speaker hopes to conclude “what’s the price” after a period of discussion; in (29), the speaker directly expresses his desire to “draw a conclusion”; in (30) “nao le guiqi” directly comes to the conclusion that “this is a problem

of social morality.” In another direction, starting from the meaning of “result,” the meaning of “discovery” has also been developed, that is, “new information has been found after a certain process.” This meaning is similar to the basic meaning of “ganqing.” There are 30 such cases, for example:

(31) 听明白了吧, 闹了半天, 是这辆小车违章。

Ting mingbai le
listen clear (past tense)
ba,
(exclamation particle) the truth is
shi zhe liang
is this (measure word)
xiaochē
car break the rules
Do you understand now? The truth is that it was this car that broke the rules.

(32) 闹了半天,
原来是韩女士在更年期的时候没注意补充营养,
才染上的毛病。

Nao le bantian, yuanlai shi
the truth is turn out to be is
Han nvshi zai gengnianqi
(family name) Ms. in menopause
de shihou mei
(auxiliary word) time not
zhuyi buchong yingyang,
pay attention add nutrition
cai ran shang de maobing.
only incur get (auxiliary word) illness
The truth is that Ms. Han didn't pay attention to take in enough nutrition during her menopause, thus developing the illness.

(33) 隔壁邻居也跟着起急。闹了半天,
罪魁祸首在这儿呢, 看看, 水漏得还挺凶。

Gebi linju ye
next door neighbor also
genzhe qiji. Nao le bantian
together worry the truth is
zuikuihuoshou
arch-criminal
zai zher ne,
in here (exclamation particle)
kankan, shui lou
look water leak
de
(auxiliary word)
hai ting xiong.
still quite serious
The neighbors next door were also worried together. The truth is, here is the source of the problem. Look, the water is leaking quite seriously.

Starting from the similar meanings and “sum-up” function, “nao le bantian(guiqi)” has had a development path similar to “hezhe” and “ganqing.” In the corpora, we found 18 cases of “unexpected” function, which stemmed from the situation that “conclusion” and “discovery” often “violates” the expectations of communication participants, such as:

(34) 记者正纳闷呢, 有人说了, 这其实不是真结婚,
什么? 闹了半天是假的?

Jizhe zheng namen
Reporter in process of confused
ne,
(exclamation particle) youren shuo
someone say
le, zhe qishi bu shi
(past tense) this actually not is
zhen jiehun, shenme?
real get married what
Nao le bantian shi jiade?
unexpectedly is false
The reporter was confused, and someone said, this is actually not a real wedding. What? Unexpectedly, this is false?

(35) 边上有人说了句话,
让我们大感意外。什么? 闹了半天白激动啦。

Bianshang youren shuo
Aside someone say
le ju hua,
(past tense) (measure word) words
rang women da gan
let we very feel
yiwai. Shenme?
unexpected what
Nao le bantian bai jidong le.
Unexpectedly in vain excited (past tense)
Someone beside me said something that made us feel so surprised. What? Unexpectedly, we had been excited in vain?

The function of “criticism” which emerged from the “violation” of common sense appeared in 21 cases. For example:

(36) 老百姓说闹了半天,
国家政府、我们选举出来的总统居然骗我们。

Laobaixing shuo nao le bantian,
Civilians say ironically
guojia zhengfu, women
country government we
xuanju
elect
chulai de zongtong
out (auxiliary word) president
juran pian women.
unexpectedly cheat us

The civilians said that ironically, the country, the government, and the president we elected unexpectedly cheated us.

- (37) 闹了半天, 原来自己就是井盖的负责人,
自己的井盖子自己都不知道。
Nao le bantian, yuanlai ziji
Ironically turn out to be self
jiushi jinggai de
is drain cover (auxiliary word)
fuzeren,
person in charge
ziji de jinggaizi
self (auxiliary word) drain cover
ziji dou bu
self even not
zhidao.
know
Ironically, they themselves are in charge of this drain cover. They even don't know their own drain covers.

- (38) 闹了半天, 全是低层次的、粗鲁的、野蛮的竞争,
你不能提高层次。
Nao le bantian, quan shi
Ironically all are
di cengci de,
low level (auxiliary word)
culu de,
rude (auxiliary word)
yeman de jingzheng,
barbarous (auxiliary word) competition
ni buneng tigao
you can't enhance
cengci.
level
After all, these are all rude and barbarous competitions of a low level, and you can't enhance them.

There is 6 cases of “humor” due to “violation” of Cooperative Principles:

- (39) 敢情就是这么一个法制, 想着法的制人,
这就是他们所谓的法制, 闹了半天,
人家是这么理解的。
Ganqing jiushi zheme
you dare say is such
yi ge fazhi,
one (measure word) legality
xiang zhe fa
think (progressive particle) method
de zhi ren,
(auxiliary word) bully people
zhe jiushi tamen suowei
this is they say

de fazhi, nao le bantian,
(auxiliary word) legality after all
renjia shi zheme lijie de.
they are so understand (auxiliary word)
You dare say, this is their 'legality', that is, using all methods to bully you. This is the 'legality' they mean. After all, this is their understanding.

In (39), “nao le bantian” is also used together with “ganqing,” which proves that they are similar in pragmatic functions and strengthens the effect of “humor.” To sum up, starting from a simple verb phrase, “nao le bantian (guiqi)” gradually obtains extended meanings similar to the original meanings and basic function of “hezhe” and “ganqing,” then grammaticalized into a fixed phrase similar to an adverb, and produced pragmatic functions similar to the former two words through verbal communication. The changing path of its semantic meanings and pragmatic functions is shown in Figure 5.

The distribution of meanings and pragmatic functions of “nao le bantian(guiqi)” in corpora is shown in Figure 6.

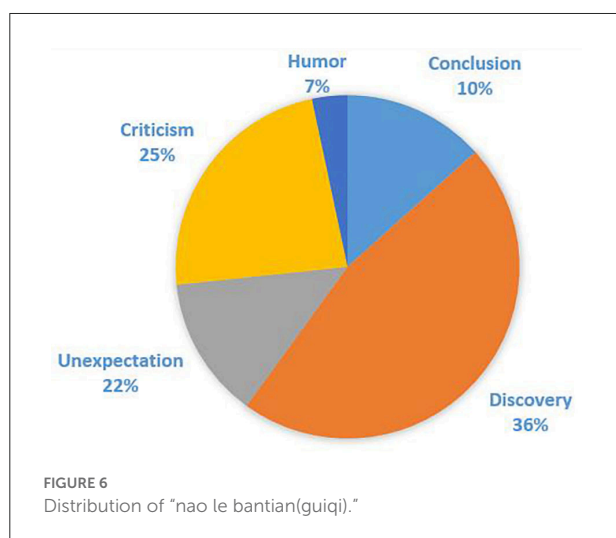
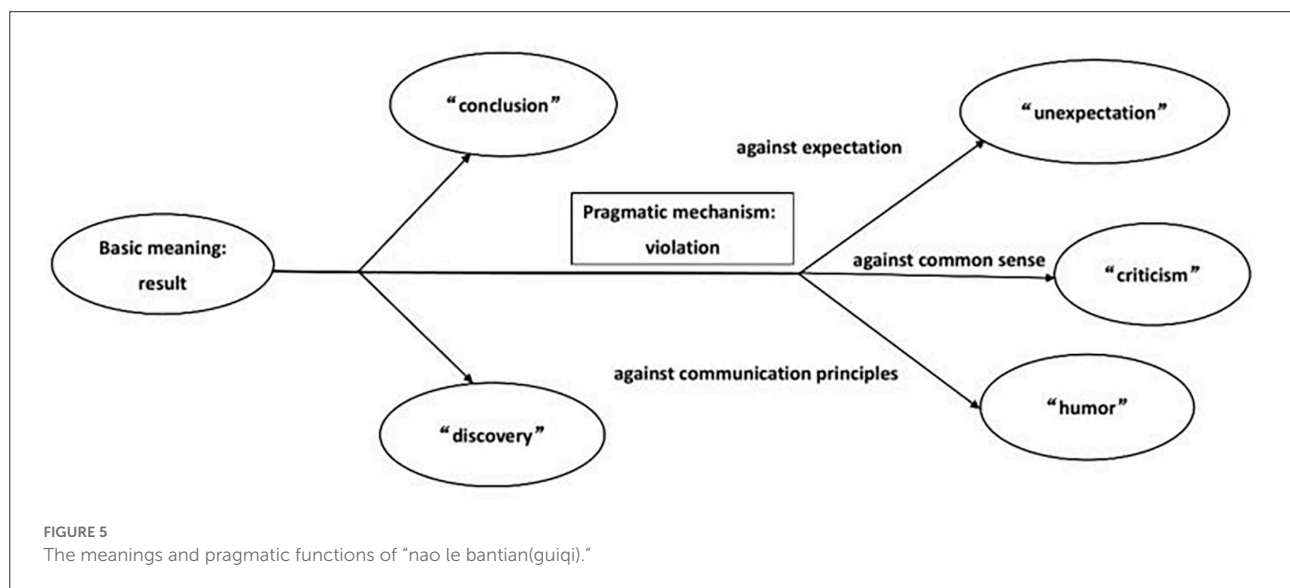
As for “nao le bantian,” the meaning of “discovery” is the most used in the corpora, followed by the function of “criticism” and “unexpectation,” “conclusion” and “humor” still fewer.

The summary of “sum-up” mood adverbs

So far, we have clarified the semantic and pragmatic functions of the mood adverbs “hezhe” and “ganqing,” as well as the phrase “nao le bantian(guiqi).” We can see that, due to the motivation of verbal communication, words with different original meanings can also accept the influence of the same pragmatic mechanism and “emerge” with similar functions to make them “come to the same goal by different paths.” From the meanings of “conclusion,” “discovery” and “result,” the above three words have moved from “sum-up” function through the mechanism of “violating” some inherent standards, and then produced three corresponding pragmatic functions that not only help to convey information, but also convey a specific tone of the speakers. The distribution of the semantics and pragmatic functions of the three mood words are summarized as in Table 1.

It should also be noted that the emergence of pragmatic function is a “self-organization” phenomenon spontaneously emerging from communication behavior. It has a certain randomness in which select words are used in peculiar directions and to specific extents. Therefore, not all words with the meaning of “conclusion” will produce the pragmatic function of “violation” (e.g., zongzhi), neither will all words with the meaning of “discovery” evolve along this path (e.g., yuanlai).

To further verify the effect that communication style has on the pragmatic distribution of the above words, we compared corpus 2 with corpus 1. The rate of the total number of characters



between corpus 1 (MLC) and corpus 2 (script) was about 330:1, while the ratio of the three adverbs: 1.17:1, 11.1:1, and 4.71:1. It can be seen that these three words appear much more intensively in corpus 2, which is because corpus 2 is created by imitating the dialogue in ordinary family life in Beijing, and therefore such mood adverbs are used more frequently than in interview programs. Compared with the overwhelming advantage of “hezhe” in corpus 1, there is little gap between “hezhe” and “ganqing” in corpus 2, although the former appears a little more, which may be due to the role of the dialect region. “Nao le bantian” is still relatively few, and there is no “nao l guiqi.” The specific distribution of the three words in corpus 2 was compared with the data obtained in corpus 1, as shown in Table 2.

It can be seen from Table 2 that in both corpora, the basic meaning of “conclusion” occurs quite often but not in the

highest frequency. The most frequently used pragmatic function is “criticism”. However, because corpus 2 is a comedy style, the frequencies of “criticism” and “humor” are higher, and the proportion of “unexpectedness” is relatively low. For example:

- (40) 这一辆车呀, 也能合着五六万块钱哪。
 Zhe yi liang
 this one (measure word)
 che ya, ye
 car (exclamation particle) also
 neng
 can
 hezhe wu liu
 totally five six
 wan kuai qian
 10,000 (currency unit) money
 na.
 (exclamation particle)
This car, totally calculated, is worth 50 to 60 thousand yuan (“conclusion”).
- (41) 嘿, 合着我这姑妈到现在还不知道有我这么一个人呢。
 Hei, hezhe wo zhe
 (exclamation word) unexpectedly mine this
 guma dao xianzai hai
 aunt till now still
 bu zhidao you
 not know have
 wo zheme yi
 I such one
 ge ren ne.
 (measure word) person (exclamation particle)
Oh my! Unexpectedly, this aunt of mine still doesn't know that I exist (“unexpectedness”).

TABLE 1 Distribution of three mood words.

	Semantics				Pragmatic Functions						Total
	Conclusion		Discovery		Unexpectedness		Criticism		Humor		
	Amount	Rate	Amount	Rate	Amount	Rate	Amount	Rate	Amount	Rate	
Hezhe	77	21%	–	–	116	31.5%	91	24.7%	84	22.8%	368
Ganqing	–	–	422	50.7%	109	13.1%	147	17.6%	155	18.6%	833
Nao Le Bantian (Nao le Guiqi)	8	9.6%	30	36.1%	18	21.7%	21	25.3%	6	7.3%	83

TABLE 2 Distribution of three adverbs in two corpora.

	Semantic meaning			Pragmatic function		
	Conclusion %	Discovery %		Unexpectedness %	Criticism %	Humor
Hezhe	1	32	–	18	36	14%
	2	25	–	8	42	25%
Ganqing	1	–	49	20	14	17%
	2	–	42	10	37	11%
Nao le bantian (guiqi)	1	14	47	13	23	3%
	2	0	28	44	28	0

(42) 那您呢？合着您就什么都不管啦？

Na nin ne? Hezhe
 then you (question particle) totally
 nin jiu shenme dou
 you just what all
 bu guan la?
 no take on (question particle)
How about you? Totally speaking, you don't take on any affairs at home? ("criticism").

(43) 哎嗨嗨，合着你们家祖宗是一太监。

Aiheihai, hezhe nimen jia
 (exclamation word) totally your family
 zuzong shi yi taijian.
 ancestor is one eunuch
Good heavens, totally speaking, your ancestor was an eunuch ("humor").

"Hezhe" in (40) is the conclusion of the money calculation. (41) is the youngest son of the family who is surprised that his aunt doesn't know about his existence. (42) criticizes the attitude of "doing nothing" as a family member, and the obvious impossibility of "the ancestor is an eunuchs" in (43) is to obtain the effect of humor.

Of all "ganqing" in the two corpora, the frequency of the basic meaning "discovery" appears the highest—more than two-fifths. Among the later emerging pragmatic functions, corpus 2 still has more "criticism." "Unexpectedness" and "humor" are slightly lower than those in corpus 1. For example:

(44) 噢我说呢，敢情这小时候就有事啊。

O wo shuo
 (exclamation word) I say
 ne, ganqing zhe
 (exclamation particle) the truth is this
 xiaoshihou jiu you
 childhood already have
 shi a.
 affair (exclamation particle)

Oh, so I see. The truth is, you two had affairs since childhood ("discovery").

(45) 不是你说这么热闹敢情是一倒卧呀？

Bushi ni shuo zheme renao
 Oh no you say so exited
 ganqing shi yi daowo
 unexpectedly is one beggar

ya?

(exclamation particle)

What? You described him so brilliant but unexpectedly he is a beggar? ("unexpectedness").

(46) 嘿，你这不倒霉催的么，
 敢情好人全让这局长给干了，
 啊，坏人全让你给当了。

Hei, ni zhe
 (exclamation word) you this
 bu daomeicui de
 not unfortunate (auxiliary word)

me,
(exclamation particle)
ganqing haoren quan rang zhe
you dare say good man all let this
juzhang gei gan le,
director give do (past tense)
a,
(exclamation word) huai ren quan rang
ni bad guy all let
you gei dang le.
you give be (past tense)
*Hey, you are so unfortunate. You dare say, the Director
become the only good man, and just you are the bad
guy ("criticism").*

- (47) 敢情是金子搁哪儿都发光！是葵花长哪儿都向阳！

Ganqing shi jinzi ge
You dare say is gold put
naer dou faguang!
where all shine
Shi kuihua zhang naer
Is sunflower grow where
dou xiang yang!
all toward sun
*You dare say, the gold will shine no matter where you put
it! And the sunflower will be toward the sun no matter
where you grow it! ("humor").*

In (44), "ganqing" indicates the speaker just found some new information. In (45), the speaker was surprised that his family had brought back a beggar. (46) criticized the selfish behavior of the "Director," and (47) commented on the fact that an elderly man over 60 years old was looking for a lover again. The idiom quoted in (47) was inconsistent with the event itself, so the effect of humor was achieved.

"Nao le bantian" appears fewer times in corpus 2 and has a narrow scope of use. The functions of "conclusion" and "humor" are not used. For example:

- (48) 好哇，闹了半天是你们干的！

Hao wa, nao le bantian
Good (exclamation particle) the truth
shi nimen gan
is you do
de!
(auxiliary word)
Good! It turned out to be you who did it! ("discovery")

- (49) 志新：原先我还真以为我喜欢她，闹了半天……

Zhixin: Yuanxian wo hai
(name): before I still
zhen yiwei wo xihuan ta,
really think I like her

nao le bantian...

unexpectedly

胡三：呸！

Husan: Pei!

(name): (exclamation word)

志新：我还真喜欢她……

Zhixin: wo hai zhen xihuan ta...

(name): I still really like her

*Zhixin: I thought I really liked her before, but it turned
out that...*

Husan: Oh!

Zhixin: I really like her... ("unexpected")

- (50) 我在外头整天奔命似的我给谁奔哪？
闹了半天我给你奔哪！我该你的我是欠你的？

Wo zai waitou zhengtian
I in outside all day
benming shide wo gei
strive like I give
shui ben na?
who strive (question particle)

Nao le bantian wo gei
Ironically I give
ni ben na!
you strive (exclamation particle)

Wo gai nide wo shi qian nide?

I own your I am in debt your

*I strive to earn money all day with my life outside home,
and for whom do I do this? Ironically, I strive for you! Do
I own you a debt? ("criticism").*

Case (48) shows that the speaker has finally discovered the originator of the incident, and the speaker in case (49) is surprised that he suddenly realizes his true feelings. It is worth noting that case (49) inserted another turn between "nao le bantian" and the subsequent unexpected result. This long pause and foreshadowing highlighted the sense of "unexpected" and achieved dramatic effects. In (50) it is the hostess of the family who criticizes that the housekeeper's salary is too high and thinks that all the money she earns is paid to the housekeeper, which she believes is improper.

To sum up, the previous categorization of the semantic meanings and pragmatic functions of "hezhe," "ganqing," and "nao le bantian (guiqi)" has appeared in corpus 1 and 2 in different ways of distribution. Such differences were possibly due to different occasions and genres, and especially due to different origins of dialect regions since corpus 2 depicts the oral communication of people from Beijing, a city that holds its own dialect traits. The above findings evinced the complex nature of oral interaction. Gathering a larger number of cases and differentiating various genres and dialect regions will be an interesting topic for further research.

Conclusion

This study chose three common adverbs (or phrases) in oral communication, “hezhe,” “ganqing,” and “nao le bantian (nao le guiqi).” Through the analysis of cases from five corpora, it was found that although their original meanings are different, they all go from the basic function of “sum-up” through the mechanism of “violation” in verbal communication and produce the pragmatic functions of “unexpected,” “criticism,” and “humor.” We categorized such words as “sum-up” mood adverbs.

Ancient and contemporary corpus statistics reveal the origins and distributions of different functions of the three words, and the comparison between MLC and script corpus also shows that the distribution proportion of various functions will be different on the premise of different communication nature and purpose. For example, the proportion of “critical” and “humor” functions tends to rise in comedy scripts with satirical and humorous effects.

The conclusion of this paper reflects the influence of verbal communication on the meaning and function of words. Through the analogy of similar psychological mechanisms, words with different original meanings may “emerge” with similar pragmatic functions through long-term use. Especially for the category of mood words, which is inseparable from the communication process and highlights the vividness of oral language, it is necessary to break the traditional simple classification based on semantics and explore their function and usage from practical communication. In the future, it is expected to expand the research scope to more types of oral corpora to reveal the influence of communication modes on the distribution of word functions, considering the factor of the genre, dialect, etc. And there are still other words and phrases that could obtain a similar “sum-up” function and mood functions to the words considered in the paper, such as “shuo dao di” (说到底, to speak to the bottom), and “shuo bai le” (说白了, to speak clearly), the study of which could enrich the category of “sum-up” and become the resources of comparison among such words.

In addition, in TCSOL, more attention should be paid to words from dialects such as “hezhe,” “ganqing” and “nao le bantian (nao le guiqi).” At present, only few studies such as Ding (2003) have discussed the teaching of dialect words. In second language learners’ Chinese discourse, as in HSK corpus, neither “hezhe” nor “ganqing” as adverbs has been used, while “nao le bantian” appeared only once, in original meaning as a verbal phrase:

- (51) 可是闹了半天, 究竟敌不过爸爸, 她只好哭一阵。
 keshi **nao le bantian**, jiuqing di
 but make a fuss for quite a while at last contend

bu guo baba,
 not over father
 ta zhihao ku yi zhen
 she only cry a while
*She made a fuss for quite a while but at last couldn't
 defeat my father, and she could only cry for a while.*

With the development of China’s international exchange, the continuous expansion of high-level Chinese learners, and the increasing use of film, television, and entertainment works as materials for Chinese teaching, more and more learners will be widely exposed to daily used oral words. Some of these words have entered the vocabulary syllabus, and more are to be included. Therefore, based on the conclusions of this research, dialect words can be appropriately selected and supplemented in TCSOL classes, especially for speaking classes of intermediate and advanced levels, and the instruction design of such words can be carried out in combination with their pragmatic functions to reflect the practical and communicative principles of TCSOL.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The framework and features of language policies in global constitutional texts

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Language policy, which is directly concerned with language practice, language ideology and language management, has become increasingly important in real social life. Explicit language policies in different fields, such as texts in law, education, and the public, have been explored for many years. However, the global comparative research on language policies in various constitutional texts (CT) is quite limited. In response, the present study aimed to investigate the framework and features of language policies in global CT through a combination of qualitative and quantitative analysis. Results showed that: 1) there were seven parts of the CT dealing with language policies, such as *Preamble*, *General principle*, *The state*, *Fundamental rights and Duties of citizen*, *State authority*, *National objectives*, and *Supplementary*; 2) there existed significant differences in the frequency of language policies in seven parts of the CT. Among them, language policies appeared most frequently in the part of *Fundamental rights and duties of citizen*; 3) the geographical location where the Constitution was enacted affected the distribution of language policies across parts. Overall, our findings suggested that the language policy in CT was influenced not only by constitutional principles, but also by the national language environment.

KEYWORDS

language policy, framework, feature, constitutional texts, combined qualitative/quantitative method

Introduction

Generally, policies are framed in various fields by the lawmakers to provide the executive with a roadmap. Language policy is considered to be one of the most important among the many policies formulated in various fields of life such as economy, health, education, environment, social security, industry and trade (Kumar, 2020). Therefore, policy can be viewed as an ensemble of activities, some of which are textual (laws, reports, authorisations; Lo Bianco, 2008). Walsh (2012) enriched and deepened the understanding of the theoretical framework of language policy through the analysis of texts in language schemes. The Constitution, which provided a legal framework for the country to formulate policies in various fields such as legislative, executive, and judiciary fields, was the most

powerful texts for its compliance with national ideology and guidelines. In fact, language policy and the Constitution are entwined, wherein the latter acts as guiding entity. Language policy usually refers to the rules or laws that determine the usage, status, and rights of a language(s) in a country. Spolsky (2004) once pointed out the main features of the theory of language policy. The first point was the tripartite division of language policy into language practices, language beliefs and language ideology. The second feature was that language policy functioned in complex relationships. Constitutional texts (CT), as the expression form of language policy, were also permeated with ideas, ideals, and ideologies (Frankenberg, 2006). CT would be a good example of language policy and the study of it would reflect basic features of Language policy.

Understanding the language ideology patterns in the texts of national constitutional language policy could help us to clarify the relationship between language ideology, language management and other theoretical structures of language policy. For example, language ideology pattern could reveal whether language-ideological changes in language management are systematic. In addition, it could examine the similarities and variability in the constitutional sources of ideological production in countries around the world. In short, it helps us to enhance our understanding of the internal functions of texts and the external ideology of language policy. Furthermore, such research reveals whether legal text types are better at conveying ideological information to policy agents than other text types in terms of state ideology. This is important since policy-makers access texts more frequently than others and use different texts for different goals. Thus, trans-constitutional language ideologies might influence the overall impact of legal frameworks on language policy.

Meanwhile, an increasing number of researchers have studied the language policies of the Constitution (Verschik, 2005; Garibova and Asgarova, 2009; Ó Flatharta, 2015; Sokolova et al., 2019). Indeed, the language policies of the Constitution that directly or indirectly deal with national symbols, solidarity, linguistic equality and protection are important for understanding the norms and principles of the Constitution. Additionally, policies on how to regulate relationships between different groups, especially ethnic minorities (Ruiz Vieyetez, 2004; Kadenge and Kufakunesu, 2018), usually reflected in the language regulations. As mentioned earlier, the understanding of texts at the national level is more complex and inextricably linked to identity and power, reflecting the linguistic institutions and traditions of each country. For instance, Malan (2008) has suggested that the South African Parliament should not violate the language provisions of the Constitution in the legislative process, otherwise it would damage the crucial cultural assets of the South African citizenry. In summary, we found that the study of language policies was no longer confined to the constitutional provisions itself but was closely related to the access of citizens to human rights and the safeguarding of state power.

Based on Lo Bianco's (2008) concept of language policy texts in the constitutional domain, our study aimed to find a framework

of language policies in CT and to analyze the language features of the Constitution across different parts in form of CT and countries, which could provide a new research perspective for the Language Policy and Planning (hereinafter LPP) theory.

Literature review

Language policies in CT from linguistic and legal perspectives

The analysis of language policies in the Constitution is often politically and legally relevant. Powell (2018) pointed out that "Some discussions of language rights refer to constitutional provisions (Asmah, 1971) or international human rights covenants (Phillipson, 1992); others (Cooper, 1989; Tollefson, 2002) go a step further and argue that it exploits language conflict for political purposes. It is naive to expect the legal system, as a state-established authority, to be isolated from politics." To a large extent, language policy making exists in the issuance of laws and in the legal-political practice of regulation. LPPs in this sense constitute the body of declarations proclaimed by authoritative bodies (Lo Bianco, 2009). Constitutions are thus the most overt and declared mode of language planning, the ultimate public text, formal operations involving laws, regulations, and planning and implementation. However, from the perspective of LPP, language use is rarely used as an administrative activity or the object of language analysis. Such public texts in countries around the world have not been analyzed as a whole language practice. Fitzsimmons-Doolan (2019) expanded the legal text into a special register, resulting in a deeper understanding of the field of language policy. Therefore, on this basis, we can study the language practice of large-scale CT in the legal field.

Linguistic and legal perspectives are often the main theoretical perspectives for studying CT, and researchers in both fields have made significant contributions. Previous studies have described contents dealing with language policies in the Constitution, such as the gap between language practices and language provisions (Gafaranga et al., 2013), the role of language institutions (Rousseau and Dargent, 2019) in accordance with legal principles, especially more emphasis has been placed on the dominant role of language power in state institutions (Meeuwis, 2015), the influential factor of constitutional bilingualism (Saarinen, 2018) on civic attitudes and national identity (Korhecz, 2002) and the constitutional effect on nation building (Charles, 2015).

In addition, some researchers have also paid attention to the comparative analysis of the Constitutions across countries. For example, Ruiz Vieyetez (2004) conducted a jurisprudential analysis of the terms "official language" and "national language" in the Constitutions of 48 European countries. Lagarde (2019) compared the legal concept of minorities in terms of linguistic pluralism of French and Spanish CT. Besides, the contradiction between the implementation of language policy and the language norms in the Constitution

(Kuźelewska, 2015; Jiménez-Salcedo, 2019) also has practical significance. On this basis, the CT could become the product of language policy in the legal field and a form of language practice.

Overall, these topics, ranging from the basic concepts of constitutional contents to the potential factors affecting Constitution making, have been the research hotspots in recent years. However, under the guidance of the legal framework of constitutional principles, relatively few studies have taken CT as language practice at the national level and interpreted the characteristics of language policy from a legal perspective.

CT as a domain of language practice and language rights

Language policy includes the language practices, language beliefs, and management decisions of a community or polity (Spolsky, 2004). In a speech community, language practice means the habitual pattern of selecting among the varieties that make up its linguistic repertoire, while language beliefs (ideology) refer to the beliefs about language and language use; and any specific efforts to modify or influence that practice by any kind of language intervention, planning or management (Spolsky, 2004). The easiest to recognize are policies that exist in the form of clear-cut labeled statements (e.g., a clause) in official documents (e.g., national Constitution), or a language law, or a cabinet document or an administrative regulation (Spolsky, 2004). Therefore, the Constitution has become an important basis for the state authority to make language policies due to its political nature.

A domain is named for a social space, such as home, school, workplace, legal or health institution, or governmental level (city, state, nation) (Spolsky, 2009). The three components of language policy (i.e., language practices, language beliefs, and management decisions of a community or polity) are actually interrelated within a domain (Zhang et al., 2022). Most countries have prescribed language requirements through the Constitution, including the “official language” or the status of other languages, which reflects the general language policy of a nation guaranteed by law. However, there are some countries that so far do not have direct constitutional provisions or language norms. This does not mean that language issues are not important in that country but reflects an invisible language policy. That is, in accordance with national traditions, inaction or other measures, they recognize or allow the official use of only one language, as in the United States, Japan and the United Kingdom. Thus, in the legal domain, language policy in the Constitution is of great concern to most countries around the world.

As mentioned above, the two fundamental and interrelated fields most relevant to language policy in the Constitution are law and linguistics. Constitutions can reflect the shared norms and values of the state (Lerner, 2011), and it is a common practice to use the Constitution as a fundamental solution to the language issues of the state. For example, Azerbaijan

promotes the determination of language status through language revival measures (Garibova and Asgarova, 2009), and Ireland has a detailed language plan to assess the implementation of language services (Ó Flatharta, 2015). The language regime in the Constitution is also a means of state language policy (Verschik, 2005; Sokolova et al., 2019). Therefore, the study of language policy in the Constitution has gone from language norms to its application, which is related to the language problems that need to be solved in social development.

Among them, the status of language in LPP is fundamental in language legislation. Language status in the Constitution not only has a symbolic function (Nagy, 2013), but also contributes to the political governance of the country. The French constitutional provision “French is the language of the Republic” is an example of language status planning, which seeks to restore (partially) lost territories through some coercive sphere of society (Bakmand, 1999). Mac Sithigh (2018) elaborated the constitutional implications of the status of language and official language, highlighted the effect of decentralization within the United Kingdom, and made an in-depth study of the relationship between language, territory, and identity. Choudhry (2009) took South Asia as an example, illustrated the possibility of governing linguistic nationalism through constitutional design.

The study of citizens’ basic rights in the Constitution is a fundamental issue in the interdisciplinary study of law and linguistics. Linguistic issues involve specific rights such as the right to freedom which Kadenge and Kufakunesu (2018) has interpreted through the using of indigenous “minority languages” in civil courts, and the right to education, which is one of the basic measures of language legislation with the purpose of building and protecting the state (Saarinen, 2018). Constitutionally speaking, language rights refer to a particular language or small group of languages. Still, it should not be ignored that the main preoccupation addressed by the notion of language rights is the legal situation of speakers of non-dominant languages or where there is no single dominant language (Arzoz, 2007). Therefore, the rights of linguistic minority groups are another subject of language rights that has received increasing attention. For example, minority language governance and regulation (Williams and Walsh, 2019), the fighting for indigenous language rights (Rousseau and Dargent, 2019), the standardization and place-naming planning of sign language (Du Plessis, 2020), and the ideologies of sign languages as well as language policy for revitalization (Lo Bianco, 2020). Taken together, the protection of the language rights of these groups is more specific and targeted, which reflects the real protection of language rights in varying degrees, not just the language provisions in the legislation itself.

Theory of language policy and planning

Language planning is a body of ideas, laws and regulations (language policy), change rules, beliefs, and practices intended to

achieve a planned change (or to stop change from happening) in the language use in one or more communities (Kaplan and Baldauf, 1997). Countries would take political intervention to solve the language problem. One possible method is to write language provisions into the Constitution. Classic language planning is based on the premise that language planning is carried out at the national level, and these plans are formulated for the development of the whole society. The language planning theories of the 1960s and 1970s was formed in a specific political and social context, which left them with unique features. In the 1980s and the following years, many scholars criticized the language planning theory of the previous period. They believed that language planning was beyond the scope of linguistics and should be considered from an interdisciplinary perspective. For example, language planning was actually a political issue in the process of implementation (Nekvapil, 2011). Moreover, Cooper enriched Haugen's dichotomy, and added acquisition planning on the basis of corpus planning and status planning, by which he made language planning explicitly relevant for applied linguistics. In an era of interdisciplinary integration, based on Cooper's LPP theory, the research of ecology, sociology and other disciplines were gradually enriched. The theories, frameworks and features of language planning will undoubtedly continue to develop according to the demand for language planning itself in contemporary society. With the development of theories, perspectives and methods of language policy and planning, the trend of interdisciplinary research in this field has become increasingly obvious (Oakes and Peled, 2018; Valle, 2019). Although the Constitution is a political product at the national level, little research has been done on the language policy in the Constitution. Therefore, this paper aims to explore this issue from the interdisciplinary perspective of language policy and law.

In summary, the language policies in the Constitution are not only the focus of research on specific groups or communities, but also the focus of regional studies, which are related to the implementation of the protection of citizens' basic rights and the smooth progress of national political development. Besides, it is not only a key research issue for language policy, but also a hot spot for jurisprudential norms and state-building concerns. The afore-mentioned studies have enriched our understanding of language issues in CT, but there exist some research gaps at the same time. Firstly, there are more research on the specific language issues of each country and less discussion about the common language problems for the whole world. Most previous studies have focused on case studies of one or a few nations (De Varennes, 1996; Faingold, 2016, 2017; Lagarde, 2019), which might limit the generalizability of research findings, making it difficult to generalize these findings to most countries in the world. Secondly, there exist more studies on the specific language provisions of the Constitution than on the overall analysis of the framework of language policies in Constitution. While some have explored the impact of politics, history, citizenship or language ideology on language legislation in language policy (Blommaert, 1999; Lo Bianco, 2008; May, 2012), it is of great importance to explore and

examine other factors in interdisciplinary research, which may enhance our in-depth understanding of language issues and legal framework of language policy. Last but not least, there is a lack of quantitative empirical research using large-scale data, combining perspectives of both law and linguistics. Indeed, the analysis of linguistic Law from the perspective of Comparative Constitutional Law is not a methodological novelty (Ruiz Vieyetez, 2004) and some scholars in this field have worked on this approach. More importantly, when drawing more general conclusions regarding the problems and reflections that Linguistic Law must deal with in the future, a global comparative method becomes necessary (Ruiz Vieyetez, 2004). Chew et al. (2018) focuses on how different "glob-national" actors have been involved in intended and unintended LPP and their impact on multilingual language use, especially in this globalized world. The global dimension thus offers a new perspective for LPP.

Therefore, to fill these gaps, this study attempts to examine the framework and features of language policies in the Constitution from a global comparative perspective, while focusing on the potential effect of "geographic location" on the relationship between the frequency of language policies and the parts of framework in which they were distributed. Generally, there were three research questions to be addressed in this paper:

RQ1: Is it possible to generalize a framework of language policies based on the CT of all counties in the world?

RQ2: Is there a correlation between the frequency of language policies and the parts of language framework in which they were distributed? In other words, which parts of this framework are closely related to the occurrence of language policies?

RQ3: Is their relationship influenced by the geography of the country (i.e., continent)?

Methodology

This study was carried out by applying grounded theory (GT), known as Glaser version. GT is a suitable method for qualitative researchers to answer questions like "what is going on in an area?" by generating formal or substantive theory (Corbin and Strauss, 2014). The goal of GT is to discover patterns and understand the social interactions of a group of individuals in the real world (Polit and Beck, 2008). Given that the language provisions in CT are the result of interactions between the different groups of stakeholders and an outcome of their preferences, GT is suitable for understanding this phenomenon. Besides, GT is very helpful when exploring a relatively novel area or trying to obtain a fresh new perspective on a well-known area (Stern, 1994). Nevertheless, to the best of our knowledge, few researchers have applied GT in their constitutional research.

Data collection

We searched the constituteproject.org (Constitute)¹ website (January 2022) for the following keywords to capture relevant language provisions: “language(s)” “linguistic(s)” “mother tongue” “multi-lingual” and finally obtained a corpus of CT ($n = 333,401$ words). The use of publicly-available data in this study did not require Institutional Review Board approval. All texts obtained were then classified into six categories, namely, Asia, Africa, Europe, North America, South America and Oceania, according to the classification standards of United Nations, among which 193 countries were recognized by the UN. The final sample data remained 177 countries after several screening rules (see [Figure 1](#)).

Data analysis

The analysis firstly consisted of identifying and describing themes and patterns using the MAXQDA 2020 (VERBI Software, 2019) pro software. Two researchers were involved in the process of data coding. The research team used an iterative and data-driven process of creating codes that were organized into themes representing frequently occurring patterned responses throughout the dataset. Inter-coder consistency was checked for and divergence in code interpretations was eliminated to the best of our ability. After calibrating, interrater reliability was assessed on 177 samples texts (Cohen's Kappa = 0.915).

Coding is used for analysis of the data collected in the process of grounded theory. During coding, the collected data are analyzed, conceptualized and finally juxtaposed in a new way (Flick, 2009). According to Corbin and Strauss (2014), the coding procedure has three stages: open coding, axial coding and selective coding. These stages are not necessarily separate but complement one another.

During open coding, events, actions and interactions are compared and contrasted and tagged for the purpose of finding similarities and differences. In this stage, data are fractured, analyzed, compared and conceptualized. Conceptualization means that each section of interactions, theories and ideas that are in the related texts get extracted (Corbin and Strauss, 2014). During axial coding, links are established between the concepts and categories that are derived from the open coding stage. The basis of this linking

process in axial coding is identification of one core category and classification of other similar codes as its sub-categories (Corbin and Strauss, 2014). Finally, during selective coding, a theory is constructed with a number of abstract codes and there is no need to code new data. At this stage, the codes have become theoretically saturated. These codes are juxtaposed in a logical way based on the coded categories in the first two stages and then the core category is selected. The core category can be selected in two ways: selecting one of the available categories or determining/constructing a new category. Regardless of the method, selecting a core category at this stage requires accurate analysis of the collected data during the first two stages (*ibid.*). MAXQDA software was used in this study to facilitate coding. Upon coding, 1,022 concepts were grouped into 60 subcategories and 7 main categories. The extracted categories were generalized according to principles of constitutional law. Then, the grounded model of the study was developed. The content examples in CT were shown in [Table 1](#). The features of these seven parts were consistent with the constitutional principles. Therefore, these 7 parts were the framework of language policy that we found in CT. The detailed coding process and examples of coding were shown in [Supplementary materials 1, 2](#).

Subsequently, based on the framework of language policies in CT, we further examined the quantitative features of this framework across different parts and countries by using the IBM SPSS 25.0 software. First of all, the descriptive analysis was conducted to summarize the distributions of language policies in each part across nations. Frequencies were calculated to determine the total number of occurrences of language provisions in each part. Afterwards, the Chi-square analysis was conducted to analyze the relationship between the frequency of language provisions and the parts in framework of language policies in CT, as well as the possible influence of geographical location on their relationship.

Results

The framework of language policies in CT

There were mainly seven parts constituting the framework of language policies in CT and the distribution of the language provisions in different parts, i.e., seven parts in CT, were presented in [Table 2](#): *Preamble* (2.05%, hereinafter PR), *General Principle* (16.34%, hereinafter GP), *The state* (13.41%, hereinafter TS), *Fundamental Rights and Duties of Citizen* (40.70%, hereinafter RD), *State Authority* (13.21%, hereinafter SA), *National Objectives* (6.65%, hereinafter NO), and *Supplementary* (7.64%, hereinafter SU). The number of language policies in RD was the highest among the seven parts. The descriptive statistics for the distributions of language provisions in each part across nations were shown

¹ The website, which offers the possibility to read and/or download the whole text of each Constitution of almost nations in the world, maintained by the University of Texas at Austin's Comparative Constitutions Project. In addition, it offers the possibility of conducting queries on a number of issues, such as provisions regarding the official language, and the first time they mentioned. Constitute includes the currently-in-force Constitution for nearly every independent state in the world, as well as some draft and historical texts.

in Table 3. Specifically, the distribution of language provisions varied across 7 parts, and the RD occupied the largest proportion, which was in line with constitutional principles.

Besides, each part contained the core content of language policy, suggesting that language status and language use were still the focus of lawmakers and agencies across countries.

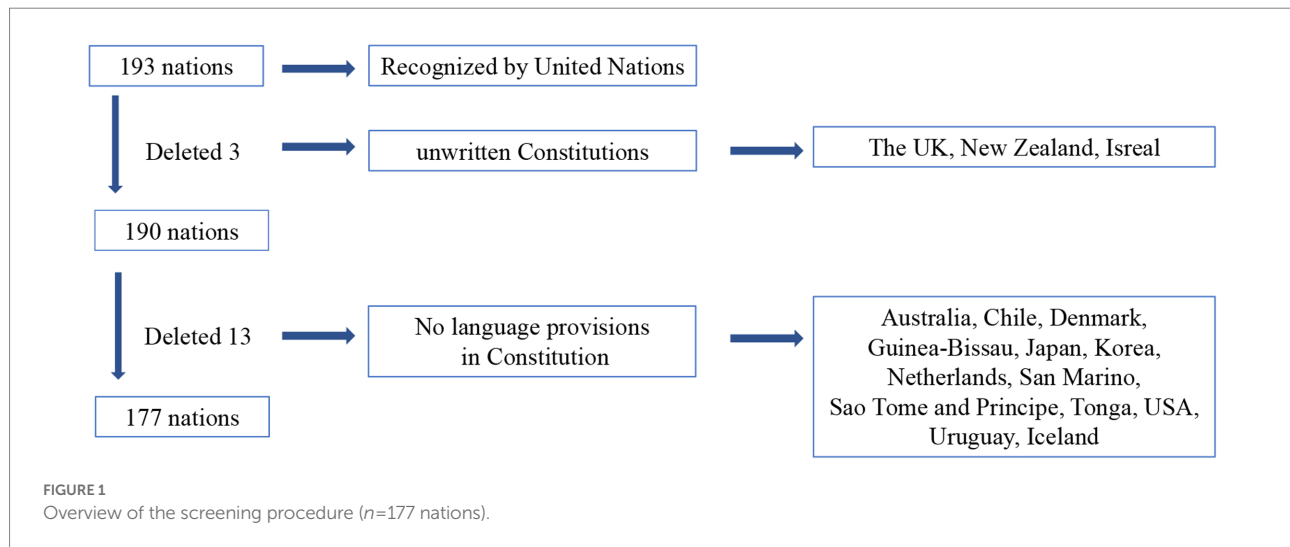


TABLE 1 Examples of language provisions coded into seven parts.

Parts/ categories	Sub-categories	CT examples
PR	Safeguarding language status	<i>Loyalty to Latvia, the Latvian language as the only official language, freedom, equality, solidarity, justice, honesty, work ethic and family are the foundations of a cohesive society</i>
	Promoting national unity	<i>The Central African People-Proud of their national unity, linguistic [unity] and of their ethnic, cultural and religious diversity which contribute to the enrichment of their personality</i>
GP	Regulating language status	<i>... is/are official language(s)</i>
	Aiming political principles	<i>It shall be supported by the work of the experts and assigned the task of providing the necessary requirements to develop the Tamazight language in order to integrate it as an official language in the future</i>
TS	Regulating language status	<i>... is/are official language(s)</i>
	Aiming political principles	<i>Additionally, the Republic works to protect and promote the national language</i>
RD	Right to personal liberty	<i>Any person who is arrested or detained shall be informed at the time of his arrest or detention, in a language that he understands, of the reasons for his arrest or detention</i>
	Right to language equality	<i>The freedoms and rights of the individual and citizen can be restricted during states of war or emergency, in accordance with the provisions of the Constitution. The restriction of freedoms and rights cannot discriminate on grounds of sex, race, color of skin, language, religion, national or social origin, property or social status</i>
SA	Regulation of language use	<i>The proceedings of Parliament shall be conducted in the English language and such other languages as the National Assembly may prescribe</i>
	Qualifications for public officials	<i>A citizen of the Kyrgyz Republic, no younger than 35 years of age and not older than 70 years of age, who has a command of the state language and who has been resident in the republic for no less than 15 years in total may be elected President</i>
NO	Objectives of culture	<i>The State shall protect and promote the Khmer language as required</i>
	Establishment of language institutions	<i>A Haitian Academy shall be established to standardize the Creole language and enable it to develop scientifically and harmoniously</i>
SU	Regulatory of texts	<i>This Constitution will be submitted to referendum. It will be registered and published, in French and in Arabic, in the Official Gazette of the Republic of Djibouti, the text in French will prevail</i>
	Regulation of language use	<i>The Indonesian and the English languages shall be working languages within the public administration side by side with official languages as long as it is deemed necessary</i>

TABLE 2 Distribution of language provisions across parts.

	PR	GP	TS	RD	SA	NO	SU	Total
Language provisions count	21	167	137	416	135	68	78	1,022
Percentage (%)	2.05	16.34	13.41	40.70	13.21	6.65	7.64	100

The main content and distribution percentages of each part were presented in Table 4.

Distribution of language provisions across chapters

As shown in Figure 2, the distribution of language provisions varied significantly across parts and RD was the first concern. It was found that there was a significant difference in the frequency of language provisions in different parts of the Constitution (Pearson $\chi^2 = 253.307$, $p < 0.001$). Besides, according to the Cramer's V coefficient, we found that the correlation between the language provisions and parts was moderately large ($v = 0.452$, $p < 0.001$). Finally, according to the chi-square test (2^*C) pairwise comparison, it was found that there was a statistically significant difference in language provisions distribution between the top parts RD and SA ($p < 0.05$). That is, the statistical results conform to the essence of the Constitution.

Effect of geographical location

In order to further examine whether there were differences in the distribution of language provisions in CT across different regions, we divided countries according to the geographical location (continents) where the Constitution was enacted and analyzed the relationship between language provisions and parts in different regions, respectively.

Overall, we founded that the distribution of language provisions varied significantly across parts in each region (See Figure 3). Firstly, there were significant differences in the frequency of language provisions in different constitutional parts across different continents (Asia: Pearson $\chi^2 = 54.145$, $p < 0.001$, Africa: Pearson $\chi^2 = 60.683$, $p < 0.001$, Europe: Pearson $\chi^2 = 76.885$, $p < 0.001$, North American: Pearson $\chi^2 = 62.275$, $p < 0.001$, South American: Pearson $\chi^2 = 26.880$, $p < 0.001$, and Oceania: Pearson $\chi^2 = 36.206$, $p < 0.001$). Secondly, it was further revealed in Figure 3 that the distribution features of language provisions in each part of the six continents were largely different. In general, it can be inferred that the distribution of language provisions in each part would be affected by geographic location. However, it is worth noting that among the seven parts, RD was the most important part related to language provisions across different continents.

Discussion and implications

We conducted a comparative study of language policies in different CT, based on 177 countries, using qualitative and quantitative methods. We founded that (1) there were seven parts of the CT dealing with language policies; (2) there existed significant differences in the frequency of language policies in seven parts of the CT, and that (3) the geographical location where the Constitution was enacted affected the distribution of language policies across parts.

Previously, there was an established framework of CT (Maarseveen, 2007) from the perspective of law, consisting of political structure, legal system, constitutional form, values and norms, cultural systems, and nation-building. However, the framework of language policies in CT should also be established since most countries in the world have written language policies into their Constitutions. In response, this study has found a framework of language policies in CT based on the principles and values of the global Constitution. In terms of LPP theoretical development, the results of this study have validated Lo Bianco's (2008) concept of language policy "public text policy" as a social behavior. Besides, it has enriched the content of Fitzsimmons-Doolan's (2019) research and provided a novel perspective for researchers to further understand the characteristics of language policy in the special register of LPP. By finding a framework of language policies in the Constitution, this study displayed a full interdisciplinary picture for researchers in the field of linguistics and law who are interested in language legislation.

Comparative constitutional study focused on the essential relationship between RD and SA. The statistical analysis results of this research showed that these two parts of this paper were relevant. Therefore, to a certain degree, our findings are consistent with the principles and characteristics of the Constitution. As for second research question, we aimed to reveal the correlation between the frequency of language policies and the parts of language framework in which they were distributed. Firstly, we found that the number of language provisions in the RD was the largest among seven parts. As shown in Figures 2, 3, it was not only the most prominent part of the framework, but also the largest number of language provisions in each continent. This was a new feature of language policy in CT. In the early days of the establishment of a nation state, language status was usually determined in the Constitution, highlighting the symbolism of language policy, because it reflected the country's primary political goal. But our findings showed that the language policy in the CT was more functional to protect citizens' rights and duties. Another new finding was that the provisions on language status were usually distributed in two parts, GP and TS. It was generally believed that the provisions on language status were very important, but few studies have explored the part in which such provisions were written. Our research found that although the themes of GP and TS were almost the same (see Table 4), we did not combine them into a whole, because we found that each part of CT has its own characteristics, intrinsic values and norms based

TABLE 3 Distribution of language provisions across nations.

	PR	GP	TS	SA	RD	NO	SU
Nations	19	69	56	88	149	30	43
count							
Percentage	10.73	38.98	31.64	49.72	84.18	16.95	24.29
(N = 177)							

TABLE 4 The main content of each part and its percentage.

Parts	Key words of main content (Top three)	Percentage of each part (%)
PR	Language status	22.7
	National unity	22.7
	Language diversity	18.2
GP	Language status	35.7
	Political principles	20.8
	Official language(s)	14.3
TS	Language status	57.7
	Political principles	13.9
	Official language(s)	10.2
RD	Right to personal liberty	45.5
	Right of language equality	18.4
	Right of culture and language	14.8
SA	Language use	35.7
	Qualifications for public officials	32.2
	Functions of public institution	14.0
NO	Cultural objectives	54.4
	Language management institution	13.2
	Educational objectives	11.8
SU	Regulatory of texts	26.9
	Language use	16.7
	Language status	14.1

on the nature of the Constitution. Specifically, TS placed more emphasis on the national sovereignty and status symbol, while GP was more regarded as general rules. In addition, this behavior is also related to the constitutional characteristics of countries in different regions. Just as Colón-Ríos (2011) prescribed the characteristics of Latin American Constitutions, “It is in the third and fourth waves that the multi-cultural and multi-lingual character of the region was able to make its way into constitutional law. During these waves, constitution-makers decided to alter the ways in which their countries described themselves to the world, moving beyond the idea of a single national culture, and gave constitutional recognition to cultural difference.” We, therefore, suggested that GP and TS were two parts with different functions. From a legal perspective, the GP and the TS were special parts in language policy framework, but according to linguists, they embodied the symbolism of the language policy in the Constitution. Just as Cooper (1989) said “In many cases, the

function of a language is specified constitutionally ... But it may be useful to distinguish two other types of official language: a language which a government uses as a medium for its day-to-day activities and a language which a government uses as a medium for symbolic purposes, i.e., as a symbol of the state.” Furthermore, official language has more than an instrumental and symbolic role in the Constitution. It has been argued that the designation of one or more languages as official did not necessarily or automatically entail significant legal consequences (Turi, 2012). The legal significance of making a language as an official language depends on the effective legal treatment accorded to the language. When the state determines the status of a language, it is usually also guided by state policy, where the state guarantees the status and use of the language, in which case the language takes on a social function, combining with economic, political, and cultural factors and performing a dynamic role. In the domain of legal contexts, there were systematic differences in the functionality of language policies in the legal register, suggesting that language functions in language policy legal texts differed from previous studies, which only treated language provisions as symbols. Language use and language status were the basis and focus of language legislation, to highlight their functionality. In particular, the cultural and social functions of language provisions were also playing a role. More and more countries have begun to take effective measures to promote and maintain language in order to strengthen nation-building and solidarity. The measures they usually take could be reflected in the language policies in RD, which has the largest proportion of language provisions in the CT, highlighting the core principle of the Constitution, that is, the basic rights of citizens guaranteed by the state. Protecting citizens’ language rights is the starting point for the state authority to exercise language power, and it can also reflect its specific measures to protect citizens’ language rights. These measures reflect the functionality of language policies.

Finally, the language policies of CT have obvious characteristics of localization and contextualization. Previous study rarely took location as an important influential factor, but there existed large differences in the distribution of language policies across different continents (Figure 3). Therefore, we cannot conclude that the framework of language policies and its features in the constitutional context are fixed. In fact, formulating constitutional language policies for each nation would be a political objective. Just as Blommaert and Verschueren (2022) mentioned that the role of language in nationalist ideology was, to a large extent, political. In other words, language has both normative and political features. If we look at the development history of the world Constitution and the content of their provisions, we will find that all Constitutions, regardless of their substance or form, are related to democracy. The Constitutions actually express the aspirations, principles and means of the ruling class for democratic management of the state and all aspects of social life and reflects the purpose to be achieved by implementing these aspirations, principles and means. The language policies in GP, TS, RD, and SA parts are precisely aimed at the will and interests of the ruling class to establish a democratic country. The language policies

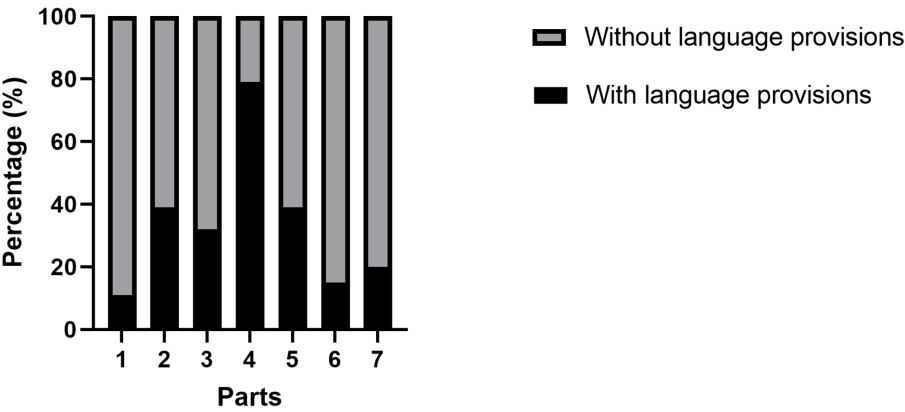


FIGURE 2
The relationship between constitutional parts and language provisions. “1”=PR; “2”=GP; “3”=TS; “4”=RD; “5”=SA; “6”=NO; “7”=SU.

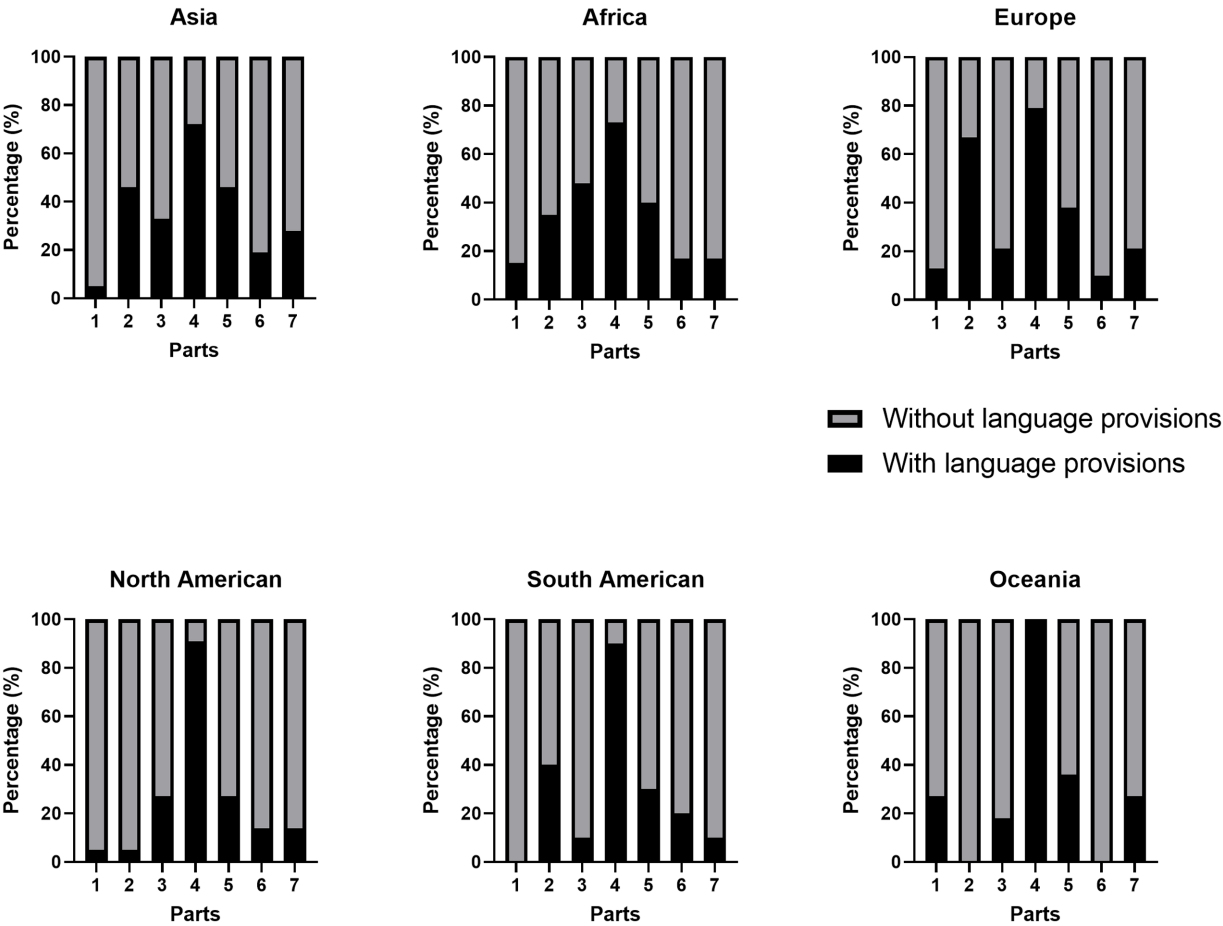


FIGURE 3
Distribution of language provisions across six continents. “1”=PR; “2”=GP; “3”=TS; “4”=RD; “5”=SA; “6”=NO; “7”=SU.

in the Constitution also mean language choice to a certain extent and reflect the determination of the status of language, the scope of language use, citizen’s choice of language for expression, education and communication, and the guarantee of the fundamental rights of the common people by the state institutions through the choice of language through status planning. The Constitution is the

embodiment of national consciousness, national political language policy and national attitude toward language. Linguistic awareness, which plays an important role in the Constitution, reflects the political compromise and consensus on the development of the state. Therefore, the Constitution is a consensual and legitimate commitment, and linguistic awareness has become one of the factors affecting the constitutional order.

Overall, the findings of this study indicate that interdisciplinary research could expand the scope of research. Theoretically, we combined Cooper's language policy theory with legal principles, enriching the characteristics of language policy. By comparing the global CT, we have discovered the framework and features of language policies in the Constitution. On this basis, we can help determine the current situation and development trend of global language issues in the Constitution. Moreover, the legal policymaking is a multi-party negotiation process, and the literal meaning of CT encompasses not only the regulation of language, but also the language ideology of stakeholders. The findings of this study could also be used to predict the trend of LPP in the legal domain.

Conclusion

The main goal of this study was to uncover the framework of language policies in CT through a hybrid qualitative and quantitative approach. It turned out that all continents in the world regulated language provisions differently and granted language rights or language status according to their own needs and language surroundings. Regulations of language provisions in RD was an essential part of the Constitution and played an indispensable role in the constitutional framework.

The main theoretical contribution of this paper is to enrich Cooper's LPP classification from an interdisciplinary perspective and endow it with new connotations. Status planning refers to which discipline occupied the main position, corpus planning refers to which content was the core, and acquisition planning refers to what measures the country took to systematically work across disciplines (Oakes and Peled, 2018). The new findings suggest that legal principles are the most important, which represents the status planning. The seven parts in the framework are the core content of CT, representing the corpus planning. Additionally, policy-makers need to strengthen the language awareness based on the geographical location of each country, and to formulate language policies in the Constitution in line with its own national conditions, which reflects the acquisition planning.

Meanwhile, this study has some practical implications for the primary stakeholders of language management in each country. Firstly, the framework of language policies in the Constitution could facilitate policymakers at the national level to formulate or adjust language policies in the Constitution or other

language-related laws. Secondly, this study has linked language power with value, indicating that some nations may be able to improve their political capacity by managing their language policies in CT. Finally, in the age of globalization, the authorities need not only to stabilize their domestic governance, but also to keep pace with the world's constitutional legitimacy.

However, it is worth noting that there are several limitations in this study. First, due to technical retrieval problems, we could only find the latest valid samples, but cannot trace the previous ones. Therefore, we hope that more diachronic comparative studies could be conducted in the future. Second, this research has explored the distribution features of language policies from the perspective of geographical location, but there may be other factors, such as national politics, doctrine, etc., worthy of further discussion. In addition, from the perspective of language policy, there are many factors that could affect the process of formulation of language policies, such as international treaties, language ideology, language management, and even language tradition and value. These are also factors that cannot be ignored in the discussion of constitutional language policy framework. Last but not least, we have selected the English corpus from official databases in order to ensure the authority and validity of the data. However, at the same time, we may ignore the specificity of certain countries whose official language is not English. Specifically, the interpretation of the words or texts translated into English may have a different meaning in the language of the original version. Indeed, this is a problem that is currently insurmountable when conducting global comparative studies of the Constitutions, and we hope to overcome this problem through technological innovation in the future.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

YH conceived the project and edited the manuscript. CZ conducted the study, analyzed the data, and drafted the original manuscript with the help of YH and RZ. All authors reviewed the manuscript and approved the final version of the manuscript for submission.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

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Structural and functional differences between bundles of different lengths: A corpus-driven study

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This pilot study aims to investigate the differences between varying lengths of bundles in structure and function by comparing the 100 most frequent three-, four-, and five-word bundles in a self-built corpus of dissertations which contains about 3.5 million words. The findings reveal considerable variances between bundles of different lengths in terms of both structure and function. In general, the variances between three- and four-word bundles are greater than those between four- and five-word bundles, and three- and five-word bundles. Structurally, three- and four-word bundles differ significantly in all six main categories. Four- and five-word bundles vary in five categories, while three- and five-word bundles are only different in four categories. Functionally, noticeable variances were observed in research-, text- and participant-oriented bundles between three- and four-word bundles, and three- and five-word bundles. However, four- and five-word bundles only differ significantly in text- and participant-oriented bundles. Interestingly, bundles of varying lengths also vary in patterns that are used to perform the same functions. The results of this study might inform researchers that they need to take bundle lengths into consideration when making generalizations of their findings or comparing bundles between various studies.

KEYWORDS

bundles, bundle lengths, structure, function, differences

Introduction

Lexical bundles are “uninterrupted strings of three or more words that frequently recur in a register, identified empirically by running a computer program in a corpus of language texts” (Cortes, 2015, p. 205). They are also referred to as multiword sequences, multiword units, n-grams, lexical chunks, etc. The significance of bundles is reflected in the following aspects. Firstly, bundles are ubiquitous. Erman and Warren’s (2000) study suggests that formulaic sequences make up 58.6% of oral productions. This might be related to the fact that words tend to be used in the form of collocations (Szudarski, 2018). Secondly, bundles are stored in memory as whole so that they can be retrieved as whole when in use as well (Wray and Perkins, 2000). Therefore, a mastery of these bundles can help reduce processing

time. In fact, this processing advantage is not only confined to native speakers. In their study, Conklin and Schmitt (2008) compared reading time for both formulaic and nonformulaic sequences by native and nonnative speakers, the findings indicated that both of them processed formulaic sequences more efficiently than nonformulaic ones. Thirdly, a mastery of these natural occurring bundles can assist L2 learners in producing more natural and native-like utterances; meanwhile, these bundles also help learners reduce collocational errors either in writing or speaking in that they can directly use them instead of combining single words or creating sequences creatively on their own (Lewis, 1993; Nesselhauf, 2005; Schmitt, 2010). Fourthly, there is an agreement that bundles are essential building blocks of coherent discourse (Biber et al., 2004; Hyland, 2008a; Biber, 2009; Schmitt, 2013; Ren, 2021). According to Hyland (2008b), bundles can shape meanings and help to make sense of coherence in a text. Ultimately, as different disciplines have divergent features in bundle use, a mastery of the frequent bundles in a certain field enables novice writers to quickly fit into the academic field that they belong to.

Additionally, the literature shows that bundles are also related to three aspects of language production, namely, complexity, accuracy, and fluency. There is robust evidence showing that bundles can facilitate fluency in production (Wood, 2010; Mohammadi and Enayati, 2018; Tavakoli and Uchihara, 2020; Nergis, 2021; Xuan et al., 2021). In Xuan et al.'s (2021) study, spoken fluency was measured in the aspects of articulation rate, speech rate, mean length of run, and phonation time ratio, the findings of which reveal a high correlation between bundle use and fluency. Meanwhile, studies (Lewis, 1993; Nesselhauf, 2005; Schmitt, 2010; Shin and Kim, 2017; Ma, 2020) also point to the positive role bundles play in accuracy. In Shin and Kim's (2017) research, teaching articles with a bundle approach was proved to help students reduce their article omission errors. In contrast, the relationship between bundles and complexity is less obvious because existing studies seem to report contradictory results. Some studies (Mellow, 2006; Taguchi, 2008; Ma, 2020) found a positive effect of bundles on complexity, whereas others (Vercellotti et al., 2021) fail to observe such an effect.

Recent years have seen a growing interest in comparative studies into bundles. These studies tend to focus on the influence of text-source related variables on bundle use: registers (Biber and Barbieri, 2007; Biber, 2009), genres (Cock and Granger, 2021; Shirazizadeh and Amirfazlian, 2021), disciplines (Nekrasova-Beker and Becker, 2020; Cui and Kim, 2022), time (Hyland and Jiang, 2018; Candarli, 2021), or of author-related variables on bundle use: mother tongues (Esfandiari and Barbary, 2017; Pan et al., 2020), language proficiency (Chen and Baker, 2016; Siyanova-Chanturia and Spina, 2020), stay-abroad experience (Siyanova-Chanturia and Spina, 2020; Edmonds and Gudmestad, 2021). However, few studies are interested in exploring the effect of identification process-related variables on bundle use, such as frequency, range, and length. Evidently, this group of variables

should not be neglected since they could determine what bundles we might get from a corpus, which then influence the distribution of various types of structure and function. The present study attempts to fill this gap by focusing on the variable of bundle length. Specifically, bundles of three different lengths were simultaneously extracted in the same corpus and comparisons were made between them to see whether they differ in terms of structure and function. It is notable that structural analysis was based on Biber et al.'s (1999) categorization, while functional analysis was based on Hyland's (2008a) taxonomy. This is meaningful because most of previous studies (Chen and Baker, 2010; Esfandiari and Barbary, 2017; Lu and Deng, 2019; Shirazizadeh and Amirfazlian, 2021; Cui and Kim, 2022; Kim and Kessler, 2022) analyze bundles from two perspectives: structure and function. If bundles of different lengths differ in their structure and function, then the results of this study might have important implications for a wide range of bundle studies. For instance, researchers might need to indicate bundle length first when they make generalizations of their findings. In addition, they are supposed to compare bundles of the same length when contrasting bundles across studies. Otherwise, their generalizations or comparisons could be inappropriate and therefore unconvincing. Moreover, the frequent bundles identified in the study might benefit novice writers in the field of English education since they offer them a shortcut to quickly fit into the field. Furthermore, English for academic purposes (EAP) teachers might also find the bundles lists useful in that they can prioritize them while planning lessons. The present study was guided by the following research questions: (1) Do three-, four-, and five-word bundles differ in their distribution of structures? If yes, to what extent? (2) Do three-, four-, and five-word bundles differ in their distribution of functions? If yes, to what extent?

Literature review

The past two decades have witnessed a surge of comparative studies into bundles, which can be broadly divided into two main lines according to their focus: (a) the influence of text-source related variables on lexical bundles: registers, genres, disciplines, time; and (b) the influence of author-related variables on lexical bundles: mother tongues, language proficiency, and stay-abroad experience.

Text source-related variables

To begin with, studies focusing on the variable of registers thrived before 2010 (e.g., Conrad and Biber, 2005; Biber and Barbieri, 2007; Biber, 2009; Kim, 2009). For example, Conrad and Biber (2005) contrasted bundle use between academic and conversational prose. They found that the most frequent structural type in conversation is 'personal pronoun + lexical VP (+ complement clause)', which takes up 44% of the bundles, whereas

that in academic prose is ‘preposition + NP fragment’, which makes up 33% of the bundles. Functionally, conversation prose is characterized by its high proportion of bundles that are used to express personal stance, while academic prose is characterized by its high proportion of referential bundles. Differences between the two even exist in the same bundle: ‘the fact that the’ in academic prose is used to convey certainty, but in conversation prose it is employed to express uncertainty.

Some researchers (Breeze, 2013; Cock and Granger, 2021; Shirazizadeh and Amirfazlian, 2021) concern the variable of genre. In Shirazizadeh and Amirfazlian’s (2021) study, bundle use in three different genres (i.e., textbooks, theses, articles) were compared, the results of which reveal significant differences between them. There is a significantly higher proportion of prepositional bundles in textbooks than in articles and theses. By contrast, articles and theses use a greater number of noun bundles than textbooks. Noticeable variances are also found in function: research-oriented bundles make up around 47% of the bundles in both articles and textbooks, but constitute roughly 60% of the bundles in theses. With regard to text-oriented bundles, only 27.7% of the bundles in theses fall into this category. However, the percentage of this category in articles and textbooks is 39.9 and 38.2%, respectively.

Other researchers (Hyland, 2008a; Hyland and Jiang, 2018; Omidian et al., 2018; Nekrasova-Beker and Becker, 2020) attempt to explore disciplinary variance of bundles. This is one of the most extensively explored variables within this line. Omidian et al. (2018) made a comparison between hard science fields (biology, physics, mechanical engineering) and soft science fields (sociology, marketing, applied linguistics) in their use of bundles. They found that writers in hard and soft disciplines have different focus: those in hard sciences prioritize their methodology, while those in soft sciences highlight their research goals and implications for future studies. Another difference is that writers in soft fields are more inclined to employ bundles to describe intangible attributes of research processes or procedures, whereas their counterparts in hard sciences use more bundles to explain the physical attributes of research objects. In addition, compared with hard fields, soft fields make use of more hedging devices (e.g., are more likely to) and summarize their outcomes in a less assured manner, which help to reduce the possibility of overgeneralization.

The last variable within this line is time. Studies of this category (Siyanova-Chanturia, 2015; Hyland and Jiang, 2018; Hong, 2019; Candarli, 2021; Vercellotti et al., 2021) investigate whether bundle use change over time. An exemplary study is Hyland and Jiang (2018) research which explored the changes of bundles in four disciplines from 1965 to 2015. It is found that electronic engineering has witnessed great changes over time: the proportion of verb phrase-related bundles has decreased from 34.5 to 26.8%, while that of noun/preposition-related bundles has increased from 45.7 to 56.2%. From the perspective of function, an increase can be observed in the proportion of research-oriented bundles in applied linguistics and sociology, yet a decrease was found in biology and electronic engineering. What is more, all

fields have witnessed a proportional growth in text-oriented bundles except electronic engineering. Furthermore, there is a decline in the percentage of participant-oriented bundles in applied linguistics and sociology, yet a growth in biology and electronic engineering.

Author-related variables

In addition to the text source-related variables mentioned above, researchers are also keen to investigate author-related variables. Within this line, many researchers (Esfandiari and Barbary, 2017; Liu and Lu, 2019; Lu and Deng, 2019; Cui and Kim, 2021a) are concerned with the differences in bundle use between learners with various L1 backgrounds. For instance, Cui and Kim (2021a) compared bundle use between L1 Korean and L1 Chinese writers in their English dissertations. The results are that Chinese writers generally make use of more bundles than Korean writers. Structurally, Korean writers use a higher proportion of noun-based and preposition-based bundles than their Chinese counterparts. By contrast, Chinese writers use a greater number of bundles falling into the category of “other bundles.” As for function, Korean writers employ a greater number of resultative and framing bundles, whereas Chinese writers use a higher proportion of transition and text-reflexive bundles. Chinese writers are also found to use bundles of different types more evenly in their dissertations. Interestingly, Chinese writers tend to underuse bundles while their Korean counterparts are inclined to overuse bundles.

Some researchers (Chen and Baker, 2010, 2016; Xu, 2012; Siyanova-Chanturia and Spina, 2020) are interested in revealing the relationship between language proficiency and bundles use. Chen and Baker (2016) contrasted bundles use in English essays by L1 Chinese learners of three different proficiency levels: CEFR B1, B2 and C1. They observed that C1 (the highest level) learners’ essays are the closest to academic prose in that they have the lowest proportion of VP-based bundles (44%) and the highest percentage of PP- and NP-based bundles. On the contrary, B1 (the lowest level) learners’ essays are the most similar to conversation prose because of their highest proportion of VP-based bundles (78%) and the lowest percentage of PP- and NP-based bundles. When it comes to function, C1 learners use a greater number of stance bundles and referential expressions than B1 and B2 learners. In comparison, B1 and B2 learners make use of more discourse organizers than C1 learners. Differences also exist in subcategories. For instance, within stance bundles, the proportion of epistemic type decreases as learners’ proficiency level increases, yet the combined percentage of attitudinal and modality types increases as learners’ proficiency level increases.

Others (Yoon, 2016; Siyanova-Chanturia and Spina, 2020; Edmonds and Gudmestad, 2021) are concerned with the influence of stay abroad experience on collocations. Edmonds and Gudmestad (2021) traced the development of learners’ ‘noun+adjective’ collocations in written assignments over a stay in

a target language environment, the findings reveal that staying abroad experience contributes to an increase in the use of 'noun + adjective' combinations that consist of low frequency words. In another study conducted by [Siyanova-Chanturia and Spina \(2020\)](#) which involves 175 participants, the use of 'noun + adjective' collocations has witnessed an overall decrease after the staying abroad experience. At the same time, they also found that beginner learners are more inclined to use low frequency collocations after staying abroad. Surprisingly, instead of contributing to more idiomatic production, high proficiency and sufficient exposure to L2 are found to cause heavy reliance on less frequent combinations.

To summarize, it is not hard to find that most bundle studies tend to analyze bundles in terms of structure and function, and calculate the proportion of different categories of structure and function. Notably, while the two lines of studies mentioned above thrive, few attempts have been made to explore the influence of identification process-related variables on the structure and function of bundles, such as frequency, range, and length. These factors would inevitably exert an influence on what bundles we could extract from a corpus, which might then directly influence the calculation of the proportion of different structures and functions since different bundles differ in structure and function. Therefore, it is necessary to conduct empirical studies to reveal the effect of these variables on the structure and function of bundles. It is true that there are some studies which have covered varying lengths of bundles, yet they either merely focus on four-word bundles (e.g., [Ren, 2021](#)), or do not use the same criteria when extracting bundles of different lengths because bundle lengths is not their focus (e.g., [Esfandiari and Barbary, 2017](#)). Thus, a direct comparison between bundles of varying lengths in terms of structure and function is currently unavailable.

Methodology

Corpus building

As demonstrated in [Table 1](#), the corpus developed in this study consists of 90 doctoral dissertations in English education which were downloaded from *ProQuest*. We chose 90 dissertations because it is large enough to identify the number of bundles that we need. When choosing doctoral dissertations, only three criteria were involved. The first is that they must be in the field of English education. The second is that they must be written in English. Thirdly, they were written between 1991 and 2020. Specifically, 30 dissertations were written in the period of 1991–2000, 30 were in

2001–2010, and 30 in 2011–2020. In other words, other factors like the writers' L1 background, language proficiency, and where they study were not considered. The selected dissertations then went through a manual deletion process during which only main body of the dissertations was maintained, while other parts such as abstracts, acknowledgement and dedications, table of contents, references, titles, footnotes, charts, tables, etc. were all discarded. Finally, the remaining parts of all dissertations were compiled into a corpus of 3,585,637 words.

Identification process

Length, frequency and range are the three most significant criteria in the process of extracting bundles. As for length, previous studies tend to focus on three-, four-, and five-word bundles. Four-word bundles have received the most attention ([Hong, 2019](#); [Liu and Lu, 2019](#); [Lu and Deng, 2019](#); [Shirazizadeh and Amirfazlian, 2021](#); [Yin and Li, 2021](#); [Cui and Kim, 2022](#)), followed by three- and five-word bundles. This study only involves three- to five-word bundles because the number of two-word bundles is too overwhelming, while six-word bundles or longer ones contain too many shorter bundles, which might cause overlapping issues. More importantly, three- to five-word bundles are the most studied ones, so a comparison of which might inform more studies. Based on the above reasons, this study only compares 3-, 4-, and 5-word bundles.

Also, setting a frequency threshold is an essential step for bundle identification. However, such a threshold can be arbitrary and there is little consensus as to what is the standard. It might vary from occurring at least 10 times per million words ([Biber et al., 1999](#); [Simpson-Vlach and Ellis, 2010](#)), 20 times per million words ([Cunningham, 2017](#); [Hyland and Jiang, 2018](#); [Lu and Deng, 2019](#); [Shirazizadeh and Amirfazlian, 2021](#)), to 40 times per million words ([Biber and Barbieri, 2007](#); [Pan et al., 2016](#)) in a corpus. The criteria could change according to corpus size, research purposes, etc. A common conventional practice is to set it as appearing at least 20 times per million words. Following this convention, the current study adopted 20 times per million words as cut-off frequency.

Range is another crucial factor in bundle extraction. Previous studies tend to set it as appearing in at least 5 different texts ([Biber et al., 2004](#); [Pan et al., 2016](#); [Omidian et al., 2018](#); [Cui and Kim, 2021b](#)), or in 10% of all the texts ([Hyland, 2008a](#); [Hong and Hua, 2018](#); [Hyland and Jiang, 2018](#); [Shirazizadeh and Amirfazlian, 2021](#); [Yin and Li, 2021](#)) in a corpus. Researchers might choose a range threshold out of different concerns, but the total number of texts is a main concern. Following the practice of previous research, the present study adopted an occurrence in 10% of texts as criterion.

AntConc, a software for corpus processing, was employed to identify three-, four-, and five-grams in the corpus. The criteria are that they must appear in 10% of all the dissertations with a minimum frequency of 20 times per million words. Then

TABLE 1 Description of the corpus.

No. of texts	Total length (in words)	Average length (in words)
90	3,585,637	39840.4

we obtained 8,487 three-grams, 1,375 four-grams, and 169 five-grams. All these bundles then went through a manual selection process to exclude the unqualified ones. For example, when checking four-word bundles, “in the u s” was abandoned because it is mistakenly taken by machine as four-grams. In the end, the top 100 remaining three-, four-, and five-grams were chosen to build a bundle list, respectively. Their total frequency are 53,991, 16,207, and 5,403 times, respectively.

Data analysis

The qualified bundles, namely the bundles in the three lists, were then manually analyzed in terms of structure and function. The structural analysis was performed using the framework demonstrated in Table 2. This framework groups bundles into six main types: noun phrase-based bundles, preposition phrase-based bundles, verb phrase-based bundles, anticipatory it structure, infinitive construction, and “others.” The first two categories were further divided into subtypes due to their greater number. It is notable that this taxonomy was adapted from Biber et al.’s (1999, p. 997–1,025) structural framework which categorized four-word bundles into eight subcategories: prepositional phrase + of, other prepositional phrases, noun phrase + of, other noun phrases, passive + prep phrase fragment, anticipatory it +verb/adj, be + noun/adjectival phrase, and “others.” As the present study involves bundles of different lengths, substantial changes were made in the original framework so as to make it more suitable for this study. For example, the category of *passive + prep phrase fragment* was removed because few bundles in this study fall into it.

Functional analysis was performed based on Hyland’s (2008a) taxonomy. Hyland categorized bundles into three main types: text-oriented, research-oriented, and participant-oriented bundles. Text-oriented bundles focus on “the organization of the text and

its meaning as a message or argument”; research-oriented bundles “help writers to organize their activities and experiences of the real world”; participant-oriented bundles center on “the writer or reader of the text” (p. 13–14). Specifically, text bundles contain four subcategories: transition bundles, structuring bundles, framing bundles, and resultative bundles. Research bundles comprise five subtypes: location bundles, topic bundles, description bundles, quantification bundles, as well as procedure bundles. And participant bundles can be further divided into stance bundles and engagement bundles. In the current study, bundles were categorized into three main types, namely research, text and participant bundles, without further dividing because of the relatively small number of five-word bundles.

Then the results of structural and functional analysis of bundles were compared between three-and four-word bundles, four-and five-word bundles, and three-and five-word bundles. Considering that the frequency of five-word bundles is significantly less than that of three-and four-word bundles, this study did not directly compare the frequency of bundles. Instead, the proportion of each structural and functional category was used for comparison. Meanwhile, log-likelihood test was performed to reveal the statistical differences between three- to five-word bundles.

Results

The total frequency of the three-, four-, and five-word bundle lists are 53,991, 16,207, and 5,403 times, respectively. Three-word bundles occur roughly three times as frequent as four-word bundles, whereas four-word bundles appear about three times as frequent as five-word bundles. It is evident that shorter bundles occur much more frequently than longer ones. Detailed information concerning the three bundle lists can be found in Table 3.

TABLE 2 Structural framework for bundle analysis.

Noun phrase-based bundles
NP with of-phrase fragment (e.g., a variety of, the nature of the)
Other NP (e.g., the target language, participants in this study)
Preposition phrase-based bundles
PP-based bundles beginning with in (e.g., in other words the)
PP-based bundles beginning with of (e.g., of the program)
PP-based bundles beginning with on (e.g., on the other hand the)
PP-based bundles beginning with at (e.g., at the secondary school level)
Other PP-based bundles (e.g., according to the, through the use of)
Verb-based bundles (e.g., related to the, was one of the, play an important role in)
Anticipatory it structure (e.g., it is important to, it should be noted that)
Infinitive construction (e.g., to learn English, to participate in the, to meet the needs of)
Others (e.g., as well as, culturally and linguistically diverse, and at the same time)

Comparison between three-and four-word bundles

Structurally, log-likelihood test shows that significant differences exist between three-and four-word bundles in the distribution of all six main categories: NP-based bundles (log-likelihood = 344.99, $p < 0.001^{***}$), PP-based bundles (log-likelihood = 790.19, $p < 0.001^{***}$), VP-based bundles (log-likelihood = 147.90, $p < 0.001^{***}$), anticipatory it structure (log-likelihood = 63.48, $p < 0.001^{***}$), infinitive construction (log-likelihood = 8.40, $p < 0.01^{**}$), and “others” (log-likelihood = 168.11, $p < 0.001^{***}$). The most substantial variance between three-and four-word bundles was observed in the proportion of PP-based bundles. As shown in Table 4, 32.7% of three-word bundles are PP-based structures, but 48.4% of four-word bundles are of this category. What follows is the variance in NP-based bundles. While 46.5% of three-word bundles are

TABLE 3 The top 50 three-, four-, and five-word bundles.

as well as (1641)	in the united states (680)	English as a second language (613)
in order to (1520)	as a second language (636)	English as a foreign language (173)
English language learners (1342)	English as a second (621)	at the end of the (159)
one of the (1290)	of English language learners (481)	to meet the needs of (134)
in the classroom (1132)	on the other hand (377)	the field of English education (124)
the united states (1121)	as a result of (324)	the purpose of this study (113)
English as a (1085)	the ministry of education (324)	national council of teachers of (109)
the use of (969)	as well as the (301)	council of teachers of English (103)
a second language (916)	the end of the (293)	of English language learners in (98)
in this study (912)	at the end of (287)	the results of this study (97)
of English language (894)	in the area of (277)	at the beginning of the (94)
of this study (864)	at the same time (274)	of this study was to (94)
of the study (855)	the results of the (259)	the national council of teachers (87)
in terms of (797)	in the field of (243)	a language other than English (79)
the English language (782)	to be able to (232)	English as an international language (79)
the teaching of (782)	the teaching of English (226)	as a result of the (78)
the importance of (761)	English language learners in (216)	purpose of this study was (76)
part of the (704)	as a foreign language (214)	the findings of this study (76)
English language arts (699)	one of the most (209)	an English as a second (69)
in the united (687)	the purpose of this (209)	the teaching of English in (68)
be able to (675)	it is important to (202)	in the united states and (65)
some of the (665)	meet the needs of (190)	culturally and linguistically diverse students (62)
as a result (660)	English as a foreign (183)	one of the most important (61)
as a second (657)	of the English language (182)	it should be noted that (59)
there is a (648)	the field of English (177)	the purpose of the study (59)
the purpose of (641)	the purpose of the (174)	the no child left behind (57)

(Continued)

TABLE 3 (Continued)

based on the (615)	limited English proficient students (164)	on the part of the (55)
a lot of (590)	first year of teaching (155)	to participate in the study (54)
the development of (572)	at the beginning of (153)	and be able to do (53)
of the English (565)	the beginning of the (150)	in the field of English (53)
the number of (556)	in special education programs (149)	on the other hand the (50)
the needs of (542)	the role of the (148)	the common core state standards (50)
the role of (538)	is one of the (143)	by the end of the (49)
reading and writing (536)	the rest of the (142)	by the ministry of education (49)
based on their (534)	of English as a (140)	no child left behind act (46)
teaching and learning (533)	to meet the needs (138)	at the time of the (42)
students in the (525)	for English language learners (137)	elementary and secondary education act (40)
the end of (506)	of this study was (137)	play an important role in (40)
the field of (501)	the teaching of writing (136)	there is a need for (40)
of the students (494)	field of English education (133)	in the field of education (39)
in the field (490)	the English language arts (133)	at the high school level (38)
the results of (483)	in the case of (131)	for the purposes of this (38)
a variety of (479)	in the state of (131)	in the area of English (38)
according to the (469)	of teachers of English (131)	of the ministry of education (38)
in addition to (459)	in addition to the (130)	the elementary and secondary education (38)
of English education (457)	in the process of (130)	the role of the teacher (38)
teacher education programs (450)	on the part of (128)	in an English speaking country (37)
ministry of education (441)	in the form of (127)	the results of the study (37)
the fact that (441)	in the target language (125)	in the teaching of writing (36)
in special education (439)	for the purpose of (123)	is one of the most (36)

categorized as NP-based patterns, only 35.7% of four-word are grouped into this category. Overall, three-word bundles have a higher percentage of NP-based bundles, VP-based bundles, and “others,” whereas four-word bundles contain a higher proportion of PP-based bundles, anticipatory it structure, and infinitive construction.

TABLE 4 Structural distribution of three-, four-, and five-word bundles.

Category	Subcategory	3-word		4-word		5-word	
Noun phrase-based bundles	NP with of-phrase fragment	13,394	24.8%	4,041	24.9%	1,193	22.1%
	Other NP	11,712	21.7%	1,749	10.8%	1,221	22.6%
	Subtotal	25,106	46.5%	5,790	35.7%	2,414	44.7%
Preposition phrase-based bundles	PP-based bundles	8,258	15.3%	2,976	18.4%	407	7.5%
	beginning with in						
	PP-based bundles	5,863	10.9%	1,508	9.3%	376	7.0%
	beginning with of						
	PP-based bundles	421	0.8%	505	3.1%	105	1.9%
	beginning with on						
	PP-based bundles	641	1.2%	1,047	6.5%	447	8.3%
	beginning with at						
	Other PP-based bundles	2,490	4.6%	1,814	11.2%	357	6.6%
	Subtotal	17,673	32.7%	7,850	48.4%	1,692	31.3%
Verb phrase-based bundles		2,552	4.7%	422	2.6%	138	2.6%
Anticipatory it structure		320	0.6%	202	1.2%	94	1.7%
Infinitive construction		1,390	2.6%	487	3.0%	240	4.4%
Others		6,950	12.9%	1,456	9.0%	825	15.3%
Grand Total		53,991	100%	16,207	100%	5,403	100%

TABLE 5 Functional distribution of three-, four-, and five-word bundles.

Category	3-word		4-word		5-word	
Research-oriented	34,325	63.6%	8,929	55.1%	2,930	54.2%
Text-oriented	18,528	34.3%	6,867	42.4%	2,073	38.4%
Participant-oriented	1,138	2.1%	411	2.5%	400	7.4%
Total	53,991	100%	16,207	100%	5,403	100%

In terms of subcategory, significant differences were found in all types except NP with of-phrase fragment. The most enormous difference was found in PP-based bundles beginning with at (log-likelihood = 1164.62, $p < 0.001^{***}$). This subcategory only takes up 1.2% of three-word bundles, but make up 6.5% of four-word bundles. Considerable variances also exist in “other NP” (log-likelihood = 877.73, $p < 0.001^{***}$) and “other PP-based bundles” (log-likelihood = 765.47, $p < 0.001^{***}$). The proportion of “other NP” in four-word bundles is 10.8%, merely half of that in

three-word bundles. In contrast, the proportion of “other PP-based bundles” in three-word bundles (4.6%) is less than half of that in four-word bundles (11.2%). Meanwhile, the variance in PP-based bundles beginning with on is also noticeable: it accounts for 3.1% of four-word bundles, yet merely comprises 0.8% of three-word bundles. Interestingly, the proportion of all subcategories of PP-based bundles in four-word bundles is higher than that in three-word bundles except the category of PP-based bundles beginning with of.

Functionally, there are significant differences between three- and four-word bundles in the distribution of research-oriented bundles (log-likelihood = 149.37, $p < 0.001^{***}$), text-oriented bundles (log-likelihood = 215.36, $p < 0.001^{***}$), and participant-oriented bundles (log-likelihood = 10.02, $p < 0.01^{**}$). As shown in Table 5, the biggest difference between three- and four-word bundles lies in their proportion of text-oriented bundles. It ranges from 34.3% in three-word bundles to 42.4% in four-word bundles. Another considerable difference is in research-oriented bundles: its proportion varies from 63.6% in three-word bundles to 55.1% in four-word bundles. What is more, the distribution of different types of bundles is relatively more even in four-word bundles. In three-word bundles, the proportion of research-oriented bundles is close to double of that of text-oriented bundles, with participant-oriented bundles making up a particularly small proportion. However, in four-word bundles, the proportion of text- and participant-oriented bundles have both increased.

Comparison between four- and five-word bundles

Significant variances exist between four- and five-word bundles in the distribution of all main structural categories except VP-based bundles: PP-based bundles (log-likelihood = 289.91, $p < 0.001^{***}$), “others” (log-likelihood = 139.77, $p < 0.001^{***}$), NP-based bundles (log-likelihood = 82.52, $p < 0.001^{***}$), infinitive construction (log-likelihood = 23.39, $p < 0.001^{***}$), and anticipatory it structure (log-likelihood = 6.83, $p < 0.01^{**}$). The most enormous difference exists in PP-based bundles. Almost half of the four-word bundles belong to this category, but only about 30% of five-word bundles were grouped into it. Another noticeable difference was found in NP-based bundles whose proportion in five-word bundles is roughly 10% higher than that in four-word bundles. Moreover, the category of “others” also reveals significant variances between the two: it merely makes up 9.0% of four-word bundles, but takes up 15.3% of five-word bundles. Furthermore, four-word bundles only have a higher proportion in PP-based bundles, whereas five-word bundles have a higher percentage in NP-based bundles, anticipatory it structure, infinitive construction, and “others.”

Four- and five-word bundles also significantly differ in all structural subcategories. The most obvious difference lies in “other NP” (log-likelihood = 368.60, $p < 0.001^{***}$), and PP-based bundles

beginning with in (log-likelihood = 354.08, $p < 0.001^{***}$). The category of other NP constitutes 22.6% of five-word bundles, which is more than 2 times higher than that of four-word bundles. By contrast, the proportion of PP-based bundles beginning with in in four-word bundles is two times higher than that in five-word bundles. Substantial difference was also found in the category of other PP-based bundles (log-likelihood = 92.87, $p < 0.001^{***}$). It comprises 11.2% of four-word bundles, yet only makes up 6.6% of five-word bundles. Another difference exists in PP-based bundles beginning with of whose proportion in four-word bundles is 2.3% higher than that in five-word bundles. Overall, there is a higher proportion of NP with of-phrase fragment, PP-based bundles beginning with in, PP-based bundles beginning with of, PP-based bundles beginning with on, and other PP-based bundles in four-word bundles, but a higher percentage of other NP and PP-based bundles beginning with at in five-word bundles.

From the perspective of function, significant variances were found in the distribution of text-oriented bundles (log-likelihood = 15.96, $p < 0.001^{***}$), and participant-oriented bundles (log-likelihood = 221.33, $p < 0.001^{***}$). The most noticeable difference was observed in participant-oriented bundles. Only 2.5% of four-word bundles fall into this category, whereas 7.4% of five-word bundles belong to it. What follows is text-oriented bundles which constitute 42.4 and 38.4% of four- and five-word bundles, respectively. Compared with four-word bundles, five-word bundles have a more even distribution of different bundles in that it has a lower proportion of research- and text-oriented bundles yet a higher percentage of participant-oriented ones.

Comparison between three- and five-word bundles

There are significant variances between three- and five-word bundles in the distribution of anticipatory it structure (log-likelihood = 68.17, $p < 0.001^{***}$), VP-based bundles (log-likelihood = 59.91, $p < 0.001^{***}$), infinitive construction (log-likelihood = 53.50, $p < 0.001^{***}$), and “others” (log-likelihood = 20.56, $p < 0.001^{***}$). One striking difference lies in VP-based bundles which make up 4.7% of four-word bundles, almost twice of that of five-word bundles. Another lies in infinitive construction whose proportion in three- and five-word bundles is 2.6 and 4.4%, respectively. What is more, 12.9% of three-word bundles fall into the category of “others,” but 15.3% of five-word bundles belong to this category. In general, while three-word bundles contain a higher proportion of NP-based bundles, PP-based bundles, and VP-based bundles, five-word bundles have a higher percentage of anticipatory it structure, infinitive construction, and “others.”

Though significant variances were not found in the distribution of NP- and PP-based bundles, they were observed in their subcategories: PP-based bundles beginning with at (log-likelihood = 791.89, $p < 0.001^{***}$), PP-based bundles

beginning with in (log-likelihood = 242.60, $p < 0.001^{***}$), PP-based bundles beginning with of (log-likelihood = 79.87, $p < 0.001^{***}$), PP-based bundles beginning with on (log-likelihood = 57.86, $p < 0.001^{***}$), other PP-based bundles (log-likelihood = 36.90, $p < 0.001^{***}$), and NP with of-phrase fragment (log-likelihood = 15.35, $p < 0.001^{***}$). One of the most striking differences is that PP-based bundles beginning with at merely accounts for 1.2% of three-word bundles, but constitute 8.3% of five-word bundles. Another difference lies in PP-based bundles beginning with in whose proportion in three-word bundles is at least twice of that in five-word bundles. Additionally, PP-based bundles beginning with of takes up 10.9% of three-word bundles, which is obviously higher than that (7.0%) in five-word bundles. Overall, there is a higher proportion of NP with of-phrase fragment, PP-based bundles beginning with in, and PP-based bundles beginning with of in three-word bundles, but a higher percentage of other NP, PP-based bundles beginning with on, PP-based bundles beginning with at, and other PP-based bundles in five-word bundles.

With regard to function, three- and five-word bundles differ significantly in terms of research-oriented bundles (log-likelihood = 71.39, $p < 0.001^{***}$), text-oriented bundles (log-likelihood = 22.53, $p < 0.001^{***}$), and participant-oriented bundles (log-likelihood = 371.89, $p < 0.001^{***}$). The most noticeable variance was found in participant-oriented bundles. While merely 2.1% of three-word bundles belong to this category, 7.4% of five-word bundles fall into it. Meanwhile, there is also a considerable difference in research-oriented bundles whose proportion in three- and five-word bundles is 63.6 and 54.2%, respectively. Furthermore, text-oriented bundles take up 34.3% of three-word bundles, but 38.4% of five-word bundles. Overall, while three-word bundles are comprised of a higher proportion of research-oriented bundles, five-word bundles have a higher proportion of text- and participant-oriented bundles.

Discussion

The comparisons between three- and four-word bundles, four- and five-word bundles, and three- and five-words in their structures and functions have revealed significant variances between bundles of various lengths. Firstly, three-word bundles make up a dominating proportion of the bundles, followed by four-word bundles, with five-word bundles making a particularly small percentage. It is not hard to find that frequency and bundle lengths are inversely related. This corresponds to the results in previous studies (Hyland, 2008b; Hong and Hua, 2018; Cui and Kim, 2021b).

Secondly, in general, greater differences were observed in main structural category between three- and four-word bundles than between four- and five-word bundles, and three- and five-word bundles. For instance, three- and four-word bundles differ significantly in all six main structural categories, namely, NP-based bundles, PP-based bundles, VP-based bundles,

anticipatory it structure, infinitive construction, and “others.” Four- and five-word bundles differ in all main categories except VP-based bundles, while three- and five-word bundles are different in anticipatory it structure, VP-based bundles, infinitive construction, and “others.” Similar features can also be observed in functional distribution. There are significant variances between three- and four-word bundles in research-, text- and participant-oriented bundles. But for four- and five-word bundles, they only differ in terms of text- and participant-oriented bundles.

Thirdly, three-word bundles have the highest proportion of NP-based bundles (46.5%) and VP-based bundles (4.7%), while four-word bundles have the highest percentage of PP-based bundles (48.4%). In addition, five-word bundles have the highest percentage of anticipatory it structure, infinitive construction, and “others.” When it comes to function, the highest proportion of research-oriented bundles was observed in three-word bundles (63.6%), followed by four-word bundles (55.1%) and five-word bundles (54.2%). Additionally, the highest proportion of text-oriented bundles lies in four-word bundles (42.4%), followed by five-word bundles (38.4%), and three-word bundles (34.3%). And the highest percentage of participant-oriented bundles was found in five-word bundles (7.4%). What follow are four-word bundles (2.5%) and three-word bundles (2.1%).

One possible explanation for the differences between three-, four-, and five-word bundles could be related to the frequency of certain bundles. In other words, the rankings of bundles matter. For instance, among the 10 most frequent three-word bundles, four of them belong to the category of other NP. They are ‘english language learners’, ‘the united states’, ‘english as a’, and ‘a second language’. However, only one out of the 10 most frequent four-word bundles belongs to this group, which is ‘english as a second’. Considering that the frequency of top 10 bundles in the lists is considerably higher than that of the last 10 bundles. Hence this difference would inevitably exert significant influence on the total frequency of bundles that belong to this group. Another example is PP-based bundles beginning with *of*. There are 10 bundles in both the four- and five-word bundle lists that fall within this categorization, yet they take up 9.3 and 7.0% of the four- and five-word bundle lists, respectively. A closer look reveals that only two five-word bundles are among the top 50 ones, whereas four four-word bundles are among the top 50 ones. In terms of function, among the top 10 three-word bundles, only three of them are text-oriented ones, which are ‘as well as’, ‘in order to’, and ‘in this study’. By contrast, this number is increased to five for four-word bundles. They are ‘on the other hand’, ‘as a result of’, ‘as well as the’, ‘the end of the’, and ‘at the end of’. This might explain the proportional variances of text-oriented bundles between three- and four-word bundles.

Another explanation is that though shorter bundles might form parts of longer ones, they could still differ enormously in terms of structure and function. For instance, three-word bundle ‘one of the’ is not only part of four-word bundles like ‘one of the most’, ‘is one of the’, and ‘was one of the’, but also part of five-word bundles like ‘one of the most important’ and ‘is one of the most’.

Structurally, however, ‘one of the’, ‘one of the most’ and ‘one of the most important’ belong to the category of ‘others’, while ‘is one of the’, ‘was one of the’, ‘is one of the’ and ‘was one of the’ are VP-based bundles. Functionally, ‘one of the’, ‘is one of the’ and ‘was one of the’ are research-oriented bundles, yet ‘one of the most’, ‘one of the most important’ and ‘is one of the most’ are grouped into participant-oriented bundles. Another example is the three-word bundle ‘english language learners’. It comprises not only such four-word bundles as ‘of english language learners’, ‘english language learners in’ and ‘for english language learners’, but also five-word bundles like ‘of english language learners in’. But they differ greatly in their structures. Bundles like ‘of english language learners’ and ‘of english language learners in’ are categorized into PP-based bundles beginning with *of*, whereas ‘for english language learners’ is grouped into the category of other PP-based bundles. And ‘english language learners’ and ‘english language learners in’ belong to the category of other NP.

A closer look at the data suggests that bundles of different lengths differ in patterns that are used to realize the same function. On the one hand, three-word bundles mainly realize text orientation through using such patterns as NP with *of*-phrase fragment (e.g., a result of), PP-based bundles beginning with *in* (e.g., in addition to), and other PP-based bundles (e.g., because of the). Four-word bundles realize this function primarily by NP with *of*-phrase fragment (e.g., the role of the), PP-based bundles beginning with *in* (e.g., in the case of), PP-based bundles beginning with *at* (e.g., at the end of), and other NP (e.g., participants in this study). Five-word bundles realize it mainly by NP with *of*-phrase fragment (e.g., the results of the study), PP-based bundles beginning with *at* (e.g., at the beginning of the), PP-based bundles beginning with *in* (e.g., in the context of the), and other PP-based bundles (e.g., as a result of this). On the other, for three-word bundles, research orientation is mainly realized by four patterns: NP with *of*-phrase fragment (e.g., the use of), other NP (e.g., english language arts), PP-based bundles beginning with *of* (e.g., of the english), and PP-based bundles beginning with *in* (e.g., in the classroom). For four-word bundles, it is mainly by five patterns: NP with *of*-phrase fragment (e.g., the ministry of education), PP-based bundles beginning with *of* (e.g., of second language acquisition), PP-based bundles beginning with *in* (e.g., in the teaching of), other NP (e.g., the english as a), and other PP-based bundles (e.g., through the use of). For five-word bundles, it is primarily through five patterns: NP with *of*-phrase fragment (e.g., the ministry of education in), other NP (e.g., education in the united states), PP-based bundles beginning with *of* (e.g., of english language learners in), PP-based bundles beginning with *in* (e.g., in the teaching of writing), and other PP-based bundles (e.g., to speakers of other languages).

In this study, noun phrase-based and preposition phrase-based bundles are the dominating ones in three-, four-, and five-word bundles lists, which is in line with prior research (Hyland, 2008a; Hyland and Jiang, 2018; Shirazizadeh and Amirfazlian, 2021; Cui and Kim, 2021b). What is more, the following order can be found in the three bundle lists: research-oriented bundles make

up a dominating proportion, followed by text-oriented bundles, with participant-oriented bundles making a small percentage. This is consistent with the findings of many previous studies (Hyland, 2008a; Hyland and Jiang, 2018; Shirazizadeh and Amirfazlian, 2021; Cui and Kim, 2021b).

The current study provides evidence that bundle lengths could not only influence the bundles one can get from a corpus, but also their structures and functions. It shows the potential influence of identification process-related variables on the structure and function of bundles. Along with previous studies which have demonstrated that bundles vary across registers (Biber and Barbieri, 2007), genres (Shirazizadeh and Amirfazlian, 2021), disciplines (Nekrasova-Beker and Becker, 2020), time (Hyland and Jiang, 2018), mother tongues (Pan et al., 2020), language proficiency (Chen and Baker, 2016), and stay-abroad experience (Edmonds and Gudmestad, 2021), this study provides further evidence that bundles also differ according to varying lengths.

Conclusion

To summarize, the results of the study reveal that bundles of varying lengths differ significantly in terms of structure and function. Structurally, three- and four-word bundles differ in all six main categories. The most noticeable difference lies in PP-based bundles which comprise 32.7% of three-word bundles, but 48.4% of four-word bundles. Substantial differences were also found in all subtypes except NP with of-phrase fragment. As for four- and five-word bundles, significant variances lie in all main categories except VP-based bundles. One major difference is in PP-based bundles. It makes up almost half of four-word bundles, but only accounts for around 30% of five-word bundles. Considerable variances were also found in all subcategories. When it comes to three- and five-word bundles, significant differences lie in anticipatory it structure, VP-based bundles, infinitive construction, and “others.” Also, these two groups of bundles vary noticeably in six subcategories. In general, three-word bundles have the highest proportion of NP- and VP-based bundles, while four-word bundles contain the highest percentage of PP-based bundles. And five-word bundles are comprised of the highest proportion of anticipatory it structure, infinitive construction, and “others.”

Functionally, three- and four-word bundles differ substantially in all categories. The most considerable difference lies in text-oriented bundles which constitute 34.3% of three-word bundles, but 42.4% of four-word bundles. With regard to four- and five-word bundles, noticeable variances exist in text- and participant-oriented bundles. The most substantial difference was found in participant-oriented bundles. While only 2.5% of four-word bundles fall into this category, 7.4% of five-word bundles belong to it. As far as three- and five-word bundles’ concerned, significant differences lie in all categories. One considerable variance was found in participant-oriented bundles which merely make up 2.1% of three-word bundles, but take up 7.4% of five-word

bundles. In general, three-, four-, and five-word bundles have the highest proportion of research-, text-, and participant-oriented bundles, respectively. Interestingly, three-, four-, and five-word bundles also differ in patterns that are used to perform the same functions.

The present study is one of the first to reveal the variances of bundles of different lengths in their structural and functional distribution, the results of which might have important implications for researchers. Considering the substantial variances that bundles of different lengths have demonstrated in structure and function, researchers are supposed to specify bundle lengths when making generalizations of their findings, and compare bundles of the same length when making comparisons between different studies. Notably, this study has the following limitations. Firstly, it only involved doctoral dissertations, which might limit our understanding of a whole picture because it is hard to tell whether we would get the exact same results if research articles, theses, and other forms of academic writings were also involved. Secondly, the study only analyzed the 100 most frequent three-, four-, and five-word bundles, respectively. Due to the relatively small number of bundles, we did not further divide the function of research-, text-, and participant-oriented bundles into subcategories. For future studies, it is suggested to compile a larger corpus of different types of academic writings and analyze a greater number of bundles, so that a more complete picture as to how bundles of different lengths differ in structure and function would be available.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent was not provided because this study did not directly involve any participants.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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A corpus-based study of the translation of modal verbs in the three versions of *Shih chi*

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Modality plays an important part in verbal communication, as it can reveal the speaker's views and perspectives. The modal verb, as an essential component of the modality system, has been a hot research topic and a challenge in academic circles in recent years. Analyzing the modal verbs in a text may indicate the context produced by the translator in the translation and the identity difference between the translator and the reader. In this study, three representative English translations of *Shih chi* are selected for comparative analysis with the original text. With the help of corpus techniques, the paper investigates the differences in the use of modal verbs by various translators, the distribution of quantitative changes and their influence on translations, as well as the historical and cultural backgrounds and identities of the translators that led to these differences. It is found that owing to the different professional identities of the translators and historical and cultural contexts in which they live, the choice of modal verbs and the shifts of modality values in the three translations are distinct, leading to different translation styles.

KEYWORDS

corpus-based, *Shih chi*, translation, modal verbs, modality

1. Introduction

Modal verbs are a fundamental aspect of the language system, representing the subjectivity of the speaker's attitude, ideas, perception, compulsion, and desire to comply with his requests. Modality can be traced back to the study of philosophy in ancient Greece, yet despite its long history, not all concerns about modal verbs have been conclusively settled. The complexity of modality itself has always made this study difficult, for it is rarely regular and predictable. In recent years, the study of modal verbs has drawn wide attention; the perception of modal verbs also increases in tandem with the development of relevant studies. Existing studies on modal verbs incorporate a variety of viewpoints, including English translation studies and semantic comparisons.

Though these studies are diverse in research perspectives on modal verbs, their discussions are generally vague, and few of them focus on the particular usage of modal verbs in literary works. *Shih chi*, written by Sima Qian, a great historian of the Western Han Dynasty in China, is China's first comprehensive history presented in a series of biographies. *Shih chi* records more than 3,000 years of history, from the reign of the mythical Yellow

Emperor in ancient times to the fourth year of Emperor Wu of the Han Dynasty. It is a comprehensive and exhaustive book that has significantly impacted the composition of later historical writings. This literary style was eventually adopted by the official dynastic history of China. Therefore, the usage of modal verbs in this work makes this genre a good option for a comprehensive study of modal verbs. As the translation of modal verbs differs across texts, the study of modal verbs in *Shih chi* can enrich the relevant studies to a certain extent. Meanwhile, the emergence and development of the corpus have not only enriched the research methods of modal verbs, but also given a strong impetus to the interest of the research. Therefore, with the three representative English translations of *Shih chi* as the corpora, this study mainly explores the differences and their reasons in the usage of modal verbs among the three translators.

2. Modal verbs

2.1. Modality types

Modality is the speaker's cognitive, affective, and volitional attitude toward a state that is between "yes" and "no" and expresses the author's or speaker's evaluation and attitude (Fowler et al., 1979; Asher, 1995). Halliday (2004) argues that the function of modality is to recognize the uncertainty between "yes" and "no." The study of modality is an essential component of systemic functional linguistics. Modality may be communicated in a variety of ways, including metaphors, tones, particles, modal verbs, and connected morphemes (Yang, 2006). When the speaker's attitudes and opinions are represented not by a modal component in a subordinate phrase, but by an independent main clause, the metaphor of modality is utilized.

Halliday (2004) believes that in the congruent form, modality is an addition to the statement, not the proposition itself. Thus, he believes that the mood and the argument or suggestion should be represented in two phrases in a metaphor. Many clauses may be employed to represent the metaphor of modality, such as: "I think" or "I believe." For example, in the sentence, "I think he will take responsibility for all his mistakes," "I think" is a modal metaphor clause, not a projecting clause, but a modal adjunct, while the clause, "he will take responsibility for all his mistakes," is the proposition of the sentence.

Tone of modality involves the speaker's attitudes and opinions about the position of the expressed event in the possible world. Lyons (1977) argues that tone is a grammatical representation of modality, and Bybee, and S, Fleischman. (1995) hold that the tone refers to the formal grammaticalized category of the verb, which has a modal function and can be used to convey mood. Although there are minor distinctions between tone and mood, this paper does not elaborate on tone. Modal verbs are the most prevalent method for expressing mood among the numerous options available. Modal verbs, also known as *modal auxiliaries*, communicate the speaker's perspective or subjective view of an

action or condition (Zhang, 1986). The prevalence of modal verbs in a variety of genres, as well as their semantic richness and complexity, makes modal verbs a key focus and challenge in the study of English translation (Ma and Li, 2007). Biber et al. (1999) categorized modal verbs in English as core modal, marginal modal, and semi-modal verbs. The core modal verbs include *can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*. The marginal modal verbs include *dare*, *need*, *ought to*, and *used to*. Due to the limitation of space, this paper only makes an in-depth study of some frequently used modal verbs in the English translations of *Shih chi*.

2.2. Modality values

The modality of a sentence represents the speaker's or writer's cognitive, emotive, and affective attitudes and judgments of the situation (Wei, 2005). People should set mood and tone in communication with attention and sensitivity to ensure that the conversation flows smoothly and that particular communicative goals are achieved. Through the modality values conveyed by modal forms of expression, the speaker can modify the pragmatic direction of the conversation. In addition, analyzing the modality values used by authors in written communication and literary works can identify the social distance and power relations between the speaker and the listener, infer the attitude of the discourse toward events and characters, and help to better explain the interpersonal relations in fictional discourse. Thus, the correct and suitable selection of mood and tone within a discourse can help to narrow the gap between interlocutors and foster a positive self-image throughout the communication process.

Another pair of terms closely related to modality values in sociolinguistics are the *power factor* and the *equivalence relation*, created by social psychologists Roger Brown and Albert Gilman. In terms of position, income, and identity, the power factor refers to the dominant side. This side has a tendency to dominate the discourse, has a more forceful tone of voice, and often uses high modality values. This compels the weaker side to follow and to only contribute to the dialog of the stronger side in a more subdued manner.

Equivalence relation refers to the fact that both sides in the dialog have comparable social rank, seniority, and money, and see each other as partners. Therefore, they do not increase or reduce the modality values in the dialog, but maintain balance when interacting with each other. Interpersonal communication can be broadly divided into the power factor and the equivalence relation; however, in real life and in literary works, the relationship among actual social characters or fictional characters is complex and diverse, and most of the time, it cannot be generalized due to differences in reality.

Halliday (1994) categorized modality as having high, medium, and low values. Modal verbs with high values are *must*, *ought to*, *need*, and *have/has/had to*; the modal verbs with medium values are *will*, *would*, *shall*, and *should*; and the modal verbs with low

values are *may*, *might*, *can*, and *could*. In general, the higher the modality value, the more imperative, less deliberative, and more impolite it is; conversely, the lower the modality value, the less imperative, more deliberative, and more polite it is. For example: (1) “You *must* go now” vs. (2) “You *may* go now.” In the two sentences above, the modality value of “*must*” is significantly higher than that of “*may*,” so the first sentence contains a kind of imperative tone and there is no room for negotiation; in the second sentence, the listener is free to make his or her own decision, and the tone is polite and respectful.

In the process of translation, there is a common phenomenon known as the *translation shift*, which can bring small inconsistencies from the source language to the target language (Munday, 2001). The translation of modal verbs in literary works also demonstrates shifts of modality values. The shifts of modality values can be further categorized as *intensive shift*, *weakening shift*, and *equivalence shift* (Li, 2018). Intensive shift means that the translator translates modal verbs with low values into modal verbs with high values; weakening shift means that the translator translates modal verbs with high values into modal verbs with low values (Zhao et al., 2020). Equivalence shift means that the translated modal verbs have the same values as those in the original text (the translator does not change the modality values in the translation process). There are many examples of modality value shifts, which vary considerably across various text types, rendering it necessary for researchers to perform a more specific analysis of these differences.

3. Research design

3.1. Selection of the corpora

The corpora used in this study are drawn from three representative English translations: *Records of the Grand Historian of China* by the American sinologist Burton Watson, *The Grand Scribe's Records* by the American sinologist William H. Nienhauser, and *Selections from Records of the Historian* by the Chinese translators Yang Hsien-yi and his wife Gladys Yang.

Shih chi has been translated into different languages, which has greatly promoted the global dissemination of Chinese classical records and culture. In the process of translation, the translator must take into account not only the source language and its cultural characteristics, but also the target language and its cultural factors, focusing on the reader's acceptance and attaining the desired impact (Wei, 2020). Watson translated *Shih chi* for the first time on a broad scale, including an English version, widely celebrated for its huge impact on the study of *Shih chi* in the West (Li, 2006a). UNESCO has included this translation as one of the representative works in the Chinese Series (Li, 2006b). He translated 66 of *Shih chi*'s most literary chapters, of which 57 were translated in their entirety, and nine were in an abridged form (Li, 2015a). Instead of adhering to the original sequence of *Shih chi* in terms of the primary chronicles, chronology, books,

sages, and biographies, Watson employed his own creative approach to the arrangement. He divided the entire translation into three parts: the creation of the Han Dynasty, the second phase of the Han Dynasty, and the reign of Emperor Wu. This is because *Shih chi* involves a large number of names, places, and events that are difficult for Western readers to read and comprehend. Therefore, Watson restructured the order of the chapters in the original text, so that the whole translation would be more consistent with the habits of Western readers (Li, 2006a). This is one of the distinguishing characteristics between Watson's translation and other translations. In addition, his translation relied on the work of the renowned Japanese sinologist Takigawa's *Shiki kaichū kōshō*, and also linked *Shih chi* with the classics of Western history (Li, 2020). Thus, Watson attaches great importance to the readability of the translation, a key factor in the selection of Watson's translation as the corpus for this study.

Nienhauser's translation is a complete version achieved through teamwork. Different from Watson's translation, Nienhauser's translation adheres to the original order of *Shih chi*; his textual research on historical facts is quite thorough, and the cultural background and source of the original text are noted at the back of the translation. In addition, his translation is rigorous and boasts high reference value in academic circles, making it a better option for Western researchers when studying China's history and culture. Nienhauser's translation has also been lauded by overseas sinologists, including the renowned sinologist Grant Hardy (1996), who comments: “The significance of Nienhauser's contribution is indelible; *Shih chi* is a foundational work of Chinese history, and this translation provides a complete annotated version of *Shih chi* for students and researchers. Therefore, no one can deny that Nienhauser's translation is a remarkable achievement and will surely be handed down forever. Moreover, this translation is a model of collaborative translation by an international team.”

Nearly contemporaneous with Watson, famous Chinese translators Yang Hsien-yi and his wife also began their translation of *Shih chi*, selecting 31 classical chapters. Yang has included as much information as possible in the translation, such as the context of the original text, offering a detailed explanation of the background of the original text and also paying attention to the sentiments of the readers. Yang's translation has earned great appreciation in Chinese academic circles, and it is said to be the first large-scale and generally recognized English translation published in the Chinese mainland (Gao, 2017).

The selection of these three translations as corpora is based on the fact that they are all masterworks with unique qualities and worthy to be studied, although coming from various periods and contexts. *Shih chi*'s original Chinese text is so lengthy that it would be difficult to perform a comparative analysis of all of its chapters. Therefore, in the following comparison analysis, 12 chapters with an average length of 100,000 words are chosen. The selected parts include: *The First Emperor of Chin*, *Hsiang Yu*, *Tien Tan*, *Han Hsin—Marquis of Huaiyin*, *Chi Pu and Luan Pu*, *Liu Pi—Prince of Wu*, *The Princes*

TABLE 1 Halliday's classification of modality values in English.

Modality value	Modal verbs
High	Must, ought to, need, have/has/had to
Medium	Will, would, shall, should
Low	Can, could, may, might, dare

TABLE 2 Corresponding modality values in the original text.

Modality value	Modal verbs
High	必bi, 得dei, 须xu
Medium	宜yi, 当dang, 欲yu, 宁ning, 肯ken
Low	可ke, 足zu, 能neng, 敢gan, 恐kong

of *Huainan and Hengshan*, *Chang Shih-Chih and Feng Tang*, *The Marquises of Weichi and Wuan*, *Li Kuang*, *The Gallant Citizens*, and *The Harsh Officials*. The average number of words in the three translations of the selected parts is around 100,000, while the average number of modal verbs is 908, with an average proportion of 0.951%. The number of Chinese characters in the original text is about 67,782, while the number of modal verbs is 636, with an average proportion of 0.938%. Moreover, the study only analyzes the textual parts of the translations; the paratextual parts are not included in the corpus. Therefore, the corpora of this study are made by selecting the modal verbs used in the relevant chapters of the translation texts by the three translators, which can reflect the characteristics of the three translated texts, making this study representative and reliable.

3.2. Research questions

This paper investigates the choice of modal verbs and the shifts of modality values in the three translations and analyzes the differences in and the reasons for the usage of modal verbs among the three translators. This paper aims to answer the following questions:

1. What are the similarities and differences in the choice of modal verbs among the three translators?
2. What effect do the shifts of modality values have on the three translations?
3. What are the motivations for the differences in the use of modal verbs among the three translators?

3.3. Research methods and procedures

Firstly, after extensive proofreading, translated texts and their corresponding source texts were loaded into AntConc in order to create statistics of types and tokens, as well as the frequency of modal verbs. Excel is used to categorize, select, and calculate the statistical results. Secondly, the distribution and proportion of the

different values of modal verbs in the original and the translated texts were counted, and the shifts of the modality values from the original text to the translated text were calculated. After collecting the data above, the three translations were compared and analyzed. Finally, the differences of modal verbs used by the three translators were summarized, and the reasons behind the differences in the translators' styles were further analyzed.

In this study, 13 frequently used English modal verbs were selected, and the proportions of modality values in the three translations were counted according to classification of modality values of Halliday (1994) (Table 1). It is worth noting that the modality values of the affirmative and negative forms of modal verbs in English are identical (Gu, 2021). Due to the limitation of space, only the affirmative forms of modal verbs are analyzed in the subsequent section.

This study provides a summary of ancient Chinese modal verbs based upon an analysis of the modal verbs in the original text that correlate with the translation. By checking the ancient Chinese lexicon, a number of modal verbs with complicated, unusual, or negative forms or multiple meanings were deleted. For words with less than 150 entries in the AntConc statistics, non-modal usages were deleted by carefully reading the text; for words with more than 150 entries, irrelevant data were excluded by the use of index-related collocations. Based on the steps above, 13 frequently used Chinese modal verbs in the original text were summarized, and these modal verbs were assigned with reference to the Chinese modality value table (Table 2) constructed by Xu (2018) on the basis of Li (2004) and Xu (2007).

3.4. Result analysis

3.4.1. Overall characteristics of modal verbs

Modal verbs can reflect the diverse perceptions and attitudes of different translators toward the original text. After statistical analysis, this study provides a summary of the frequent modal verbs, their frequency in the original text, and their respective translations (Table 3).

According to the overall characteristics of the modal verbs in the original text of *Shih chi* corresponding to the selected translation, the overall usage ratio of modal verbs is relatively low. High-frequency modal verbs include “欲” “必” “可” and low-frequency modal verbs include “宜” “须” “肯”.

In terms of the overall characteristics of the modal verbs in the three translations (Table 4), the high-frequency modal verbs in all three translations are *will* and *would*, which are consistent with the original text. The low-frequency modal verbs are *ought to* and *have/has/had to*, and *need* does not even appear in the form of modal verbs in all three translations. The low frequency of *ought to* in the three translations is mainly due to its similarity to *should* in meaning, and both words mean “应该” in Chinese, but *should* is used much more frequently than *ought to*. In contrast, the former is more context-restrictive than the latter, which is also more prevalent. The frequency of *should* and *ought to* indicates

TABLE 3 Common modal verbs in the original text corresponding to the three translations.

Modal verbs	欲yu(198), 必bi(88), 可ke(80), 得dei(53), 当dang(49), 能neng(48), 足zu(38), 敢gan(32), 恐kong(25), 宁ning(12), 宣xi(8), 须xu(3), 肯ken(2)
Total	636
Token	67,782
Proportion	0.938%

TABLE 4 Common modal verbs in the three translations.

Modal verbs	Watson's translation	Nienhauser's translation	Yang's translation
Will	252	252	183
Would	289	227	110
Can	85	73	103
Should	90	66	96
Could	105	116	59
May	92	16	35
Shall	47	20	45
Must	47	18	53
Need	0	0	0
Might	24	12	27
Have/has/had to	15	13	13
Dare	54	50	30
Ought to	6	1	1
Total	1,106	864	755
Tokens	111,287	99,933	76,035
Proportion	0.994%	0.865%	0.993%

that the three translators are consistent in their choice of modal verbs when expressing the modality meaning of “应该.”

Judging from the proportion of the use of modal verbs, Nienhauser's translation accounts for the lowest proportion among the three translations, which is quite different from the original text of *Shih chi*, while the proportion in Watson's translation is the highest and Yang's translation is more similar to the original text. Palmer (1990) holds that people's use of modal verbs is subjective at a semantic level, indicating their views or subjective assumptions. Therefore, a translated text with a lower proportion of modal verbs can reflect the translator's less subjective intervention in the original text, while one with a higher proportion of modal verbs can reflect the translator's more intensive interpretation of the original text. Thus, Watson's translation with the highest proportion of modal verbs may reflect more of the translator's interpretation and concept of the original text, while Nienhauser's translation with the lowest proportion of modal verbs represents the authority and seriousness of the

translation. The following examples illustrate that Watson's translation uses more modal verbs than the other two translations.

Example 1

ST: 朕尊万乘，毋其实，吾欲造千乘之驾，万乘之属，充吾号名。

Watson's translation: Now I want to be provided with 1,000 chariots, to be attended by 10,000, so that I *can* live up to my name and title!

Nienhauser's translation: I want to have an escort of one-thousand chariots and followers in tens of thousands of chariots to substantiate my title.

Yang Hsien-yi's translation: In name, we are the lord of ten thousand chariots, but not in fact. So I want a retinue of a thousand, no, ten thousand, chariots to live up to my title.

Example 2

ST: 普施明法，经纬天下，永为仪则。大矣哉!

Watson's translation: How great, that throughout the whole universe the will of the sage *should* be heeded and obeyed!

Nienhauser's translation: Great is he! Within the red lands under the celestial dome, everyone adopted and followed his mind.

Yang Hsien-yi's translation: Great is he, indeed! The whole universe obeys his sagacious will.

According to the general characteristics of the use of modal verbs, the average proportion of modal verbs used in the three translations is 0.951%, which is very close to 0.938% of the original text of *Shih chi* (Table 4). Moreover, comparing the use of modal verbs in the three translations by SPSS 26.0, the results of the one-way ANOVA show that the variances of the groups are not significantly different at the 0.05 level of significance, i.e., the variances are consistent ($\text{sig} = 0.661 > 0.05$), meaning that there is no significant difference in the use of modal verbs in the three translations (Table 5). Meanwhile, it also demonstrates that the English translations of *Shih chi* have reproduced the original text to a large extent, without much subjective intervention by the translators.

3.4.2. The analysis of modality values

The differences in the choice of modal verbs by the translators can also be reflected in the distribution and shifts of modality values in the translated text. The distribution of modality values in the original text (Table 6) is dominated by the low and medium modality values, which indicate the status difference between the author and the readers of the original text. As a great historian in China, Sima Qian wrote *Shih chi* in order to educate Emperor Wu of Han Dynasty and later emperors on historical facts. The fact that the main target readers of *Shih chi* are emperors also leads the author to use modal verbs with medium or low modality values in order to convey a euphemistic and respectful tone in his composition. However, Sima Qian also uses a small number of modal verbs with high modality values in the original text,

TABLE 5 The differences in the use of modal verbs in the three translations.

	Sum of squares	df	Mean square	F	Sig.
Between groups	4965.282	2	2482.641	0.419	0.661
Within groups	213365.077	36	5926.808		
Total	218330.359	38			

TABLE 6 The distribution of modality values in the original text corresponding to the three translations.

Modality value	Proportion
High	22.64%
Medium	42.30%
Low	35.06%

showing the author's firm loyalty to advising the emperor and his sincere devotion to the prosperity of the country.

The percentages of the total number of high, medium, and low modality values in the three translations are sequentially keyed into the one-way ANOVA in SPSS 26.0. The results are shown in Table 7, where the differences in the use of the modality values in the three translations are notable at the 95% confidence interval, as indicated by the significant value ($\text{sig} = 0.001 < 0.05$).

The distribution of modality values in the three translations (Table 8) also focuses on the medium and low values, which is consistent with the original text. Yang's translation uses more modal verbs with high modality values, rendering his translation more imperative and less deliberative.

In terms of the shifts of translations' modality values (Table 9), all three translations show a shift from high to medium modality values. Yang's translation has the lowest proportion of loss of high modality values and the lowest proportion of shift of low and medium modality values. In addition, the distribution of modality values in Yang's translation is the closest to that of the original text, reflecting that Yang's translation is the most faithful to the original text among the three translations. In contrast, Nienhauser's translation has the highest proportion of loss of high modality values and the highest proportion of shift of low and medium modality values, indicating that Nienhauser may integrate a lot of his own views and understandings to his translation.

3.4.3. The reconstruction of interpersonal function and tenor

In functional linguistics, the interpersonal function of language refers to the way people use language to express their interaction with others and to participate in situations in which their roles convey the identity, status, and attitude of the participants. In any specific discourse, an interpersonal

relationship involves the relationship between the author and the readers. Modal verbs are an important form to reproduce interpersonal meaning and narrative features. Therefore, the study of modal verbs is conducive to further analyzing the interpersonal functions in translation.

In terms of the interpersonal function of the original text, since *Shih chi* is written by Sima Qian to Emperor Wu of the Han Dynasty as well as to later emperors, the relationship between the author and the reader is that between the ruler and his subject, and the author's status is lower than that of the reader. Therefore, Sima Qian uses a large number of modal verbs with low and medium values in writing *Shih chi*, giving the text a euphemistic tone in order to express his reverence for Emperor Wu of the Han Dynasty.

However, the three translations have a significant loss of high modality values, which may be due to the shift of target readers: the primary readers of the English translation of *Shih chi* are not emperors but English-speaking readers all over the world. The translator is more concerned with restoring the historical facts and conveying the author's thoughts than with attaining the exhortation's intended objective. Therefore, the three translators have intentionally reduced the proportion of high modality values in their translations, thus narrowing the distance between them and their readers, increasing the participation of readers, and making their translations better serve target readers. In addition, the three translators have also achieved the purpose of reconstructing the interpersonal function through the use of modal verbs.

The choice of modal verbs and the shifts of modality values in translation can reconstruct the interpersonal relationship and the tenor of the translation to some extent (Xu and Nie, 2021). *Tenor*, also known as "tone of discourse," refers to the relationship between the participants. In addition, *tenor* marks the relationship between the two parties, their basic situation, characteristics, status, and their roles in the communication, but the different roles also contribute to varied linguistic styles of the text.

Nienhauser's translation is intended for the academic readers and provides detailed and valuable historical materials of China for Western researchers, so it must be translated in a rigorous and standardized manner to reflect its value as a reference for academic research. In order to demonstrate the seriousness of the historical text, Nienhauser uses a lower proportion of modal verbs in general. This results in a higher overall modality value of the translation, and a more distant interpersonal relationship between the translator and the target readers, leading to a higher degree of linguistic formality in translation and a reconstruction of an "academic translator-research reader" *tenor*. In contrast, Watson strives to improve accessibility and readability. His translation is aimed at the common readers, rather than professionals (Li, 2006a). In order to convey the explanatory nature of the original text, Watson generally uses a larger proportion of modal verbs in his translation, presenting an interpretation of historical materials. Watson's tendency to use modal verbs with low and medium values reduces the overall modality values of the translation,

TABLE 7 The differences in the use of modality values in the three translations.

	Sum of squares	df	Mean square	F	Sig.
Between groups	392288.889	2	196144.444	28.154	0.001
Within groups	41800.667	6	6966.778		
Total	434089.556	8			

TABLE 8 The distribution of modality values in the three translations.

Modality value	Watson's translation	Nienhauser's translation	Yang's translation
High	6.15%	3.70%	8.87%
Medium	61.30%	65.39%	57.48%
Low	32.55%	30.90%	33.64%

reflects the closer interpersonal relationship with the target readers, makes the language less formal, and reconstructs an “expert translator-general reader” tenor.

4. The motivation analysis of translation differences of modal verbs in *Shih chi*

4.1. The internal cause: Translators' identities

Wong and Shen (1999) argue that translating bridges the cultural gap between two worlds and makes communication possible between different linguistic communities. Translators from different professional backgrounds and cultural and historical contexts may have an impact on their translation.

Born in New York, Watson joined the United States Navy during the Second World War and arrived in Japan, where he first became interested in Eastern culture. After retiring from the army, Watson studied Chinese and Japanese literature at Columbia University, where he obtained his doctorate. For more than half a century, Watson devoted himself to English translation of Chinese and Japanese classical literature, and proceeded to translate many great literary works of high quality throughout his life. His work also promoted the spread of *Shih chi* in the West, and went on to complete more ancient and obscure works as an introduction to the charm of Chinese history and culture for a much wider audience. His translation style has always been straightforward and easy for Western readers to understand, using simple language and expressions. As his target readers are well-educated readers in the West, Watson attempts to reflect *Shih chi* as an excellent narrative literature rather than a historical document with significant research value in his selection of materials and formulation of translation strategies (Li, 2006a). Meanwhile,

Watson's translation is straightforward and attractive, based on the principle of readability. At that time, Eastern historical and cultural works were on the margins of the Western book market, and some translators blindly used foreignization strategies, which demonstrated the heterogeneity of Chinese culture and failed to attract the interest of the ordinary Western readers (Zhao, 2010). It can be said that Watson's translation has made an important contribution to the spread of Chinese classic history and culture. Compared with Nienhauser's and Yang's translations, Watson's translation pays more attention to enlightening the readers, so he uses a larger proportion of modal verbs in general. In the process of translation, he integrates his emotions and opinions into his translation, analyzes history with his own unique perspective, and reduces the barrier between Western readers and obscure China classics, to enable more Western readers to appreciate Chinese history and culture.

Nienhauser, a renowned American sinologist, has been engaged in the study of Chinese literature and devoted himself to the translation of many Chinese classical works for a long time. He has an extensive understanding of Sinology and is proficient in several languages. In addition, he traveled to China, Japan, and France to study and discuss the translation of *Shih chi* in order to ensure its accuracy. After years of studying *Shih chi*, Nienhauser realized that it should be translated into a complete and detailed literary work with historical reference values. Therefore, he assembled an international translation team led by Sinologists to study the full translation of *Shih chi* (Wei, 2021). This innovative translation method allows individual Sinologists to circumvent the lack of language and culture translation, and the team is strong enough to increase the effect of the translation project. Meanwhile, the cooperation of many Sinologists has enabled translation to be optimized to the greatest extent. Due to Nienhauser's focus on his target readers, he was particularly rigorous in handling academic concerns, which is fully reflected in the translation of *Shih chi*. In order to avoid subjective interference with historical sources and the scientific and referential nature of the translation, Nienhauser generally used a low proportion of modal verbs, thereby conveying the authority and precision of the historical text.

Yang Hsien-yi was born in a wealthy family and his parents paid high attention to his education. Mr. Wei Ruzhou, his enlightened teacher, taught him Chinese traditional writings such as the *Four Books* and *Five Classics*, and he developed a keen interest in Chinese classical literature. Under the influence of his first teacher, he studied many classics at a young age and laid a solid foundation for Chinese studies. As a Chinese translator, Yang Hsien-yi is quite familiar with the names of characters, feudal systems, official positions, and other cultural terms in *Shih chi*, which led to a high degree of acceptance and recognition of the compilation style in *Shih chi*. It is clear that judging from his translation, he strongly preserved the style of the original text, because the style and structure of this work have the characteristics of Chinese culture, which would be lost if they were altered (Gao, 2019). The translator's sense of national mission and social responsibility makes Yang Hsien-yi eager to undertake the

TABLE 9 The proportion of modality value shifts in the three translations.

Modality value	Watson's translation	Nienhauser's translation	Yang's translation
High	−16.49%	−18.74%	−13.77%
Medium	+19%	+23.09%	+15.18%
Low	−2.51%	−4.16%	−1.42%

responsibility of spreading China's native culture. Moreover, as he was a former employee of the China International Communications Group, Yang's translation is inevitably aimed at publicity and communication (Feng, 2017). Perhaps influenced by his work habits, Yang Hsien-yi himself believes that translation should not be overly creative or rewritten, but should be extremely faithful to the original text, that is, to express the meaning of the original text in another language and to present the meaning of the translated text as close as possible to the original text. Yang Hsien-yi once said, "There are many other elements in literature that constitute some meanings of the original text, and it is impossible to convey these meanings to people of different cultures" (Lin, 1997). In order to promote the outstanding cultural classics of the Chinese nation and the international spread of Chinese culture, Yang Hsien-yi adopts the strategy of foreignization in the English translation of *Shih chi*, still with the utmost regard for the author and fidelity to the original text. Thus, the overall characteristics of the modal verbs in Yang's translation are also the most similar to the original text of *Shih chi*, which reflects his desire to be faithful to the original text as much as possible.

4.2. The external cause: Historical and cultural contexts

Yang Hsien-yi's translation is deeply influenced by the historical and cultural contexts in which he lives. Supported by China International Communications Group, Yang's translation has strong political overtones. The Group's primary responsibility is to encourage newspaper coverage and publicity in other nations; it is the state's official and specialized international publicity agency, whose mission is to promote political propaganda and ideological dissemination (Li, 2021). The translation works of Yang were made in the 1950s to dispel Western misconceptions about Chinese culture. Therefore, at that time, some Chinese translators translated many historical texts into English for dissemination, so that the West might learn about the New China, and a positive worldwide image of China could be established. Therefore, Yang's translation came into being under the historical and cultural context of introducing China to the world, spreading Chinese culture, and establishing a positive national image.

Watson's translation reflects the post-colonial context, which was one aspect of the historical and cultural context of the United States at that time. After the Second World War,

Sino-U.S. relations deteriorated. At that time, the United States was a superpower and sought to impose its ideology on Third World countries to enhance its cultural dominance around the globe. As a result of this dominant ideology, translators at that time attached great importance to "fluency" and mainly adopted the strategy of domestication (Man, 2015). This was mostly due to British and American cultural hegemony, reflecting their lack of respect for and understanding of other cultures. Watson's translation was born in this atmosphere, in which the fluency of the translation cannot be separated from the extensive use of domestication translation strategy. At that time, the translator's pursuit of fluency and readability might lead to the omission of some culturally-loaded words and obscure cultural customs in the source language or the replacement by elements from Western countries. However, it was in the era when Eastern culture was ignored that Watson's translation made a significant contribution to introducing Chinese history and culture to the Western world.

Nienhauser's translation was carried out against the background of deepening international communication. By the 1970s, due to the dramatic transformation in Sino-U.S. relations, more Americans were enthusiastic about Chinese culture, and American sinologists were more engaged in academic research on Chinese history (Li and Xiao, 2016). Since the 1990s, the rapid globalization has brought not only economic and political contacts, but also cultural exchanges. The wave of globalization has fostered cultural exchanges between countries, and created a context of multicultural coexistence. At this time, translation has also been subtly influenced, becoming an effective way for people to learn more about different cultures. During this period, as cultural exchanges between countries became more frequent, Nienhauser's translation was sponsored by many Chinese and international specialists and organizations (Li, 2015b). In the end, it was published by the prestigious Indiana University Press in the United States and widely disseminated around the world. Therefore, the Nienhauser's translation originated in this rather open-minded cultural context.

In general, these three translations are products of different historical and cultural contexts, but they have their own merits and values. Together, they have promoted the dissemination and reception of *Shih chi* in the West and made great contributions to the popularization of Chinese history and culture around the world.

5. Conclusion

Modality is an essential component of language communication and has always been the focus in pragmatics. The modal verbs are an important part of the modality system, and can convey a great deal of information from different perspectives. This research forms a comprehensive corpus-based analysis of the modal verbs in the three translations of *Shih chi*. First, it is found that Yang Hsien-yi's translation is the closest to the original text in

terms of the overall proportion of modal verbs and that his translation is also the most faithful to the original text of *Shih chi*. Second, the proportion of modal verbs in Nienhauser's translation is the lowest, reflecting its precision and scientific nature as a historical document. Third, the overall proportion of modal verbs in Watson's translation is the highest, manifesting the addition of Watson's own insights to his translation and its enlightening and interpretive orientation.

This study also investigates the motivations behind these differences. Watson translated *Shih chi* during a period when Sino-U.S. relations were tense, and at that time, Anglo-American cultural hegemony made it difficult for Eastern culture to spread worldwide. Moreover, Watson's translation was somewhat influenced by the dominant ideology and the prevalence of fluency and readability in Western cultural circles. Nienhauser's translation was completed at a time when Sino-U.S. relations were good and international cultural exchanges were frequent. Therefore, that period was in a relaxed and free cultural environment, which facilitated the dissemination of Nienhauser's translation to a certain extent. Yang Hsien-yi's translation was somewhat politically oriented, because China International Communications Group hoped to spread Chinese culture to the Western world by translating a number of historical classics. Therefore, the differences in the use of modal verbs in a work and their influence on translation are closely related to the translators' personal identities and the historical and cultural contexts in which they live.

In addition, there are still a lot of discussion and research fields of modal verbs to be explored. This study only analyzes the influence and reasons of the differences in the use of modal verbs in the English translation of the historical document *Shih chi*. The role of modal verbs in the translation of various genres should be further studied to analyze their influence on the translator's

style, and whether there is a reflection of interpersonal function and tenor in the translated text.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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A corpus-based study on the cognitive construction of security in discourse

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A discourse-based approach to understanding security has been explored in the study of International Relations, yet how other agents rather than the political agents speak to conceptualize the emotive appeal in unconventional security issues is less discussed. This corpus-based cognitive critical discourse study examines security by combining the International Relations' theory of securitization with the proximization approach in Critical Discourse Studies. As a case study, texts concerning Confucius Institutes on the National Association of Scholars' official website from 2014 to 2020 were collected to discuss how the threat is constructed discursively and cognitively for an endeavor to influence the public and the political decision-making process. The corpus was further divided into two sub-corpora in order to expose the difference in their cognitive construction of Confucius Institutes. The findings show that the American academia delivers a bottom-up securitizing move by constructing education security discourse on Confucius Institutes in the initial process, yet later the whole-of-society security narratives interacting with a top-down securitizing move from the political agents have been adopted. As indicated by the corpus statistics, the concerned discourses are discursively constructed by following the "Self-Other" dichotomy security narratives, in which Confucius Institutes are cognitively transformed from an academic issue to a national security issue and legitimized through proximization in the spatial, temporal, and axiological dimensions.

KEYWORDS

critical discourse studies (CDS), cognitive approach, corpus-based analysis, security discourse, proximization, securitization theory

1. Introduction

Security discourse is produced in the political sphere of late industrial societies by national governments, along with their agencies and satellite organizations, and then is reproduced within the public sphere through multiple forms of press and media (Krzyżanowski and Tucker, 2018). When it comes to US security discourses, the 9/11 terrorist attacks had a dramatic impact on the US security agenda and its discursive constitution. After the delivery of the *9/11 Commission Report*, a "state

of emergency,” or as Agamben (2005) puts it “a state of exception,” has been invoked to normalize the curtailment of civil liberties and suspension of citizenship rights. Martin and Simon (2008) also argue that US Department of Homeland Security documents maintains “a state of exception” through the discursive construction and maintenance of continuous threat. In line with the discursive articulation of temporal and typographical dimensions in constructing future disasters, Dunmire (2011) traces the legitimation of the doctrine of pre-emptive action through the realization of the future “threat” in US National Security Strategy documents and presidential speeches. In her later studies, she also argues how US security discourse provides the rationale for an expansionist security strategy that focuses on shaping global society in ways that accord with US values and interests (Dunmire, 2015). Recent studies also argue that the resonance of US security narratives lies in the way conceptualizing emotive appeal that creates perceptions of enmity and threat through their dualistic structure (Van Rythoven, 2015; Amin, 2019; Berrocal, 2019; MacDonald and Hunter, 2019; Homolar, 2021). Moreover, there have been many scholarships addressing the US security issues from an ideational perspective. These studies examine the ideological, rhetorical, and linguistic features of US political and media security discourses, highlighting that the discourse system is mainly construed through presenting a series of assertions by creating the Self-Other dichotomy for their preferred interpretations of the presented representations (Miller and Rose, 2008; Amin, 2019; Berrocal, 2019; Homolar, 2021). A focus on the split of the international arena into two opposing spheres to convey understandings of security is not new in itself (Campbell, 1998; Neumann, 1999; Said, 2003), while the nexus between agents’ discursive practices and the affective process has recently gained traction across the disciplinary field of International Relations (IR) (Solomon, 2014; Åhäll and Gregory, 2015; Koschut et al., 2017; Brassett, 2018; Hall and Ross, 2019).

The aforementioned studies provide a critical entry point for a discourse-based approach to analyze and interpret complex securitizing processes, yet how the academic agents rather than the political and the media agents “speak” to conceptualize the emotive appeal in specific unconventional security issue, i.e., education, is not fully discussed yet. Therefore, this study contributes in the following ways. First, this paper concentrates on what the academic agents in the United States speak to conceptualize and legitimate the appeal to take exceptional political actions toward Confucius Institutes (CIs), which could be helpful to show a full picture of the complex securitizing process when it comes to an education security issue. Besides, this critical discourse case analysis attempts to explore the theoretical and empirical evidence that security discourse analysis could be more demonstrative when language features and textual properties of discourse are explained in light of theories of cross disciplines, for instance, a combining of

theories in the field of IR and Critical Discourse Studies (CDS) is employed in this study. Furthermore, given that methods are criticized as limited in securitization studies, a corpus-based cognitive approach to investigate the intersubjective meaning-making process in a particular securitization case would be a new methodological practice to extend the universality of securitization theory.

Drawing specifically on US education security rhetoric as an empirical anchor, the point of departure for this study is to integrate concepts of securitization theory with cognitive analytic methods of CDS to demonstrate the need for interdisciplinary research into identifying the cognitive dimensions of the language across different genres in the study of security discourse. This paper is then divided into three sections. The first section introduces the theoretical framework, in which a cognitive analytical framework with cross-disciplinary concepts and methods for security discourse is proposed. The second section conducts a corpus-based case study of security discourse toward Confucius Institutes by the American National Association of Scholars (NAS), an academic group actively pushing for the closure of CIs. The empirical analysis is centered on texts from 2014 to 2020, which is defined as the cognitive transformation period according to the critical socio-political events listed in this section. Employing the framework proposed in the previous section, the ways in which US academic agents speak to conceptualize Confucius Institutes are discussed based on the corpus statistics. The final section draws some conclusions on the proposed analytic framework in terms of its application in education security discourses as well as its implications in IR studies of securitization.

2. Theoretical framework

2.1. Securitization and the discourse

Securitization theory has become one of the most frequently used approaches in security studies since it was fully developed in 1998. Buzan et al. (1998) define securitization as an extreme version of politicization. According to the theory, issues are prioritized and constructed as security threats *via* speech acts whereby the securitizing actor convinces the audience that the given issue is an existential threat to a referent object that must be protected. The Copenhagen School adopts a constructivist ontology and argues that security issues are intersubjectively constructed (Buzan et al., 1998). In line with this, the most crucial aspect of the construction of security issues is the discursive construction of elements that together form a securitizing move. The theory presents analyzing units for the analysis, i.e., securitizing actor, functional actors, referent object, existential threat, and the audience, and provides a clear path by examining the speech acts of the securitizing actor to identify how they convince their audience that a given

issue is an existential threat to the referent object. With the help of the framework, analysts can determine how different issues are constructed as security issues through speech acts of securitizing actors. More than focusing on the magic power of speech acts, securitization theory later has gone through a rich theoretical development. Paris School scholars emphasize, with a bottom-up framework, the institutionalizations and routinizations through repetitions of security practices that produce security issues (Balzacq, 2005, 2011; Rothe, 2016). With considerations of bottom-up characteristics of the process, securitization is a dynamic, non-linear process over time in which the role of the audience is equally specified and fully considered. As Baysal (2020) argues that securitization process includes the definition of security, discursive efforts to convince the audience, and security practices that normalize and routinize the security definition. In light of the above studies, the study regards securitization as a process of truth production, especially a threat construction as the key part, behind which there are always interests and relations of power, and the discursive practice itself works as a dynamic over-time process in which multi-interactive securitizing moves take place from both a top-down and bottom-up approach.

2.2. Cognitive critical discourse approach: Proximity

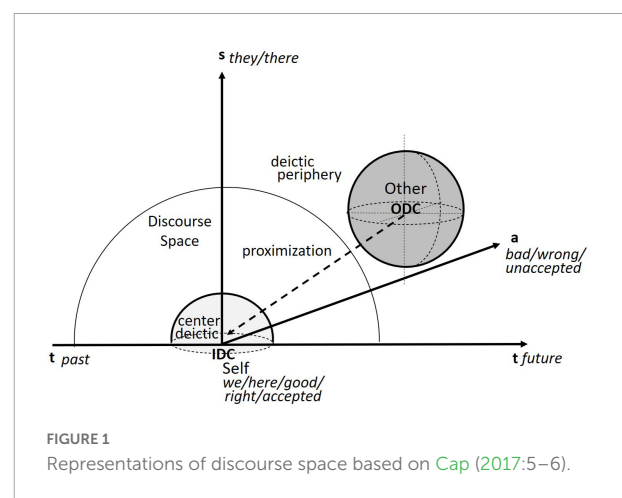
As Chilton (2004, 2014) posits that people possess a mental ability to structure their cognitive experience by looking at the world in terms of dichotomous representations of good and evil, right, and wrong, acceptable and unacceptable, etc., and this ability is linked with a linguistic ability to evoke or reinforce these dichotomous representations in discourse in accordance with people's social goals. Inspired by Chilton's Discourse Space Theory (Chilton, 2004), the proximization approach, also called the Legitimization-Proximity Model (LPM), was initially developed in Cap's analysis of interventionist discourse concerning US rhetoric during the Iraqi war (Cap, 2006). Proximity is defined by Cap (2008, 2015) as a construal operation meant to evoke closeness of the external threat to solicit legitimization of preventive measures. It is a more comprehensive cognitive linguistic approach to consider the ideological load of linguistic structures in terms of the conceptual processes they invoke and focuses mainly on categorization, spatial representation, and deixis, which bring into effect a range of ideological discursive strategies (Cap, 2013, 2017). Cap (2021) argues that the LPM subsumes a dynamic conception of discourse space, involving not only the opposition between the Self and the Other but also the discursively constructed movement of the Other toward the Self. This reveals a linguistic focus on the lexical and grammatical deictic choices that speakers make to index the existing socio-political and ideological distinctions and to demonstrate how

the Other is constructed as erasing these distinctions by forcibly colonizing the in-group's space. In that sense, this model can be described as a theory of coercion and threat construction (Cap, 2021).

When analyzing the discourse of threat, the proximization framework works with two antagonistically constructed discourse spaces, one related to the speaker in the deictic center (Inside-Deictic-Center, IDC) and the other located at the periphery of this discourse space (Outside-Deictic-Center, ODC) (Cap, 2017). As is shown in Figure 1, the immediate threat is construed in a way that the antagonistic ODC is gradually approaching spatially (vertical axis), temporally (horizontal axis), and axiologically (stacked axis), and threatening the IDC or even taking it over (Cap, 2017). Specifically, the spatial markers, such as *we* and *they* or *here* and *there*, etc., located on the spatial axis are the core of the linguistic representation, which represents binary oppositions extending into the other two dimensions. The temporal axis in terms of *past* and *future* construes the threat as not only imminent but also momentous, historic and thus needing immediate response and unique preventive measures (Cap, 2014). The axiological axis concerns beliefs and values of the deictic center Self (*good*, *right*, *accepted*, etc.) in contrast to the discourse periphery Other (*bad*, *wrong*, *unaccepted*, etc.). Crucially in Cap's LPM model, the axiological proximization framework categorizes ideological discourse choices in terms of distinct lexico-grammatical items, phrases, and discursive sequences, which enables qualitative and quantitative analyses of the core language items and formulae that make up the discourse and the ideological-material transformation (Cap, 2010, 2021).

2.3. An analytical framework for security discourse

Drawing on the similarity of discursively constructed threats to legitimate an urgent exceptional action, this article uses



the proximization approach to demonstrate how an issue is securitized discursively and socio-politically. As is shown in **Figure 2**, in spite of employing the analyzing units of securitization theory, i.e., the securitizing actor, the referent subject, the referent object, and the audience, this framework focuses more on the intersubjective meaning-making process of reaching an agreement on the security issue, conferring an intersubjective consent status to the threat. For a successful securitization, the intersubjective cognition evoked into a WE perspective against the referent subject should be achieved by the discursive construction of the issue as a common existential threat, which, meanwhile, suggests a proximization process through which discursive strategies are applied spatio-temporally and axiologically to legitimate exceptional actions.

Rather than applying the state-of-art account of the securitization theory by locating the speech act, the securitizing actor, and the audience within a constative-performative continuum, this study uses a process-oriented account to reveal how it mobilizes securitization iteratively through a dynamic securitization trinity. First, the securitizing actor is decentered and the audience is further examined with their ideational and material investment in the securitizing move. A securitizing actor is more concerned with the dual roles, i.e., a speaker and a listener, who produces discourse-in-process with a mixture of the securitizing moves in the course of securitization, while the audience moves from a proscriptive subject interpellated by the securitizing actor to an agent whose everyday life is integral to securitization. In other words, both the securitizing actor and the audience are enacted through the securitizing

move and are subjects-in-process. As indicated above, the audience plays a constitutive role in the securitizing move both before and after the securitized utterance *via* their investment. Ideationally, it is the audience's recognition of the subject positions and discursive apparatuses that enable the securitized utterance to circulate. Materially, it is their implicit, embodied assumptions that are incarnated in audience behavior that make securitization possible. For investigating the speech act and linguistic practices, this study aims to provide a cognitive approach to demonstrate how the securitization is realized in form of the intersubjectiveness, which is linguistically and cognitively constructed through legitimizing the referent subject as a threat to the Self inside the deictic center. It is worth noting that this framework is providing a static set of cognitive discourse analytical tools to understand the securitizing move, but securitization is a dynamic process-oriented trinity along with the historical and socio-political practices of the issue.

3. Case study

3.1. Context of the situation

Along with the enforcement of national security strategies, the US security agenda covers a much wider area of national and international issues, extending from the conventional political sphere to all other unconventional spheres, e.g., the environment, economy, society, education, etc. Recently, the US uses security-related discourses and incites possible security

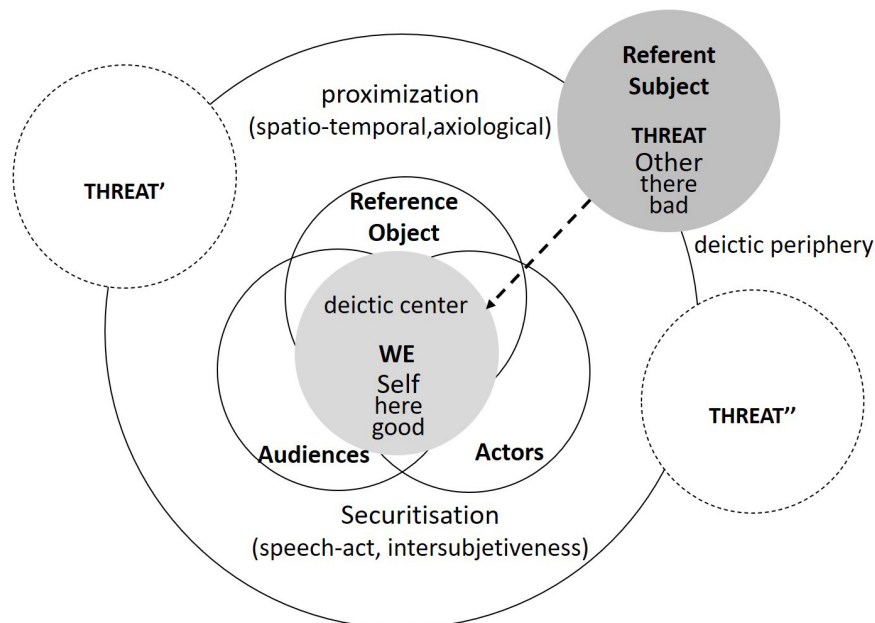


FIGURE 2
A discourse-based analytic framework.

shocks from foreign-based educational and cultural exchange programs. The Confucius Institutes, declaring to strengthen Chinese educational and cultural cooperation with countries around the world, has recently been drawn to a closure in the United States for the sake of securing the country. As we can see, more and more opinions in the public discourses now have been using national security as an excuse to scrutinize the role of the CIs, which have a great incitation on civilians as well as a bottom-up influence on government policy.

Table 1 displays the timeline of key events concerning Confucius Institutes in the United States. Based on the key events, the evolution of Confucius Institutes in the US can be summarized into three periods, namely, the positive reception from 2004 to 2013, the cognitive transformation from 2014 to 2020, and the post-closure period from 2021 to the present.

3.1.1. The positive reception

In its initial establishment years from 2004 to 2013, the program won great popularity in the local American Universities since the first Confucius Institute hosted by the University of Maryland launched in 2004. On 17 May 2012,

the Department of State requested teachers of Confucius Classrooms holding J-1 visas must return to China before 30 June to reapply for a suitable visa, and all CIs were required to obtain US academic accreditation (Fischer, 2012). Although the requirement was later withdrawn from the swamp of objections, the attitudes of the US toward the CIs have gradually changed. In 2013, there were 81 Confucius Institutes around the United States.

3.1.2. The cognitive transformation

The year 2014 witnessed the first closure of the Confucius Institute, established in 2010 at the University of Chicago, in the United States. The closure marked a turn in Confucius Institutes' development in the US and symbolized the start of the cognitive transformation period. During the years from 2014 to 2017, the negative attitudes toward CIs increased gradually from an "educational institution" to a "political agency," which contributed to the beginning transformation of the perceptions of CIs in the US (Lien and Tang, 2021). As an influence of professional opinions representing American education groups, NAS published its first report entitled "Outsourced to China: Confucius Institutes and Soft Power in American Higher Education" (National Association of Scholars, 2017), citing CIs as interfering with academic freedom and calling for the closure of CIs. In February 2018, the Federal Bureau of Investigation (FBI) Director Christopher Wray said at the hearing on "Worldwide Threats" that the FBI was trying to view the China threat as not just a whole-of-government threat but a whole-of-society threat. As a bipartisan consensus in the policy toward China, the US passed the National Defense Authorization Act (NDAA) in August 2018 to force the schools to pick between CIs and the Chinese Language Flagship Programme funded by the Department of Defense, symbolizing a start to use legislative measures against CIs. On 28 February 2019, a report named "China's Impact on the U.S. Education System" was released by Committee on Homeland Security and Governmental Affairs. Following this in 2020, Senator James Lankford submitted the Transparency for Confucius Institutes Act to secure American universities from political propaganda through CIs, and later the US Department of State designated the Confucius Institute US Centre as a foreign mission of the People's Republic of China. Nevertheless, in 2020, NAS published another report entitled "Corrupting the College Board: Confucius Institutes and K-12 Education," further citing CIs as threatening the US education system (National Association of Scholars, 2020).

3.1.3. The post-closure period

Confucius Institutes in the US evolves a rapid increase in closure and more education groups join in pushing this action, e.g., a newly established organization called the Athenai Institute declaring it to be their first work. By July 2021, an estimated number of 85 Confucius Institutes are closed or to be closed in American universities. In June 2022, NAS published its

TABLE 1 Timeline of the key events concerning Confucius Institutes in the US.

Period	Timeline of the events (year)	Actors
Positive reception (2004–2013)	First CI in University of Maryland (2004-11)	Maryland University
	The CI teachers' visas problem (2012-05)	Department of State
	81 CIs established in US (2013-12)	American Universities
Cognitive transformation (2014–2020)	CI closure in University of Chicago (2014-09)	Chicago University
	CI closure in Penn State University (2014-10)	Penn State University
	Report (2017-04)	NAS
	Hearing on "Worldwide Threats" (2018-02)	FBI Director
	The National Defense Authorization Act (2018-08)	Congress
	Report (2019-02)	GAO
	Report (2019-02)	Committee on HSGA
Post-closure (2021 to present)	CI US Centre as a foreign mission (2020-08)	Department of State
	Report (2020-08)	NAS
	More groups against CIs, e.g., AI (2021-present)	The Athenai Institute
	85 CIs closed or to be closed (2021-07)	American Universities
	Report (2022-06)	NAS

third report titled “After Confucius Institutes: China’s Enduring Influence on American Higher Education,” documenting what happens when Confucius Institutes close (National Association of Scholars, 2022).

According to the above timeline of the CI-related socio-political events, we generalize the following units according to the dynamic process-oriented securitization framework proposed in the previous section:

- Securitizing actors: There are political agents (senators, US governmental institutions, etc.) and public agents (American university administrators, academia elites or groups, public media, etc.), who are actors of securitizing moves in different periods.
- Securitizing audiences: In response to the securitizing actors in different periods, the audiences accordingly are political and public agents due to their addressee’s position in the discourse context.
- Referent subject: Confucius Institutes as “existential threat.”
- Referent object: This largely depends on the degree to which the securitizer’s intention to identify how serious the threat is. In our concerned case, it is a threat originally to US academic freedom, then to US education, and then to US national security.

In summary, the agents involved in the diachronic evolution of Confucius Institutes in US discourse play a dynamic and interactive role during different periods. One agent can be passive in being an audience and active in delivering a move, having a dual role in the interactive meaning-making process. What arouses our strong interest is how the cognitive transformation has been successfully worked out to be an intersubjective commonness and discursively constructed in the discourse, and especially what exactly happened in the agents’ cognitive process of making an agreement toward Confucius Institutes from the transformation of an academic issue to a security one.

3.2. Data collection and the corpus

The National Association of Scholars, one of the American academic groups that keep active and constant concern on Confucius Institutes, claims its mission to defend academic freedom, investigate issues affecting academic freedom, and educate the public to protect academic freedom. It will be interesting to know what they, representing US academic agents and their interests, speak to conceptualize CIs and appeal to act toward CIs diachronically. Therefore, this study collected all the texts concerning Confucius Institutes on NAS’s official websites. By the date of 30 September 2022, there were 125 search results by the search word “Confucius Institutes” in

Figure 3. In general, NAS has an increasing concern about Confucius Institutes along with the climbing number of CI-related texts on the official website. In 2014, an article titled “The New Problem of Higher Education: The Foreign-based Institute” was published online, questioning the Confucius Institutes and their influence in the US, which echoed the US concerns and reflections on Confucius Institutes. Then, there was a silent period till 2017, as an in-depth report to investigate whether Confucius Institutes affected US academic freedom, NAS published their findings in form of an academic report titled “Outsourced to China: Confucius Institutes and Soft Power in American Higher Education” worldwide. Since then, the online discourse went on the rise with a summit of 35 texts published in 2020, and this represents NAS’s active involvement in pushing the securitizing move on Confucius Institutes.

During the cognitive transformation period from 2014 to 2020, NAS delivered varieties of discourses against Confucius Institutes, pushing the public, university administration, and state administration to close CIs. Focusing on this specific period and eliminating the unrelated texts with a later screening of its content, the corpus finally was made up of 68 texts consisting of 156,268 words (Table 2). Since the *National Defense Authorization Act for Fiscal Year 2019* was launched in 2018, symbolizing a bipartisan consensus in the use of state legislation against CIs, we define the year 2018 as a critical turning point for the federal top-down control over Confucius Institutes, which exerts a direct influence on the further cognitive transformation of CIs in the United States, and therefore is the boundary between Sub-corpus I (2014–2017) and Sub-corpus II (2018–2020). All the texts in the corpus were converted from their original, varied formats to a uniform text format amenable to analysis. For a convenient data read, texts are coded with a file name format of “year-text + serial number-author,” for example, “2020-Rept01-NAS” refers to the first report produced by NAS in 2020.

With the purpose of comparing the two sub-corpora against each other, the corpus-based technique of keyword analysis was employed, using PowerConc 1.0 developed by the Corpus Research Group of BFSU. As is agreed in previous corpus-supported discourse studies (Leech and Fallon, 1992; Fairclough, 2000; McEnery, 2005; Hunter and Smith, 2012), to compare lexical frequency information across two corpora can expose differences between them, and therefore the cross-comparison of diachronically divided sub-corpora can suggest historical differences. The keywords comparison investigated the frequencies of all the words in the 2014–2017 and the 2018–2020 sub-sections of the corpus with each other in order to ascertain which words occurred statistically more often. Such keywords are supposed to elucidate the most salient ways in which Confucius Institutes are discursively constructed in the two consecutive historical phases. Although the lists of words reveal very little on their own without context, the keyword analysis was supplemented with concordance analyses. Where it

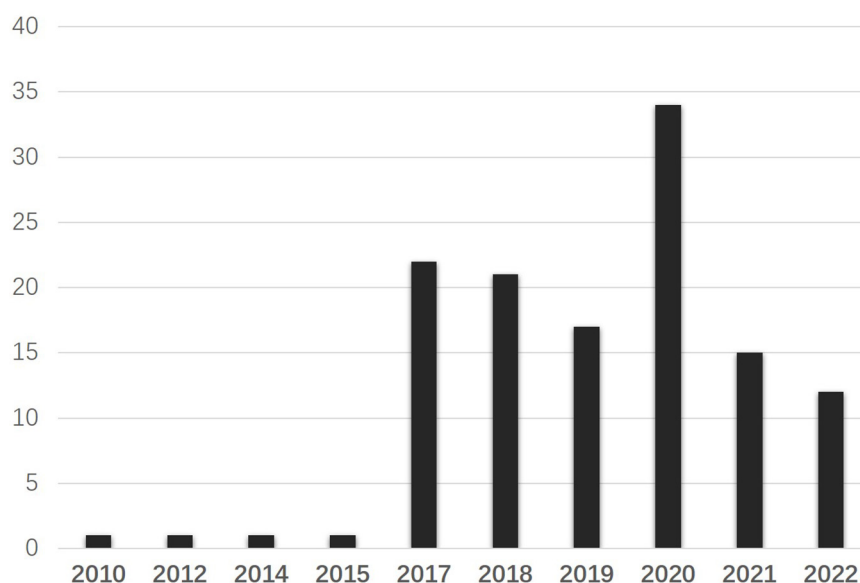


FIGURE 3
Frequencies of texts pertaining to Confucius Institutes over time.

is needed, examples are taken from the original text that would be illustrative of contextual uses of particular words.

3.3. Results and discussion

What can be drawn in common is that the two sub-corpora resemble in the frequent use of academic terms like *interview*, *report*, *found*, *study*, the third pronoun *he*, *it*, *she*, the third person, and the direct quotes, signifying the genres and styles used for the professionalism and objectivity in a particular academic discourse (Hyland, 2009). Despite those common language features, the two sub-corpora remain significantly different in the keywords. A statistical keywords comparison was carried out by comparing wordlists derived from Sub-corpus I and Sub-corpus II. Using the log-likelihood statistical test, each word is investigated on the strength of the difference. The 100 strongest lexical keywords for Sub-corpus I and Sub-corpus II can be found in [Supplementary Appendixes 1, 2](#).

Having obtained the keyword lists, the next task is to examine as many of the words as possible in order to unveil the major differences in the representation of Confucius Institutes

between the two conservative phases. Following Baker, 2010a,b, the study proceeds based on that the top 100 words identified as statistically key in each sub-corpus should be investigated as candidates for significance, using further quantitative checks and manual, context-sensitive qualitative assessment to support claims of “salience” (Baker, 2006, p. 125). Thus, we first checked the senses and roles displayed by the keywords when checked in context *via* concordance. Next, we looked at statistical data relating to the collocation of keywords, or their tendency to appear in combination or the company of other words. A list of collocations using the default horizon of five words to the left and right of each term was also considered. Then, we considered the clusters of words that regularly formed around the keywords within each sub-corpus. Finally, the linguistic data were grouped together under emergent themes observed in the data.

3.3.1. Discourse genre from academic narratives to security narratives

Based on the corpus statistics above, the securitizing case of Confucius Institutes would be further discussed within the cognitive critical discourse analytical framework proposed previously. As is put as a focus in the framework, securitization is a dynamic process-oriented interaction among the securitizing agents, in which the cognitive “Self-Other” dichotomy would be intersubjectively activated and enhanced. Rather than specifying the securitizing actor of a particular move, we consider the securitization of Confucius Institutes as a dynamic co-operated process under the complex socio-political context. In line with the socio-political events happening diachronically, [Figure 4](#) shows the diachronic change

TABLE 2 The corpus: CI-related texts on NAS’s official website from 2014 to 2020.

Corpus	Years	Texts	Size	Tokens	Types
Sub-corpus I	2014–2017	16	100,065	81,688	6,286
Sub-corpus II	2018–2020	52	56,203	48,130	5,284
Total	2014–2020	68	156,268	129,818	8,580

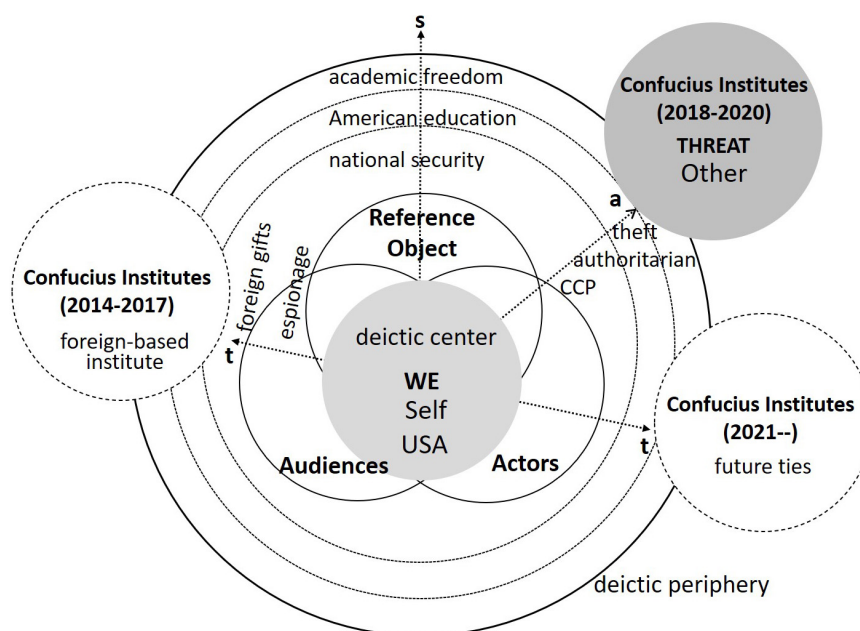


FIGURE 4
The security discourse of Confucius Institutes.

of Confucius Institutes' identity in different phases and a synchronic process of constructing Confucius Institutes as an existential threat outside the deictic center approaching close to the USA, the Inside Deictic Center, in the discourse space. The closure of Confucius Institutes means the urgent exceptional actions called upon against the threat, then what the involved agents are cognitively undergoing would in turn indicate the meaning-making process of security construction.

The collected texts in the corpus are produced by NAS, which display the ways American elites write about Confucius Institutes. Previously in the one-word N-gram lists of the two sub-corpora, the quotation marks hit the top frequencies. It is obvious that the discourses present a constant style of quoting to convince the reader of the credibility of their stories about Confucius Institutes. When further exploring the data, the study finds that the "quotation marks" do not present in the keywords list in Sub-corpus II. In contrast, there is more than one hit per one hundred words in Sub-corpus I (Freq. = 0.0146, Ref-Freq. = 0.0095, Log-likelihood = 62.3234), which conversely indicates less use of direct quotes in Sub-corpus II. Then with more careful analysis of the concordance, the results turn out that the indirect quotes from political agents as senators and government officials are dominantly used when it comes to the national security threat, and therefore mixes a style of political narratives in Confucius Institute's discourses. As is acknowledged in excerpt (1), a list of political authorities is quoted here to show the political consensus in taking urgent political actions toward Confucius Institutes, and

the intersubjectiveness in securitization has also been achieved by expressing NAS's positive position toward them.

- (1) Meanwhile, the Senate has passed a new, *bipartisan bill* on its way to the House: *the CONFUCIUS Act* (Concerns Over Nations Funding University Campus Institutes in the United States Act). The bill was introduced by *Senator John Kennedy (R-LA)* and is cosponsored by *Senators Doug Jones (D-AL), Chuck Grassley (R-IA), and Marsha Blackburn (R-TN)*. In this week's featured statement, NAS breaks down the key provisions of the bill, *applauds these Senators for their fine work*, and proposes amendments to the bill. (Source Text: 2020-Art06-JD).

By fostering a cognitive-affective differentiation and identification, "Self-Other" security narratives evoke collective sentiments of both aggression and empathy. The line between ingroup and outgroup is, therefore, intentionally and unambiguously drawn. In other words, the ways in which Confucius's Institutes are constructed work to create dichotomous characteristics of the opposing sides and are not to tell us what to think but to inform us what to think about because they communicate a code that information contained is interpreted. What matters most in terms of their broader socio-political context is that the protagonist-antagonist frame inculcates a preference for taking urgent and exceptional political actions for one's own sake. Excerpt (2) taken from NAS's report in 2020 displays how the political narratives work out when a particular matter is regarded as a security threat.

Confucius Institutes are defined as an outside group referring to China, a competitive geographical adversary, which mixes the NAS's academic discourses with political narratives of dividing the world into a "us" and "enmity" dichotomy.

- (2) Federal Bureau of Investigation Director Chris Wray has warned that Confucius Institutes are part of *China's "whole-of-society" threat to American freedoms*. This year, Secretary of State Mike Pompeo designated *the Confucius Institute U.S. Center as a "foreign mission" of the People's Republic of China*, calling it "an entity advancing *Beijing's global propaganda* and malign influence campaign on *U.S. campuses and K-12 classrooms*. Last February, the Senate Permanent Subcommittee on Investigations concluded in a 96-page report that Confucius Institutes operate as "*part of China's broader, long-term strategy*" to develop "*soft power*" and "*export China's censorship*" to college campuses. (Source Text: 2020-Rept01-NAS).

3.3.2. The cognitive transformation from "academic malware" to "security threat"

In the wordlist of Sub-corpus I, keywords including *Course, interview, director, Professor, Studies, class, Hiring, topics, Criteria, teachers, and disputes* sketch the reflection of Confucius Institutes as a foreign-based institute, concerning its negative influence on academic freedom from 2014 to 2017. As is quoted directly in *National Association of Scholars's (2017)* report, Marshall Sahlins, a professor emeritus of Anthropology at the University of Chicago, collects dozens of instances of Confucius Institutes' interference, censorship, or pressure to self-censor and identifies it as the academic malware in his book *Sahlins (2014)*. In line with this, texts in Sub-corpus I indicate the disputes over Confucius Institutes in American academia, even the referent objects in the threat discourses of Confucius Institutes are lingering on academic freedom and education. Relatively speaking, there are many more direct references in the sub-corpus II to associate Confucius Institutes with national security from 2018 to 2020. Sub-corpus II keywords, including *Act, espionage, transparency, illegal, Security, defense, Threat, investigations, and legislation*, construct a security discourse, in which Confucius Institutes as a national threat are established and exceptional political actions are called on to be taken. In addition, the keywords *government, colleges, federal, universities, Scholars, public, Senate, Congress, and Department* together identify the agents involved in the agreement of securitizing Confucius Institutes. Such keywords significantly mark the diachronic cognitive difference in the representation of Confucius Institutes in the discourses.

It is worth noting that the cognitive transformation of CIs' identity is not a point of time event and it evolves over a matter of years. By comparison of the sub-corpora of two different phases, the results turn out that the years from 2018 to 2020

witnessed the cognitive transformation of Confucius Institutes to be a security issue in the United States. That is to say, the discourses in this phase will show discursive strategies for building Confucius Institutes into a threat to American national security. According to the keyword concordance during this period, Confucius Institutes are narrated to be an existential threat in many ways to US national security. Critically in the keyword list, *gifts* (Log-likelihood = 152.61) as a starting point in constructing the security discourse. With its most frequent concordance word *foreign* (Freq. = 41.03%), it refers to a foreign source of funds from foreign individuals, organizations, and governments.

- (3) The problem lies not only in the content of the law: enforcement of the meager regulations currently in place has been scant at best. For example, *nearly 70% of colleges receiving Chinese-government funding for Confucius Institutes never reported their gifts to the Department of Education (ED)*. The same two universities listed above also received over \$250 million undisclosed dollars from the nation of Qatar. Why? No one knows. We see that even gifts ten times the size of the established threshold can be kept secret by schools that simply neglect to report them; *anyone who values national security or the financial self-reliance of higher education should find this wholly unacceptable*. Once the law is changed, it needs to be enforced strictly in order for foreign giving to be truly transparent. (Source Text: 2019-Art01-JD).
- (4) Undisclosed foreign funding in American higher education is one of the most pervasive threats to the academy and national security. Every day, *geopolitical adversaries pour untold amounts of secret money into U.S. colleges and universities to buy influence and exert soft power from within*. While *China is likely the most flagrant offender in this area*, it is far from alone. Other nations—Qatar, Saudi Arabia, and Iran—*play the dark money game* with American colleges and universities. (Source Text: 2020-Art04-JD).

As is described in (3) and (4), the foreign source of the fund was questioned in terms of *transparency* (Log-likelihood = 48.17), in particular, dark money brought by Confucius Institutes is the most flagrant one to put the American universities, education, and the whole country in a danger. While traced back to the *National Association of Scholars's (2017)* report, it proposes the question of how much influence has been exerted by Confucius Institutes since American colleges and universities had set up Confucius Institutes funded and largely staffed by the Chinese governments, which drew a conclusion that American higher education was outsourced to China and influenced by its soft power. Comparatively, in the discourses of 2018 to 2020, this situation was further aggravated by the dismal level

of transparency within Confucius Institutes and the corrupted American higher education system. Subsequently, *government* (Log-likelihood = 125.10) hit a high keyness next to *gifts* in the keywords list, showing a more inclination that Confucius Institutes were nothing but agencies of the Chinese government, a geopolitical adversary of the USA, which seemed to be the root of non-transparency of fund and management in Confucius Institutes. Therefore, Confucius Institutes were cognitively constructed as an equivalent of the Chinese government.

- (5) The National Association of Scholars has called for colleges and universities to close their Confucius Institutes, *citing extensive evidence that Confucius Institutes undermine academic freedom, present students with a one-sided view of China, and entangle colleges and universities in a web of financial relationships that leave them dependent on China*. Our report, *Outsourced to China*, remains a comprehensive look at the way the Chinese government works to coopt American colleges and universities. We also note that the FBI and multiple members of Congress are also concerned that in addition to undermining academic freedom, *Confucius Institutes may jeopardize national security*. (Source Text: 2018-Art08-NAS).

Meanwhile, *Security* (Log-likelihood = 42.09) in the Sub-corpus II keyword list upgrades the level of potential insecure fields Confucius Institutes would interfere with and influence. By searching for its concordance words, *national security* ranked the top one in the Collocation and Colligation list with a Log-likelihood of 237.63. Representing the official statement of NAS, (5) is an excerpt taken from the text published in 2018. Although used as a hedge word presenting information as an opinion rather than absolute fact, the stance-taking marker *may* was used to guide the public to the proposition that Confucius Institutes possibly have harmed American national security. Consequently, the version of “security threat” starts to take shape in discourse.

3.3.3. Legitimization-proximization from a “bargain” to an “espionage”

From the constructive perspective, the intersubjectiveness in securitization is legitimized by evoking the process of conceptualizing the outside threat in terms of spatial, temporal, and axiological proximization.

Temporally, the keywords of the two sub-corpora present a diachronic change in the identity from a foreign-based institute in 2014–2017 to a security threat in 2018–2020. The first Confucius Institute was established in 2004 at the University of Maryland, which started the popularity of winning a host of Confucius Institute in American universities and colleges, exemplifying a wide cooperation in cultural exchange and language education between the two countries. By the end of 2013, there was an estimation of 81 Confucius Institutes open

on American university campuses. A “bargain” as it is in (6), the host universities make an agreement with CIs program in co-operating with Confucius Institutes and gain an amount of money for the cost of running the institutes. With an operating fund, the CIs program is regarded as one of the foreign-based programs in American universities that offer a solution to the financial problems of US higher education. American education groups represented by the American Association of University Professors (AAUP) and NAS express legitimate concerns about the relationship between Confucius Institutes and American universities, and those concerns are apparently within their profession or expertise at the moment.

- (6) The Confucius Institute is a *bargain* between the Hanban, a Chinese government agency, and university administrators. *Such institutes allow the Chinese Government regular access to western culture. In return, and at no monetary cost, university administrators gain favorable publicity and an instrument to recruit students*. In exploring this particular relationship, NAS will be joined by an array of other higher education groups such as the AAUP who have legitimate concerns. (Source Text: 2014-Art01-JAS).

Data from later texts in the corpus reveal that concerns of American academic elites come up with the securitizing move delivered by the political agents toward Confucius Institutes. The *National Defense Authorization Act for Fiscal Year 2019* is launched by the House and Senate in 2018, in which a key amendment is put forward to prohibit funding under the act to any Confucius Institutes and restrict funding to any college or university that has a Confucius Institute. These top-down political discourses draw the public to a unified cognition that the CIs program is an existential China threat to national security more than an academic issue.

Spatially, **Table 3** illustrates the statistical results of the frequencies of grammatical and lexical items concerning spatial proximization. The core components of IDCs are *American, Universities, colleges, America, we*, etc. (Total Freq.% = 3.34). At the other end of the event stage, ODCs include the *Confucius Institutes, Confucius Classrooms, the Chinese government, the Chinese Communist Party (CCP), they*, etc. (Total Freq.% = 4.98). A relation of shared identity is established between some of these elements. *Confucius Institutes, the Chinese government, and the Chinese Communist Party* are put on common ground through the sheer proximity of their lexical occurrence in the texts of Sub-corpus II. The relative distance between IDCs and ODCs is shrinking as a result of the actions indicated by lexical items in Categories 3 and 4 in **Table 3**. As the initiator, Confucius Institutes have been taking illegal actions, such as *interfering, infiltrating, stealing, corrupting, and spying*, thus *influencing* American universities and colleges, *compromising* the integrity of American higher

TABLE 3 The key lemmas of the spatial framework of the Confucius Institute rhetoric, 2018–2020.

Category	Key lemma/Concordance	Frequency (%)
1	American(s), University(-ies), college(s), America, we	3.34
2	Confucius Institute(s), Confucius Classroom(s), CI, Chinese government, Chinese Communist Party (CCP), China, they	4.98
3	Interfere, infiltrate, steal, corrupt, blur, spy	0.23
4	Influence, compromise, jeopardize, undermine	0.18
5	freedom/security threat, danger	0.34
6	foreign gifts, soft power, propaganda, Chinese (China) influence	0.74
Total		9.82

education, *undermining* American academic and intellectual freedom, and *jeopardizing* American national security. Lexical items in Category 5 show the existing results of ODCs' influence over IDCs: *foreign gifts* in American universities and colleges, *soft power* exerting on American education, *propaganda* over Americans, and other *Chinese (China) influence*.

- (7) Our report found that Confucius Institutes are Chinese government-sponsored centers located at colleges and universities around the world. (There are currently more than 80 in the United States.) *Confucius Institutes present a heavily edited version of the Chinese Communist Party's authoritarian rule and educate a generation of American students to know little more about China than the regime's official history.* (Source Text: 2020-Art07-RP).
- (8) Alabama is poised to become the first state to *take up legislation* banning public colleges and universities from hosting Confucius Institutes, the Chinese government-sponsored campus centers *that propagandize for Beijing and serve as outposts of Communist Party espionage.* (Source Text: 2020-Art01-RP).

As has already been indicated in the previous section, the spatial axis involves entities conceptualized in different and variable degrees of physical and geopolitical distance from the discourse addressee located within the deictic center, while the perception by the addressee in terms of the current positive and negative value characteristics would be further conceptualized in the axiological axis. There are profound and complex historical origins between the United States and China, yet the difference lies essentially in the two kinds of ideology. Since Confucius Institutes represent China, the ideological concepts of China, especially the Chinese Communist Party, are approached as

alien ideologies. The linguistic enactment of values antithetical to those of the deictic center would naturally be rejected. The drastic imagery of “authoritarian” in (7) would activate the audience's unlimited prototype about the uncivilized and fear of the alien ideology extremely opposite to American democracy. Furthermore, “espionage,” “theft,” and “spy” point directly to national security so that Cold War mentality would cognitively be activated in the audience. Example (8) shows us the state legislation taken up by the State of Alabama, and the legitimization of taking the political action is achieved by the proximization of being threatened by an alien ideology and its espionage.

4. Conclusion

Integrating securitization theory with the cognitive approach of CDS, the study finds that the American academia deliver a bottom-up securitizing move by constructing education security discourse on Confucius Institutes in the initial process, yet later the whole-of-society security narratives interacted with a top-down securitizing move from the political agents have been adopted. As is indicated by the corpus statistics, NAS's discourses of Confucius Institutes are discursively constructed by following the “Self-Other” dichotomy security narratives, in which CIs are cognitively transformed from an academic issue to a national security issue and legitimized through proximization in the spatial, temporal, and axiological dimensions. By focusing on a case study, this article aims to provide a better understanding of security discourses in two ways. First, how context constitutes the discourses. The context of discourse production and interpretation, especially the social, political, and ideological factors, impacts the American agents' perceptions and also their later discourses of Confucius Institutes diachronically. Meanwhile, how the discourses constitute the society. Confucius Institutes are pushed to closure under the pressure of various political actions legitimized by drawing language devices in security discourses. The study displays that applying proximization as an explanatory approach to the securitization framework could work well for explaining how exactly those language devices work to realize the cognitive transformation in the agents and legitimizing the securitization toward the referent subject.

In discourse studies, texts are the research objects, which are significant in qualitative and quantitative research studies. The sampling and collection of texts will be critical to the reliability and validity of the results, while discourses are dynamically formed under the changing socio-political environment. Taking CI discourses for an instance, the securitizing actors and moves at a particular time vary a great deal diachronically. Therefore, the identification of securitization as a dynamic intersubjective meaning-making process will help to understand how the

securitizing agents are cognitively and affectively involved. To better explain this, the study reviews the timeline of Confucius Institutes' evolution in the US and concentrates on the particular period of time in which the cognitive transformation takes place, and this transformation will be discursively indicated in the discourses generated by different securitizing actors who may be the political actors, media actors, academic actors, and even later the audience themselves. In addition, the fact that the method to analyze discourses has not been agreed upon yet, semantic construal across texts is inevitably personalized and somehow subjective. The study attempts to interpret the texts by a data-driven corpus method instead of subjective projection. However, to keep an objective and unbiased analysis needs a corpus with a bigger size and more varieties of data, later studies could be designed and explored a lot in this aspect.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found in the article/[Supplementary material](#).

Author contributions

CH designed and conducted the study, completed the statistical analysis, and wrote the manuscript.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

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“We don’t normally require that in other contexts, do we”: Interpersonal meanings of tag questions in British university seminars based on the BASE corpus

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This study investigates the interpersonal meanings expressed by English tag questions in the context of British university seminars from two dimensions: evidential modification of tags and conduciveness of responses. The data for the study derive from seminars in the British Academic Spoken English (BASE) Corpus, which is herein both quantitative and qualitative analyzed. The findings reveal that: (1) three-quarters of tag questions in the data are utilized by teachers, and the unmarked form of tag questions in university seminars are generally positive-negative forms, with a few examples of other varieties; (2) regarding evidential modification of tags, depending on the degree of epistemic certainty of the speakers on the proposition of the anchor, the default function of teachers’ tag questions in the data is to convey emphasis, followed by confirmatory function, with only a few cases of informational function; and (3) regarding conduciveness of responses, over 70% of tag questions are followed by no verbal response, while less than 30% are followed by explicit responses. Accordingly, these findings raise the question of whether tag questions can really provide sufficient scope for interactions in classroom. It is hoped that this nuanced, corpus-based analysis of tag question utilization within the context of British university seminars would empirically reveal the interpersonal relations between teachers and students and thereby shed light on more efficient seminar discussions.

KEYWORDS

tag questions, interpersonal meanings, British university seminars, BASE corpus, classroom interactions

1. Introduction

Tag questions are a common occurrence in English. They are defined as “utterances with an interrogative tag.” Huddleston and Pullum (2002, p. 891) identified the two defining components of tag questions as being an “anchor” and “tag.” For instance:

Example 1: *They are linked, aren't they?*

In this example, “they are linked” is an anchor, whereas “aren't they” is a tag, while the sentence as a whole represents a tag question.

This present study focuses on this canonical form of tag questions¹ within the specific context of university seminars. The rationale underpinning the scope of this study is twofold. First, among prior relevant studies (to be discussed in detail in section “2 Literature review”), tag questions in the context of classroom interactions (including seminars) have yet to be systemically investigated, despite their frequent occurrence and the significance of their functions in classroom interactions. In particular, the way and extent to which tag questions contribute to interpersonal meanings, that is, “the ways that language choices establish a particular social relationship between the speakers and hearers” (Halliday, 1978, p. 112), remain under-researched. Second, by accessing the carefully recorded corpus data of the BASE Corpus, we have an opportunity to comprehensively dissect the idiosyncratic nuances of interpersonal meanings and how these contribute to classroom interactions. Within the broader context of the increasing internationalization of education, a systematic study of interpersonal meanings of tag questions drawing from the authentic seminar corpus of the BASE Corpus would provide an illuminating and helpful reference point for all university students, both British and international, in facilitating their awareness of the routine use of tag questions in seminar interactions, thus helping them to increase their linguistic repertoire *via* classroom participation. In addition, teachers also benefit from this study, insofar that the in-depth exploration of tag questions reveals the interactional structures and building of rapport in classroom seminars, which in turn sheds much-needed light on the nature of interactivity of tag questions. Seeking to develop our understanding in these areas, this present research analyzes the interpersonal meanings revealed through detailed corpus-based discourse analysis of both teachers' and students' use of tag questions in university seminars.

The following section reviews relevant academic literature related to tag questions and identifies the gaps in existing studies. In the third section, we detail the methods used for this study, explaining the data, and

procedures used for analysis. Then, in the fourth section, we present the findings of this study, followed by a critical discussion of the findings. The final section concludes the research as a whole, before proposing potential avenues for further study.

2. Literature review

2.1. Previous studies on tag questions

Academic investigations focusing on tag questions in English have undergone several stages, including (but not limited to) a grammar-based approach, a pragmatic approach, a sociolinguistic approach, a prosodic analytical approach, an emphasis on diachronic study, and more.

The grammar-based studies of tag questions have tended to focus on ascertaining the illocutionary force of various types of tag questions based on formal variables, such as intonation and polarity. Such studies primarily position tag questions under the sub-types of “questions” which thereby separate anchor and tag. Quirk et al. (1985, p. 810), for instance, view tag question as “a further type of yes/no question which conveys positive or negative orientation.” This essentially focuses on tag questions with reversed polarity (i.e., the positive–negative type and negative–positive type), but tag questions with constant polarity (i.e., the positive–positive type and negative–negative type) are excluded. In addition, although studies of tag questions in this approach recognize that such reversed polarity tags betray the speakers' bias toward the positivity or negativity of the proposition in the anchor, the findings nonetheless require significant refinement. For instance, more insights could be generated by analysis of the use of various forms of tag questions by incorporating real-life data, which would provide substantiation for the claims obtained from linguistic introspection.

Taking a different emphasis, pragmatic studies of tag questions predominately focus on the *functions* of tag questions. Pragmatic studies recognize that tag questions do not always function as purely response-seeking questions. For instance, Tottie and Hoffmann (2006) point out that “question use (informational types)” accounts for less than 3% of their data on tag questions. Other influential categories of tag question functions include Holmes (1995) and Algeo (1990), *inter alia*. Holmes (1995) classifies tag questions into two macro-categories—epistemic modal and affective—with the former referring to the modal functions while the latter consisting of facilitative, softening, and challenging functions. Before this, Algeo (1990) classified tag question functions as informational, conformational, punctuational, preemptive, and aggressive. Among these different labels of functions, four main function groups can be summarized: (1) to seek information; (2) to express politeness; (3) to intentionally use aggravating language

¹ Invariant tag questions like “*That's the point, right?*” are not included in the current study.

(such as in a courtroom); and (4) to contribute to turn-taking. This is useful because it lays a foundation for the various types of functions of tag questions; however, these studies are not without their limitations. For instance, there are no clear definitions for all the labels of functions; there may be a convergence of interactional and stance meanings within and among these categories, thereby undermining the categorizations; moreover, due to the multi-functional nature of tag questions in specific contexts, it sometimes becomes difficult—if not impossible—to assign one specific function. More recently, [Gómez González and Dehé \(2020\)](#) have considered the pragmatics and prosody of tag questions, forging a new framework by which to map the form-and-function correlations of English tag questions based on four kinds of stance meanings (namely: epistemic, deontic, attitudinal, and textual). In so doing, their work provides new insights into this field of study.

The sociolinguistic approach to tag question studies encompasses gender studies as well as dialect and a variety of studies. [Lakoff's \(1972\)](#) study reveals that women are primary users of tag questions, a finding that the author contends is reflective of their insecurity or lack of commitment. However, other studies generated different results. [Dubois and Crouch \(1975\)](#) state that men did use tag questions in both formal and informal contexts. Moreover, [Aijmer \(1996\)](#) investigates the use of tag questions by London teenage speakers, as well as other dialects across a variety of contexts, such as in Edinburgh-based speech, British and American English, Canadian English, and Asian English (including Hong Kong English).

A handful of studies also touch upon the prosodic analysis of tag questions, offering detailed surveys of the prosodic features of tag questions as part of a broader investigation into the functions associated with them, as well as the diachronic studies of tag questions (e.g., [Tottie and Hoffmann, 2006](#)).

2.2. Previous studies of classroom interactions and tag questions in classroom interactions

The past few decades have witnessed a resurgence of studies into classroom interactions, including [Sinclair and Coulthard's \(1975\)](#) Initiation, Response, and Feedback structure, studies on language classrooms ([Seedhouse, 2004](#); [Fu, 2008](#); [Yang, 2010](#); [Lin and Leung, under review](#)), functional approaches to classroom discourse ([Christie, 2002](#)), and critical analysis of classroom interactions ([Kumaravadivelu, 1999](#)). In particular, the analysis of question-and-answer communication formats has gained increasing attention, having been studied from a variety of dimensions, such as interactional structures, conversation analysis and corpus linguistics, and systemic functional approach ([Sinclair and Coulthard, 1975](#); [Long and Sato, 1983](#); [Walsh, 2013](#); [Yang, 2021](#); [Yang and Yin, 2022](#)).

Tag questions, as a prominent question form, play a significant role in classroom interactions, with seminars—as generally smaller, more conversational settings—being a particularly relevant context. Concomitant with the increase of international students in British tertiary education, international students encounter significant challenges in British university seminars. For instance, they are immediately at a disadvantage, being comparatively unfamiliar with normative British academic discourse, such as the process of participation, methods, and daily routines in university seminars, an unfamiliarity that arouses anxiety and impedes effective participation. [Basturkmen \(2016\)](#) points out that international students face challenges such as a lack of linguistic resources within classroom participation, with the use of tag questions being one such resource. Accordingly, it becomes necessary to study tag questions in the context of university seminars by clarifying the syntactic forms, as well as the pragmatic and interpersonal functions of tag questions, to promote the understanding of this form and identify ways of facilitating its flexible use in seminar participation.

In summary, previous studies on tag questions are relatively comprehensive, covering many contexts. Nonetheless, the study of tag questions in the context of university seminars remains hitherto understudied, despite its integral role in classroom interactions in terms of both knowledge transmission and the establishment of favorable interpersonal relations between participants. However, whether or not they create favorable conditions for opening interactions and discussions remains to be seen. Tag questions in university seminars are thus the object of focus in this present study.

2.3. Analytical framework

Interpersonal meaning, as proposed by [Halliday \(1978, p. 112\)](#), refers to “the participatory function of language” and is associated with how “language [is] organized as a resource for enacting roles and relations between the speaker and addressee” ([Matthiessen et al., 2010, p. 126](#)).

There is a broad academic consensus that tags convey interpersonal meanings ([McGregor, 1995, 1997](#); [Kimps, 2007, 2018](#); [Axelsson, 2011](#); [Kimps et al., 2014](#)), and two layers of both subjective meaning and intersubjective meaning are denoted ([McGregor, 1997](#)). Subjective meaning primarily involves the speaker and proposition itself, whereas intersubjective meaning focuses on the speaker, hearer, and proposition. By using tag questions, the speaker wants to express a subjective meaning toward the proposition; on the contrary, the speaker simultaneously elicits an expected response to the proposition from the hearer. The first dimension has been referred to as the “evidential modification” of tags ([McGregor, 1997, p. 222–233](#)), or more expansively, that “tags modify the way in which the anchor relates to presuppositions and expectations.”

Putting another way, tags are associated with the degree of certainty/epistemic commitment of the speaker and hearer vis-à-vis the proposition. The second dimension was referred to as the “conduciveness” of tags, primarily referring to tag questions indicating “which interactional position the speaker assumes in the dialogue and which response s/he expects from the hearer” (McGregor, 1997, p. 245).

A two-dimensional analytical framework extrapolating the interpersonal meanings of tag questions (based on McGregor, 1997; Kimps, 2018) is presented in Table 1.

Thus far, we have reviewed existing studies on tag questions and the nature of questions in classroom discourse, before introducing the analytical framework. In the following section, the methods of the study are introduced and explained.

3. Methods of the study

This small corpus-based study primarily adopts a qualitative discourse analysis approach (supplemented with concise quantitative data analysis to provide an overview of the findings). In this section, we will first present the research questions, followed by a detailed description of the data used for generating the findings of the study. Then, building upon the analytical framework for the study, the procedures for data coding and analysis will be explained thereafter.

3.1. Research questions

The overarching research question for this study is formulated as follows: In what ways are interpersonal relations revealed by teachers’ and students’ tag questions in British undergraduate university classroom interactions?

To answer this question, two sub-questions are investigated:

- 1) In what ways are subjective meaning presented in evidential modification by anchors of tag questions in British university undergraduate seminars?
- 2) In what ways are intersubjective meaning presented in the conduciveness of tags in British university undergraduate seminars?

3.2. Data description

The data analyzed in this study are derived from nine seminar sessions of the British Academic Spoken English (BASE) Corpus.² The BASE project took place at the University of Warwick and the University of Reading between 2000 and 2005 (inclusive) under the leadership of Professors Hilary Nesi and Paul Thompson. The BASE Corpus consists of 160 lectures and 40 seminars recorded across a variety of departments, covering four broad disciplinary groups, each represented by 40 lectures and 10 seminars.

The BASE corpus was chosen for the current study for the following reasons. A large number of lectures and seminars are included in the corpus, and the quality of the data is also ensured, as the corpus was compiled by experienced professionals with funding from BALEAP, EURALEX, the British Academy, and the Arts and Humanities Research Council. There are no other alternatives freely and publicly available corpora for British seminars data at the time of research. The facilities and resources used to compile this publicly funded corpus were better than those that individual researchers could have obtained access to. The transcripts are available online and most of the video recordings are accessible upon request from the compilers. Compiling a large corpus of spoken data is a complicated process; efforts have to be put into ensuring the representativeness and size of the data, obtaining permission and access to suitable data, accessing professional equipment for video or audio recordings, transcription of the data, and so on. Therefore, utilizing the BASE Corpus, the most appropriate corpus available at the time of the research which has been used in other doctoral research and published journals, can save considerable time and energy. Considering all the above-mentioned factors, the BASE corpus was chosen to be used as English classroom data for the present study.

One of the potential drawbacks of using the BASE Corpus is that the data were recorded about two decades ago, which may not represent the latest trend in higher education. However, the basic two forms of instruction in classroom teaching included in the BASE corpus, lectures and seminars, are similar to the modes of teaching nowadays. In addition, seen from the long-term history of education, the time span for the data in the

TABLE 1 Two dimensions of interpersonal meanings of tag questions (based on McGregor, 1997; Kimps, 2018).

Dimensions	Key features	Description
Dimension I: subjective meaning	Evidential modification of tag questions (degree of speaker's commitment to the proposition in the anchor).	Tag questions can modify the way in which the anchor relates to propositions and expectations (McGregor, 1997; Kimps, 2018).
Dimension II: intersubjective meaning	Conduciveness of tag questions (responses to tag questions).	Tag questions can indicate which interactional position the speaker assumes in the dialogue and which response s/he expects from the hearer (McGregor, 1997; Kimps, 2018).

² Special thanks go to Professor Hilary Nesi who kindly granted us access to the data of the BASE Corpus.

BASE Corpus can be regarded as a representation of the case for the early twenty-first century, thus still generating some insights into the current field of study.

Lectures and seminars are two forms of instruction settings in classroom teaching. On the whole, lectures are teacher-fronted monolog sessions, though sometimes with occasional questions or a few short discussions between the teacher and students. That is to say, the lectures of the BASE corpus are more formal and attach more importance to “transmission over negotiation” and “monolog rather than dialogue” (Hyland, 2009, p. 97–98) and involve “mainly a one-way form of communication.” In contrast, the seminars in the BASE corpus take various forms of interaction between the teachers and students, including whole-class discussion, group discussion, and students’ presentations, which are characterized by “explicit interactivity” (Hyland, 2009, p. 106) involving two-way communication, with participation from most of the people who are present, and they are less structured and more interactive.

Compared to the more monologic nature of the lectures, it seems that the seminar sessions provide a better platform for interaction with more examples of tag questions from the teachers and students. Therefore, the current data are drawn from nine sessions of seminars from three disciplines of the BASE Corpus (humanities, social science, and engineering), totaling 9.5 h and approximately 85,000 tokens. The details of the nine sessions of seminars chosen³ are presented in Table 2.

3.3. Data coding and procedures for analysis

The first author first printed all the transcripts of the nine sessions and also used *AntConc*, a free and handy corpus analysis toolkit (Anthony, 2004), to extract all examples of variant tag questions from the data. Concordancer Tool in AntConc helped extract the examples of tag questions in the context while printing the data out facilitates manually checking the data at a granular level. Very few ineligible tag questions are removed, mainly including slips of tongues of speakers or incomplete tag forms. Then, all examples of extracted tag questions were put in an Excel spreadsheet, with relevant information such as roles (teacher or student), polarity patterns, tag forms, subject, finite verb, response (with response or no response), and source of the data recorded systematically. A sample screenshot of the spreadsheet is shown in Figure 1.

³ In total, 20 seminars for PG level students are excluded because our study focuses on undergraduate level university classrooms. Stage performances or project meetings between students with two teachers were also excluded from our study. In addition, special thanks go to Dr. Alex Nicholson and Professor Regina Weinert, who helped us double check the transcriptions of the English data in the BASE corpus.

Following this, the first author analyzed the interpersonal meanings of tag questions from two dimensions: the first dimension related to the evidential modification of tags to the anchors by analyzing functions of tag questions in the current data (thereby building upon previous studies); and the second dimension derives from the conduciveness by analyzing responses to tag questions in the data.

To ensure the reliability of the study, during the coding and analysis of the data, the third author independently checked the coding, arriving at an agreement rate of 86%, and a few disagreements were solved through subsequent discussion.

4. Results and discussion

4.1. Overview of tag questions in the data

A total of 122 instances of tag questions are identified in the data sample. Among these, there are 99 examples of teacher-derived tag questions (accounting for 81.15%), while there are 23 examples of students’ tag questions (accounting for 18.85%). The distributions of teachers’ and students’ tag questions are shown in Table 3.

Moreover, there are significant variances between different sessions, as illustrated in Figure 2, where it can be seen that in most of the sessions, teacher-derived tag questions occur more frequently than student-derived tag questions; and that Session 1 is the session containing most teachers’ tag questions, whereas Session 9 is the session where tag questions are mostly derived from the students. In Session 3, the teacher does not use tag questions at all, whereas in Session 6 and Session 8, students do not use any tag questions.

In terms of polarity, the data sample reveals that the vast majority of tag questions are reversed polarity tag questions (approximately 95%). Among them, positive–negative tag questions account for 80% (98 examples), with negative–positive tag questions accounting for approximately 14%, while positive–positive tag questions only account for a minor proportion (around 5%). Interestingly, there are no examples of negative–negative tag questions found in the data. In terms of roles of tag questions, teachers predominantly use positive–negative tag questions, with some instances of negative–positive questions, and a few positive–positive tag questions. On the other hand, students are found to mostly use positive–negative tag questions, with only two examples of negative–positive tag questions. No students have used positive–positive tag questions.

The distribution of forms of the polarity of teachers’ and students’ use of tag questions in the data is listed in Table 4.

Such a distribution of tag question polarity is concordant with the findings of Kimps (2018), who examined tag questions in conversation, and identified a ratio of positive–negative tag

TABLE 2 Description of the data.

Code	Title	Duration (in minutes)	Words	Source
Session 1	Criminal law: Accomplice liability (law)	53'58''	8,755	sssem006
Session 2	Contemporary health issues: Unemployment and health (social policy and social work)	47'17''	7,495	sssem008
Session 3	The Cuban revolution (comparative American studies)	62'51''	11,198	ahsem003
Session 4	Beauty and "the thin red line" (film and television studies)	55'21''	8,950	ahsem006
Session 5	Radiation and photochemistry (chemistry)	55'35''	8,907	pssem001
Session 6	Questions and answers (engineering)	56'56''	9,037	pssem005
Session 7	"Built-in" social behaviors in territoriality and sexual behaviors (psychology)	37'26''	7,090	sssem007
Session 8	Introduction to health service (statistics)	43'58''	9,040	pssem008
Session 9	Curriculum English: Teaching short stories at key stage 2 (education)	97'38''	13,323	sssem004
Total		565'39''	83,777	

examples	Role	polarity patterns	tag forms	subject	finite verb	response	Source
<i>we don't normally require that in other contexts do we</i>	Teacher	negative-positive	do we	we	require	one-word	SESSION 1

FIGURE 1
A screenshot of the coding of tag question examples in the Excel spreadsheet.

questions (70%), negative-positive questions (18%), positive-positive tag questions (12%), and negative-negative tag question (0%). However, the data sample analyzed in this present study only utilizes declarative tag questions, whereas Kimps' data sample comprising daily conversations (which is not based on classroom data) exhibited greater variety, with 14 instances of imperative tag questions and five instances of interrogative tag questions.

Following this preliminary overview of tag questions' frequencies and ratios in the data, we shall now analyze the interpersonal meanings of tag questions from the two dimensions of evidential modification and conduciveness, as outlined in Section "2.3 Analytical framework".

4.2. Interpersonal meanings of tag questions (1): Evidential modification of tag questions

In terms of evidential modification of tag questions, our findings reveal a continuum of degrees of certainty of epistemic commitment of the speaker toward the propositions in the anchor. These can be segmented into strong certainty, medium certainty, and low certainty. They carry different illocutionary forces, namely "please note," "please check", and "please tell." Three categories can be created based on these: rhetorical tag questions, confirmational tag questions, and informational

tag questions (examples to be provided in the following sub-sections). These relations are shown in [Table 5](#).

[Table 6](#) shows that approximately three-quarters (73.77%) of the sample data consist of rhetorical tag questions. Among teachers-derived tag questions, it is found that teachers most frequently use tag questions for rhetorical effort (around 60%), whereas students also use rhetorical questions to assert their positions (13.93%); confirmational tag questions account for one-fourth (25.41%) of the sample data; and there is only one example for information-seeking purposes for which the teacher utilizes tag questions (0.82%).

Having presented a general picture of their distributions, we now conduct a more detailed examination of these categories, drawing from examples in the data.

4.2.1. Rhetorical tag questions: Please noting

For rhetorical tag questions, the speaker exhibits significant certainty toward the proposition in his/her assertions. The function of this category is primarily to emphasize what is being said by the speaker, with the illocutionary force of "please

TABLE 3 Overview of teachers' and students' tag questions in the sample data.

Teacher tag questions	99 (81.15%)
Student tag questions	23 (18.85%)
Total	122 (100%)

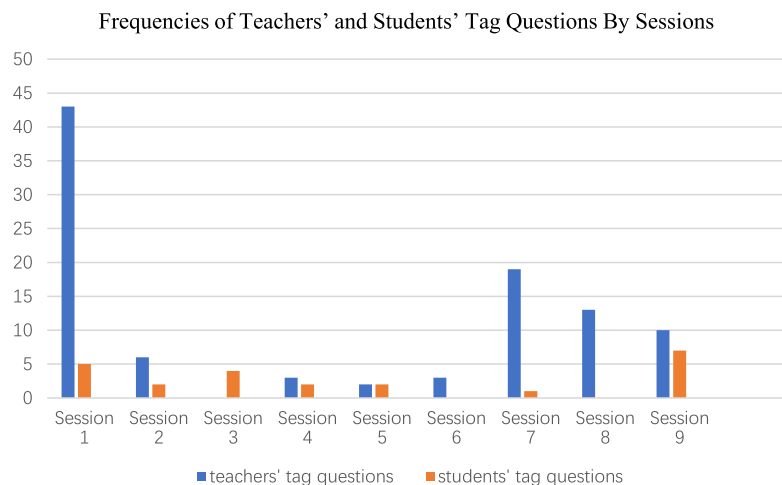


FIGURE 2

Frequencies of teachers' and students' tag questions across the sampled sessions.

noting." Such category of tag questions has also been labeled as "punctuation tags" (Cheng and Warren, 2001, p. 1,431), which "function to emphasize or underline what is being said by the speaker" (ibid).

Our data sample reveals that both teachers and students use such rhetorical tag questions, with such tag questions tending to appear in the middle of the clauses, thereby not requiring any verbal response from the hearers.

All examples of this category in the data sample are tag questions with reversed polarity. Both negative-positive and positive-negative forms are identified, revealing a continuum of stronger degrees of certainty in terms of the speaker's commitment toward the proposition in the anchor.

In the following two examples, the teachers use negative-positive forms of rhetorical tag questions to students:

Example 8: (Session 1)

T: ... it's possible that could be a source of duty depends in a way (em) **there's never been a case quite like this has there** but (eh) it's quite possible

This example is from Session 1, a seminar held by the Law Department discussing a legal case. Here, the teacher is quite certain of the statement in the anchor "there's never been a case quite like this," so he/she uses a tag question to emphasize this epistemic certainty, functioning as "please noting" that "there are no such cases like this," a function which does not expect any response from the students, but facilitates the repetition or reinforcement of his/her former talk "it's quite possible."

The teacher does choose not to use a declarative clause here as a means of expressing the proposition most assertively. By adding tags at the end of the declarative clause, the teacher

may be aiming to mitigate the assertive force of being too absolute in the proposition, thereby reducing the imposition of forcing students to accept his viewpoint. However, in practice, we can see that the teacher is certain of his knowledge, whereby the rhetorical use of the tag question skillfully delivers this knowledge to the students in a more assertive way. It demonstrates the teacher's competencies in possessing knowledge while students take the role of receiving knowledge without any questioning. Therefore, this example reveals a tension between the "degree of certainty" of the informational content of the statement and the non-face-threatening motive, whereby a possible "conflict" of illocutionary and perlocutionary usage can be seen.

The following is another similar example:

Example 9: (Session 1)

T: ... the problem is that that **duty isn't specified in the statutes is it** the statutes do create all sorts of duties (eh) relating to (eh) t- to most cars but not that one

This example is also from Session 1, a law seminar. By employing this tag question, the teacher delivers the

TABLE 4 Polarity in teachers' and students' tag questions.

	Positive-negative	Negative-positive	Positive-positive
Teachers tag questions	77 (63.11%)	15 (12.30%)	7 (5.74%)
Students tag questions	21 (17.21%)	2 (1.64%)	0 (0%)
Total	98 (80.32%)	17 (13.93%)	7 (5.74%)

TABLE 5 Interpersonal meanings of tag questions (1): Evidential modification.

Interpersonal meanings of tag questions (1): Evidential modification	Degrees of certainty	Illocutionary forces	Categories
	Strong	"Please noting"	Rhetorical tag questions
	Medium	"Please checking"	Confirmatory tag questions
	Low	"Please telling"	Informational tag questions

"emphatic meaning, underlying the preceding proposition." Its usage reveals that the speaker (teacher) is the source of authority, and can direct how the interaction will move forward. However, in so doing, negotiation is closed down.

On the other hand, it emerges from the sample that students also use rhetorical tag requests when emphasizing their argument or evoking shared background knowledge with the teacher or with other students. In the following example, one student uses the positive-negative form of rhetorical tag questions to the teacher:

Example 10: (Session 1)

- 1 T: *Okay, why should he do enough to ensure the burglary takes place?*
- 2 S4: *I don't know [laughter] (hm) cos he's I suppose **he's got the start of the details hasn't he** fo- for the crime and to ensure that he isn't (em) liable as an accomplice. . .*

Example 10 (above) is from Session 1, a seminar in the Law Department discussing a specific legal case. In response to the teacher's "why-question," the student initially verbally acknowledges not knowing the answer. This might not be because of a lack of knowledge, but rather that she is simply uncertain and hence this acknowledgment can be employed as hedging the statement so that she is putting forward her thinking in a less face-threatening manner. After this prelude, the student uses a tag question "he's got the start of the details hasn't he" as the evidential grounding, with certain assertions, together with modality expression of "I suppose" to indicate her uncertainty and present her answer as potentially relevant in response to the teacher's previous interrogative request. In this way, even

if the student's answer may not be correct, the face-threatening risk is mitigated.

4.2.2. Confirmatory tag questions: "Please checking"

Confirmatory tags function "to invite the addressee to agree with the speaker or to draw the addressee into discourse by providing support to the addressee" (Cheng and Warren, 2001). This usage is explained by Mithun (2012, p. 2071) as "an appeal for acknowledgment of shared knowledge, experience, or values, as speakers seek to establish a bond with their listeners."

Our data sample reveals examples where teachers employ positive-negative tag questions, negative-positive tag questions, and positive-positive tag questions to confirm with students. In these examples, a degree of strong-to-medium certainty can be found in terms of the speaker's commitment toward the proposition in the anchor, depending on the specific context of the interaction.

The following is an example of a positive-negative tag question found in the sample data:

Example 11: (Session 7)

- 1 S8: *like with the chickens how they have bigger things on their heads (eh)*
- 2 T: ***cones they're called cones I think aren't they***
- 3 S8: *yeah*

This example is from Session 7, a seminar hosted by the Psychology Department. In this positive-negative tag question, the teacher expresses little doubt *via* the proposition in the anchor; and by using the tag question "they're called cones I think aren't they," the teacher attempts to provide support to the student while exhibiting a strong certainty toward the proposition in the anchor. Meanwhile, the use of the modality expression "I think" is likely used to serve as an appeal for involvement in this shared knowledge with students.

The following is an example of negative-positive tag questions used to confirm with students:

Example 12: (Session 1)

- 1 T: *. . . (em) Ducross is liable because he should have interfered with her*

TABLE 6 Strategies of teachers' and students' tag questions.

	Rhetorical	Confirmatory	Informational
Teacher tag questions	73 (59.84%)	25 (20.49%)	1 (0.82%)
Student tag questions	17 (13.93%)	6 (4.92%)	0 (0%)
Total	90 (73.77%)	31 (25.41%)	1 (0.82%)

- 2 S4: (hm)
 3 T: *prevented her from committing the crime and
 we don't normally require that in other
 contexts do we*
 4 S4: No

This example derives from Session 1, a seminar in the Law Department. The teacher employs this tag question with negative polarity to gain confirmation from the students on the statement in the anchor “we don’t normally require that in other contexts.” It is also noteworthy that the teacher here uses the inclusive plural “we” as the subject, demonstrating a clear intention to establish a measure of solidarity between him and the students. The negative polarity in the anchor “don’t” conveys the bias of an expected negative answer toward this question. Finally, this tag question is followed by the response from a student, “no,” indicating his/her agreement.

Example 12 thus reveals that the teacher exerts the power to initiate the bias of an expected response by utilizing different forms of polarity within the tag question. In this specific example, the teacher conveys a combination of simultaneous solidarity building and influence assertion. On the surface, the teacher uses such tag questions to project “an inclusive approach to decision making,” but actually, it reinforces the power of the teacher in that their real intention is to invite the students to accept the teacher’s argument. Accordingly, by probing into the seeming solidarity of the relationship between the teacher and the students, an actual asymmetrical relationship can be identified between them.

A positive-positive tag question is also employed by the teacher to confirm responses with students, as is shown in the example below:

Example 13: (Session 7)

- 1 S8: *and humans have a choice I suppose animals. . .
 hasn't got the choice (xx) humans tend to
 choose their partners*
 2 T: *you feel you feel humans have a choice do you*
 3 S8: Yeah
 4 T: *right yeah that's a good point humans have a
 choice you can go your own way. . .*

This example comes from Session 7, a seminar from the Psychology Department, in which students are discussing the differences between animals and humans. S8 puts forward her viewpoint relating to the latter’s ability to choose their partners, after which, the teacher utilizes a constant polarity tag question, “you feel humans have a choice do you.” Differing from the previous example, this use of tag question does not convey the opinions of the speaker, but rather, it is

used as a reported statement to echo the previous student’s viewpoint. This usage corroborates Nässlin (1984), who claims that the use of constant polarity tag questions indicates no personal opinion of the truth of the proposition of the anchor, whereas the use of reverse polarity tag questions implies that the speaker believes that the proposition in the anchor is true.

In this example, the teacher, by choosing to employ this constant positive tag question, maybe making an attempt to obtain confirmation from the student on her contribution of ideas.

On the other hand, students in our data also make use of tag questions for confirmatory purposes, both to confirm an expected action and for checking information on certain knowledge points.

Example 14: (Session 3)

- 1 S1: *so in fact name x and name x go and swap*
 2 S5: *I should swap shouldn't I*
 3 S3: *yeah it might be an idea*

Example 14 is from Session 3, a debate seminar on the success or failure of the Cuban Revolution. It occurs at the beginning of the class when the teacher and the students are discussing whether and how to rearrange their seats for the convenience of their discussion. This example thus focuses on discussing the action of “swapping seats.” S1 suggests S5 and S3 go and swap, after which S5 uses a tag question “I should swap shouldn’t I” to request confirmation from S1, which is affirmed by S3, “yeah.” S5 then swapped his seat.

In this example, the subject is “I” and the finite is “should,” which are repeated in the tag. The first-person subject reveals that this example is not a request to ask other people to do some action, but is rather related to the action of “swapping” to be realized by himself, as a response to the previous suggestion of S1, “name x (S5) and name x (S3) go and swap.”

This example reveals the negotiation between students over seat swapping to facilitate the convenience of a group debate, and in this process of interaction, a subtle relationship between the students is established. S1 first proposes that S5 and S3 swap seats, whereby S5 successfully utilizes a tag question with the modality “should” (as the finite) to check his obligation to swap seats. Interestingly, this tag question is not responded to by S1, from whom the proposal derives, but by S3, who responds with the positive answer “yeah” and the modulated declarative “it might be an idea,” in which the low-value modality of “might” mitigates the force carried in the former proposal by S1. If S5 were responded to by S1 (i.e., the person who made the proposal),

it may seem that S1 exerts a measure of control over his classmate. In avoiding this potentiality, a more equal relationship is built between the students *via* a certain degree of mitigation.

Another example used by students to confirm certain knowledge points is presented below:

Example 15: (Session 5)

- 1 T: no okay well right an- any offers on w- on the methyl chloride one
- 2 S17: ***I think you just add radiation that would split from this wouldn't it***
- 3 T: sorry the
- 4 S17: *just add the radiation would split (xx) a radical*
- 5 T: *yeah a- if you can have solid methyl chloride you probably would get (em) some (em) disruption like*

This example is from Session 5, a seminar held by the Chemistry Department. S17 employs a tag question “*I think you just add radiation that would split from this wouldn't it*” as a tentative response to the teacher's question. In essence, the student possesses some measure of certainty in her proposition, demonstrated by her use of the anchor here, though she remains not completely sure. Accordingly, some strategies (including modality expressions “I think” and “would”) are included, to perform hedging functions through which the student can show her uncertainty. Similarly, the use of the tag “wouldn't it” also reinforces her doubt and undermines her certainty of the statement. The tag also functions as a way to elicit confirmation from the teacher, who is supposed to have authority in curriculum-related knowledge. Additionally, it also serves as a potential face-saving strategy if the answer is wrong.

4.2.3. Information-seeking tag questions: “Please telling”

Tag questions for real information-seeking purposes are primarily used to obtain information from the addressee and are classified as an informational type of function (Algeo, 1990; Tottie and Hoffmann, 2006), more specifically, as an “epistemic modal function” by Holmes (1995). In essence, they express genuine uncertainty of the speaker, which is to say, they are genuine questions with no assumption of knowing the expected response the hearer would or could provide. When speakers employ tag questions to elicit responses, they do so by being uncertain about the information in the anchor and seeking a response from the addressees, thereby exhibiting low certainty toward the proposition in the anchor. Such uses are not frequent in our data, which corroborates the quantitative findings of Tottie and Hoffmann's (2006) study, in which the informational

type of tag questions only accounts for a minority proportion (less than 3%).

Example 16: (Session 1)

- 1 T: ... ***the next seminar is after Easter isn't it***
- 2 S1: *is it we don't have a seminar this week*
- 3 T: *i don't think we do*

Example 16 is from Session 1, a seminar from the Law Department. It occurs at the end of the class when the teacher uses a tag question to request information from the students, specifically the “time for the next seminar.” The teacher may have some idea of the date of the seminar, but he is not certain, so he uses this tag question to elicit information from the students, which is responded to by a student who questions “is it we don't have a seminar this week.” Accordingly, as for the information sought in the tag question, “time for the next seminar,” the teacher believes that the addressees (the students) may have better, or at least, similar, knowledge on this point, justifying his use of this tag question.

This example reveals that when negotiating the topic of “the time for next seminar,” which is not subject-related knowledge, both the teacher and the students are supposed to have similar knowledge. The use of the tag question by the teacher may represent an attempt to institute a more equal power relationship between the students and himself.

4.2.4. Summary

In summary, based on the criteria of evidential modification of tags to propositions in the anchor, our research sample reveals that tag questions can be classified into three types: strong certainty, medium certainty, and low certainty, which in aggregate form a continuum from rhetorical tag questions for emphasis (“please noting”), confirmatory tag questions to invite the addressee to confirm the statement (“please checking”), to genuine information-seeking tag questions (“please telling”). This continuum also reflects the different levels of knowledge status held by different speakers.

Our analysis reveals that most teacher-derived tag questions in English university seminars are used as rhetorical requests to emphasize a certain point of knowledge. Such use of tag questions functions as part of broader assertion strategies for “coercing agreement” (Cheng and Warren, 2001) rather than indicating tentativeness. This finding helps explain why most of the rhetorical tag questions are teacher-derived, thereby originating from the more powerful participant in the classroom interaction.

In addition, this research also finds that most of the rhetorical uses of tag questions among teachers concern curriculum-based knowledge, of which the teachers enjoy greater epistemic power compared to the students. However,

when it comes to other issues not closely related to curriculum-based knowledge (such as the time for the next seminar, see Example 16), teachers employ tag questions to seek information, helping to establish a more equal relationship between them and the students. As indicated in the examples in this section, different kinds of power-neutralizing and solidarity-building relationships between the teacher and students can be perceived in a specific communicative context with regard to different goals of interaction. The flexible use of multiple strategies involving tag questions reveals the multi-institutional role of the teacher as a controller, guide, facilitator, primary knower, and so on.

Moreover, students in English university classrooms are also found to utilize tag questions to fulfill diverse functions, for instance, asserting their argument by citing some facts as evidence. This reveals that students can express their epistemic knowledge more confidently by flexible utilization of tag questions.

After exploring the first dimensions of interpersonal meanings of tag questions from the perspective of evidential modification, we now move to the second dimension: the conduciveness of tag questions.

4.3. Interpersonal meanings of tag questions (2): Conduciveness of tag questions

In using tag questions, a speaker not only expresses a degree of commitment toward the proposition in the anchor as discussed but also indicates an attitude toward the hearer. More specifically, the conveyance of tag questions reveals how the speakers hope to affect turn allocation, as well as how the speakers perceive the exchanges and expected contribution of the hearers. This constitutes the second dimension of interpersonal meanings of tag questions, which will now be discussed.

In our data sample, the speakers' utilization of particular forms of tags expresses a conduciveness toward the expected response of the hearers, and it is also a powerful tool by which to control turn allocation. Martin and White (2005, p. 102) contend that tag questions may be seen as indicating "potential negotiation," and this negotiation may either be "expanded" or "contracted." More specifically, when the negotiation is expanded (i.e., opening up), tag questions become response-eliciting; yet when the negotiation is contracted (i.e., closed down), no response is sought, and such tag questions are referred to as rhetorical.

In terms of the conduciveness of tag questions, the findings herein demonstrate the following patterns. Three types of response are found in the data: no response, one-word response, and discretionary response. Correspondingly, these create no space, little space, or more space for negotiation by either

holding the floor or giving the floor to the addressee. This is summarized in Table 7.

Table 8 provides a general overview of the responses to tag questions, as revealed in the sample data.

Approximately three-quarters (72.95%) of tag questions receive no response; only a quarter (27.05%) is followed by a response.

Of those with responses, the majority are expected confirmatory responses (the majority of which are one-word responses), with only a very small number of discretionary responses. This reveals a general trend of preference for alignment, and that there are not many opportunities for the negotiation of meanings. Analysis of detailed examples is presented in the following two sub-sections.

4.3.1. No verbal response

Most of the rhetorical tag questions are found to be the first type of expected non-verbal response. For example:

Example 17: (Session 1)

T: ... I think in relation to his death you said well it's probably manslaughter it doesn't have to be does it could be murder. ...

This example is from Session 1, a law seminar. The negative polarity in the anchor of the tag question here "it doesn't have to be (manslaughter)" implies a negative bias toward the expected negative answer. This substantiates Kimps (2007, p. 272) who states that "[i]t is ... generally accepted that tag questions convey the speakers' orientation to the proposition by signaling a specific attitude and the expected response." In this example, as feedback to the student's previous answer, the teacher does not utter the answer directly, but utilizes a tag question with negative polarity to hint at the expected negative answer; meanwhile, this approach softens the force, making it more acceptable to (or less imposing for) the students. The expected response as an alternative to the student's previous answer may have already formed in the minds of the students, whereby the subsequent utterance of the teacher "could be murder" reinforces this expected answer. The use of modality expressions such as "probably" and "could be" further encourage students to think from multiple perspectives.

In this way, even with no explicit verbal responses being expected, the teacher may still successfully evoke answers in the minds of the students. In this case, usually little or no time is left for the hearer to take turns; consequently, no space for negotiation is created, inhibiting further discussion.

4.3.2. With response

For this type of response to tag questions, two sub-types are identified in our data sample: one-word response and discretionary response. Relevant examples will now be discussed.

TABLE 7 Interpersonal meanings of tag questions (2): Conduciveness of tag questions.

Interpersonal meanings of tag questions (2): Conduciveness of tag questions	Degrees of space for negotiation	Control of turn allocation	Types of response
	No space	Floor-holding	No response
	Little space		With response (one-word)
	More space	Floor-giving	Discretionary response

4.3.2.1 One-word response from the hearer

Our data sample yields many one-word responses such as “yes” or “no,” used to confirm or deny, which is concordant with Newbury and Johnson (2006, p. 221) who have found that tag questions are “specifically intended to prompt a respondent to confirm or deny a version of events presented in the question.” In other words, responses to tag questions are either to confirm or deny. Moreover, Cameron et al. (1988, p. 87) maintain that “if a question contains a completed proposition, this takes more interactive work to challenge than it does to consent to; the consequence is that respondents tend to produce confirmations of the embedded proposition”. This implies that the preferred responses to tag questions are confirmational, and it is a phenomenon confirmed in our present data sample.

One-word responses to tag questions (to show confirmation) manifest in varying forms, depending on the polarity of tags. For instance, for the positive–negative tag questions, the response to show confirmation is “yeah” (see Example 11); while for the negative–positive tag questions, the response to show confirmation is “no” (see Example 12):

Example 11: (Session 7)

- 1 S8: *like with the chickens how they have bigger things on their heads (eh)*
- 2 T: *cones **they're called cones I think aren't they***
- 3 S8: *Yeah*

Example 12: (Session 1)

- 1 T: *... (em) Ducross is liable because he should have interfered with her*
- 2 S4: *(hm)*
- 3 T: *prevented her from committing the crime and **we don't normally require that in other contexts do we***
- 4 S4: *No*

In Example 12 (Session 1), a seminar from the Law Department, the negative polarity in the anchor of the tag here (“we don’t...”) implies the negative answer for this tag question. The one-word response is obtained from one student, “no.” Superficially, the use of tag questions “gives the addressee leeway, not forcing him to go along with the view of the

speaker” (Lakoff, 1972, p. 54) by utilizing a request, rather than a statement. However, upon closer inspection, it is confirmed that “the very construction of a tag question suggests that the speaker has certain assumptions and is biased toward a certain answer” (Tsui, 1992, p. 92). As such, the speaker *expects* (and is seen to expect) a negative answer to this tag question.

There is a possible cross-linguistic difference in terms of responses to negative–positive tag questions, such as when delivered in English and Chinese. More specifically, in the English example, the response “no” mainly echoes the negative polarity “don’t” in the proposition in the anchor, while the response “yes” in the Chinese example mainly reinforces the idea of the agreement, “yes, I agree with you.” Therefore, special attention needs to be paid to the responses to negative tag questions in English and Chinese.

It is also notable that in this type of one-word response, despite there being a change of floor taking place, the space for negotiation remains relatively small, and no further space for dialogue or extended discussion is created.

4.3.2.2. Discretionary response

Some of the responses to tag questions are not the expected responses implied in the polarity of tags (as seen in Example 16, explored above). Example 18 is another pertinent example.

Example 18: (Session 1)

- 1 T: *okay what would you say about bill*
- 2 S8: *well (em) he was aware that the burglary to be taking place so in that sense (xxx) crime was going taking place so he's the first one*
- 3 S7: ***he did phone the police didn't he** to [warn them*
- 4 S8: *[it says that albert did is that a mistake*
- 5 S7: *that's a mistake*
- 6 T: *yeah that's a mistake sorry a mistake of mine...*

Example 18 is from Session 1, a law seminar. The student, S7, employs a tag question “he did phone the police didn’t he”

TABLE 8 Responses to tag questions in the data.

	No response	With response
Teacher tag questions	73 (59.84%)	26 (21.31%)
Student tag questions	16 (13.11%)	7 (5.74%)
Total	89 (72.95%)	31 (27.05%)

to emphasize his assertion of the fact in the legal case, using the marked form of the finite verb “did” in the anchor. However, this is interrupted by an overlapping speech from S8, “it says that Albert did. . .,” after which S8 then uses another polar request to ask “is that a mistake.” Therefore, in this example, as a challenge to the assertion of S7 in the form of a tag question, S8 cites the information in the handout as evidence, using this to pose a contrary opinion, though later confirmed as a mistake in the handout by S7 and the teacher.

Thornbury and Slade (2006, p. 119) contend that “[e]xpected responses support the proposition of the speaker and thereby serve to create alignments and solidarity. By contrast, the discretionary responses are either disengaging and non-committal or openly confronting.” Accordingly, discretionary responses to tag questions create more space for negotiation and extended discussions.

4.3.3. Summary

In summary, the responses to the tag questions in English university classroom settings range from expected non-verbal responses, positive or negative verbal responses indicated in the polarity of the anchor part of the tag questions, to discretionary responses in relation to specific classroom interaction contexts.

Generally speaking, most of the tag questions identified herein are followed by no verbal response or a simple one-word confirmatory response, indicating that not much space for negotiation is created. Discretionary responses, which can open up more space for negotiation, are found in limited quantities in our data sample. Therefore, responses to tag questions in the data are predominantly floor-holding, rather than floor-giving, and tend to show more alignment than disalignment.

4.4. Discussion: Interpersonal meaning and tag questions

The interpersonal meanings of tag questions in the seminar sessions have been collated and summarized in Table 9.

TABLE 9 Two dimensions of interpersonal meanings of tag questions.

Interpersonal meanings of tag questions			
Dimension I: evidential modification	Degree of certainty	Illocutionary force	Categories
	Low certainty	‘Please telling’	Informational tag questions
	Medium certainty	“Please checking”	Confirmatory tag questions
	Strong certainty	“Please noting”	Rhetorical tag questions
Dimension II: conduciveness	Degree of space for negotiation	Control of turn allocation	Types of response
	More space	Floor-giving	With response (Discretionary response)
	Little space		(One word response)
	No space	Floor-holding	No response expected

As demonstrated in Table 9, regarding the first dimension of evidential modification, the degrees of speakers’ certainty toward the propositions contained within the anchors form a continuum from low, medium, to strong certainty. The degrees along this continuum correspondingly realize the three categories of informational, confirmatory, and rhetorical questions, with the illocutionary force of “please telling,” “please checking,” and “please noting,” respectively. On the second dimension of conduciveness of tag questions, various types of responses emerge: discretionary response, one-word response, and no response. These also form a continuum in terms of space for negotiation, ranging from more space, little space, to no space, with the corresponding floor-giving to floor-holding attributes in terms of control of turn allocation.

Equally pertinent, the dual role of tag questions cannot be ignored. By using requests in the form of tag questions, teachers may be attempting to involve students in class discussions; on the other hand, the conducive forms of tag questions also indicate that teachers can utilize tag questions to influence, control, or otherwise guide students to think toward certain expected directions (i.e., the correct answers). This dual function of tag questions supports the findings of Harres (1998, pp. 113–114) in that “tag questions used for their facilitative function are a cooperative strategy aimed at reducing social distance and expressing solidarity or support. As part of their coercive or challenging function, tag questions force addressees to respond to and agree with the speaker (conductive tag questions).”

In this way, the use of tag questions plays an important role in the simultaneous realization of interactional involvement and communicative or pedagogical control in classroom interactions. More specifically, on one hand, tag questions function as an important tool to establish rapport with students and to encourage involvement, for it seemingly gives students a chance to participate in classroom interactions by presenting their comments or correcting any misconceptions. However, whether these opportunities are realized by students is a totally different matter.

This finding is very important to help illustrate the dynamics of interpersonal meanings enacted in the use of tag questions by teachers and students in the classroom (which is different from Brown and Levinson's (1987) static and pre-established view of power and distance relations) in classroom interactions. The use of tag questions in university seminars reflects a dynamic interplay of both epistemic power and deontic power between teachers and students. Epistemic power is related to the right to know, describe, and access (Kent, 2012). The role of teachers might be expected to claim epistemic power for their experience or professional knowledge in certain subjects, but the roles of teachers cannot always guarantee epistemic power. It might be the case that certain students claim to have more knowledge in certain points, with the necessity to negotiate "the legitimacy of claims in these cases" (Barker and Annerstedt, 2014, p. 5). Deontic power is related to which party can set the rules concerning what should be done (Craven and Potter, 2010). Teachers can exercise their deontic power by allocating tasks to their students in accordance with their lesson plans. However, in a similar vein, their attempt to exercise deontic power cannot be expected to be observed by students all the time; instead, deontic power is an "interactional accomplishment, claimed, displayed and negotiated" (Stevanovic and Peräkylä, 2012, p. 315).

The current study has focused on some of the mechanisms of interpersonal relations in terms of evidential modification of tags and conduciveness based on the negotiation of roles and identities in classroom interactions, which are realized in specific linguistic expressions of tag questions in classroom discourse. It is important to note that the semiotics of interpersonal meanings is very complex and involve comprehensive and unexhaustive components.

5. Conclusion

5.1. Summary of the study

Analyzing data from the BASE Corpus, our research confirms that both teachers and students in British university seminar contexts utilize tag questions, whereby the former uses tag questions far more frequently than the latter. The unmarked form, that is, the most frequent form, used by both teachers and students is the positive-negative form, while teachers also exhibit greater use of the negative-positive as well as the positive-positive forms. Students meanwhile only occasionally employ the negative-positive form, with modality expressions often used together with tag questions.

In terms of the interpersonal meanings carried *via* tag questions at the dimension of evidential modification, depending on the degree of epistemic certainty of the speakers on the proposition of the anchor, functions of tag questions are found to form a continuum from rhetorical

tag questions, confirmatory tag questions, to informational tag questions. In our data sample, rhetorical tag questions are found to account for almost three-quarters of tag questions in the data, demonstrating strong certainty of the speaker toward the proposition in the anchor, whereas confirmatory tag questions are found to account for around one-quarter, which reveals the moderate certainty of the speaker toward the proposition in the anchor, and insinuates an aim of checking with the hearer. Only one instance of a tag question is found to be a real information-seeking question. In this sense, we can conclude that based on the data analyzed herein, most tag questions are utilized to capture the attention of the hearer, rather than opening up a dialogue by seeking specific missing information from the hearer.

In terms of interpersonal meanings of tag questions at the dimension of conduciveness, three-quarters are identified as receiving no verbal response, while one-quarter are followed by a response, most of which comprise expected (one-word) confirmatory responses. This may indicate that even though certain types of tag questions have the potential to open up a negotiation between teachers and students, the opportunities for true interactions vary significantly. Whether and how tag questions are employed in class to stimulate interactions (perhaps in a communicative-oriented classroom) is thus worth further exploration.

In addition to the above two dimensions, the dual functions of tag questions are a conducive means for teachers to maintain control in the classroom activities or, while concurrently building rapport, align themselves with the students. This finding substantiates Harres (1998, pp. 113–114) who concludes that: "tag questions ... are a cooperative strategy aimed at reducing social distance and expressing solidarity or support. ... [and also] coercive or challenging, [for they] force addressees to respond to and agree with the speaker."

5.2. Implications of the study

This investigation into the interpersonal meaning of tag questions in English university seminars from the two dimensions of evidential modifications of tags and conduciveness has several implications, both theoretically and practically.

In terms of theory, our study demonstrates the potential for further refinement of the analytical framework of interpersonal meanings. More specifically, future studies are encouraged to explore question types (such as polar interrogatives and declarative questions) that are presently omitted by prevailing theoretical frameworks.

Practically, this study can offer referential support to teachers and students in the UK. By ascertaining and understanding detailed interpersonal use contexts, they

can make more effective use of tag questions in their communications, persuasion strategies, engagement, and involvement strategies to manage turn allocation more effectively in seminar interactions, thereby facilitating learner gain. With the empirical support provided by corpus-based studies similar to ours, teachers can benefit from a greater awareness of the relationship between the use of tag questions and the actual effect of creating and closing dialogue space with students. This, in turn, enables teachers to better balance/control engagement and build meaningful rapport through classroom interactions. Moreover, it is hoped that international students who come to study in the UK can benefit from greater awareness of differences in academic cultures in terms of using and responding to tag questions. Being equipped with such an awareness can enable international students to better integrate themselves into the seminar interactions in the British academic community.

Furthermore, this study offers meaningful insights for English for Academic Purpose (EAP) course designers and the utilization of corpus materials in education. When designing course books for international students, it is beneficial for educators and designers to refer to actual examples in the corpus (such as the BASE Corpus) to better tailor suggestions for the international student body. When it comes to tag questions, drawing on real examples from the corpus can more effectively highlight varied uses of tag questions in terms of form, function, and potential responses, thereby facilitating a more comprehensive understanding of the interpersonal meanings underpinning tag questions. This is in line with the emphasis on the significance of using clear and tested examples of corpus-based data in English language teaching (Viana, 2022).

5.3. Limitations and directions for future study

Given the size of our dataset, future research is encouraged to verify the findings reported herein against more comprehensive data from related contexts, such as university seminars in other countries.

Future studies may also include more sessions of seminars from various disciplinary schools, thereby allowing for the identification and comparison of potentially disciplinary-specific characteristics. Other specific features, such as prosodic features of tag questions (which are also important for the interpretation of tag questions) and detailed conversational features (such as turn positions), are recommended for inclusion. Moreover, the influence of various factors on the interpersonal meanings of tag questions, such as types of activities in seminars (e.g., debating and problem-solving activities), requires further exploration. Finally, examining the use of tag questions in seminars through a cultural lens (rather

than linguistics) as well as the interpersonal meanings revealed therein also offer a fruitful avenue for future research.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: https://www.reading.ac.uk/acadepts/ll/base_corpus/.

Author contributions

LW was in charge of data coding and analysis and writing the draft of the manuscript. AH-CL was in charge of commenting on the draft of the manuscript and helped clarify aspects of the analyses. YS helped check the coding of the data analysis and proofreading of the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Tracing the translator's voice: A corpus-based study of six English translations of *Daxue*

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The Translator's voice is the "second" voice in a translated narrative. By tracing a set of textual cues, the translator's voice embedded in the discourse may come to light. This study is based on a self-constructed bilingual parallel corpus which adopts both quantitative and qualitative methods to reveal the translator's voice in six English versions of the Chinese classic *Daxue*. WordSmith 8.0, CLAWS POS Tagger, and Readability Analyzer were used to analyze the data and investigate the lexical, syntactic, and textual features of the translations of *Daxue* by David Collie, James Legge, Ku Hungming, Ezra Pound, Chan Wing-Tsit, and Andrew Plaks, respectively. Paratexts of translation-prefaces, introductions, translator's notes, footnotes, and so on, as well as representative examples, were also analyzed by close reading. The findings suggest that each translator's cultural identity, historical background, and motives for producing the translation are made manifest through various linguistic and non-linguistic choices. This study demonstrates that the translator's voice, which is always present along with the author's voice and may take various forms, is deeply associated with the cultural and ideological constructs in which the act of translation is embedded. It is hoped that the results of this research will contribute to an enhanced understanding of the translation and overseas dissemination of the Chinese classic *Daxue*, and further the study of the translator's voice with the aid of corpus technology.

KEYWORDS

translator's voice, corpus-based study, English translation, *Daxue*, translation style

1. Introduction

The Chinese classic *Daxue* (《大学》, *The Great Learning*) was originally a section of *Liji* (《礼记》, *The Book of Rites*), an anthology of treatises on rituals which came into shape around the first century BCE. After the edition and rearrangement by Zhu Xi (1130–1,200), the renowned Chinese scholar of the Song Dynasty, it gained its position as an independent "book" and was canonized as one of the so-called Four Books along with *Lunyu* (《论语》, *The Analects*), *Zhongyong* (《中庸》, *The Doctrine of the Mean*), and *Mengzi* (《孟子》, *Mencius*). Zhu Xi's commentary edition of *Daxue* was one of the most important texts for education and the civil service examinations in China's feudal society and had a profound influence on Chinese intellectuals for hundreds of years. Short as it is, the aim of *Daxue* is to produce an ideal political program based on an individual's moral cultivation.

TABLE 1 Eighteen English translations of *Daxue* (including the translator's name, book title, and publication year).

Translator(s)	Title	Year	Reference
Robert Morrison	<i>Ta-Hio: the Great Science</i> , included in <i>Horae Sinicae: Translations from the Popular Literature of the Chinese</i>	1812	Morrison, 1812
Joshua Marshman	<i>Ta-Hyoh</i> , included in <i>Elements of Chinese Grammar</i>	1814	Marshman, 1814
David Collie	<i>Ta Heo</i> , included in <i>The Chinese Classical Work Commonly Called The Four Books</i>	1828	-
James Legge	<i>The Great Learning</i> , included in <i>The Chinese Classics: with a Translation, Critical and Exegetical Notes, Prolegomena, and Copious Indexes (Vol. 1)</i>	1861	-
Ku Hungming	<i>Higher Education</i>	1915	-
Lin Yutang	<i>Higher Education</i> , included in <i>The Wisdom of Confucius</i>	1938	Lin, 1938
Ezra Pound	<i>Ta Hio</i> , included in <i>The Great Learning of Confucius</i>	1928	-
	<i>Ta Hsio: The Great Digest</i> , included in <i>Confucius: The Great Digest & Unwobbling Pivot</i>	1947	-
E. R. Hughes	<i>The Great Learning</i> , included in <i>The Great Learning and the Mean-in-Action</i>	1942	Hughes, 1942
Chan Wing-tsit	<i>The Great Learning</i> , included in <i>A Source Book of Chinese Philosophy</i>	1963	-
Chai Chu	<i>Ta Hsueh (The Great Learning)</i> , included in <i>The Sacred Book of Confucius, and Other Confucian Classics</i>	1965	Chai, 1965
A. Charles Muller	<i>The Great Learning</i>	1992	Muller, 1992
He Zuokang	<i>The Great Learning</i> , included in <i>The Great Learning & The Doctrine of the Mean</i>	1996	He, 1996
Irene Bloom	<i>The Great Learning (Daxue)</i> , included in <i>Sources of Chinese Tradition: From Earliest Times to 1,600 (2nd ed.)</i>	1999	De Bary and Bloom, 1999
Andrew Plaks	<i>Ta Hsüeh (The Highest Order of Cultivation)</i> , included in <i>Ta Hsüeh and Chung Yung (The Highest Order of Cultivation and On the Practice of the Mean)</i>	2003	-
Ian Johnston/ Wang Ping	<i>Daxue (大学): The Great Learning</i> , included in <i>Daxue and Zhongyong: Bilingual Edition</i>	2012	Johnston and Wang, 2012
Robert Eno	<i>The Great Learning</i> , included in <i>The Great Learning and the Doctrine of the Mean: Translation, Commentary and Notes</i>	2016	Eno, 2016
Wu Guozhen	<i>The Great Learning</i> , included in <i>Three Confucian Classics with Relevant Paraphrases</i>	2018	Wu, 2018

The Neo-Confucian of the Song Dynasty Cheng Yi (1033–1107) viewed *Daxue* as the entry point for the study of the Four Books: “*The Great Learning (Daxue)* is a surviving work of the Confucian school and is the gate through which the beginning student enters into virtue. It is only due to the preservation of this work that the order in which the ancients pursued their learning may be seen at this time” (Chan, 1963, p. 85–86). Its predominant position has made *Daxue* highly important and translated into various languages over the ages. So far, there have been approximately 18 important English versions of *Daxue*, as shown in Table 1.¹

The English translation of *Daxue* has prompted investigations from various perspectives but they have primarily focused on one particular version. Wang (2005), for example, analyzed Pound's etymographic interpretation in his translation. Wang and Ye (2008) suggested the socio-political setting of the time largely accounts for Morrison's literal translation. Lu (2013) studied Legge's version from the perspective of translation as adaptation and selection. Hou (2019) reviewed translation of *Daxue* and

Zhongyong in philosophical terms of Hughes. There have also been several studies comparing and analyzing different versions of *Daxue*. For instance, Wang and Ye (2009) contrasted the translations by Morrison and Marshman. Fang (2011) compared Legge, Morrison, Marshman, and Lin's versions from the perspective of functional translation theory. Chen (2020) studied the motives behind the English missionaries of the 19th century's translations. Very little research uses the quantitative method to identify the features of the translated texts: Xu (2020), for example, examined the lexical features of the versions of six translators-Collie, Legge, Ku, Lin, Pound, and Muller, using text data mining, through R programming language. Despite the considerable insights gained through these studies on the translation of *Daxue*, there is remarkably insufficient research exploring the underlying mechanisms that produce the differences. Since the translation never coincides with its source and it always implies more than one voice in the text (Hermans, 1996), it is significant to find out how the translator's individual voice is articulated in the translated text, what interventions exist, and to discover the underlying causes.

According to Chatman (1978, p. 153), voice “refers to the speech or other overt means through which events and existents are communicated to the audience.” Taivalkoski-Shilov (2015, p. 60) defines voice as “the set of textual cues characterizing a subjective or

1 The reprinted editions which are nearly identical to their first editions are not listed. The translation of *Daxue* by Ku Hungming was completed in 1915 but published later. The two English versions of *Daxue* by Ezra Pound are remarkably different from each other, so both are presented in the table.

collective identity in a text.” As it marks the narrator’s identity, the concept of voice is central to narratology. Hermans (1996, p. 27) first gave the notion of the translator’s voice serious consideration, pointing out that translated narrative discourse always contains a “second” voice—the translator’s voice, which “may be more or less overtly present, and it is most directly and forcefully present when it breaks through the surface of the text speaking for itself, for example in a paratextual Translator’s Note.” O’Sullivan (2005, p. 109) claims that the discursive presence of the translator can be identified on two levels in the narrative text. The first is that of the implied translator as the originator of paratexts, and the second is the voice dislocated from that of the narrator of the source text. Munday (2008, p. 6) points out that “in translation studies, issues of style are related to the voice of the narrative and of the author/ translator.” He further elaborates on the relationship between voice and style as follows:

Whereas we shall use voice to refer to the abstract concept of authorial, narratorial, or translatorial presence, we consider style to be the linguistic manifestation of that presence in the text. Since the text is the only immediately visible part of the narrative, it is only by studying the language of the text that the style of the author or translator might really be identified and hence the voice(s) present in the discourse be determined. Voice is therefore to be approached through the analysis of style (Munday, 2008, p. 19).

In brief, the translator’s voice is a narratological term referring to the abstract concept of the translator’s discursive presence in a translated text, which “may be measured by creative linguistic choices as well as by repeated linguistic selections, both creative or standardizing, which relate to the idiolect of the translator and are manifestations of individual style” (Munday, 2008, p. 20).

According to Baker (2000), style is a kind of thumbprint expressed in a range of linguistic and non-linguistic features. To find out a translator’s style, it is therefore necessary to focus on the manner of expression that is typical of a translator and to capture their characteristic use of language in comparison with other translators, by drawing on corpus linguistics methods which can deal with a large body of data through the use of relevant software (Baker, 2000, p. 245–246). In recent years, corpus-related methodologies have been fruitfully applied to translation studies. Huang (2018) examined corpus-based studies of the translator’s style in China over the previous 2 decades and divided the research focus into two categories: *the comparative mode* focuses on the differences between a particular translator and other translators based on a collection of all or a number of their translated works; *the parallel mode* focuses on the translation of a single source text into a particular target language by various translators stressing the different approaches to handling specific aspects of the same original work (Huang, 2018, p. 79). These studies adopt literary works, primarily novels, plays, essays, and classical literature as their main sources, and are undertaken chiefly from three angles: descriptive translation studies, narratological stylistics, and computational linguistics (Huang, 2018, p. 80). Nevertheless, Hu

and Xie (2017) pointed out the need to distinguish between “the translator’s style” and “the translation style” (or “the style of the translated text”). The former refers to a translator’s distinctive features that can be observed in a collection of all or a number of their translated works in comparison to those of other translators, manifested through their choice of translation materials, adoption of translation strategies or methods, language use in the translated text, and so on. The translation style refers to the distinctive features that distinguish one translated text from others while including elements of the styles of both the translator and the original work (Hu and Xie, 2017, p. 12–13). Accordingly, many current studies of the translator’s style (referred to as “the parallel mode” by Huang) are actually studies of the translation style.

It is noteworthy that several corpus-based studies on the translation style² of ancient Chinese classics have been published concurrently. For instance, Zhao (2015) investigated two English versions of *Daodejing* (《道德经》, *Laozi’s Tao Te Ching*) from lexical, syntactic, and textual perspectives. Fan (2017) studied five English versions of *Lunyu* (《论语》, *The Analects*) by examining their linguistic features and translation strategies. Ge (2019) analyzed the macro-linguistic features of the four English versions of *Shangshu* (《尚书》, *The Book of History*). Previous studies have demonstrated the effectiveness of corpora as a tool for revealing the linguistic characteristics of various translated works. However, further investigation into the underlying causes of a variety of features of translation is still required. As Huang (2018) suggests, corpus studies of the translator’s (translation) style should be expanded to include semantic, pragmatic, and sociocultural analysis by incorporating ideas or methodologies from related fields, and by combining quantitative analysis and qualitative analysis to make the study more methodologically rigorous and scientific.

Since “all translating can be seen to have the translator’s subject position inscribed in it” (Hermans, 2014, p. 286), a translation’s style can be ultimately ascribed to the discursive presence of the translator in the text, that is, the translator’s voice. Munday (2008, p. 227) holds that style in translation is inherently non-systematic since none of the translators translates in the same way in all cases, yet there is always an element of choice and poetic taste. “The words we read in translation are the translator’s words, the result of translation choices” (Munday, 2009, p. 247); thus, the translator’s voice is how the translator establishes their identity as “the teller of the tale.” On these grounds, this study attempts to identify each translator’s voice in the six English translations of *Daxue* by examining the various translations’ styles using corpus methodology, together with a thorough qualitative analysis of the pertinent paratextual materials and representative examples of translation within the appropriate sociocultural, historical, and

² This paper adopts the term “the translation style” to refer to the distinctive features that differentiate one translated text from other translated texts based on the same source text and into the same target language by multiple translators.

TABLE 2 Description of the corpus in the current study.

Category	Tokens	Author/Translator
<i>Daxue</i>	2,830	Zeng Zi (edited by Zhu Xi)
<i>Ta Heo</i>	3,141	David Collie
<i>The Great Learning</i>	3,773	James Legge
<i>Higher Education</i>	3,694	Ku Hung-Ming
<i>Ta Hsio: The Great Digest</i>	4,265	Ezra Pound
<i>The Great Learning</i>	3,775	Chan Wing-Tsit
<i>Ta Hsüeh (The Highest Order of Cultivation)</i>	4,587	Andrew Plaks

ideological framework. This study aims to provide a comprehensive and in-depth characterization of the six English versions of *Daxue* and to further the study of the translator's voice with the aid of corpus technology.

Following this introduction, Section 2 will explain the materials and methods adopted in this study and why. Section 3 will present the results of the corpus analysis of the six English translations of *Daxue*. In Section 4, the implications of the results will be expanded upon, and the paratextual materials and illustrative examples will be further examined. Section 5 will offer the conclusions based on the research findings and highlight the limitations of this study with suggestions for the way forward.

2. Materials and methods

2.1. Materials

According to Baker (1995, p. 226), corpus refers to any collection of running texts, held in electronic form, and analyzable automatically or semi-automatically. A parallel corpus consists of an original text in language A and translated version(s) in language B. Parallel corpora contribute to the discipline of translation studies by supporting the emphasis shift from prescription to description (Baker, 1995, p. 230–231). This study is based on the parallel corpus of *Daxue*, in the Chinese original edited by Zhu (2011),³ and six English versions translated by Collie (1828), Legge (1861), Ku (2016),⁴ Pound (1947), Chan (1963), and Plaks (2003), respectively.

These translated texts were collected following the principles of representativeness and comparability. Firstly, the six translators are from different historical periods with divergent cultural

identities, and their translations have had significant social and historical influence. According to Hall, there are two ways to conceptualize “cultural identity”: in terms of one, shared culture, which people with a shared history and ancestry hold in common, or as “what we have become,” taking into consideration the intervention of history (Hall, 1990, p. 223–225). Due to their individual socio-historical settings, the six translators each have a different cultural identity underpinning their individual motives and strategies of translation. Secondly, the source text of all six translations is one text—Zhu Xi's commentary edition of *Daxue*. Prior to the corpora analysis, illustrative languages, such as prefaces, introductions, footnotes, translator's notes, comments, and so on, were excluded from the analysis, to ensure the comparability of the materials for corpus analysis, producing the parallel corpus shown in Table 2.

2.2. Research tools

The corpus tools WordSmith 8.0, CLAWS POS Tagger, and Readability Analyzer were used in the study. WordSmith Tools are an integrated suite of programs developed by Mike Scott of Oxford University Press, including Wordlist, Keyword, and Concord programs which can look at how words behave in texts, produce a list of all the words or word clusters in a text, show any word or phrase in context, and help find the keywords in a text. CLAWS POS Tagger was developed by University Center for Computer Corpus Research on Language (UCREL) at Lancaster University, which offers a free tagging service online⁵ and generates output in either C5 or C7 tagset. Dr. Sarah Tyler developed the Readability Analyzer, which offers a free online readability analysis, passive voice detector, and other writing assistant services.⁶

2.3. Procedure

The analysis of the translated texts used WordSmith 8.0, CLAWS POS Tagger, and the Readability Analyzer. The corpora

³ The Chinese original of *Daxue* is taken from *Sishu Zhangju Jizhu* (Collected Annotations of The Four Books) compiled by Zhu Xi, published by Zhonghua Book Company in 2011, excluding Zhu Xi's annotations.

⁴ The translation by Ku Hungming in 1915-*Higher Education* is included in *The Discourses and Sayings of Confucius (The Analects)*, *Higher Education*, *The Conduct of Life*, or *The Universal Order of Confucius: A Bilingual Edition* published by Tianjin Social Sciences Academy Press in 2016.

⁵ <http://ucrel.lancs.ac.uk/claws/trial.html>

⁶ <https://datayze.com/readability-analyzer>

were processed by WordSmith 8.0, which automatically produced lexical and syntactic statistics. Once the translated texts had been tagged using CLAWS POS Tagger, the lexical density and conjunctions of each text were determined to reveal the lexical and textual features. The Readability Analyzer was used to determine the passivity and readability of the translated texts.

After the quantitative research was completed, an in-depth qualitative investigation of both the linguistic and non-linguistic differences between the six translations was carried out. The paratextual materials, such as prefaces, introductions, translator's notes, footnotes, and so forth, were examined. Representative examples of the translated texts with a detailed analysis were given.

This combination of quantitative and qualitative approaches can map the textual traces of each translation thoroughly, reveal the translator's discursive presence, or the translator's voice, in each text, and provide a deeper understanding of these English translations of *Daxue*. Moreover, a further survey of the translator's cultural identity and their motives for translating *Daxue* may reveal more about how their distinctive translators' voices were formed and demonstrated in each English version of *Daxue* under investigation.

3. Results

3.1. Lexical features

The lexical features of the six translated texts (TT) were displayed using WordSmith Wordlist Program. The details include the number of tokens and types, type/token ratio (TTR, the ratio between type and token), standardized TTR (STTR is computed

every 1,000 words as Wordlist goes through each text file), mean word length (MWL, the average length of words), and standard deviation (SD) of word length. Tokens are the number of words in each text, and types indicate the number of different words. TTR is a measure of the range and diversity of vocabulary used by a writer, or in a given corpus. Since the length of a text influences TTR, STTR is also provided by WordSmith, and considered more reliable (Baker, 2000, p. 250). MWL indicates the lexical complexity to some extent, and the standard deviation of MWL shows the length difference between words. The lexical statistics produced by WordSmith Wordlist are displayed in Table 3.

As can be seen, Pound's version has the highest STTR, suggesting that he adopts the most varied vocabulary in translation, whereas Ku's version has the lowest STTR, indicating his translation uses the narrowest lexicon. Collie's version has the longest MWL, closely followed by Plaks' version, and Plaks' SD is the highest of the six, implying that both Collie and Plaks tend to use long words, though Plaks' vocabulary has greater variety. On the other hand, Ku's MWL is the lowest of the six, closely followed by Pound, indicating relatively simple vocabulary used in their translations. The details of the word length of the six TTs are shown in Table 4.

Ku's version has the lowest percentage of words longer than eight letters, followed by Pound's version, suggesting less lexical complexity in their versions. Plaks' version has the highest percentage of words with more than eight letters, closely followed by Collie's version, implying relatively complex word usage in their translation. This result is consistent with the previous findings in Table 3.

Moreover, the lexical density of the TTs was also calculated to illustrate their lexical features further. Lexical density (LD) is defined as the number of lexical words (or content words) divided by the total number of words. Lexical words are nouns, adjectives, verbs (excluding auxiliary verbs), and adverbs, which carry information about what is being communicated. LD is a measure of how informative a text is. The texts are tagged using CLAWS POS Tagger, and the statistics of the different parts of speech and LD are displayed in Table 5.

It is evident that Collie's version has the highest LD, closely followed by Plaks' version, while Legge's version has the lowest LD. This implies Collie and Plaks' translations carry a greater information load, while Legge's is the least informative of the six.

TABLE 3 Lexical statistics of the six TTs.

TT	Tokens	Types	TTR	STTR	MWL	SD
Collie	3,141	872	27.77	38.97	4.59	2.43
Legge	3,773	886	23.89	34.50	4.43	2.50
Ku	3,694	735	20.24	30.87	4.18	2.22
Pound	4,265	1,205	28.85	40.72	4.33	2.28
Chan	3,775	824	21.90	32.73	4.40	2.32
Plaks	4,587	1,079	23.55	36.00	4.58	2.54

TABLE 4 Word length details of the six TTs (in percentage).

TT	1-letter words	2-letter words	3-letter words	4-letter words	5-letter words	6-letter words	7-letter words	>8-letter words
Collie	2.32	17.64	23.43	14.87	9.93	10.88	6.84	14.09
Legge	3.18	20.75	22.98	15.05	9.94	9.01	5.67	13.42
Ku	4.03	18.84	23.31	19.06	12.83	8.01	5.09	8.83
Pound	3.77	17.89	23.56	17.14	11.21	9.12	7.34	9.97
Chan	2.25	19.36	22.91	16.95	11.39	9.40	5.77	11.97
Plaks	1.87	20.73	20.34	15.52	13.23	7.89	6.21	14.21

WordSmith Wordlist Program was then used to list the high-frequency words. A [stop list](#) is uploaded in advance to filter out irrelevant words (primarily function words), producing the top twenty high-frequency words of the six TTs as displayed in [Table 6](#).

It can be observed that the most frequently occurring words in four TTs are “people” and “man,” which is in accordance with the fundamental spirit of humanity of Confucianism, while Collie has “virtue” and Plaks has “one’s” as their most frequently occurring words, though “people” and “man” are frequent. In Pound’s version, “heart” occupies a prominent position, ranking 3rd in frequency. Ku and Plaks use the word “moral” more frequently than the other translators, ranking 8th and 3rd in frequency in their respective translations.

TABLE 5 Tagging statistics and LD of the six TTs (in percentage).

TT	Noun	Verb	Adj.	Adv.	LD
Collie	23.29	13.2	6.97	4.36	47.82
Legge	20.53	12.3	6.38	3.89	43.11
Ku	21.63	10.96	6.90	4.82	44.32
Pound	24.43	11.81	6.8	3.82	46.86
Chan	21.78	11.66	7.53	4.05	45.02
Plaks	22.80	11.10	8.59	5.08	47.57

TABLE 6 Top 20 high-frequency words of the six TTs.

Order of Frequency	Collie	Legge	Ku	Pound	Chan	Plaks
1	VIRTUE	PEOPLE	PEOPLE	PEOPLE	PEOPLE	ONE’S
2	MAN	MAN	MAN	MAN	MAN	PEOPLE
3	PEOPLE	STATE	GOOD	HEART	STATE	MORAL
4	SAYS	BOOK	SAYS	STATE	ORDER	MAN
5	PRINCE	FAMILY	MEN	ORDER	WEALTH	CHARACTER
6	FAMILY	LET	ORDER	KING	MIND	MEN
7	FIRST	POETRY	NATION	OWN	MEANT	OWN
8	SHEWS	HIMSELF	MORAL	HAVING	BOOK	KINGDOM
9	ORDER	MEN	LOVE	ODES	ODES	WORLD
10	WHOLE	FIRST	MEANT	STRAIGHT	FAMILY	WEALTH
11	THINGS	VIRTUE	SONGS	SAY	SAYS	HUMAN
12	NATION	KNOWLEDGE	ORDERED	GREAT	RULER	WORDS
13	MIND	ABOVE	SAYING	HATE	GOOD	STATE
14	HENCE	THINGS	MIND	SEE	PERSONAL	CULTIVATION
15	OWN	WEALTH	BOOK	SELF	THEREFORE	SONGS
16	KNOWLEDGE	ABLE	ARIGHT	FAMILY	FIRST	PROPER
17	GOOD	GREAT	HOUSE	WORD	REMARK	MEANT
18	UPON	LOVE	WEALTH	ROOTED	SAYING	NOBLE
19	SUPERIOR	PERSON	FIRST	REST	LIFE	FIRST
20	MINISTER	EXPLAINS	CONDITION	MEN	KNOWLEDGE	FAMILY

3.2. Syntactic features

WordSmith Wordlist Program was also used to calculate the number of sentences, the mean number of words in each sentence, and the standard deviation of the number of words between sentences, to reveal each translation’s syntactic features, as shown in [Table 7](#).

Of the six TTs, Chan’s has the most sentences with the shortest length and lowest standard deviation, suggesting a relatively simple syntactic structure. Following Chan closely, Legge has the second-shortest sentences and the second-highest amount of sentences. Plaks has the least number of sentences, but they have the most words, which suggests that Plaks tends to employ longer, more complex sentences. Pound uses the second-longest sentences overall yet with the highest standard deviation, suggesting that his syntactic structure is frequently intricate and not predictable.

The Readability Analyzer was adopted to determine the quantity and percentage of passive sentences. The results were then carefully checked to ensure accuracy. The statistics are in [Table 8](#).

Plaks’ version uses more passive voice than the other five, followed by Legge’s TT, while Ku uses the fewest passive forms, followed by Pound’s TT. While active statements can sound more direct or personal, passive sentences typically sound more neutral and impersonal. The active voice might be preferable when giving oral presentations or in other more informal contexts ([Wallwork, 2016](#),

TABLE 7 Syntactic statistics of the six TTs.

Syntactic Features	Collie	Legge	Ku	Pound	Chan	Plaks
Sentences	177	216	185	183	223	151
Mean (in words)	17.74	17.17	19.63	22.83	16.87	30.34
Std. Dev.	16.61	13.71	12.39	21.03	12.50	20.65

TABLE 8 Passive sentence statistics of the six TTs.

Passive Feature	Collie	Legge	Ku	Pound	Chan	Plaks
Passive sentences	29	73	28	36	55	62
Total sentences	177	216	185	183	223	151
Percentage	16.38	33.80	15.14	19.67	24.66	41.06

TABLE 9 Statistics of conjunction usage of the six TTs (in percentage).

Textual features	Collie	Legge	Ku	Pound	Chan	Plaks
CJC	3.15	3.68	3.90	3.7	3.79	2.75
CJS	1.56	1.69	1.71	1.83	2.11	1.79
CJT	0.64	0.29	0.62	0.52	0.48	0.81
Total	5.35	5.66	6.23	6.05	6.38	5.35

p. 66). As a result, compared to the four other translations, Plaks and Legge's translations seem more impersonal and formal, while Ku and Pound's translations seem more personal and casual, in form.

3.3. Textual features

One of the main differences between English and Chinese systems is that while English is characterized by hypotaxis (subordinate clause links through conjunctions, relative clauses, etc.), Chinese features parataxis. Parataxis refers to the connections between words or phrases being expressed through the logical relationships between them rather than through language use. This means that Chinese has far fewer conjunctions than English. When translating from Chinese into English, a translator needs to add conjunctions, for instance, so that English speakers can understand the text.

Baker (1996, p. 180) presents the notion of "explicitation" as one of the features of translated texts, which refers to "an overall tendency to spell things out rather than leave them implicit in translation." However, explicitation may be norm-dependent, relating to a specific period of time or translation context, rather than universal (Olohan, 2004, p. 93). Schleiermacher argued that there are two approaches to translation: "Either the translator leaves the author in peace, as much as possible, and moves the reader toward him; or he leaves the reader in peace, as much as possible, and moves the author toward him" (Lefevere, 1977, p. 74). Venuti (1995, p. 20) referred to the former as the "foreignizing method"—an ethnodeviant pressure on those values to register the linguistic and cultural difference of the foreign text, sending the reader abroad, and the latter as the "domesticating

method"—an ethnocentric reduction of the foreign text to target-language cultural values, bringing the author back home.

The use of conjunctions in translations from Chinese to English reflects the degree of explicitation and can reveal a translator's propensity toward domestication or foreignization. To show the textual features of the TTs, CLAWS POS Tagger was used to calculate the usage of conjunctions in each text. The C5 tagset produced by CLAWS POS Tagger marks the conjunctions in three categories: CJC represents coordinating conjunctions, such as "and" and "or"; CJS represents subordinating conjunction, such as "although" and "when"; and CJT represents the conjunction "that." The results are shown in Table 9.

Overall, Chan uses the highest percentage of conjunctions in translation, closely followed by Ku, while Collie and Plaks employ the least number of conjunctions of the six. This suggests that Chan and Ku are inclined to bridge the linguistic differences between English and Chinese in their translations to make the text more intelligible to the readers, suggesting a tendency toward domestication, while Collie and Plaks tend to maintain the textual features of the original, implying a tendency toward foreignization.

Moreover, to compare the overall readability of different TTs, the Readability Analyzer was applied once more, and the results (in the Flesch Reading Scale⁷) are shown in Table 10.

⁷ The Flesch score uses the number of syllables and sentence lengths to determine the reading ease of the sample. A Flesch score of 60 is taken to be plain English. A score in the range of 60–70 corresponds to the 8th/9th grade English level. A score between 50 and 60 corresponds to the 10th/12th grade level. Below 30 is college graduate level.

TABLE 10 Overall readability of the six TTs (in Flesch Reading Scale).

TT	Collie	Legge	Ku	Pound	Chan	Plaks
Overall Readability	60.22	65.40	75.49	71.30	67.44	58.16

Ku's translation has the highest overall readability score, closely followed by Pound's translation, indicating that both translations are fairly simple to understand. Plaks' translation, on the other hand, is the least readable, closely followed by that of Collie, indicating that their translations are more challenging than the others.

4. Discussion

4.1. Translators' voices as manifested by translation styles

As mentioned, to approach the nebulous translator's voice requires first analyzing the translation style, that is, the linguistic manifestations of the translator's voice in the translated text. The above results of the corpora analysis of the six English translations of *Daxue* reveal their respective linguistic features, and highlight the different translation styles, so enabling the translators' voices from the textual traces left by their interventions to be mapped. Tracing the linguistic cues reveal that each translation has a distinctive style, which can be summed up succinctly in the following:

Collie's translation has the longest mean word length and highest lexical density, with a relatively rich vocabulary (second-highest STTR), pointing to a complex lexicon and a significant amount of information. On the other hand, he uses fewer conjunctions than the other translators, making his translation relatively challenging to read (with the second-lowest readability score); Legge's translation has the lowest level of lexical density, and the second-shortest mean sentence length as well as the second-highest percentage of passive sentences. This suggests that his translation style is concise and tends to be impersonal, with a moderate level of readability; Ku's translation has the least varied vocabulary and the shortest mean word length (lowest STTR and MWL), making his lexicon appear to be straightforward and direct. His translation has the lowest percentage of passive sentences, presenting a personal and casual style. Ku's translation also has the second-highest percentage of conjunctions and the highest readability; Pound's translation has the richest vocabulary (the highest STTR) and the second-shortest mean word length, indicating a rich and straightforward vocabulary. His version also has the second-longest mean sentence length with the greatest standard deviation, pointing to a complicated and variable syntactic structure. His translation is generally rather straightforward to understand (with the second-highest readability score); Chan's translation has the most sentences and the shortest sentence length, indicating a simple syntactic structure. On the other hand, his version contains the highest proportion of conjunctions, implying

his translation tends to bridge the textual differences between English and Chinese to make the English translation comprehensible to the target readers, so making his translated text relatively readable; Plaks' translation has the second-longest mean word length, with the highest standard deviation, and the highest percentage of words longer than eight letters, indicating a challenging and varied vocabulary. Plaks' translation also has the second-highest lexical density, indicating a sizeable information load. His version is the most challenging to read, with the longest mean sentence length of the six, the highest frequency of passive sentences, and the lowest percentage of conjunctions (with the lowest readability score).

Example (1) below, extracted from the six translations, further illustrates the different styles of the translations:

1. ST: 大学之道，在明明德，在亲民，在止于至善。

Collie: Superior learning consists in clearly illustrating brilliant virtue, renovating the people, and resting only in the summit of excellence.

Legge: What the Great Learning teaches, is to illustrate illustrious virtue; to renovate the people; and to rest in the highest excellence.

Ku: The object of a Higher Education is to bring out(明)the intelligent(明)moral power(德)of our nature; to make a new and better society (lit. people); and to enable us to abide in the highest excellence.

Pound: The great learning [adult study, grinding the corn in the head's mortar to fit it for use] takes root in clarifying the way wherein the intelligence increases through the process of looking straight into one's own heart and acting on the results; it is rooted in watching with affection the way people grow; it is rooted in coming to rest, being at ease in perfect equity.

Chan: The Way of learning to be great (or adult education) consists in manifesting the clear character, loving the people, and abiding (*chih*) in the highest good.

Plaks: The Way of self-cultivation, at its highest level, is a three-fold path:
it lies in causing the light of one's inner moral force to shine forth,
in bringing the people to a state of renewal,
and in coming to rest in the fullest attainment of the good.

Example (1) is the opening line of *Daxue*, which is the central theme of the entire book, expounding the ultimate goal of *Daxue*-the "Three Items"(三纲, *san gang*), or more specifically, "明明

德” (*ming ming de*, literally, to brighten up the bright virtue. The first “明” is a verb, meaning “to brighten up”, and the second is an adjective, meaning “bright”), “亲民” (*qin min*, literally, to love the people. According to Zhu Xi’s annotation, “亲民” is the same as “新民,” *xin min*, literally, to make the people new) and “止于至善” (*zhi yu zhi shan*, literally, to stop at the utmost goodness).

Collie mostly keeps the original meaning but adds two adverbs “clearly” and “only” to strengthen the tone. In comparison with the other versions, his translation employs a more formal vocabulary, such as the use of “superior learning” instead of “great learning” to translate “大学” (*daxue*).

Legge translates “明明德” as “to illustrate illustrious virtue,” using two English words with the same root to conform to the two “明” in the original. His syntactic structure mimics the original through three to-infinitives to correspond to the three “在” (*zai*, literally, to lie in) in Chinese. His usage of short sentences maintains the brevity of the original.

Ku’s translation adopts a simpler lexicon (such as the use of the verbal phrase “bring out” to translate the first “明”), and he heavily emphasizes his interpretation by rendering “德” as “moral power of our nature,” and “亲民” as “make a new and better society.” He keeps the original Chinese characters of the keywords to fully convey the meaning and his use of the first-person pronouns “our” and “us” exhibits a highly personal style. Overall, his translation is quite simple to read.

Pound adopts a unique etymographic interpretation whereby the meaning of words comes from ideograms. For instance, he broke “德” into several components including “彳” (a small step or pace), “目” (eye), and “心” (heart), and then produced his own interpretation of this character as “the process of looking straight into one’s own heart and acting on the results.” Moreover, the Chinese character “親” (“亲”) is separated by Pound as “亲” (affection) and “见” (to watch), so that “亲民” becomes “watching with affection the way people grow.” Pound’s unique etymographic interpretation accounts for some of his lengthy sentences and the rich vocabulary of his version. The word “heart” has an abnormally high frequency in Pound’s version due to the fact that quite a few Chinese characters contain the component “心” (heart).

Chan’s translation demonstrates his profound understanding of the key concepts of the original. For example, “大学” is translated as “The Way of learning to be great (or adult education),” which accurately captures the nuanced meaning of the original. In addition, he translates “亲民” as “loving the people,” which he believes is more in accordance with the fundamental Confucian spirit of “humanity.” He also utilizes transliteration in addition to his translation of “止”—“abiding (*chih*) in” to explain the intricate meaning of the Chinese character. Chan adopts short sentences, and his translation is relatively easy to understand.

Plaks uses more challenging vocabulary, and his translation includes a wealth of additional information based on his in-depth understanding of the original. For example, “大学之道” (*daxue zhi dao*, literally, the way of adult learning) is translated as “The Way of self-cultivation, at its highest level, is a three-fold path,” with words added to the translation to elaborate on the inferred

meaning for the target readers. His translation attempts to convey the complicated connotations of the original by delving into great detail, resulting in over-wordy sentences and rendering the translated text relatively difficult to read.

4.2. Reasons: Translators’ different cultural identities and motivation

Baker (2000, p. 258) points out that identifying linguistic habits and stylistic patterns is not an end in itself: it is only worthwhile if it tells us something about the cultural and ideological positioning of the translator, or about the cognitive processes and mechanisms that contribute to shaping their translational behavior. Therefore, it is necessary for us to ponder over the potential motivation for the stylistic patterns discovered from the corpus analysis.

The six translators under investigation have different cultural identities as well as different motivations for translation, which prompts them to translate in diverse manners. Baker (2000) believes style in translation involves the translator’s choice of the type of material to translate, his or her consistent use of specific strategies—including the use of prefaces or afterwords, footnotes, glossing in the body of the text, and so on. Hermans (1996) claims that the translator’s voice is most directly and forcefully present when it breaks through the surface of the text speaking for itself, for example, in a paratextual Translator’s Note. As the translator’s voice may be more overtly present in paratexts,⁸ an analysis of paratextual materials can further reveal the translator’s discursive presence. The next section investigates the paratexts of translation (prefaces, introductions, translator’s notes, footnotes, and so on) and elaborates on the translators’ cultural identities and translation motives within their specific sociocultural, historical, and ideological contexts by analyzing representative examples, allowing the translators’ voices in the different versions of *Daxue* to emerge fully and the factors that led to their formation to be clarified.

4.2.1. The 19th-century missionaries: To evangelize

Both David Collie (?–1828) and James Legge (1815–1897) were missionaries dispatched by the London Missionary Society in the 19th century. Collie, however, was never allowed to visit China due to the policy which banned the entry of foreigners into China in the early 19th century. While serving as the president of the Anglo-Chinese College in Malacca, Collie completed the

⁸ According to Pellatt (2013, p. 1), paratexts refer to “any material additional to, appended to or external to the core text which has functions of explaining, defining, instructing, or supporting, adding background information, or the relevant opinions and attitudes of scholars, translators and reviewers.”

translation of the Four Books, containing the English translation of *Daxue*. He stated his translation purpose clearly in the preface:

The following Version of the Four Books was undertaken, in the first instance, for the purpose of acquiring some knowledge of the Chinese language...It might perhaps be of some use to the Chinese who study English in the College, not only by assisting them in acquiring the English Language, but especially in leading them to reflect seriously on some of the fatal errors propagated by their most celebrated sages (Collie, 1828: p. i).

It is clear that Collie's translation serves two main functions: to serve as a tool to learn Chinese and to prove that Confucianism has fundamental errors in both religion and morality. To highlight the exotic nature of this Confucian classic, Collie generally adopted the foreignizing approach, which resulted in the complex lexicon, scarcity of conjunctions, and poor readability level of his translation. He did, however, occasionally omit or deviate from the original, inserting his own interpretation. Example (2) below is extracted from the translations by Collie and Legge:

2. ST: 古之欲明明德于天下者，先治其国；欲治其国者，先齐其家；欲齐其家者，先修其身；欲修其身者，先正其心；欲正其心者，先诚其意；欲诚其意者，先致其知，致知在格物。

Collie: The ancient (Princes) who felt desirous that the brilliancy of resplendent virtue might shine through the whole Empire, first promoted good order in their own provinces;—wishing to establish order in their own provinces, they first regulated their own families;—in order to effect the regulation of their own families, they first adorned their persons with virtue, in order that they might adorn their persons with virtue, they first rectified their own hearts; wishing to rectify their hearts, they first purified their motives; in order to purify their motives, they first extended their knowledge to the utmost.

Legge: The ancients who wished to illustrate illustrious virtue throughout the empire, first ordered well their own States. Wishing to order well their States, they first regulated their families. Wishing to regulate their families, they first cultivated their persons. Wishing to cultivate their persons, they first rectified their hearts. Wishing to rectify their hearts, they first sought to be sincere in their thoughts. Wishing to be sincere in their thoughts, they first extended to the utmost their knowledge. Such extension of knowledge lay in the investigation of things.

Example (2) involves the essential "Eight Steps" (八目, *ba mu*) of *Daxue*, which are the blueprints for translating humanity into actual living (Chan, 1963, p. 84). Collie omitted the last part of this passage—"致知在格物" (*zhi zhi zai ge wu*), which is also regarded as the most fundamental, while Legge translated it faithfully as

"Such extension of knowledge lay in the investigation of things." Besides, Collie's translation also features a significant number of lengthy footnotes, including both "the substance of various Comments" and "the remarks of the Translator," the latter reflecting Collie's derogatory attitude toward Confucianism. In a footnote on the first page of his translation of *Daxue*, he refuted the Confucian thought by claiming:

The above passage looks beautiful in theory, and contains some important truths, but there is one grand fallacy at the foundation of the system...it is only the right knowledge of the Creator, and Savior of the world and a spiritual renovation by the power of the Divine Spirit, that can produce that purity of heart, singleness of intention and moral rectitude of conduct (Collie, 1828, p. 1).

It is evident that the omission by Collie was deliberate due to his rejection of the system of Confucian thought. Collie, however, tended to amplify and interject his own understanding into the translation of several other passages. For example, "修其身" was translated by Collie as "adorn their persons with virtue," while Legge rendered it more literally into "cultivate their persons." According to Collie, "virtue," the most frequently used word in his translation, was endowed by, and could only be replenished by God: "It is to be feared that the standard of perfect virtue, formed by the Chinese Philosophers is very low, hence the ruinous notion that man may, unaided by divine influence, make himself perfectly virtuous..." (Collie, 1828, p. 3) Hence, "修身" (literally, cultivate oneself) was repeatedly rendered into "adorn one's persons with virtue" by Collie, hinting that individuals need to resort to divine assistance to make themselves virtuous. Collie's added interpretations also increased the information load of the translated text, leading to high lexical density.

In response to criticism of his translation by some claiming that "in many instances the rendering is too literal and in others too free, in many cases the spirit and force of the original have been lost," Collie defended himself in the preface:

In fact, when he (the Translator) considers the comparatively little value of the work, and the important engagements which form his proper employment, he feels that he ought rather to apologize for having bestowed so much time upon it, than for not having succeeded in giving a good and faithful version (Collie, 1828: p. vi).

According to Collie, translating *Daxue* was a work of "comparatively little value," and his "important engagements" were to preach Christianity to the Infidels who believe in Confucianism; therefore, faithfulness to the original was not the topmost priority for him.

More fortunate than Collie, Legge managed to arrive in Hong Kong as head of the Anglo-Chinese College when it was moved from Malacca to Hong Kong in 1843, and it was during his stay there that he gained a deep understanding of Chinese culture.

He believed that studying the Confucian classics was crucial for foreign missionaries to better appreciate Chinese culture and philosophy to facilitate their missionary work in China. In the preface of *The Chinese Classics* (Vol. I) he states that he undertook the translation of Chinese classics with the following conviction:

...that he should not be able to consider himself qualified for the duties of his position (as a missionary), until he had thoroughly mastered the Classical Books of the Chinese, and had investigated for himself the whole field of thought through which the sages of China had ranged, and in which were to be found the foundations of the moral, social, and political life of the people (Legge, 1861, p. vii).

Consequently, Legge was determined to study Chinese culture and translate the Confucian classics, gradually turning himself into a sinologist. Although Legge had read the various views of scholars extensively to help him understand the classics, his translation objective “has been to condense rather than expand” (Legge, 1861, p. x). Since his missionary colleagues were primarily his target readers, he adopted a simple and flexible vocabulary to create a smooth and accessible translation while also taking the needs of students and general readers into consideration: “He (the Translator) hopes that the volumes will be of real service to Missionaries and other students of the Chinese language and literature. They have been foremost in his mind as those whom he wished to benefit. But he has thought also of the general reader” (Legge, 1861, p. ix). Thus, Legge’s translation has low lexical density, short sentences, and a medium degree of readability. *The Chinese Classics* contains long prolegomena, in which Legge went to great lengths to discuss the history, arrangement, authorship, scope, value, and so on, of *Daxue*. Overall, Legge was highly reverent of this Chinese classic:

First, the writer conceives nobly of the object of government, that it is to make its subjects happy and good...Second, The insisting on personal excellence in all who have authority in the family, the State, and the empire, is a great moral and social principle...The work which contains those principles cannot be thought meanly of (Legge, 1861, p. 33-34).

It was precisely out of his esteem for this Chinese classic that Legge had a more objective viewpoint than Collie and attempted to accurately communicate the original meaning without undue alteration. He frequently used passive forms to convey an impersonal (more direct and honest) tone. Meanwhile, Legge also employed a great many lengthy footnotes to further express his understanding of the work, but in contrast to Collie, Legge was mainly concerned with demystifying linguistic and conceptual problems, in order to help readers appreciate the original better. Legge went to great lengths to provide detailed and comprehensive annotations on almost every section of the original. As a result, his translation has been widely recognized as the authoritative one.

4.2.2. Patriots in times of social upheavals: To salvage

The Chinese scholar Ku Hungming (1857—1928) was born in Malaysia to a Chinese immigrant family. He acquired his early education abroad and became proficient in western languages and culture. He fell in love with traditional Chinese culture after returning to China. After the Sino-Japanese War, a number of insightful intellectuals began to enthusiastically learn from the west in an effort to save the nation. This led to a trend to translate and transfer western knowledge into Chinese at the expense of ignoring China’s own culture and thoughts. Ku set himself against this tide by promoting traditional Chinese culture to the west by writing books and translating the Chinese classics, which he believed was the real remedy to save the country.

Despite the credit given to Legge’s translation as the orthodox version, Ku maintained that Legge’s translation lacked a thorough understanding of ancient Chinese philosophy and that his language was awkward. In the preface to his translation of *Zhongyong*— *The Conduct of Life or the Universal Order of Confucius*, Ku claimed:

My object, after I have thoroughly mastered the meaning, is not only to reproduce the matter, but also the manner of the original... But to be able to reproduce the manner— what in literature is called the style— of the great and wise men of the past, one must try to put oneself in the same state of mind as that to which they attained... (Ku, 1920, p. 9)

To familiarize modern western readers with ancient Chinese thoughts, Ku adopted domesticating approach in translation, replacing Chinese culture with western cultural components which the target readers were more familiar with. The translations of Ku and Legge can be compared in Example (3) below:

3. ST: 富润屋，德润身，心广体胖，故君子必诚其意。

Ku: Wealth embellishes a house, but moral qualities embellish the person. When the mind is free and easy, the body will grow in flesh. Therefore a gentleman must have true ideas.

(In order to have true ideas, Matthew Arnold says you must see “the object as in itself it really is,” and in order to do that, “you must get yourself out of the way.”)

Legge: Riches adorn a house, and virtue adorns the person. The mind is expanded, and the body is at ease. Therefore, the superior man must make his thoughts sincere.

In Example (3), “诚其意”(cheng qi yi) in the original sentence was translated literally by Legge as “make his thoughts sincere,” while Ku rendered it as “have true ideas,” immediately followed by a note in the brackets quoting a statement by the English poet and literary critic Matthew Arnold to explain what it means to “have true ideas.” With such cultural transplantation, Ku endeavored to eliminate the exoticism of Chinese culture for western readers,

providing them with a sense of cultural consensus. Moreover, Ku translated “德” as “moral qualities,” for which Ku gave this reason:

...the Chinese civilisation is a moral and true civilisation because in the first place it not only recognizes this moral obligation as the fundamental basis of its social order, but it makes the perfect attainment thereof in men its sole aim...In the following translation then this idea of moral obligation, which forms the basis of human conduct and social order in the scheme of the Chinese civilisation, will be explicitly set forth (Ku, 1920, p. 13).

Ku's emphasis on the idea of moral obligation in his translation accounts for the high frequency of the word “moral.” Ku employed straightforward vocabulary, many conjunctions, and a casual and personal tone to make the translation more accessible to westerners unfamiliar with Confucian thought, making his translation highly readable. His domestication strategy to ingratiate himself with western readers was a compromise in light of the specific historical context. Yet it is undeniable that Ku's translation broke down cultural barriers and promoted the transfer of Chinese culture and philosophy to the west to a certain extent.

Ezra Pound (1885–1972) also lived through a period of upheaval, much like Ku. Pound is mostly recognized as an American poet in the 20th century. Actually, he was also quite an accomplished translator, inseparable from his identity as a poet. “Pound's poetry is translation and his translation is innovative poetry,” claimed Alexander (1979, p. 18). In the first half of the 20th century, the Western world was undergoing a series of crises, ranging from social, political, and economic to spiritual beliefs. The emphasis on self-cultivation and social order of Confucian thoughts aroused interest of Pound (1928). In 1915 Pound published *Cathay*, an anthology of Chinese classical poems, after he had studied Fenollosa's notebooks. He then developed an interest in Chinese characters. The first Confucian text he translated was *Ta Hio, The Great Learning of Confucius* in 1928, which was based on Pauthier's French version of the Four Books. After teaching himself Chinese *via* dictionaries, Pound was able to produce *The Great Digest* based on the original Chinese work, first in Italian in 1942 and then in English in 1947.

To Eliot's question, “What does Mr. Pound believe?” Pound answered explicitly, “I believe the *Ta Hio (Daxue)*” (Zhu, 2005, p. 57). In the preface to *The Great Digest*, Pound remarked:

China was tranquil when her rulers understood these few pages (of *Daxue*). When the principles here defined were neglected, dynasties waned and chaos ensued. The proponents of a world order will neglect at their peril the study of the only process that has repeatedly proved its efficiency as social coordinate (Pound, 1947, p. 19).

Pound believed Confucianism was an “immediate need” to save western civilization. The main theme of *Daxue* is the significance of self-cultivation that extends from the regulation of a family, the well-ordered state, and finally, to a tranquil and happy world, which Pound believed would provide a “blueprint for world order in the future” (Cheadle, 1997, p. 2).

Lan (2005, p. 27–29) points out that central to Pound's interpretation of Confucius is his unique approach to Chinese characters, referred to as “etymographic reading.” This approach results partly from the influence of Fenollosa's study of the ideogram on Pound, and partly from Pound's own determination to look for expressions that could differentiate his translations from those of his predecessors. Pound believed that the translator should treat a Chinese character as a palimpsest—that is, recognize the multiple-layeredness of the word, and aim to penetrate to the core of its meaning (Lan, 2005, p. 32). Example (4) is extracted from the translations by Pound and Legge:

4. ST: 《诗》云:“緡蛮黄鸟, 止于丘隅。”

Pound: *The Book of Poems* says:

The twittering yellow bird,
The bright silky warbler.
Talkative as a cricket.
Comes to rest in the hollow corner
of the hill.

Legge: In the *Book of Poetry*, it is said, “The twittering yellow bird rests on a corner of the mound.”

Example (4) is a line of poetry from *Shijing* (《诗经》), the *Book of Poems* “緡蛮黄鸟, 止于丘隅” (*min man huang niao, zhi yu qiu yu*). Legge translated it faithfully as: “The twittering yellow bird rests on a corner of the mound.” In comparison, Pound's version appears more in poem form, with the translated text in five lines. Pound creatively translated “緡蛮” (literally, the sound of a bird) in terms of etymographic interpretation. To him, these two characters are composed of “日” (bright), “纟” (silky), “言” (talkative), and “虫” (cricket); therefore, his translation contains images of “bright silky warbler” and “talkative cricket,” through which new meaning may be generated.

For Pound, etymographic interpretation serves the 2-fold functions of translating classical works: to restore the lost “original” perceptions and then to bring them to interact with contemporary cultural reconstruction. However, Pound's dependency on the etymological approach has been widely criticized because it reduces all Chinese characters to mere pictograms, while in reality the majority of Chinese characters belong to the pictophonetic category and cannot be taken as verbal pictures alone (Lan, 2005, p. 32–36). Consequently, some readers would rather see his Confucian translations as original poems. Pound's etymographic interpretation inserts plenty of new information into the translated text, amplifying sentence length tremendously, which accounts for the rich

9 According to the frequency list generated by the Wordsmith Concord Program, Ku's translation contains 16 instances of the word “moral,” while the cluster “moral qualities/quality” appears eight times.

lexicon as well as the complicated and changeable syntactic structure in his translation of *Daxue*. Nevertheless, Pound employed straightforward vocabulary in his translation to make it easy to read and capture the interest of the western public.

4.2.3. Scholars since the second half of the 20th century: To excavate the profound meaning

Chan Wing-tsit (1901–1994) was a Chinese scholar and professor of Philosophy at Chatham College in America. Chan (1963) was the author of *A Source Book in Chinese Philosophy*, one of the most influential sources in Asian studies, and of hundreds of books and articles on Chinese philosophy and religion. Bloom (1995, p. 466) referred to him in his eulogy as “a living exemplar of the Chinese philosophical tradition.”

Chan (1963, p. ix) noticed that the understanding of Chinese philosophy by westerners was rather limited at that time, and stated in the preface to *A Source Book in Chinese Philosophy*: “...in order to understand the mind of China, it is absolutely necessary to understand Chinese thought, especially Neo-Confucianism, in its entire historical development.” Chan (1963, p. xi) pointed out that some Chinese terms are so complicated in meaning that there are no English equivalents for them and they therefore have to be transliterated, but he preferred to have a term translated even though the translation may not be entirely satisfactory. Chan attached great importance to the classic *Daxue*:

The importance of this little Classic is far greater than its small size would suggest. It gives the Confucian educational, moral, and political programs in a nutshell...it is the central Confucian doctrine of humanity (*jen*) in application...It is no less important from the philosophical point of view (Chan, 1963, p. 84).

Chan’s translation of *Daxue* attempts to fully maintain the original Chinese culture and the philosophical meaning of some core concepts through a combination of literal translation and transliteration. To cite a few examples, “止” was translated as “abide (*chih*)” [see Example (1)], and “格物” as “the investigation of things (*ko-wu*),” and so forth. Moreover, he also demonstrated his unique interpretation of some philosophical terms, such as the rendition of “亲民” into “loving the people” [see Example (1)], which differs from the other versions.

Andrew Plaks (1945–) is an American professor of East Asian studies at Princeton University and an authority on classical Chinese literature. Publications of Plaks include *Archetype and Allegory in the Dream of the Red Chamber* (2016), and others. During his study of classic Chinese novels of the Ming and Qing periods, he realized the cultural and spiritual significance that *Daxue* and *Zhongyong* had for writers and readers of late-imperial China, which aroused his interest in studying and translating these two classics:

These are not massive tomes...Yet the *Ta Hsueh* (*Daxue*) and the *Chung Yung* (*Zhongyong*) have exerted an influence on the hearts and minds of men so profound and far-reaching as to bear comparison with none but the greatest monuments of the world’s major scriptural traditions (Plaks, 2003, p.xxvi-xxvii).

Plaks (2003, p. xxvi) emphasized the importance of a clear understanding of “this prime canonic source for the Confucian doctrine of moral self-cultivation,” which suggests why the word “moral” has a high-frequency use in his translation.¹⁰ Plaks’ translator’s note explains his translation principles of these Chinese classics: In general, he aimed to reproduce the “equivalent utterances,” that is, approximations of the semantic and syntactic values expressed in context rather than the strict matching of lexical units, so he frequently allowed himself considerable leeway in translation, by inserting additional words to convey loaded Chinese concepts (Plaks, 2003, p. xxxvi). Plaks believes that bare word-for-word rendering is inadequate, so he endeavors to draw out the multiple layers of meaning of the original work by taking advantage of both traditional glosses and modern commentaries: “I try to maximize grammatical and syntactic flexibility at the level of sentence structure as a means of finding equivalents of Chinese modes of expression” (Plaks, 2003, p.xxxvii). Plaks often inserted additional information into his translation to make the implicit meaning in the original text explicit to the target readers.

As shown in Example (1), Plaks rendered “大学之道” as “The Way of self-cultivation, at its highest level, is a 3-fold path,” adding supplementary information to clarify the meaning. Furthermore, Plaks (2003, p. xxxvii) attempted to capture the multiple “voices” of the original Chinese text, such as occasionally employing a deliberately pedantic style in English when citing ancient canonic lines. Example (5) illustrates translations by Plaks and Chan:

5. ST: 《诗》云：“节彼南山，维石岩岩。赫赫师尹，民具尔瞻。”

Plaks: It is said in the *Songs*:

‘Lofty is that southern peak,
its rocks piled up in towering crags.
And towering, too, is thy authority, Marshal Yin.
All the people look up to thee in desperate
supplication.’

Chan: The *Book of Odes* says, “Lofty is the Southern Mountain! How massive are the rocks! How majestic is the Grand Tutor Yin (of Chou)! The people all look up to you!”

In Example (5), Plaks adopts a deliberately archaic style to translate poems from the ancient *Book of Songs*, using forms like

¹⁰ According to the frequency list generated by the Wordsmith Concord Program, Plaks’ translation contains 26 instances of the word “moral,” while the cluster “moral character” appears six times.

TABLE 11 Comparison of the number of notes of the six TTs.

TT	Collie	Legge	Ku	Pound	Chan	Plaks
No. of Notes	24	40	5	9	44	67

“thy” and “thee,” while Chan’s translation has a more casual style. Although Plaks and Chan are both scholarly translators and attach great importance to the original work *Daxue*, their translation approaches are markedly different, which may relate to their different socio-historical backgrounds: Plaks’ translation came out in 2003, four decades later than Chan’s translation, when the study of Chinese classics in the United States rapidly grew, with the bulk of monographs on Chinese philosophy published then. In the 1960s, when Chan’s translation was completed, few people were acquainted with the ancient Chinese thought embodied in the classics, so the key purpose of translation was to popularize the Chinese classic among general western readers, hence readability was highly important. Chan’s translation has a great number of short sentences and conjunctions to make the translated text more comprehensible to western readers, which underlies the readability level of his translation. On the other hand, Plaks’ translation targeted an audience better acquainted with Chinese culture; thus, his translation purpose was to unveil the multiple layers of the meaning in the original, to enable the target readers to appreciate the quintessential essence of the original work. Plaks’ approach is the “thick translation” put forward by Appiah, an “academic” translation that seeks with its annotations and its accompanying glosses to locate the text in a rich cultural and linguistic context (Appiah, 2000, p. 427). In addition to adding concepts/ explanations to the translated text, Plaks also made use of a variety of supplementary materials, including an introduction, translation notes, chronological table, structural analysis, reader’s notes, further discussions of basic concepts, and so on, to offer a panoramic view of the Chinese classic to the target readers. Plaks had the most notes in the six versions as shown in Table 11.

Plaks made extensive use of notes to further elaborate on the difficult linguistic and philosophic issues necessary for readers to fully comprehend the profound meaning of the original. Plaks’ thick translation approach is notable for lengthy sentences and dense information load. Moreover, the usage of a difficult broad vocabulary and a significant proportion of passive sentences render his translation highly academic in style, with lower readability.

5. Conclusion

The translator’s voice, the translator’s discursive presence in a translated text, is always present along with the author’s voice. As a mark of the translator’s identity, the translator’s voice can be identified in the body of the translated text as well as the paratexts of translation. To start with, this study took a corpus-based approach to investigate the translator’s voice in six English translations of the Chinese classic *Daxue* by tracing the linguistic

cues in each version. The findings show the variety of styles through the different lexical, syntactic, and textual features. Next, this study investigated the paratexts of translation and elaborated on the translators’ cultural identities and translation motives within their particular socio-historical contexts by analyzing representative examples. The combination of qualitative and quantitative analyses brought to light the translators’ voices in the different versions of *Daxue*. In summary, the 19th-century missionaries tended to maintain the linguistic and stylistic features of the original for the most part since their main purpose was to learn Chinese to facilitate missionary work. However, they took advantage of prefaces, introductions, lengthy footnotes, and so on, to ventilate their opinions. In other words, their voices as translators were most strongly felt in the paratexts of translation. Although both Collie and Legge sought to evangelize Christianity, Legge placed more value on having a genuine understanding of the Chinese culture; thus in his translation, faithfulness and readability were more accentuated. In the turbulent first half of the 20th century, translators’ voices were more overtly present with an obtrusive intervention in the body of translated texts, adapting the meaning and style of the original to produce a more creative translation as in Ku’s domestication approach and Pound’s etymographic interpretation. Their translations took a more personal style and had a more powerful emotional pull. Since the second half of the 20th century, translators have demonstrated a propensity to elicit the nuanced and intricate meaning of the original, in an effort to recapture the genuine essence of the classic. Especially in the 21st century, “thick translation” is adopted which adds information to the translated text and makes full use of a variety of paratextual materials to satisfy the demand of an increasingly knowledgeable readership. Consequently, profound comprehension of the original allows the translator’s voice to break through the surface of the original declaring its presence both in the body of the translated text and in the paratexts of translation as well more overtly.

To conclude, a better and more thorough understanding of the English translations of *Daxue* can be gained by examining the diverse textual cues in the translated texts and the paratexts of translation, as well as the socio-historical contexts associated with them. A comparative analysis of parallel corpora helped identify the linguistic similarities and differences in the six translated texts, revealing the translators’ voices. However, it should be noted that the features identified in the current study are limited to the translation of this particular text rather than those of the translators under discussion in general, or to the analysis of other works. Hopefully, more research will be conducted in this area based on corpus analysis in the future. The current study has demonstrated how corpus-based statistical analysis serves as a

practical entry point for the study of the translation of Chinese classics and exploring the translator's voice.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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Bibliometric, network, and thematic mapping analyses of metaphor and discourse in COVID-19 publications from 2020 to 2022

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The research contributions of metaphor as part of (critical) discourse studies have flourished during COVID-19; hence, it is necessary to consider their progress and foresee their future growth. To obtain a comprehensive understanding of COVID metaphor research in discourse and to identify the most recent research foci, bibliometric, network, thematic mapping and word cloud analyses were conducted in this study. The results showed that (1) research on COVID metaphors is largely shaped by Critical Discourse Analysis research approaches and methodologies; (2) the research production has investigated traditional genres such as news and emerging genres, including social media and multimodal data; and (3) research highlights the role played by metaphors in persuasion in public discourse. The findings of this study can assist future research in this or related fields by providing an overview of metaphor research in crisis communication.

KEYWORDS

bibliometric analysis, co-citation analysis, thematic mapping analysis, metaphor and discourse, COVID-19, VOSviewer

1. Introduction

The COVID-19 pandemic prompted changes in the social order and economic and business ties, in addition to a substantial increase in social fear, tensions, and skepticism. It has inevitably manifested in language use and discursive practices, which largely rely on discourse. Previous studies have emphasized the metaphor's effectiveness in fostering a sense of urgency in healthcare organizations reacting to the pandemic (e.g., [Jetly et al., 2020](#); [Maxwell et al., 2020](#)). Other research discussed which metaphors have been used for the pandemic, how metaphors are used and the implication of some metaphorical usage (see [Chapman and Miller, 2020](#); [Semino, 2021](#); [Musolff, 2022](#)). Given the increasing number of international publications on COVID-19-related metaphors and discourse research, the synthesis of the growing research output is a profound step toward advancing the role played by language in health communication and promotion (see [Semino, 2021](#)). Bibliometric analysis is a recent method used to examine the trends

in scientific production of a specific field (Wang et al., 2022). Bibliometric analysis uses statistical and scientific mapping approaches to quantify research contributions. Linguists have used bibliometrics since its inception to examine the influence of scientific literature and research trends in particular branches of linguistics, such as translation research (Van Doorslaer and Gambier, 2015; Zanettin et al., 2015), applied linguistics (De Bot, 2015; Lei and Liu, 2019a), corpus linguistics (Lei and Liao, 2017), fuzzy linguistic research (Chen et al., 2019), and second language (Lei and Liu, 2019b).

More recently, bibliometric analyses of discourse research have emerged in major discourse analysis journals such as *Discourse and Society* and *Discourse and Communication* (Huan and Guan, 2020; Xiao and Li, 2021). Casting a wider net in the field of critical discourse analysis, Xiao and Li (2021) conducted a bibliometric and co-citation study of critical discourse studies that were published in the Web of Science (WoS) database between 2011 and 2020 to unravel research trends. In the retrieved 8,137 studies, they discovered information about the scope of research, collaboration between countries and institutions, most prolific authors, and emerging research trends. They found that discourse studies extended to research in linguistics, communication, education, business, economics, and social issues. Collaborative research peaked in the United States and Europe. Furthermore, David Machin was the most prolific author, and TA Van Dijk was the most cited author. *Discourse and Society* had the most CDA/CDS-related articles. CDA research is influenced by theories and techniques from cognitive linguistics, corpus linguistics, and multimodal discourse analysis.

To the best of our knowledge, this is the first study to examine the scholarly contribution of COVID-19-related metaphors and discourse from bibliometric, network, and thematic mapping perspectives. This is particularly timely considering Peng and Hu (2022)'s recommendation of the need to investigate COVID-19 discourse especially the applications of Conceptual Metaphor Theory. A total of 327 valid research papers and book chapters were retrieved using WoS and Scopus. By collecting and evaluating COVID-19 metaphors and discourse-related articles, this study aimed to provide a direction for metaphor experts. In essence, the following research questions (RQs) were addressed:

RQ1: Which authors, journals, and countries are the most prolific in COVID-19 metaphors in discourse research?

RQ2: What are the most cited authors, journals, and references in metaphor research of COVID-19 discourse?

RQ3: What are the current themes and frontiers in the direction of COVID-19 metaphor based on discourse research?

2. Literature review

2.1. Metaphor and COVID-19 discourse studies

According to conceptual metaphor theory (CMT) (Lakoff and Johnson, 1980), people systematically structure the ABSTRACT (for example, PANDEMIC) in terms of the CONCRETE (e.g., WAR). As the source domain is more tangible and perceivable, it embodies knowledge that people can draw on to conceptualize more abstract notions. For example, in the source domain JOURNEY, everyone has tangible experiences related to embarking on journeys used to map onto ACHIEVING GOALS (Kromhout and Forceville, 2013).

The vast majority of studies that combined discourse and cognitive metaphor theory have highlighted metaphor's persuasive and evaluative potential (e.g., Maalej, 2007; Ferrari, 2018; Charteris-Black, 2019). However, the specifics of how people can use metaphor to persuade and evaluate has rarely been investigated. According to Deignan (2010), a metaphor can communicate an evaluation (positive or negative) through four different mechanisms: creating entailments, using scenarios (Musolf, 2016), deliberately selecting source frames that are meaningful to specific demographics, and exploiting the connotations of literal meanings.

Discourse studies on COVID-19 have used corpus linguistics as a primary method of analysis. Corpus linguistics studies how language use mirrors the COVID-19 outbreak and how attitudes and beliefs are conveyed through language use (Mahlberg and Brookes, 2021, p. 441). Scholars have gathered corpora to explore the pandemic from a linguistic perspective. The Coronavirus Corpus (Davies, 2021) includes COVID-related news stories with at least two occurrences of coronavirus, COVID or COVID-19, or phrases such as "at-risk," "cases," "confirmed," "contagious," "hydroxychloroquine," "outbreak," "pandemic," and "stay-home." Corpora helps us understand pandemic language. COVID-related corpora contain texts and multimodal data such as memes, political cartoons, and health messages (see Abdel-Raheem, 2021; Dynel, 2021; Sarfo-Kantankah et al., 2021).

Regarding COVID metaphors, previous research has noted the predominant use of the WAR metaphor by public figures to describe efforts to minimize the spread of COVID-19 in the political and news discourses (see Bates, 2020; Chapman and Miller, 2020; Pfrimer and Barbosa, 2020; Isaacs and Priesz, 2021; Semino, 2021; Hanne, 2022). WAR metaphors can motivate the public's support for political action. For example, the UK government described COVID-19 as a WAR (and *a battle with many fronts*), and the former US Vice President Mike Pence described American's effort to eliminate the virus as winning a WAR (we are *winning the fight against the invisible enemy*). In the WAR metaphor, POLITIZATIONS are described as GENERALS, DOCTORS, or SCIENTISTS; PUBLIC SERVICE

WORKERS are described as SOLDIERS; COUNTRIES are metaphorized as a BATTLEFIELD; MEDICINE is metaphorized as a WEAPON; the HUMAN BODY is described as a FORTRESS; and MEDICAL SOLUTION is described as WAR STRATEGIES, and so on [Bates \(2020\)](#). Many linguists have resisted using the WAR metaphor to conceptualize COVID-19 and have called for alternative uses of metaphors such as the FIRE metaphor (see, for example, [Semino, 2021](#)).

However, in the medical and political cartoon discourses, the PERSON metaphor is widely used to describe the pandemic. Personifying diseases in discourse facilitates our understanding of the world and our reaction to it. Hence, in medical discourse, COVID-19 has been personified as an INTRUDER, SPY, STRANGER, or GUEST. For example, the personification of COVID-19 as a resident in the human body (humans did indeed *welcome the virus in—to our habitats, our houses, and our noses*) demonstrates this point ([Heffernan, 2020](#)). Another PERSON metaphor is evidenced in the research by [Abdel-Raheem \(2022\)](#). Abdel-Raheem analyzed political cartoons about COVID-19 and revealed the use of gendered metaphors such as the male personification of the coronavirus as a SPORTSMAN, a POLICEMAN, a PRESIDENT, a MAILMAN, a WAITER, a MALE BOXER, or an ARM-WRESTLER and the female personification of the virus as a BELLY-DANCER.

2.2. Bibliometric analysis in discourse studies

Recently, two studies in discourse analysis have focused on the genre of news and have combined bibliometric analysis with other techniques of analysis, such as co-citation analysis ([Mu and Ma, 2022](#); [Wang et al., 2022](#)). [Wang et al. \(2022\)](#) used citation analysis to provide a deep understanding of the news in discourse studies by examining 606 articles retrieved from the WoS database from 1994 to 2021. They identified influential researchers, institutions, and countries. Most of the studies cited journals and references and emerging research frameworks and methods. In addition, western authors were the most prolific and cited authors. However, since 2002, authors from developing countries such as China, Malaysia, South Africa, and Indonesia have become influential. Communication and linguistics and language theories, approaches, and methods, such as systematic functional grammar, the appraisal framework, discursive news value, multimodality analysis, corpus linguistics, CDA, and content analysis, were frequently used in this field.

In a CiteSpace-based analysis of CDA studies of news, [Mu and Ma \(2022\)](#) found that Ljubljana University topped the research production in news discourse analysis. The University of Ljubljana in Slovenia, Lancaster University in the UK, and Hong Kong Polytech University in China collaborated on research projects. Paul Baker, Christopher Hart, David Machin,

and Michal Krzyanowski generated a highly influential articles, guiding research in this field. Norman Fairclough was ranked first in co-citations, and Discourse and Society, edited by Van Dijk, had the most news-related CDA articles. CDA in news discourse includes applications of theories and methods from corpus discourse analysis, multimodal discourse analysis, systematic functional grammar, conversational analysis, and content analysis.

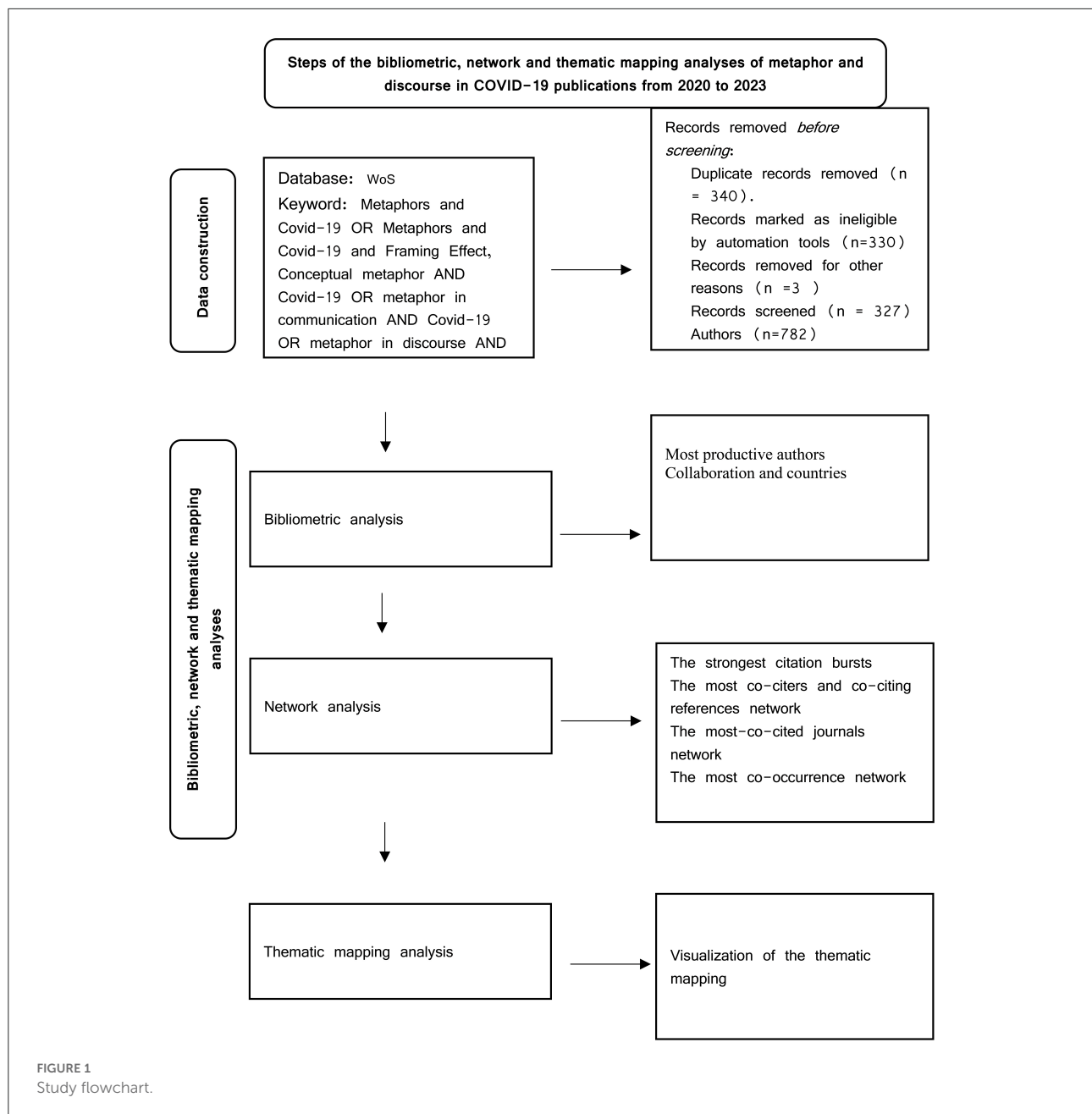
In metaphor and discourse, research is mostly restricted to a limited description of synthesis of previous literature, and bibliometric analysis remains in early inception. Despite being limited to metaphor research of COVID-19 metaphors in 2020, [Silva \(2020\)](#) conducted an analysis of research production and found that the conceptual metaphor COVID-19 AS AN ENEMY was widely used in news discourse during the pandemic. [Abdul Malik et al. \(2022\)](#) provided an overview study of metaphor research and closely examined 23 studies between 2015 and 2020. They found five major research trends in metaphor research: *conceptualizations and patterns of metaphors, metaphor and health, metaphor, ideology, and persuasion, metaphor and culture, and metaphor and languages* ([Abdul Malik et al., 2022](#)). Other content analyses were used such as the distribution of journals over the years, the corpus tools that were used in previous studies, the general corpora used, and whether previous studies employed theoretical frameworks such as conceptual metaphor theory.

3. Data and methodology

Regarding the data collection and methods of the analysis stage, the study was divided into four sub-stages (see [Figure 1](#)).

3.1. Data

WoS and Scopus were used to amass a large collection of international literature on metaphor and discourse in the COVID-19 pandemic. To ensure the systematic nature of this study, a combined search on WoS and Scopus databases was conducted using a set of search terms: metaphor AND COVID-19 AND discourse and conceptual metaphor AND COVID-19 discourse in the title or abstract. The search results yielded hundreds of articles, dissertations, conference papers, and books. Once the retrieval was completed, the relevant articles were checked thoroughly to determine whether the article could cover the main results of Metaphor in COVID-19 discourse. Keywords, headings, and abstracts were inspected to identify relevant research. Web of Science (WoS) and Scopus retrieved 327 relevant articles from 2020 to 2022 with the following keywords: metaphors AND Covid-19 OR metaphors AND Covid-19 AND framing OR conceptual AND metaphor AND Covid-19 OR metaphor AND communication AND Covid-19



OR metaphor AND discourse AND Covid-19. This was followed by extracting and preserving important information from these papers (e.g., titles, authors, author institutions, source journals, abstracts, keywords, and references) as a csv file for conducting the analyses. The retrieval time of these articles was August 30, 2022. The records retrieved from WoS and Scopus contained extensive, detailed information regarding authors, publication years, universities, and the references cited. This study adopted steps suggested by Echchakoui (2020) to merge the WoS and Scopus databases as follows:

- Converting both WoS and Scopus databases into bibliography files using Endnote.
- Converting bibliography files of the two databases into bibtex files using the Bibliometrix package (Aria and Cuccurullo, 2017).
- Unifying the field tags in both databases using Microsoft Excel.
- Merging the two databases using the Bibliometrix package.
- Removing duplicates as the result of merging using Microsoft Excel.

3.2. Methodology

3.2.1. Bibliometric analysis

The study conducted a bibliometric analysis because its merits outweigh the selection of systematic literature review as a primary method of analysis. A limited focus of investigation is necessary to conduct a systematic literature review (SLR); for example, a metaphor and discourse study of COVID-19 that is specific to one genre such as social media or one culture/language. On the contrary, bibliometric studies handle research with a wider scope such as metaphor and discourse publications related to COVID-19 (Donthu et al., 2021). Another difference between SLR and bibliometric analysis is that SLR tends to rely on qualitative analysis, which might lead to biased results, while bibliometric analysis is quantitative in nature, thus decreasing the probability of the study results to be biased (Donthu et al., 2021).

Bibliometric analysis is premised on considering citations as an efficient and significant predictor for evaluating the impact of different publications or authors on specific fields of research (Culnan et al., 1990). Although citation behavior can be influenced by factors such as an article's ease of access or negative citations, citation totals can provide an unbiased estimate of a publication's significance (Culnan, 1986, 1987).

3.2.2. Co-citation analysis

In recent years, various scientometric and co-citation analytic investigations were conducted to examine published studies' referenced works to evaluate how relevant and connected they were to the subject of research (Mu and Ma, 2022; Wang et al., 2022). Co-citation analysis is a popular method in bibliometric analyses (Acedo et al., 2006), which facilitates the investigation of scholarly links between influential research outputs in an area of a study and the mapping of the intellectual structure of the study area (Calabretta et al., 2011). In this study, research papers were collated and retrieved to look for semantic correlations in subsequent citing papers. The objective was to extract relationship patterns across target studies to advise metaphor researchers about core articles in this subject and to show the associations across research to provide recommendations and suggestions for future studies. A total of 27,032 references and 799 authors were extracted from the studies of interest to determine their semantic relationships. VOSviewer was used to cluster and display the network patterns from abstracts and keywords (Van Eck and Waltman, 2010, 2014; www.vosviewer.com). VOSviewer is a software application for building and displaying bibliometric networks. VOSviewer is used to examine a clustering analysis of publications at the aggregate level. Additionally, VOSviewer can be used to create maps of authors or journals based on co-citation data or keywords based on co-occurrence data. The program provides a viewer that permits an in-depth examination of bibliometric

maps. VOSviewer can display a map in a variety of ways, each highlighting a distinct aspect of the map. It can zoom, scroll, and search, allowing for a detailed examination of a map. VOSviewer's viewing capabilities are particularly useful for maps containing at least a substantial number of features (e.g., at least 100 items). Furthermore, VOSviewer uses the VOS mapping technique to construct a map (Van Eck and Waltman, 2007a), where VOS represents the visualization of similarity (see Van Eck and Waltman, 2007b). VOSviewer can display maps created using any suitable mapping method.

3.2.3. Thematic mapping analysis

In the thematic mapping analysis, the co-occurrence network clusters were shown as bubbles in a graph according to Callon's centrality and density rank (Callon et al., 1991). The cluster's word occurrences determine the bubble size. The X-axis depicts network cluster centrality, or the degree of interaction with other graph clusters, and measures the significance of a study theme. The Y-axis represents density, a metric of a cluster network's internal strength and theme growth (Cahlik, 2000; Cobo et al., 2011, 2015). By graphing themes, we found (a) motor themes (first quadrant, top right): the cluster network has high centrality and density, signifying themes are well-developed and crucial for structuring a research subject; (b) niche themes (second quadrant, top left): themes with high density and low centrality, signifying that they are of limited relevance; (c) emerging or declining themes (third quadrant, left bottom): themes with low centrality and low density, implying that they are minimally developed and marginal; (d) basic themes (fourth quadrant, right bottom): they have high centrality and low density. These themes are vital for transdisciplinary research issues. In the visual representation, identifying the trajectory is shown by dividing time into segments. In other words, a movement toward the upper right over time indicates a rising trend, whereas a path toward the lower left indicates a declining trend.

3.2.4. Word cloud analysis

Word clouds visually depict word frequency. The frequency at which a term appears in the material being analyzed determines the size of the text in the image representation. Word clouds are used to find the center point of written text (Atenstaedt, 2012). In bibliometric studies, the use of a word cloud to evaluate the most prevalent words indicates that most of the work is concentrated in those areas. In addition, words in smaller letters indicate potential study directions (Mulay et al., 2020). A word cloud translates texts to tags, which are words whose relative value can be viewed in the resulting cloud through their size and color (Mulay et al., 2020).

TABLE 1 Most productive authors of metaphor research during COVID-19.

No	Authors	Articles fractionalized
1	Abdel-Raheem A	4.50
2	Augé A	2
3	Musolff A	2
4	Olimat SN	2
5	Filardo-Llamas L	1.50
6	Semino E	1.20

4. Results

4.1. Most prolific authors, institutions and countries in COVID-19 metaphors

Examination of the stages of development, accumulated knowledge, and growth and development of discourse studies and metaphor in COVID-19 is facilitated by identifying the current annual trends in publishing output. Metaphor and discourse during COVID-19 research has increased from 30 studies in 2020 to 140 studies in 2021, and 157 studies in 2022, with an annual growth rate of 125%. The average citation per document is 2.7, and the average citations per year per document is 1.3. Furthermore, multidisciplinary fields are receiving a growing amount of attention, which may be a factor in the field's significant growth in 2021 and 2022.

4.1.1. Most prolific authors

Table 1 lists the top six most prolific researchers from 2020 to 2023. Ahmed Abdel-Raheem dominated the list. Anaïs Augé, Andreas Musolff, Sameer Naser Olimat, Laura Filardo-Llamas, and Elena Semino made significant contributions to the advancement of metaphor research through their notable publication accomplishments. For example, Abdel-Raheem (2021, 2022) published research on multimodality and metaphor. Additionally, Abdel-Raheem and Alkhammash (2022) conducted a novel experimental analysis of the framing effects of news and political cartoons on Saudi women's willingness to acquire the COVID-19 vaccine, which contributed to the development of experimental studies of metaphor. Semino (2021) problematized the use of WAR as a productive source domain to metaphorize COVID-19 and looked for other liberating and innovative source domains in a social media project entitled #reframecovid, which collected metaphorical examples from different languages and cultures. In addition, Musolff (2022) analyzed the use of WAR metaphors by political leaders to describe their efforts to deal with COVID-19.

TABLE 2 Top ten most influential journals in metaphor and discourse on COVID-19.

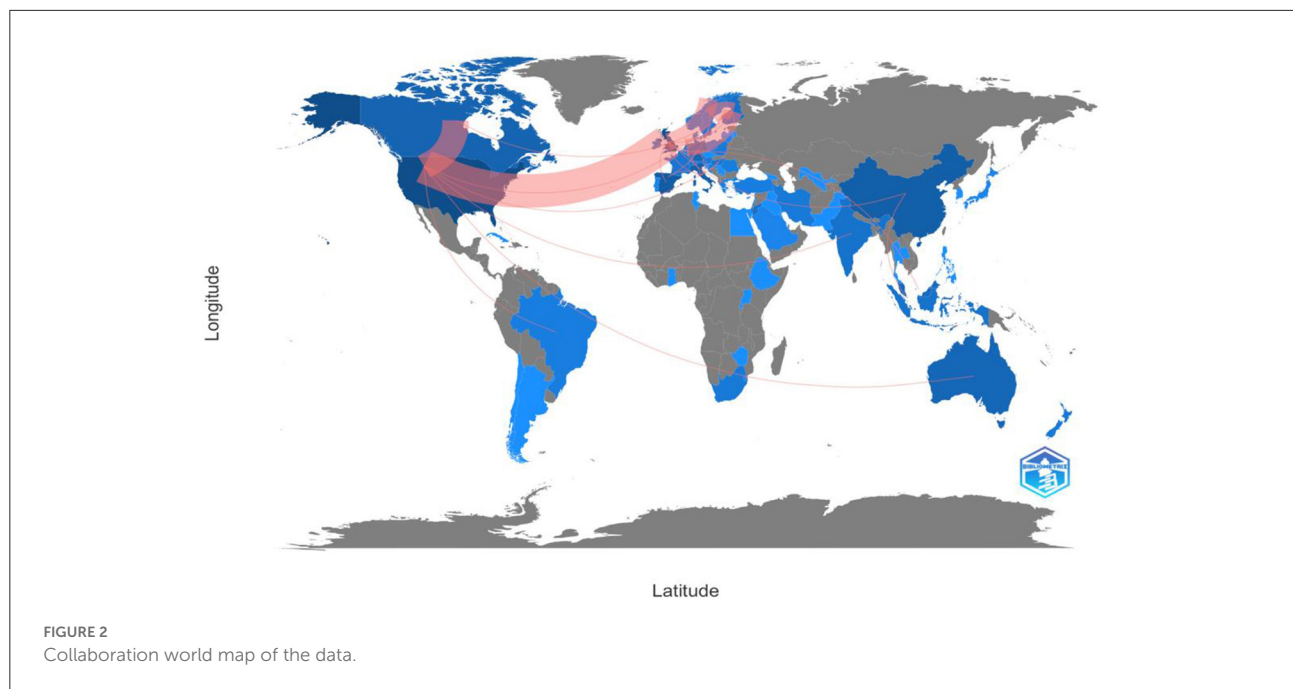
Journal	H-index	G-index	M-index
Gema Online Journal of Language Studies	4	6	1.333
PloS ONE	3	3	1
Health Communication	2	2	1
Journal of Language and Politics	2	2	2
Russian Journal of Linguistics	2	3	0.667
Social Semiotics	2	2	1
Discourse and Communication	1	1	1
Discourse and Society	1	1	0.5
Discourse, Context and Media	1	1	0.5
Journal of Pragmatics	1	1	0.5

4.1.2. Most prolific journals

To become familiar with the leading journals in a particular field, one must consider the quantity of citations such as *h*-index, *g*-index, and *m*-index (see Table 2). An *h*-index is a measure of the cumulative effect and performance of a journal's scholarly output. For example, an *h*-index of 10 indicates that a journal has published a minimum of ten papers with at least ten citations each. A *g*-index is computed based on the number of citations received by a given journal. An *m*-index is the *h*-index divided by the duration of a journal's active career. Journals such as Social Semiotics, Journal of Language and Politics, Discourse and Communication, Discourse and Society, Discourse, Context and Media, and Journal of Pragmatics are considered the leading journals in linguistics, discourse analysis, and pragmatics, ranking among the top 10% in the category of linguistics and communication, as per the Journal Citation Report 2021. Other journals such as PloS ONE and Health Communication have a wider scope and publish multidisciplinary research. WoS has published some noteworthy new journals (ESCI) such as *Gema Online Journal of Language* and *The Russian Journal of Linguistics*.

4.1.3. Most prolific countries

As seen in Figure 2, numerous countries have published articles on metaphor and discourse on COVID-19. However, the majority of published articles were confined to a few countries. English-speaking countries were the most well-represented. In addition, there was a significant presence of European countries. Some countries in Asia, South America, and Africa were present to a lesser extent.



The results of the collaboration were reflected in the country of production, with the United States (37 papers), the United Kingdom (32 papers), Australia (7 papers), and Canada (8 papers) representing the English-speaking countries. Other European countries contributed to the research collaboration, such as Germany, the Netherlands, and Spain, with 14, 11, and 17 papers, respectively. Other Asian, South American, and African countries contributed to the scientific production of metaphor research in discourse such as China (16 papers), Malaysia (8 papers), Brazil (2 papers), Côte d'Ivoire (1 paper), and Saudi Arabia (1 paper).

Top ten countries with single country publications (SCP) are plotted in Figure 3, with the United States ranking the first and the United Kingdom ranking second in the most productive countries in COVID-19 metaphor and discourse research. Furthermore, United States, China, Italy, Hong Kong/China, Australia, Spain, Canada, and Malaysia were the most productive countries with multiple country publications (MCP), while the United Kingdom and Israel had no collaboration outside their countries.

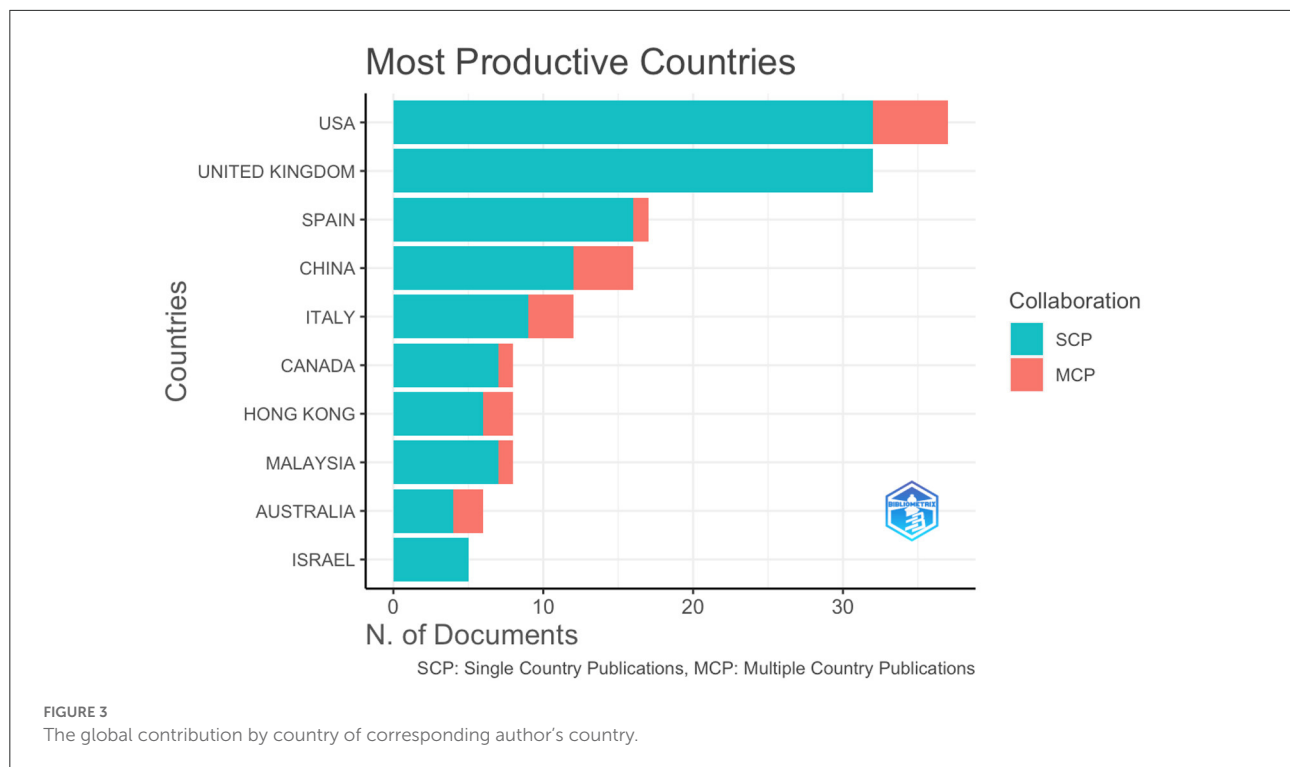
4.2. Most cited authors, journals and references in COVID-19 metaphors

4.2.1. Most cited authors

Figure 4 show the most co-cited references, which share semantic functions. Three clusters were identified in Figure 4. Cluster 1 represents seminal work in metaphor

theory or ground-breaking research in metaphor in health communication and consists of seven references (green color): Sontag (1979), Lakoff and Johnson (1980), Sontag (1989), Lakoff (1993), Larson et al. (2005), Wallis and Nerlich (2005), and Chiang and Duann (2007). Lakoff and Johnson (1980) and Lakoff (1993) show that in Conceptual Metaphor Theory (CMT), people map in systematic ways the abstract in terms of the concrete. They refer to the abstract as the target domain and they call the concrete the source domain. Wallis and Nerlich (2005) investigated metaphors in British media coverage to frame SARS (SARS). They found that used SARS as a source domain to describe refugees and immigrants. They found out that WAR is used as a source domain to describe the virus when the virus threatens nations. They also found out that right-wing politicians and media in the UK utilized the SARS to oppose immigration and refugees. Chiang and Duann (2007) found that SARS are framed using WAR metaphor. Sontag (1979, 1989) showed that disease news often combines invasion images and war metaphors to describe diseases. Larson et al. (2005) have examined the use of militaristic metaphors (e.g., “battle” or “war”) to emphasize the urgency of addressing invasive health threats.

Cluster 2 consists of seven references (red color): Crisp (2008), Thibodeau and Boroditsky (2011), Flusberg et al. (2018), Hendricks et al. (2018), Semino et al. (2018), and Wicke and Bolognesi (2020). Flusberg et al. (2018) showed that public discourse often uses WAR metaphors to discuss diseases like cancer. Wicke and Bolognesi (2020) analyzed COVID discourse on social media, they found that although the family frame includes a larger range of topics, WAR, a



conventional figurative frame, was employed most often in social media discourse about COVID (Crisp, 2008). Thibodeau and Boroditsky (2011) provided experimental evidence that metaphors influence our conceptualization, reasoning, decision-making, and action. Hendricks et al. (2018) investigated whether metaphors impact how we judge, or appraise, an emotionally distressing circumstance like an illness. They found out that patients' reactions and assessments of their hardships can be affected by metaphors of WAR and JOURNEY. Semino et al. (2018) conducted corpus-based research of postings to an online cancer forum and found that a patient's relationship with the illness can be affected by the framing invoked using WAR metaphors.

Cluster 3 shows recent research of metaphors of the COVID-19 pandemic and contains three references (blue color): Sabucedo et al. (2020), Kalinec-Craig et al. (2020), and Semino (2021). Semino (2021) showed that COVID-19 media coverage uses WAR metaphors. Sabucedo et al. (2020) showed that WAR metaphor in the pandemic have been criticized for its lack of relevance to communicate the need to adopt self-limiting behavior such as strung at home to avoid getting COVID-19. Kalinec-Craig et al. (2020) showed the merits of using metaphorical intervention for learning. It is worth noting that Lakoff and Johnson (1980) has the most co-cited articles and is contained in the three main clusters of co-citation. The threshold number of minimum citations for a cited reference is three. Table 3 demonstrates the number of co-citations for the 17 articles.

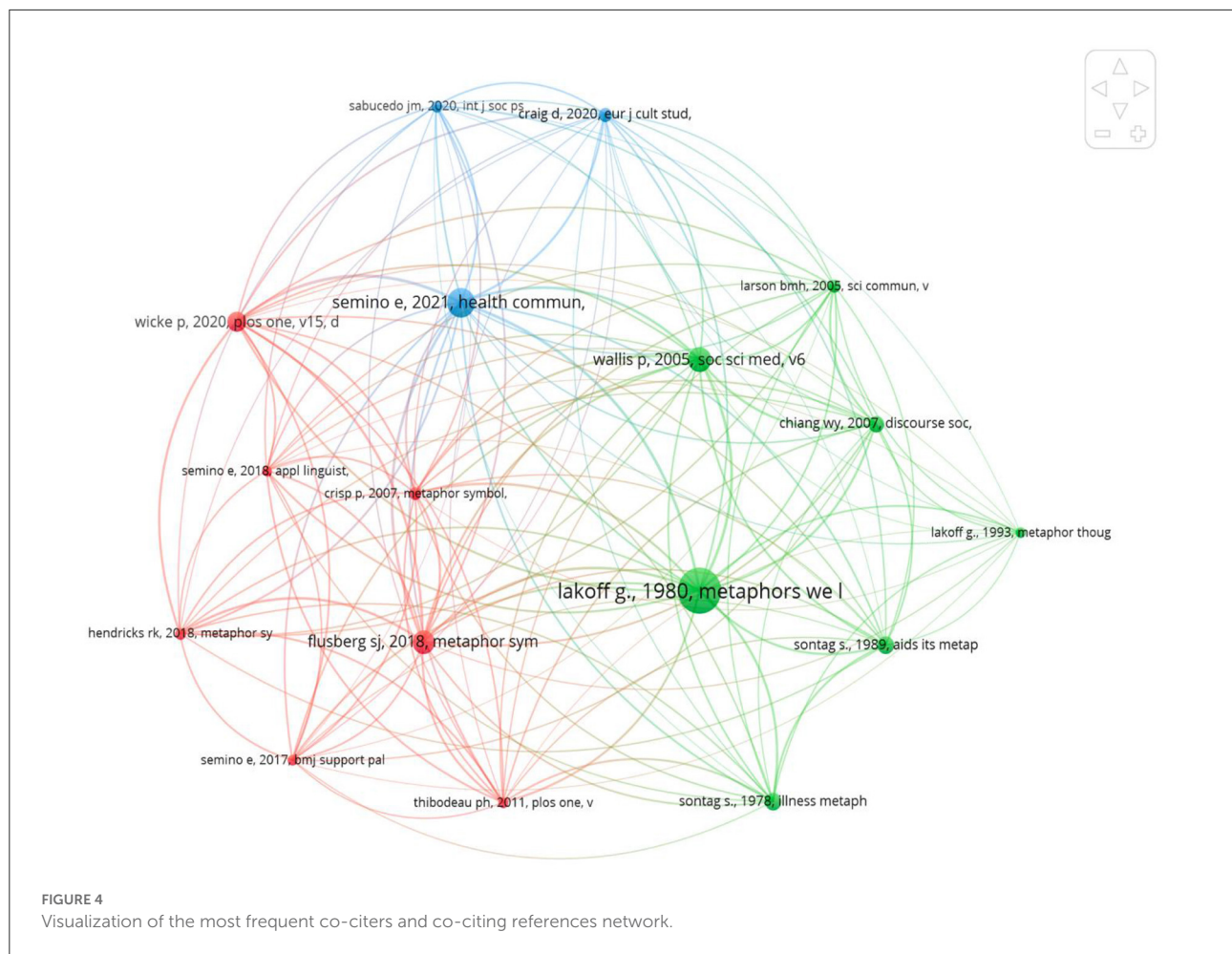
4.2.2. Most cited journals

Eight linguistics and multidisciplinary journals and a seminal book were identified as the most highly co-cited journals, thresholding 15 citations as the lowest number of citations for every source of publication. Journal co-citation is visualized in Figure 5. Two clusters are identified: Cluster 1 represents reputable and traditional linguistics journals such as Discourse and Society, Journal of Pragmatics, and Metaphor and Symbol. The cluster also includes other journals that are familiar to the linguistic field, such as Health Communication, the Journal of Communication, and Johnson and Lakoff's seminal book (red color). Cluster 2 shows a new trend in publishing metaphors in COVID-19 discourse in multidisciplinary journals that are inherently open access, such as PloS One, Nature, Science, or social science journals such as Social Science and Medicine.

4.2.3. Most cited references

According to our findings, five co-citation clusters were identified among the most cited references (Table 4). All cited articles have silhouette values close to 1, indicating a strong thematic relationship between the references and topic of the current investigation.

Moreover, Table 5 lists the timespan citation of these research articles, burst strength, and sigma value. Sigma value is 1, which indicates the novelty of the research. Three articles



and a book were found to have the strongest citation bursts. Details of degree of centrality, sigma values, and citation counts are provided in [Appendix 1](#).

4.3. Research themes, trends and hot topics in COVID-19 metaphors

4.3.1. Research themes analysis

As shown in [Figure 6](#), the thematic map was constructed based on author keywords and was mapped into four themes: niche (left top), motor (top right), emerging or declining (left bottom), and basic themes (right bottom). In motor themes, research themes that are well-developed are plotted top right and include Cluster 1: COVID-19, human, and metaphor; Cluster 2: discourse, critical discourse, and critical metaphor analyses; Cluster 3: education, health, and feminism; and Cluster 4: leadership, ethnicity, and India. Moreover, there are basic themes in most scholarly production of metaphor research. For example, Cluster 1 includes descriptive research methods such as content analysis, and other keywords such

as networking and influencer. The types of social media data are included in Cluster 2 such as twitter, meme, and artificial intelligence. In Cluster 3, basic themes include resilience, sustainability, and Australia. In Cluster 4, basic themes include technology, ecology, and information literacy. In both motor and basic themes, there is a heavy influence of CDA research methods and methodologies in metaphor studies. Niche themes are represented in three clusters (top left): Cluster 1 includes themes such as public relations, crowdsourcing, design/methodology/approach, Cluster 2 includes themes such as media representation, immigration, and journalism history, and Cluster 3 includes celebrities. In emerging or declining themes, Cluster 1 contains themes such as crisis communication, rhetoric, and Iran. In Cluster 2, three themes include embodiment, higher education, and multimodality. Cluster 3 has epistemology as a theme.

4.3.2. Research trends analysis

When examining the most frequent research keywords in [Figure 7](#), we noted that the font size correlated positively with

the frequency of words; that is, the words used more frequently were seen in bigger font size in the word cloud. The most frequent keywords were related to coronavirus (e.g., COVID-19, coronavirus, SARS-CoV-2, pandemic, and epidemic), metaphor (e.g., metaphor, framing, language, conceptual metaphor, war metaphor, and frame), discourse analysis (e.g., discourse,

discourse communication, content analysis, thematic analysis, critical discourse analysis, and critical metaphor analysis), fields of science (e.g., literature, psychology, communication, crisis communication, epidemiology, public health, health communication, political communication, and ideology), and genre of data (e.g., social media, narrative, media, twitter, meme, and mass media).

A tree map of the 50 most frequent bigrams of research titles is plotted in Figure 8. Among these research titles, the term “COVID-pandemic” was seen in most published papers (~23% of the documents). The second most published title was public health (8%) followed by social media, climate change, and media coverage (14%). COVID-metaphors, war metaphors, multimodal metaphors, conceptual metaphors, and an invisible enemy composed of 8% of the documents. Other titles were related to methods of analysis (e.g., comparative analysis, content analysis, contrastive analysis, discursive strategies, linguistic analysis, critical analysis, discourse analysis, and critical discourse) and news genres (e.g., blog posts, covid-speeches, China daily, mass media, news reports, newspaper coverage, and online newspapers).

TABLE 3 Co-citations of the co-citers and co-citing references.

	Authors	No. of co-citations	Total links
1	Lakoff and Johnson (1980)	50	132
2	Semino (2021)	31	122
3	Flusberg et al. (2018)	25	111
4	Wallis and Nerlich (2005)	26	101
5	Wicke and Bolognesi (2020)	21	99
6	Crisp (2008)	13	85
7	Thibodeau and Boroditsky (2011)	11	75
8	Lu and Chiang (2007)	17	74
9	Hendricks et al. (2018)	12	74
10	Sontag (1979)	18	67
11	Semino et al. (2018)	11	64
12	Sontag (1989)	18	63
13	Proctor and Larson (2005)	13	62
14	Sabucedo et al. (2020)	12	59
15	Semino et al. (2017)	11	59
16	Kalinec-Craig et al. (2020)	14	57
17	Lakoff (1993)	11	28

4.3.3. Research hot topics analysis

Graphing keyword dynamics helps researchers understand keyword dynamics over time. A graph showing changes in keyword frequency over a period helps choose the best title for a literature review or identify a new research topic. Figure 9 shows an upward trend in author titles from 2020 to 2022. COVID-19 had the highest occurrence during the entire period, and pandemic had the second most frequent occurrence. Analysis, discourse, and war had a similar trajectory of occurrences. Other keywords with similar dynamics included crisis, media, metaphor, public, and social.

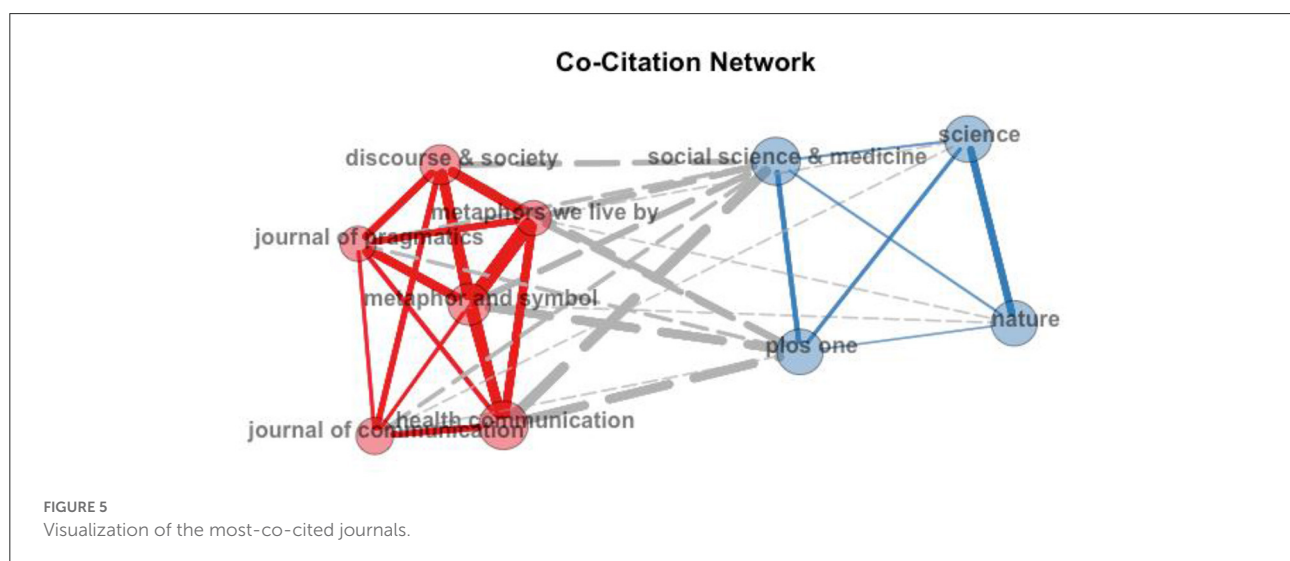


TABLE 4 Co-citation as per the cited paper.

Cluster ID	Size	Silhouette	The most relevant cited paper	Label (LLR)	Average year
0	28	0.844	Woodgate et al., 2021	Intersubjective experience	2021
1	24	0.85	Benzi and Novarese, 2022	News discourse	2021
2	20	0.772	Gui, 2021	Newspaper coverage	2021
3	20	0.919	Amaireh, 2022	Crisis narrative	2021
4	18	0.768	Semino, 2021	Twitter discourse	2021

TABLE 5 Timespan citations of the citing references.

References	Burst strength	Begin	End	Σ
Joye (2010)	2.67	2020	2020	1
Wallis and Nerlich (2005)	1.91	2020	2022	1
Nerlich (2007)	1.43	2021	2022	1
Sontag (1979)	1.43	2021	2022	1

5. Discussion

As noted by Peng and Hu (2022), Linguistics has made major contributions to the literature on COVID-19, therefore it is worth examining metaphors in COVID discourse. This study provides an overview of research trends in metaphor on COVID-19 discourse by retrieving 327 WoS and Scopus indexed publications. Between 2020 and 2023, the VOSviewer software allowed for the examination of impactful authors, journals, and countries. Additionally, the study examines international cooperation and finds prospective co-authors. Themes, trends, and hot topics analyses deepen researchers' knowledge of trending research subjects and developments.

Research on COVID metaphors has usually increased from 2020 to 2022, and in addition to top-notch metaphor scholars, younger scientists have been interested in the topic. Ahmed Abdel-Raheem was the most prolific author during this period, while George Lakoff and Mark Johnson had the most co-citations. Furthermore, Gema Online Journal of Language Studies has the highest number of COVID-19 metaphors papers. An investigation of international and institutional collaboration to date demonstrates that the United States has played a major role. In the meanwhile, the United Kingdom, Spain, Germany, China, and Netherlands have all contributed significantly to the research topic.

COVID-19 metaphor research is heavily influenced by CDA approaches and methods such as *critical discourse analysis* and *critical metaphor analysis*. Metaphor analysis shows how

media use metaphorical language to influence public opinion on controversial issues, the role metaphors play in framing discourse, and the problems associated with using some metaphors to describe COVID-19.

This research has revealed the link between CMT and discourse analysis and has offered additional evidence that research on conceptual metaphors is productive when reviewing data about COVID-19. Recently, we have noticed the emergence of a new research trend that might evolve such as artificial intelligence (AI). Future research trends might focus on AI to analyze patterns of language in different genres and find solutions to guide human behavior during pandemics.

The analysis of COVID metaphors showed that the conceptual metaphor WAR is the most predominant source domain to describe coronavirus and the linguistic metaphor COVID as an invisible enemy is the most frequent linguistic expression used to describe the novel virus. Notwithstanding, most research in metaphor studies has rejected those depictions and looked for alternative conceptualizations for the virus (see Semino, 2021).

Social media and multimodal data offer new and creative data for analyzing metaphors. Multimodal analysis primarily depends on technological developments in data collecting and analysis (Chen et al., 2020), but metaphor analysis remains qualitative in nature. While CDS focuses on evaluating naturally occurring data (Wodak and Meyer, 2009, p. 2), the analysis of memes, for example, provides linguistic evidence that is based on naturally occurring language as opposed to intuitively perceived linguistic occurrences.

However, this study has several limitations. First, the data collection period ended in August 2022, and 4 months of research are not considered. Second, this study only includes English-language Scopus journal articles. In the bibliometric study of metaphor discourse analysis in the pandemic, monographs, collected books, and journal articles in various languages are all relevant. Third, bibliometric analysis entails subjectivity in data collection and analysis (also see Lei and Liu, 2019a; Huan and Guan, 2020). In this study, the interpretation of semantic functions in network visualization might include some subjectivity.



FIGURE 7
A word cloud of the 65 most frequently used research keywords.



FIGURE 8
A tree map of the 50 most frequently used bigrams of research titles.

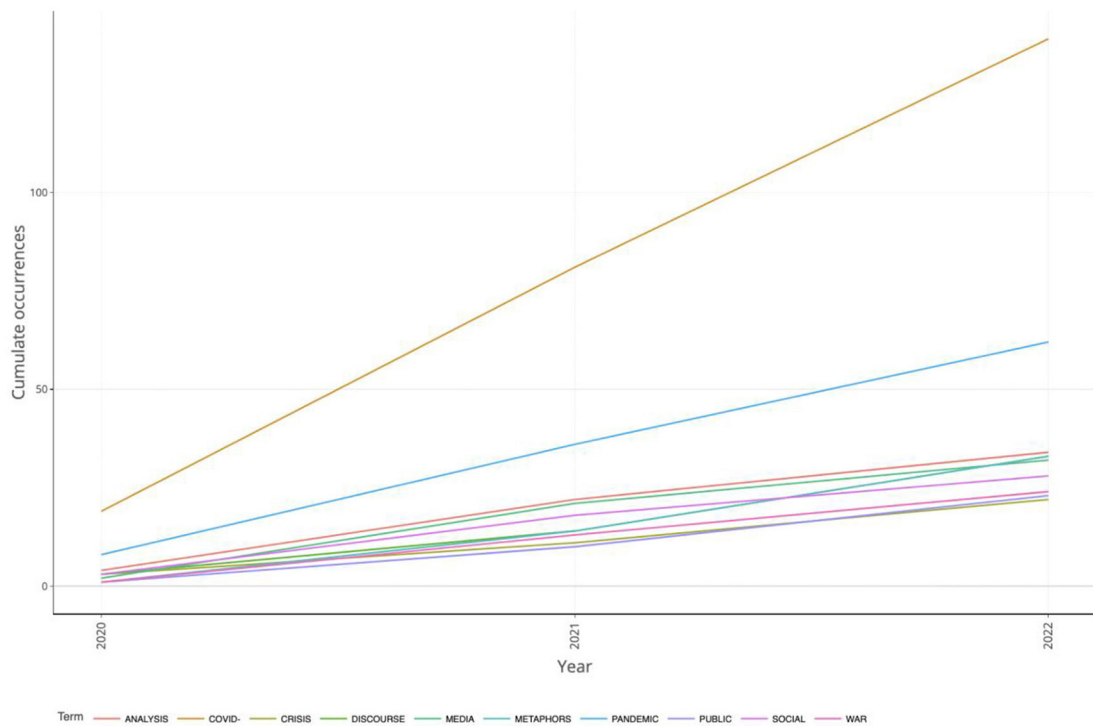


FIGURE 9
A word dynamic plot of the most frequent unigrams of research titles.

6. Conclusion

The COVID-19 epidemic has significantly damaged and disrupted human existence. Linguists have responded to this epidemic by exploring the phenomena of COVID-19 and the impact of language use on human behavior. Metaphor as part of (critical) discourse studies flourished during COVID-19. Therefore, it is crucial to assess its progress and predict its future. This study used bibliometric, network, and thematic mapping to understand COVID metaphor research in discourse and identify recent research foci. Three hundred and twenty-seven publications from January 2020 to August 2022 were retrieved from WoS and Scopus databases. Bibliometric, network, and thematic mapping analyses were employed using Bibliometrix and VOSviewer. The study found that Conceptual metaphor theory made huge contribution in analyzing COVID-19 discourse. The study found also that metaphors that invoked violence framing such as WAR metaphors have been criticized in discourse research. The research production investigated traditional genres (like news) and emerging genres (such as social media and multimodal data), highlighting the role played by metaphors in persuading public discourse.

This study offers a comprehensive overview of metaphor research on COVID-19. Thus, it can serve as a useful springboard for linguists interested in investigating COVID-19 discourses and texts through the lens of leading theories in the field, thereby not only broadening the scope of metaphor research in the pandemic but also generating valuable insights in the fields of pragmatics, metaphor, CDA, and corpus research. These findings may have both theoretical and practical significance for the sub-field of metaphor and discourse.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

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Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1062943/full#supplementary-material>

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Narrative inquiry of translators' identities: A study of meaning-making in narrating knowledge

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Translators have generated retrospective accounts of their working experience, which contribute to an expansive corpus of knowledge on translation. A plethora of research has explored how this knowledge could enrich our perception of varied questions concerning translation process, strategies, norms, and other social and political respects within conflictual settings in which translation has engaged. In contrast, few attempts have been made to gain a translator-centered understanding of what this knowledge could mean for its narrators. In line with narrative inquiry, this article proposes a human-centered approach to translator's knowledge narrating and a shift from positivistic to post-positivistic investigation into specific questions about how translators make sense of who they are as well as the meaning of their lives by structuring their experiences into a sequential and meaningful narrative. The general question is what strategies are employed to construct what types of identities. A holistic and structured analysis of five narratives by senior Chinese translators involves macro and micro dimensions. With a view to methods employed by scholars in different fields, the study identifies four types of narratives, namely, personal, public, conceptual/disciplinary, and metanarrative, which are used throughout our cases. Micro-analysis of narrative structure demonstrates that life events are often arranged in a chronological sequence, among which critical events are favored to indicate a turning point or crisis for transformation. Storytellers tend to adopt strategies of personalizing, exemplifying, polarizing, and evaluating to construct their identities and what translation experience means to them. This article concludes that apart from communicating translation knowledge, translators make sense of what translation experience means to them as a professional translator and more importantly as a real person living through social-cultural-political vicissitudes, thus contributing to a more translator-centered vision of translation knowledge.

KEYWORDS

narrative inquiry, human-centeredness, translation experience, narrative knowledge, metanarrative, professional narrative, personal narrative, narrative identities

1. Introduction

Translators' retrospective musings about their own translation experience have historically been a major source of translation expertise (D'hulst and Gambier, 2018). Continued efforts have been made to collect paratextual and metatextual documents from which such knowledge is mainly formed (Luo, 1984; Lefevere, 1992; Chen, 2000; Robinson, 2002; Chan, 2004; Wang, 2004; Baer and Olshanskaya, 2014). Such expertise is valued highly for shedding light on translation

processes, methods, and norms (Lefevere, 1992, p. 109; Bassnett, 1998). In contrast, the extrinsic approach emphasizes contextuality in knowledge production and how translation knowledge has mediated through conflictual circumstances (Cheung, 2003).

In addition, current studies also tend to interpret the value of such knowledge against translation studies as a discipline. However, in the 1980s when it became a success, an epistemological crisis appeared in translation knowledge legitimization. The traditional philological approach to translation has undergone a paradigmatic shift to more scientific research, which indicates that translation knowledge is supposed to be objective, systematic, and quantitative. Against this modernistic quest for scientific knowledge, the translator's account of their own translation experience has been subjected to a searing critique due to its impressionistic and anecdotal features (Dong, 1951; Guo, 1987; Wong, 1999; Chan, 2004). As a result, such conventional knowledge had to face a growing amount of suspicion about its legitimacy as a form of professional knowledge and thereby unmistakably withdrew into disciplinary peripherality.

Apparently, within a discipline with a positivistic tendency, translators' working experience narrative is interpreted at best as a "defective" type of knowing. However, this tunneled vision restrains our divergent perceptions of the heterogeneous nature of translation knowledge, which will be articulated in this article. In addition, a simplistic vision also paralyzes a rethinking of how "spin-off" data like translators' self-narratives of their working experience could be critically bound up with more significant questions about translators' identities, a topic recently gaining much momentum and complexity in a globalized world with high mobility among people, things, and ideas (Venuti, 2005; Cronin, 2006; André, 2020; Almanna and Gu, 2021; Heino, 2021). In addition, some researchers view translators as social actors in their specific localities, focusing on the interaction between translators' translations and their multifaceted roles in various modern institutions (Snell-Hornby, 1999; Voinova and Shlesinger, 2013; Yu, 2019). In these studies, however, translators' experience narrative has been invariably underinvestigated, if not ignored. Therefore, this negligence necessitates a dynamic view to uncover new grounds for narrative knowledge within translation studies and beyond.

The above literature review demonstrates possible gaps this article tries to fill. First and foremost, translators' experience narrative has been primarily investigated within translation studies with a focus on the epistemological values such knowledge may have in enriching our perceptions of translation products, processes, and functions. However, this tendency to highlight events, text, and context fails to put humans as the center of knowledge production, running against the rising interest in translator studies articulated by Chesterman (2009) and Kaindl et al. (2021). On the other hand, in today's modernistic and scientific regime of knowledge production within translation studies, the knowledge based on translators' experience narrative has often been undervalued as a deviation from modern knowledge due to its features of being impressionistic and anecdotal. As a result, the narrative aspects involving knowledge production are less fully discussed in narrative approaches to translation studies. A wide range of questions pertaining to life stories and how those stories are deployed for constructing identities and making meaning of life are, thus, less queried.

Drawing on framework and methods from translation studies, and in particular narrative inquiry, we would highlight the importance of human-centeredness in our perception of the nature of translators' self-narrative of their own translation experience. In

respect of this assumption, we tend to argue first and foremost that translators' translation experience narrative is, in one way or another, a form of narrative generated in specific temporal-spatial dimensions for a wide range of readers. It is best to be viewed as narrative knowledge, by which empirical knowledge is conveyed *via* accounting of lived experience by storytellers. It is not entirely congruent with the modernized knowledge industry typically featured with thesis, papers, and/or projects.

Nevertheless, both types of knowledge complement each other and contribute to the whole gamut of translation knowledge. Analysis of five specific cases selected from Chinese contexts in this article reveals that translators' knowledge narrative often mixes, among other things, know-how techniques with a personal account of life stories. Briefly, as a hybrid text, its purpose is not simply to communicate knowledge on how to translate but also to construct who they are and make meaning of their life as a social agent *via* storytelling. Indeed, narrative knowledge is not perfect compared to more scientific and logical genres of professional knowledge. Using a holistic method to study what narrative is about, this article attempts to investigate the nature, structure, and function of translators' knowledge narratives and tries to ask specific questions concerning what strategies are adopted to construct what kinds of identities. In putting the narratives back into the contexts where they were generated and considering translators' accounts referring to events and figures in history, this article will articulate what knowledge narratives mean to their narrators who have created their life's meaning by telling stories about what they did, how they feel, and what they hope for. By foregrounding a translator-centered vision of knowledge narrative, this article will contribute to a more humanistic conceptualization of translation knowledge and translation history.

2. Theoretical framework and methods

This study first uses narrative inquiry as a theoretical underpinning. As a field of study, narrative inquiry is best viewed as a family of cross-disciplinary enterprises, with divergent epistemological propositions, questions, and methods (Chase, 2005, p. 651; Webster and Mertova, 2007, p. 19; Wells, 2011, p. 7; De Fina and Georgakopoulou, 2012, p. 5). As a denial of positivism domineering in the studies of human sciences in the 1980s, it triggers a humanistic approach to narrative (Fisher, 1985, p. 3; Plummer, 2001, p. 198; Pinnegar and Daynes, 2007, p. 348; Andrews et al., 2008, p. 449; Hyvärinen, 2008, p. 9; Bochner and Riggs, 2014), and thus views the experience of individuals or groups as narrative or story. It is due to this human-centeredness that we tend to articulate translators' recounting of their translation experience as a form of narrative and further consider what it could mean to translators as storytellers.

The concept of narrative has no unified definition to cover all applications (Czarniawska, 2004; Riessman, 2008). Within psychological research, it is often viewed as a cognitive scheme or organizing principle by which human beings arrange their life in a meaningful way (Sarbin, 1986; Polkinghorne, 1988).

This diversity involving the definition of narrative also affects how we categorize it into different types. Next to Bruner's (1986) bi-typology of knowledge into the narrative and paradigmatic, we have many alternative schemes. Somer and Gibson's, (1994 p. 60–63)

categorical analysis of four dimensions of narrativity, namely, ontological, public, conceptual, and “meta” narrativity, are further modified by Baker (2006) in her narrative-based approach to translation. Ontological narratives, or narratives of the self, are viewed as “personal stories we tell ourselves about our place in the world and our history. These stories both constitute and make sense of our lives” (Baker, 2006, p. 28). Public narratives, as Baker (2006, p. 33) illustrates, refer to “stories elaborated by and circulating among social and institutional formations larger than the individual, such as the family, religious or educational institution, the media and the nation.”

However, Somer and Gibson’s list expels literature as “one of the most powerful institutions for disseminating public narratives in any society” (Baker, 2006). Baker (2006, p. 39) describes the conceptual or disciplinary narrative as “the stories and explanations that scholars in any field elaborate for themselves and others about their object of inquiry.” Finally, meta-(master) narrative briefly involves narratives that gain wider circulation and have significant impacts on people and society (Baker, 2006, p. 45). The boundaries between these types sometimes are flexible because, for example, the public narrative can evolve into a metanarrative if it has gained dominance in society due to social-political factors.

The narrative often fulfills a plethora of functions, one of which is to construct identities individually or collectively. A nation as an imagined community (Anderson, 2006) normally appropriates stories and tales to forge a sense of belongings among its people. Those narratives can take multivarious formations in history books, anthems, film episodes, and touchable memorials. During the process, several strategies are often utilized. As Schubert (2010) illustrates in a study of political speech, storytellers would normally adopt personalizing, integrating, exemplifying, and polarizing in their narratives. In personalizing, storytellers focus on their “personal anecdotes or autobiographical flashbacks” (Schubert, 2010, p. 147) as a way of establishing solidarity with the audience. Integrating is to highlight what a nation or party has achieved for public goodness.

Furthermore, with exemplifying, narrators would mention a single individual as an instance of the point speakers intend to make (Schubert, 2010, p. 150). Finally, political speakers tend to use polarizing to draw a clear line between us and political opponents so future actions can be taken toward them. Apparently, these different strategies facilitate the construction of specific identities *via* storytelling under divergent circumstances. But it must be kept in mind that some may have variations in our specific cases when narrators and audience do not remain in instant communications.

Furthermore, the study focuses on the primary proposition that translators’ recounting of their own working experience is a form of narrative. More specifically, it is a type of narrative knowledge. While narrating, translators as storytellers would make sense of their life by exploiting any resources at their disposal, including events, characters, places, and times, to name just a few essential narrative components.

3. Data of the study

The study selects five self-narratives primarily according to the high reputation enjoyed by their narrators in contemporary China’s literary translation field. In addition, other factors of gender, age, translation direction, and genres selected for translation are

considered too. All five translators are born in the first three decades of the twentieth-century. Zhang Yousong (1903–1995) is best known for his translations of most of Mark Twain’s works, including *The Adventures of Tom Sawyer* and *The 1,000,000 Pound Bank-Note*. Xiao Qian (1910–1999) is remembered as a translator of *Tales from Shakespeare*, *The Good Soldier Schweik*, Ibsen’s *Peer Gynt*, and, more importantly, as co-translator of Joyce’s *Ulysses*. Zhao Luorui (1912–1998) won her fame due to the translation of American poetry, especially *The Waste Land* by T.S. Eliot in the 1930s. Yang Xianyi (1915–2009) has been primarily acclaimed as a senior figure in translating classical and modern Chinese literature into English since the 1940s when he returned to China with his wife Gladys Yang after a few years of study in Britain. Yang Jingyuan (1923–2015) won fame for her co-translation of *Karl Marx und Friedrich Engels: Leben und Werk* by Auguste Cornu. But the translation of children’s literature is what she treasures most in her narrative due to the reasons explicated in the next section.

Born in China during the first three decades of the twentieth-century, the five translators have spent their lives through the tumultuous periods of modern China. Their death rules out the possibility of conducting the interview for accumulating more data to support our interpretation. However, our analysis throughout will be primarily based on close and cross-readings of the narratives and the specific social-political-cultural contexts in which these narratives are generated. The five selections are provided in Table 1.

These narratives are from three Chinese collections, whose editors have claimed to put senior translators’ knowledge into anthologies so that “numerous professional translators, researchers, and amateur of foreign literature can use them as a reference” (Wang, 1989, p. 857). Moreover, readers will have a chance to appreciate “the talents demonstrated by great translators in transferring the original texts across language boundaries, and the prominent styles of their translations” (Zheng, 2008, p. 254). Thus, these collections primarily frame the archives as evidence of technique learning. The talks aim to boost the perception of the translation process, methods, and norms. Such an inclusive vision partially structures how the collected texts should be interpreted among targeted readerships. As expected, all the different narratives would be viewed primarily as how-to knowledge on translation; however, it is complex that the translation knowledge is narrated through life experiences and stories full of characters and events deemed significant to the storytellers.

Examination of the five narratives demonstrates that at the time of their completion, the storytellers are nearly in their 70s and 80s. Born in the first three decades of the twentieth-century, they have shared a similar experience in living through a restless China, which witnessed the revolutionary 1930s, the civil war between the Communist Party and Nationalist Party in the 1940s, the tremendous transformation initiated nationwide since 1949 when a new socialist China was established in congruent with Marxism, Leninism, and Maoism, and the tumultuous years at the height of Maoism before 1978 when China reopened its door to the outside world. Since the first several years of new China, the whole society has been increasingly structured into a class society where intellectuals have been officially designated as a group “mostly derived from the classes of landlords or bourgeois” (Zhou, 1951/2011, p. 442). Either in the emotion they express or in the language they speak and write, they have not integrated fully into the masses. “Thought reform” among intellectuals becomes a state policy (Yu, 2001; Chen, 2013).

As a result, they must receive re-education and transform themselves into the classes of laborers, peasants, and soldiers and

TABLE 1 Five translators' narratives and publication information.

Numbers	Translators and titles of their narratives	Years of writing	Source collections	Editor(s)	Publishers	Years of publication
1	Zhang Yousong: random thoughts on literary translation (文学翻译漫谈)	1982	<i>One hundred translators' talks on contemporary literary translation</i> (当代文学翻译百家谈)	Wang Shoulun	Beijing: Peking University Press	1989
2	Zhao Luorui: how do i translate literary works (我怎样译文学作品的)	1982				
3	Xiao Qian: treason, opening up and creation: translator's preface on Chinese version of <i>Ulysses</i> (叛逆·开拓·创新—序《尤利西斯》中译本)	1994	<i>Ingenuity out of difficulties: famous translators' talks on their translation experience</i> (因难见巧: 名家翻译经验谈)	Jin Shenghua and Huang Guobin	Beijing: China Translation and Publishing Corporation	1998
4	Yang Xianyi: on translating of <i>The dream of the red mansion</i> (谈红楼梦的翻译)	1998				
5	Yang Jingyuan: memory of a unique "collaborative translation" experience (别具一格的“合译”)	2005	<i>One book and one world: translators' written words on how world famous literary works "reached China"</i> (一本书和一个世界: 翻译家笔谈世界文学名著“到中国”)	Zheng Lu'nan	Beijing: Kun Lun Press	2008

serve the revolutionary causes of the Party, a mission clearly elaborated by Mao (1942) in his *Talks at Yan'an Conference on Literature and Art*. As intellectuals, the five translators in our cases have experienced similar adversity and tribulations in their life, especially during the years when some of their utterances in public media were criticized seriously in the Anti-Rightist Movement in 1957 and the 10 years of the Cultural Revolution from 1966 to 1976. The historical junctures of 1949, 1957, the Cultural Revolution (1966), and 1978 are frequently mentioned throughout our selected narratives, although mostly in an implicit manner. For example, Yang Xianyi was jailed for 4 years during the Cultural Revolution, while Zhang Yousong was also wronged as a Rightist in Anti-Rightist Movement launched in 1957. Hence, their life and work were utterly affected by the events breaking out one after another in the 30 years since 1949. Their narratives reflect their emotions, hopes, and sorrows in a complicated vein that needs to be examined with an intertextual reading across divergent contexts.

4. Analysis procedure

4.1. Narrative structures

The study uses qualitative analysis to analyze the data. Table 2 illustrates the scheme of components to be analyzed structurally. Repeated close readings of the five narratives reveal the thematic focus of each narrative. It requires first to “read the material several times until a pattern emerges, usually in the form of foci of the entire story” (Lieblich et al., 1998, p. 62). However, such qualitative and holistic reading can only work to its fullness by being integrated with the empirical method of breaking down a whole text into its components of smaller units, like the paragraph we adopted in this study.

Table 2 indicates that NARRATIVE comprises small-lettered narrative, analytic, and thematic. Para stands for paragraph, arranged

in order of how a narrative text is composed in its written form. Characters normally refer to animate actors in a story, like persons with whom the narrator has connectivity in his/her socialization. Sometimes non-animate actors like an institution and the Communist Party can also play a key role in translators' narratives. Within this scheme, labels sometimes do not have absolutely clear-cut boundaries between each other. Overlapping is possible. For example, activities and events are closely related. The only difference is that activities are minor actions taken by characters. In contrast, events refer to a cluster of activities linked by some relations of cause and effect or logic. Evaluative indicates that storytellers often make a personal judgment of people, institutes, parties, actions, events, or social phenomena. It could be positive or negative.

The narrative stance leads us to consider what style a narrative is conveyed. Analytic indicates that the storytellers shift from storytelling to pure description of problems and empirical analysis of translation-related problems such as how to learn to be a qualified translator and what methods and strategies must be adopted in literary translation. Analytic barely involves events in specific temporal-spatial contexts so that a sense of objectivity is created. Hence, analytic contributes much to the scientific narrative. The last label thematic in our table is a summary of the main ideas in its corresponding paragraph. By dissecting all paragraphs into the schematic slots, each narrative will be presented as sampled in Table 3.

Based on the structural methods of combining holistic-content analysis and the scheme illustrated in Table 3, the similarities and disparities between our five cases are identified. One is about professional quality flaunted or implied by translators themselves, either by enumerating how many and what important texts in foreign or Chinese languages they have translated or by mentioning how many foreign languages they have ever learned. The difference relies on which narrative stance they talk about it. Zhang Yousong displays modesty in his understated appraisal of the quality of his translations done before 1949 and in his reservation in acknowledging the usefulness of his experience-based talks to others.

TABLE 2 NARRATIVE analysis scheme.

Paragraph	NARRATIVE							
	Narrative							
	Characters	Time	Place	Activities	Events	Evaluative	Narrative stance	Analytic
								Thematic

TABLE 3 First paragraph in five narratives.

Paragraph			1	1	1	1	1
NARRATIVE	Narrative	Narrator	Zhang Yousong	Zhao Luorui	Xiao Qian	Yang Xianyi	Yang Jingyuan
		Characters	I, comrades in translation circles, young readers with an aspiration for literary translation	I (我), my teacher (老师)Su Xuelin (苏梅苏雪林) my English teacher(英语老师)	I, translator Tian Han	I, Jin Shenghua 金圣华	I, my beloved husband, Kunlun Press, editor comrade, she
		Time	early twenties, post emancipation since 1949, now	at the age of 7, in one decade, at the age of 16 when entering university, in 1930 when second year in university ends	some day in 1942, in the late 1930s, in the days after the Attack on Pearl Harbor	in most time of this whole life	In the spring of 2005
		Place			Birmingham of England		
		Activities		My favorite teacher is Miss Su Xuelin who teaches me Chinese; I do not like English teacher.	In one day of 1942, I visited an exhibition of translated versions of Shakespeare.		
		Events	I am invited to write a brief autobiography of myself.	In 1930 when I was in my second year at university I was persuaded by my English teacher to change my major from Chinese to English.	An exhibition exposes the backwardness in our country's translation of classic works from foreign countries, thus exciting a strong sense of cultural patriotism within my heart.	Professor Jin Shenghua asked me to talk about my experience in translation.	I feel so much grieved by the passing away of my husband who was my company in 60 years that I am about not to live any longer. I am in no mood to write something about my translation experience, but the contact editor changed my mind with ner enthusiasm and sincerity.
		Evaluative	poor quality of my translation prior to 1949 when PRC is established; limited contribution; do not deserve to be called a famous translator; my opinion is only random conversation and shallow views for others to criticize and rectify; however, they may be of some value for reference.	The teacher who teaches Chinese is my favorite; I do not like English teacher; to study English is a burden to me because it brings me pressure from teacher ana distress.	Our country performs poorly in translating classic works from other countries, which illustrates our weak national power, and in particular our low level of cultural development and the populace's cultivation. this is 'very disgracing'!	My life-long engagement with translation enables me to talk about some experience, but it is lack of logic. I feel worried to talk about theory because I am not in a position to bring out deep insights. My opinion is translation is a kinda of art or simply a technique. Of course this may be my biased understanding.	feel very much grieved; in no mood of writing
		Narrative stance	modest	factual	moral	moral	affected
	Analytic						
	Thematic		The narrator emphasizes the long time he spent in literary translation practice and thinks modestly that his experience may be of some value for others to consider.	Accidental shift to study of English prepares me for later work in translation.	I feel disgraced by our country's weak cultural power with regard to translation of foreign classic works.	I would say something about translation, but my understanding is not much theoretical. It is merely empirical reflection on experience.	at the sincere request of the editor, I decided to write something about my stories concerning translation of two books.

By comparison, Zhao Luorui sounds more assertive and authoritative in advocating her literal translation method. She further argued that to those texts and writers that are not serious, “we should not go too far to treat them with excessive seriousness” (Zhao, 1982/1989, p. 608). Yang Jingyuan is emotional in tone primarily due to her husband’s death in his old age. The two translations she referred to in her narrative were direct products of their collaboration

because she lost her eyesight caused by cataracts and had to rely on her husband to finish the translations. To her, the translations remind her of the happy days she and her husband worked together. Because of this event, her life becomes meaningful, especially in her later years. The analogy across the five narratives is also identified in the way how the five narrators structure the chronological arrangement of the events happening in their life. Their stories are mostly deployed

in three periods of time, that is, prior to 1949, the first 30 years since the foundation of socialist China, and the years from 1978 to the present time when their narratives were completed. Historical and political events like the Movement of Intellectuals' Thought Reform in 1951–1952, the Anti-Rightist Movement in 1957, and the Cultural Revolution have exerted a great impact on their life and work. Narrators tend to employ the polarizing technique to draw a demarcation line between the abovementioned three periods so that things can be conceptualized as developing from bad to good, from negative to positive, and from adversity to bright prospect. Hence, a linear sense of progress surfaces. For example, Xiao Qian reflected in an affirmative tone that “it is hard to imagine having introduced Joyce into China in the thirty years since 1949” (Xiao, 1994/1998, p. 134) because of the incongruity between the poetics and ideology advocated by Joyce's novel and those domineering in Maoist China. Yang Xianyi compares two important translating events divided by the year 1949. In 1943–1946, he and his English wife Gladys Yang worked at the Chongqing-based National Institute for Compilation and Translation as translators of Chinese classic and modern works into English. Since 1952, they were employed as professional translators in the Foreign Language Bureau, a Beijing-based institute responsible for introducing Chinese works of politics, society, literature, and art to the outside world. He asserted that the period from 1952 to the breaking out of the Cultural Revolution was witnessing his highest productivity in translating (Yang, 1998, p. 81). Zhang Yousong went further to ascribe the improved quality of his translation after 1949 partially to the leadership of the Communist Party.

While in the years after 1978, he was convinced that “with correct leadership of the Communist Party, any kind of work could be completed without taking a roundabout route” (Zhang, 1982/1989, p. 439). Apart from polarizing between different time periods, Zhang also attempts to create a binarism between senior translators of his generation and the youth translators. The purpose is, among others, to highlight senior translators' rich experience and hence their value in training the latter for the enterprise of literary translation in China. In doing so, Zhang asserted the meaning of his work for the people and the Party, which brings him “ultimate happiness.”

The biggest difference between the narratives under discussion probably lies in how they arrange analytics. These analytics involve the translators' perception of their work and how-to questions about translation. Thus understood, they are tantamount to pure translation knowledge, a body of concepts, prescriptions, and procedures on translation. It can be understood as a type of disciplinary narrative. Table 4 presents the percentage of paragraphs of analytics within the total number of paragraphs in each narrative. It is our hypothesis that the less percentage of the analytics in a narrative, the more personal the narrative tends to look as a whole. As generally viewed, Yang Jingyuan's narrative among the five is most personalizing because the majority of her account involves her attachment to her husband.

With a view to the five specific cases, this research itself can also be viewed as a narrative with its hypothesis of not claiming 100% scientific and objective study but striving for a balanced and nuanced articulation of translators as persons living in the specific sociopolitical environment. We tend to offer a complicated understanding of the world in which translators have inhabited. It is our conviction that the ultimate objective of knowledge production is to increase the goodness not merely for the collective, but also for individuals, for those persons who can feel and err in real life.

4.2. Identity construction

Identity is a discursive construction. Translators use whatever sources of language, characters, and events are at their disposal to create a meaningful ensemble for themselves and others. In our five selected cases, the beginning and end of a narrative contribute most to shaping the identities. While in the middle part of a narrative, what key events should be arranged can also lead to the successful construction of a translator living in specific social-and-political milieus.

A narrative's beginning in Labov and Waletzky's structural analysis of oral versions of personal narratives is reconfigured as orientation, which serves to “orient the listener in respect to person, place, time, and behavioral situation” (Labov and Waletzky's, 1967, p. 32). The results of our analysis indicate that the beginning is an initiation because it functions to state the reasons why narrators start to engage with translation. Zhang Yousong set the beginning of his translation activity in the early 1920s. The second paragraph in his narrative presents more details about the incident that pushed him to get involved in translation. When he was young, his father died. The heavy pressure on his shoulder to take care of the whole family seems to play a pivotal role in his final decision to select English as his major. For the same reason, he tried his luck in translation before graduating from university to earn a living. In the period prior to 1949, he expressed a paradoxical attitude to his translation fulfillment.

On the one hand, he thought highly of his success in translation. He stated, “I have published a couple of translations before graduation from university, thus gaining some reputation in the translation circles at that time. From 1928 to 1930, the Chun Chao Publishing House I ran in Shanghai ended with a failure, but the translations I generated enjoyed a good market” (Zhang, 1982/1989, p. 431).

On the other hand, as implied, he tried to create a hierarchical self-evaluation of his work between two periods divided by 1949. However, in the foreground, his achievements and endurance against hardships and adversity would consolidate the impression of his tenacity and courage, especially in face of life's vicissitudes throughout history. This inference is justified by the gratefulness he expressed for what he had been maltreated during the years at the height of extreme leftism afflicting China, especially in the latter part of the 1960s. He finally concluded that “my bitter experience, however, is not worst, because I have finally survived the miseries and luckily enough, I am now not disabled physically and can continue working” (Zhang, 1982/1989, p. 434). Except for the critical event in his early years, other events like his transfer to a post in People's Literature Press as a professional literary translator and the historical event of China's opening up and reform have also positively transformed his life and work. While the political movements during the 30 years since 1949 bring many unhappy memories to him. Even though he has had such unfair treatment due to political incorrectness, he remains devoted to working as a translator with a high sense of mission. His narrative constructs him as a man of integrity in terms of work ethic.

Zhao Luorui, as partially illustrated above, sounds more assertive in her professional competence as a translator. The key event in her life before 1949, and to a certain degree in her whole life, is the 4 years of study at the University of Chicago from 1944 to 1948. She claimed that “the 4 years at Chicago University have utterly changed my way of thinking and research, enabling me to completely transform to a method of perceiving matters from analytical, rational, and objective perspectives” (Zhao, 1982/1989, p. 606). After her

TABLE 4 Percentage of analytics in each narrative.

Numbers	Storyteller	Total number of paragraphs (TNoP)	Total number of paragraphs of analytics (TNPoA)	TNPoA/TNoP (%)
1	Zhang Yousong	29	16	55.2
2	Zhao Luorui	19	13	68.4
3	Xiao Qian	124	32	25.8
4	Yang Xianyi	11	5	45.5
5	Yang Jingyuan	17	1	5.8

graduation from Chicago University, she returned to China, and 1 year after, the PRC was established. In the early formative years of a socialist China, the Thought Reform Movement has been launched with the aim to help all intellectuals, especially those with an overseas education background in England and America to criticize their capitalist ideologies and transform themselves into Marxism, Leninism, and Maoism. Zhao's 4-year study in America made her a target to be criticized in the early 1950s. This is the reason why she reiterates in her narrative that what she studied in the 4 years is not contradictory to Marxist and Leninist conceptions of literature and art. On the contrary, the two are complementary to each other because "Chicago teaches me the method and technique, while Marxist and Leninist ideology of literature and art give me a correct stance" (Zhao, 1982/1989). Both intellectual sources, she further argued, have exerted a positive influence on her conception of translation.

Xiao Qian's narrative, as will be illustrated here, focuses on the original novel of *Ulysses* and the reasons why he made his final decision to translate it and the methods he and his wife selected in their translation. Unlike the rest four narratives, Xiao's account is originally aiming at introducing the novel he translated to its potential readership, so he did not mention anything about his lifelong stories involving translation but began his stories about his translated novel from the 1940s when a critical event triggered his strong sense of cultural patriotism, which is partially contributing to his final decision to accept an invitation to engage with the translation of *Ulysses*. In addition, he reiterated the necessity of introducing this novel to China because he argued here and there in his account that its innovation in the adoption of "stream of consciousness" would benefit Chinese writers, even though the narrative technique employed in the novel is not congruent with his conceptualization of literature and art since he believed that art for life rather than art for art's sake is what China needs most.

Throughout his narrative, his personal life experience is mentioned only when it has connectivity with the novel itself, for example, in his education from 1929 to 1930, he happened to know the name of James Joyce in the courses taught at universities in Beijing. Most stories in his account are about Joyce and his literary creations. Analytics concern with his explanation about the preparation and translation of the novel by him and his wife. He unlike other translators did not mention how many translations he has produced as proof of his professional competence. However, such expertise by a translator is illustrated by the description of how much he and his wife have devoted to solving many difficulties encountered in their translation process, such as issues of multilanguages used in the original, divergent dialects, background knowledge involved, and if notes should be added to make the novel's content more explicit to Chinese readers.

A few incidents deserve our attention since they contribute most to how we understand Xiao's identity. First, he seems to stress the fact that the novel itself is very abstruse to translate due to its special narrative technique, innovative use of language, and rich cultural background knowledge involved. He concluded that it is fortunate to complete the translation. The whole process of translation is like "attacking and occupying a fortress." The emphasis on how difficult it is to translate the novel indirectly foregrounds Xiao as a professional translator with enough capacity to do pioneering work. The work Xiao and his wife have devoted to translating this novel also indicates the high work ethic expected to be possessed by translators due to the mounting difficulties imposed by this novel. Second, Xiao views the completion of this translation as a collaboration with his wife and many more people who offer their assistance. On the one hand, he accepts that it is not possible to have this work translated into Chinese in the years from 1949 to 1978 due to the height of Maoism, which values a work like this in a negative vein. In contrast, its successful translation signals the degree to which China takes an open attitude toward literature and art derived from capitalist countries and cultures. More importantly, Xiao views this translation as a scenario that witnesses how with his wife's assistance, he has learned "to transform myself from an indolent person to a diligent man. Translation of *Ulysses* is the summit of such transformation" (Xiao, 1994/1998, p. 132–133). In different periods from 1949 to 1978, Xiao suffered from political persecution particularly in the Anti-Rightist Movement in 1957 and 1958, and the Cultural Revolution. However, this experience is not mentioned directly in his narrative here, except that a couple of concepts like "corrective remaking" (改造) will remind us of the political movements rising in the tempestuous moments in China since the 1950s.

The implicitness in commenting on past events gives us a chance to think deeply about the meaning between the lines. As Xiao comments: "In about seventy years, there is only one novelist called Joyce known in the West. This example demonstrates that what gets affirmed and praised is not necessarily meant to be the path and direction for all others to follow. Artistic creation can only be the result of personal wisdom and the mirrored image of people's spirit" (Xiao, 1994/1998, p. 135). Put against the Maoist conceptualization of literature and art for the classes of laborers, peasants, and soldiers, Xiao's comment can be understood as an implicit critique of the popular conceptualization and practice of treating literature and art as a tool for political sake. In sum, Xiao looks like a devoted translator with a strong sense of cultural patriotism and a persevering support of literature and art for life's sake. His assertion of literary translation for Chinese literary creation constructs an identity of a realist artist devoted to the cause of enriching Chinese literature and art.

Yang Xianyi's narrative has a clear chronological line of development, starting from his middle-schooling years to the time

TABLE 5 Different endings of narratives.

Narrative	Narrator	Ending	Type
1	Zhang Yousong	Our publishing units should give those easy works to our young translators, so they may have opportunities to have a practice. Those magazines specializing in foreign language studies can also publish some short passages of foreign languages for young people to translate. Hence the best can be selected for publication. In a word, all sides involved should find more ways to train new forces. If only all present forces can be mobilized to make the literary translation community grow <i>via</i> combining the different groups of senior, middle-aged and young translators, our mission of literary translation is expected to have bright prospect (p. 440).	Future
2	Zhao Luorui	My translation of <i>Leaves of Grass</i> by Walt Whitman has just commenced. I am hoping that in the future I have chance to make a summary of my little experience as a translator of literary works (p. 614).	Near present-near future
3	Xiao Qian	To conclude, we have one more person to express our gratitude. She is our third sister who passed away today in last year. This translation is dedicated to her because without her strong support, we could never afford to accept such a heavy task of translation (p. 137).	Past-backward looking
4	Yang Xianyi	I have recently busied myself with moving into a new apartment. At the request of Professor Jin Shenghua, I scribbled a few thousand words. I should feel ashamed of talking about ideas of commonplace. I am now over 80 years old. It is high time for me to stop writing anything more. I do hope that this is the last time for me to have a talk about issues on translation (p. 84).	Near present-future
5	Yang Jingyuan	At the end of 2004, “ <i>Peter Pan</i> ” this happy boy who are always a kid spent his 100 years birthday. However, my husband of life-long company and I have been afflicted by illness due to getting old. In early 2005, my old mate finally let go his hold and left me. Sixty years of helping each other in distress and 60 years of tasting sorrow and joy are all gone like a puff of smoke barely leaving any trace at all. What I have in my hand is just the two published translations which were completed with him to read the original texts sentence by sentence and write down the whole texts word by word. They are memorials that will last forever (p. 16).	Past-backward looking

when his narrative was written. His life can be conceptualized into three main periods: prior to 1949, from 1949 to the 1980s, and the recent several years of the 1990s. In his description of his first period, he tends to highlight his talents in studying different foreign languages, including English, Latin, Greek, Spanish, French, and Sweden. In addition, his early attempts at random translating and the 6 years he spent studying in England are also mentioned as proof of the capacity a translator is supposed to possess. However, in this period, the most important experience for him is when he and his English wife Gladys Yang worked together as translators in the 1940s for the National Institute for Compilation and Translation established in 1932 by the Education Ministry of the National Government. In the 3 years of working in this institute, he and his wife translated a great number of Chinese literature into English. The second period, especially from the 1950s to the breakout of the Cultural Revolution in 1966, is the time witnessing his richest production of translations of Chinese literature into English. In the analytics, he elaborates on a couple of issues relevant to translation, including translatability, cultural differences, translation principles, and poetic structures and rhythms. The most interesting part is his reference to an incident about his encounter with Chairman Mao in a meeting where Mao asked him whether Qu Yuan's *Encountering Sorrow* (离骚) can be translated across different languages. He blurted out yes and replied that “no texts are untranslatable.” The citation of this incident in his narrative is important because the connectivity Yang has with the then top leader of China may serve as proof of his authority as a translator. In terms of the length of the narrative, Yang's is the shortest, the reason for which may be due to his weariness of repeating his perception of translation. He even wished that “this could be the last time for me to talk about translation” (Yang, 1998, p. 84). This reservation may be also caused by the self-evaluation of his lack of theoretical thinking even with rich empirical experience.

Finally, Yang Jingyuan's narrative centers on two translated works *The Brontë Stories* and *Peter Pan* (Yang, 2005). The latter has a connection with her life prior to 1949, while the former has much to do with the stories happening during her long years of suffering from cataracts and how her husband accompanied her to complete the translation of this book. As usual, her life consists of years prior

to 1949, the period from 1949 to 1978, and the days after 1978 when China adopted a national policy of opening up and reforming. In the third period, the year 1984 is unique because she was afflicted by a cataract and, thus, lost most of her eyesight. This illness deprived her of devotion to translation and research. However, her husband recommended himself in helping her to continue her translation. With his help, Yang Jingyuan began a special co-translation of *The Brontë Stories*. Her husband reads the original text sentence by sentence. She is responsible for orally translating them into Chinese, and then her husband will write them down for later proofreading and mutual revision. In doing so, they spent happy days together in the parks, hotels, and trains on their journey to other cities or while they stayed at home. This special collaboration in translation proved a success since the translation has received positive feedback from readers. Then they continued to do the translation of her favorite children's literary text *Peter Pan*. Yang Jingyuan did not mention too much of her expertise as a translator in her narrative, such as how many texts she translated and what qualities she had for engaging in translation.

It is noticeable that she expressed the contradiction between her dream of becoming a novelist and the reality of taking translation as her primary career. In the second period, what she worked for is the translation of social sciences and politics which she later admitted are not her interest as an incident indicates that she was someday assigned to join a translation team with other two members to translate Marx and Engels' biographies from English into Chinese. Though this translation activity occupies an essential role in her work as a translator, she expressed her reluctance to do it because her favorite was literary translation. By drawing polarized boundaries between likes and dislikes, she assigned positive meaning to the life experience with her beloved one. In sum, translation becomes meaningful in her later years when it brings her sweet memory of happy togetherness with her most intimate family member.

It happens that how a narrative ends itself can, in one way or another, influence how we interpret the stories as a whole. Labov and Waletzky referred to Coda as “a functional device for returning the verbal perspective to the present moment” (Labov and Waletzky's, 1967, p. 39). But the five cases of this study demonstrate that narrators

differ significantly in which directions they move the endings of their narratives.

As **Table 5** conveys, the narratives in their endings return their perspectives to the past, the present, and the future. The three perspectives would generate different meanings. Backward looking adds strands of emotions to the whole story because memories of past events can help narrators to make meaning of their present existence. Similar to Yang Jingyuan's ending, her life's meaning would more likely lie in the two collaborative translations that refer to the past when her husband was with her. Translation becomes meaningful merely due to its connectivity with her beloved mate. But in Xiao Qian's ending, the nuance is that translation *per se* becomes important rather than the narrator's relative, his Third Sister. Thus, Xiao's narrative focuses on stories about the novel, the original writer, and the translation process. Moreover, a forward-looking vision typically contributes to constructing a strong sense of optimism and a myth of linear progress. However, Yang Xianyi's sense of the future differs greatly from that of Zhang Yousong's in that the former shows much reservation about continuing his narration of translation experience, while the latter prepares to work at his full capacity for the meta-narratives such as the national mission and interests for the people and the Party. Comparatively speaking, Yang Xianyi tends to be more detached from translation while Zhang Yousong appears more engaged in related activities. Zhao Luorui's near-future angle enables her a high possibility of spreading her ideas on translation if another chance is provided.

5. Conclusion

The study concludes first and foremost that translators as a group has shared some similarities in their identities. They tend to personalize their experience to foreground the qualities required of translators. In addition, it reveals that professionalism is key to the conceptualization of translators' identities. Translators would resort to whatever possible resources to justify their professional competence. Key events are recalled. A wide range of texts they translated is enumerated. However, it needs to be clarified that professionalism involves more than linguistic competence. Translators would polarize divergent resources like a chronological sequence of events, hierarchical structures of social groups, or relations between environments and people so as to construct themselves as persons with high integrity, best illustrated by their allegiance to work ethics as translators.

The study further implies that specific social-political-cultural settings where translators have lived would have a deep imprint upon individuals' life and work and play a pivotal role in shaping what meanings they could make of their sufferings, adversities, sadness, and happiness. All translators in our study have had to subject themselves to a series of significant historical events breaking out in modern China, especially at critical conjunctures in history. The year 1949 witnessed the establishment of socialist China as an independent country. It has finally chosen to join the alliance led by the former Soviet Union. Due to the restrictive ideology of Marxism, Leninism, and Maoism, the Chinese government soon launched various movements to transform intellectuals in line with the Maoist reconfiguration of literature and art for social, political, and cultural considerations. Individuals' fate is so closely tied with the nation's that personal narratives get twined with public, conceptual, and meta-narratives. Translators personalize their stories for the publi-

presentation of who they are or to answer a missionary call from meta-narratives popular within given environments.

In identity construction, unity nurtures diversity, presenting before us a colorful spectrum featured with Zhang Yousong's Prometheus spirit of incessant working, Zhao Luorui's rational and authoritative position, Xiao Qian's assertion of cultural patriotism and literary realism, Yang Xianyi's detachedness, and Yang Jingyuan's affective attachment. By employing divergent narrative functions and strategies, narrators maneuver time and events to tell multifaceted stories about themselves and collective interests. We would like to conclude that the narrative approach to translation could extend its current focus on conflictual and synchronic respects to everyday activities and diachronic dimensions informing how translators make meaning of their life and work *via* storytelling. The shift to human-centeredness exemplified in this article will serve as an alternative vision with which to gain a complex perception of what translation could possibly mean to its practitioners. More importantly, translators' self-narratives are no longer viewed merely as a disciplinary narrative about translation knowledge. They involve more than the conceptual or analytic accounts of translation issues. In fact, they function to instruct, to educate, to entertain, to memorize, and even to forget.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors. Requests to access the data should be directed to QG, gengqiang@shisu.edu.cn.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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A corpus-based analysis of the stylistic features of Chinese and American diplomatic discourse

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The study investigates the linguistic aspects of Chinese and American diplomatic discourse using Biber's theoretical underpinnings of multi-dimensional (MD) analysis. The corpus of the study comprises texts taken from the official websites of the Chinese and US governments from 2011 to 2020. The study results show that China's diplomatic discourse falls into the text type of *learned exposition* which includes informational expositions focused on conveying information. In contrast, the United States diplomatic discourse falls into the text type of "involved persuasion," which is persuasive and argumentative. Furthermore, the two-way ANOVA test reveals few distinctions between spoken and written diplomatic discourse from the same country. Furthermore, T-tests demonstrate that the diplomatic discourse of the two countries differs significantly in three dimensions. In addition, the study highlights that China's diplomatic discourse is informationally dense and context independent. In contrast, the United States diplomatic discourse is emotive and interactional, strongly dependent on context, and created within time restrictions. Finally, the study's findings contribute to a systematic knowledge of the genre aspects of diplomatic discourse and are helpful for more effective diplomatic discourse system creation.

KEYWORDS

multi-dimensional analysis, diplomatic discourse, stylistic features, corpus studies, China and the United States

Introduction

Diplomatic discourse, which belongs to institutional political discourse, refers to the discourse and discursive practices that "are used by sovereign states to communicate their international strategies and foreign policies in a certain historical period" (Jin, 2007, p. 21). It embodies "a country's positions on cultures, ideologies, core interests, and strategic directions" (Du and Mei, 2019, p. 65). It mainly covers official diplomatic documents, national leaders' speeches, interstate treaties, agreements, communique, declarations, statements, and press conferences (Afzaal et al., 2019, 2022). As the most official and authoritative way of international communication, diplomatic discourse reflects the government's diplomatic efforts and policies, "showing the country's attitudes and stances towards international communication" (Liu and Yang, 2019, p. 6; Niu and Relly, 2021). Diplomatic discourse's essence is safeguarding and striving for national interests (Wang, 2008). Countries deal with international affairs with diplomatic discourse, through which international public opinion can be influenced, support from international communities can be gained, and discourse power in the international community can be improved.

Given the great significance of diplomatic discourse to not only diplomacy but also national development, studies of diplomatic discourse have become increasingly interdisciplinary and have drawn the attention of scholars from such various fields as linguistics, translation studies, communication, international studies, politics, and sociology (Hu and Tian, 2018; Liang, 2019; Tungkeunkunt and Phuphakdi, 2018; Yang and Zhou, 2020; Liu and Afzaal, 2021). However, studies of linguistic features of diplomatic discourse mainly focus on the relative distribution of linguistic features considered individually, despite the growing evidence that sets of co-occurring features can better reveal the underlying structure of textual variation (Biber, 1988, 2006). Therefore, a systemic analysis of the co-occurring linguistic features in the diplomatic discourse of China and the United States will offer valuable insights into how linguistic practices play a role in diplomacy.

Therefore, the study aims to compare the co-occurring linguistic features between China's and the United States diplomatic discourse using the multi-dimensional (MD) analysis (Biber, 1988, 1995) approach. MD analysis is well suited for exploring differences in systemic textual variations between different groups of texts at the macro level. However, it has yet to be fully exploited in previous studies of diplomatic discourse.

The study of diplomacy has taken a linguistic turn since the 1990s, which has caught the interest of academics both domestically and internationally. As a result, the majority of research on diplomatic discourse focuses on its linguistic characteristics (Li and Hu, 2019; Liu et al., 2019), how the diplomatic discourse system is built (Sun, 2019; Fenton-Smith, 2020), how diplomatic discourse is translated (Fu, 2016; Yu and Wu, 2018), and how diplomatic discourse is disseminated (Tungkeunkunt and Phuphakdi, 2018; Yang and Zhou, 2020).

Previously, studies of linguistic features of diplomatic discourse are mainly carried out from the perspective of the relative distribution of linguistic features considered individually, such as nominalization, evaluation, negation, and some particular verbs (Li and Hu, 2013). di Carlo (2017) explores the role of the vagueness of the main modal verbs *shall*, *should*, and *may* in the institutional discourse of the UN and finds that these specific verbs in diplomatic discourse have double-faced strength in diplomacy. As a meaningful rhetorical device that carries speakers' underlying thoughts, metaphors in diplomatic discourse have always been a priority in studies of linguistic features of diplomatic discourse (Wageche and Chi, 2017). Weng (2013) adopts corpus-based critical discourse analysis to compare metaphors used by the leaders from the UK, Canada, and China in their speeches at climate change talks and analyzes how these parties construct their identities through ideologies in metaphors. These studies signify the role that diplomatic discourse plays in the discursive construction of the ascribed identities of various countries (Liu and Wang, 2019) and the importance of the construction of diplomatic discourse to improve discursive power in the international community (Sun, 2019).

Considering the crucial role of translation and media in international communication, researchers in translation and communication contribute to the study of diplomatic discourse. Zanettin (2016) discusses the linguistic features of the source and translated diplomatic statements and argues that translation strategies of linguistic features of diplomatic discourse adopted by the media contribute to actively shaping international relations.

Many scholars examine the disseminative effects of diplomatic discourse to explore the relationship between diplomatic discourse and international relations (Tungkeunkunt and Phuphakdi, 2018). However, there are several noteworthy gaps in the existing literature. First, despite

the growing popularity of corpus tools in linguistics, they are rarely used to analyze the linguistic features of diplomatic discourse. The corpus approach, which provides many authentic linguistic resources, is a valuable way to improve the representativeness and systematicness of linguistic features of diplomatic discourse studies. Second, studies have yet to compare linguistic variation in the diplomatic discourse of different countries. The way to gain more support in international affairs and earn a favorable reputation among international audiences can be further improved by comparing the linguistic features of the diplomatic discourse of different countries. Third, given the prominence of the discourse analysis perspective and the corpus-based approach in studies of the linguistic features of diplomatic discourse, MD analysis is well-suited for this type of research. Nevertheless, few existing studies have used this approach.

In addition, many studies have adopted different registers, such as academic discourse (Biber, 2003; Gray, 2015), legislative discourse (Cheng, 2012), and web discourse (Grieve et al., 2010). In addition to the synchronic perspective (Gray, 2015; Thompson et al., 2017), some studies take a diachronic perspective to investigate linguistic variation (Biber and Conrad, 2001; Westin and Geisler, 2002). Besides English registers, MD analysis has also been used to analyze non-English registers (Biber, 1995; Sardinha et al., 2014). The application of the MD approach in extensive registers and languages highlights the need for "further research in specialized registers and for greater attention to corpus design" (Pan, 2016). Meanwhile, these studies suggest that MD analysis can be applied to uncover the linguistic variation in the diplomatic discourse of China and the US and that findings on such variation will have practical implications for constructing a diplomatic discourse system. Through MD analysis, within the extracted dimensions, the meanings of groups of texts can be further interpreted to gain a more comprehensive understanding of the variation that is present in the corpus since it is necessary to go from text to context for a comprehensive and critical view of discursive practices (Bhatia, 2008).

The present study intends to apply this approach to uncover cross-cultural linguistic variations between China's and the United States' diplomatic and addresses the following three research questions:

1. Do countries and modes have similar effects on dimensions of linguistic variation in China's and the United States' diplomatic discourse?
2. How do China's and the United States' diplomatic discourse differ regarding linguistic features?
3. What are the similar dimensions of linguistic variation in China's and the United States' diplomatic discourse?

Data and methods

Multi-dimensional analysis

The study employs Biber's theoretical underpinnings of multidimensional analysis as a theoretical framework. Based on the idea that "registers are best described concerning patterns of linguistic co-occurrence," this method creatively uses factor analysis to reveal patterns of linguistic variation across registers (Biber et al., 2016, p. 646). This method has helped people gain "a sounder understanding of the most significant linguistic and nonlinguistic factors that influence register variation in English" (Nini, 2019). This analysis method is mainly applied to a corpus of texts representing various registers. First,

the normalized frequency counts of individual features in the corpus that have the potential to distinguish between various registers are examined. Then, co-occurring features are sorted into “dimensions” using the statistical factor analysis method. The final qualitative interpretation of the resulting dimensions is “underlying functional associations” (Biber et al., 2016, p. 646), which states that linguistic features co-occur in the texts because they serve the same communicative purposes.

Analysis procedure

The corpus is analyzed using Nini's (2015) Multidimensional Analysis Tagger (MAT), a computer program that analyses corpora or a single text using the multi-dimensional model put forth by Biber (1988). The accuracy of MAT to essentially replicate Biber's findings has been demonstrated by research. The six dimensions Biber (1988) proposed as the foundation of MAT represent patterns of co-variation of 67 linguistic features and can explain linguistic variation in the most important English language registers (Nini, 2019). MAT uses Stanford Tagger first to annotate the linguistic features of the texts in the corpus, notably part of speech (POS; Toutanova et al., 2003). The dimension scores are then calculated using the normalized frequency counts of all linguistic features across 100 words.

This study compares Chinese and American diplomatic discourse's linguistic features. The statistical analysis was conducted using MAT statistical data, and Rstudio (Version 4.0.5) was used. ANOVAs were used to compare written and spoken diplomatic discourse in the two sub-corpora to answer the first research question. For the second and third research questions, independent-sample t-tests were used to determine if and how diplomatic discourse in China and the US differ along the six functional dimensions. Then, AntConc compared linguistic feature frequencies. Finally, the functional significance of each dimension was determined by qualitatively comparing the two sub-corpora.

Corpus of the study

A self-built corpus of Chinese and American diplomatic discourse was created to compare the linguistic characteristics of the two nations' diplomatic discourses. The data were downloaded from the official websites of the Chinese and US governments, specifically the People's Republic of China's Ministry of Foreign Affairs and the United States Department of State from the period 2011 to 2020. The United States Department of State guides the United States on foreign policy matters and negotiates treaties and agreements with other countries. At the same time, the People's Republic of China's Ministry of Foreign Affairs manages foreign affairs and carries out China's foreign policy. Therefore, the duties of the two departments and the information on their official websites are comparable, which ensures that the texts in this corpus can be compared. These texts, however, are used to exchange diplomatic messages and international strategies with other nations, which complies with the definition of diplomatic discourse provided at the beginning of the paper.

These texts were divided into written and spoken texts according to the classifications on the official websites. The written texts cover documents on important diplomatic issues, diplomatic activities, commune, agreements, foreign policies, and statements. In

contrast, the spoken texts include the remarks and speeches of leaders of the countries and spokespersons of the Ministry of Foreign Affairs of the People's Republic of China and the United States Department of State.

All texts were carefully processed after being downloaded from the websites, implying that garbled marks such as “&” and “^” were removed with the help of EditPad Pro. Finally, a corpus of 21,287,426 tokens, including 9,798 texts, was compiled (see Table 1). As for the sub-corpus of China's diplomatic discourse (hereafter the China sub-corpus), there were 2,216,976 tokens and 2,082 texts in total, including 575,827 tokens in written texts and 1,641,149 tokens in spoken texts. About the sub-corpus of the United States diplomatic discourse (hereafter the US sub-corpus), there were 19,070,450 tokens in total, including 13,234,759 tokens in written texts and 5,835,691 tokens in spoken texts.

Results

The study compares the linguistic features of China's and the United States' diplomatic discourse according to Biber's (1988) MD analysis. It finds that the differences of countries exert more influence on the six dimensions of linguistic features than that of modes of diplomatic discourse. With regards to countries, China's and the United States' diplomatic discourse differs significantly in terms of information density (D1), contextual dependence (D3), and the degree of elaboration of information generated under strict time constraints (D6). Additionally, the diplomatic discourse of the two countries shares some common features, such as non-narrative (low D2 scores), non-explicit in expressing the author's point of view (intermediate D4 scores), and a mixture of the abstract and technical text type and the non-abstract text type (intermediate D5 scores). In general, China's diplomatic discourse is closest to learned exposition in terms of its linguistic features, while the United States' diplomatic discourse is similar to involved persuasion.

Influences of countries and modes on dimensions of linguistic variation in China's and the United States' diplomatic discourse

Since there are two main factors in this study, namely, countries (China and the United States) and modes of diplomatic discourse (written and spoken), we conduct two-way ANOVA tests to determine if countries and modes of diplomatic discourse impact the six

TABLE 1 Information on the corpus of China's and the United States' diplomatic discourse.

	China's diplomatic discourse	United States' diplomatic discourse	Total
Written	575,827 (909 texts)	13,234,759 (2,562 texts)	13,810,586 (3,471 texts)
Spoken	1,641,149 (1,173 texts)	5,835,691 (5,154 texts)	7,476,840 (6,327 texts)
Total	2,216,976 (2,082 texts)	19,070,450 (7,716 texts)	21,287,426 (9,798 texts)

TABLE 2 Results of two-way ANOVA tests.

Dimension	Factor	F-value	p-value
Dimension 1 (D1) Involved vs. Informational Discourse	Country	400.889	<2e-16(***)
	Mode	3.237	0.0802
Dimension 2 (D2) Narrative vs. Non- Narrative Concerns	Country	5.549	0.0239(**)
	Mode	4.35	0.044(**)
Dimension 3 (D3) Context-Independent Discourse vs. Context- Dependent Discourse	Country	451.075	<2e-16(***)
	Mode	3.247	0.0797
Dimension 4 (D4) Overt Expression of Persuasion	Country	0.363	0.550264
	Mode	13.216	0.000839(***)
Dimension 5 (D5) Abstract vs. Non- Abstract Information	Country	4.288	0.04542(**)
	Mode	9.073	0.00466(***)
Dimension 6 (D6) On-Line Informational Elaboration	Country	204.74	<2e-16(***)
	Mode	0.02	0.889

** $p < 0.005$, *** $p < 0.001$.

TABLE 3 Dimension scores and independent-sample t-tests results for the dimension scores of the two subcorpora.

Dimension	The China sub-corpus		The US sub-corpus		t-test	p-value
	Mean	SD	Mean	SD		
D1	-22.65	3.50	-0.46	3.71	-19.46	< 2.2e-16
D2	-3.32	0.65	-2.97	0.23	-2.26	0.03
D3	14.45	2.34	3.15	0.72	20.64	3.79e-16
D4	-0.22	1.73	-0.01	0.66	-0.53	0.60
D5	-0.73	1.04	-1.17	0.20	1.88	0.07
D6	-1.74	0.73	1.00	0.43	-14.50	2.50e-15

dimensions of linguistic features. The results of two-way ANOVA tests (Table 2) show that the factor of countries of diplomatic discourse exerts a more significant ($p < 0.05$) impact on most dimensions (D1, D3, and D6), and the influences of both factors are significant on D2 and D5. Only on D4, the factor of modes of diplomatic discourse is more statistically significant than the factor of countries.

Specifically, D4 deals with the degree of persuasion of the discourse, either “explicitly marking of the speaker’s persuasion (the speaker’s point of view) or argumentative discourse designed to persuade the addressee” (Biber, 1988). The significance of modes on D4 implies that the

persuasion of diplomatic discourse is more about the differences between spoken and written discourse rather than the discourse of different countries. Apart from D4, the differences in linguistic features of diplomatic discourse of different countries are more significant than that of different modes. Generally speaking, there are few differences between spoken and written diplomatic discourse of the same country. Thus, in the following sections, the emphasis is put on exploring the coexistence of commonalities and differences in linguistic features of China’s and the United States diplomatic discourse, regardless of their modes.

Differences in linguistic features between China’s and the United States’ diplomatic discourse

Table 3 summarizes the dimension scores of China and the US sub-corpora, alongside the results of the independent-sample t-tests for the dimension scores of the two sub-corpora. The diplomatic discourse in the two sub-corpora differs significantly in their scores on D1, D3, and D6 ($p < 0.001$) but not on D2, D4, and D5. As suggested by the results of the MD analysis using MAT, among eight text types for English found by Biber (1988), China’s diplomatic discourse is linguistically similar to learned exposition in terms of six dimensions, while the closest text type of the United States’ diplomatic discourse is involved persuasion. The former includes informational expositions focused on conveying information, with official documents, press reviews, and academic prose as typical registers. The latter includes persuasive and argumentative discourse represented by such registers as spontaneous speeches, professional letters, and interviews.

Figure 1 shows that Dimension 1 marks high informational density and exact informational content versus affective, interactional, and generalized content (Biber, 1988), and presents linguistic features in interpersonal communication. The dominant features include many verb categories and complement clauses co-occurring with personal pronouns and past tense verbs on the positive side; while nouns, nominalizations, and adjectives appear on the negative side. There is a significant difference in D1 scores between China and the US sub-corpora ($t = -19.46$, $p < 2.2e-16$). The D1 score for the China sub-corpus (-22.65) is much lower than that for the US sub-corpus (-0.46). The lower the score on this Dimension, the denser the information in discourse. T-tests for the z-scores of these dominant features indicate that the two sub-corpora are different in 28 of the 34 features in Dimension 1. Due to limited space, Table 4 shows features that are significantly different ($p < 0.05$) between the two sub-corpora and have a weight larger than 0.80 in Dimension 1.

Table 4 shows that the China sub-corpus has more nouns than the US corpus. Biber argues that since nouns are the main carriers of the referential meaning in the text, the high frequency of nouns is associated with “a high informational focus and a careful integration of information in a text” (Biber, 1988, p. 104). Accordingly, China’s diplomatic discourse has a greater density of information. Private verbs and present tense indicate a verbal style. Present tense refers to actions occurring in the immediate context of interaction, and private verbs (e.g., *think*, *feel*) are used for the overt expression of private attitudes, thoughts, and emotions (Biber, 1988). Meanwhile, second-person pronouns are frequently used in highly interactive discourse. In addition, *that*-deletion and pro-verb *do*, which represent a reduction in surface form, result in a more generalized, uncertain content. These linguistic features appear more

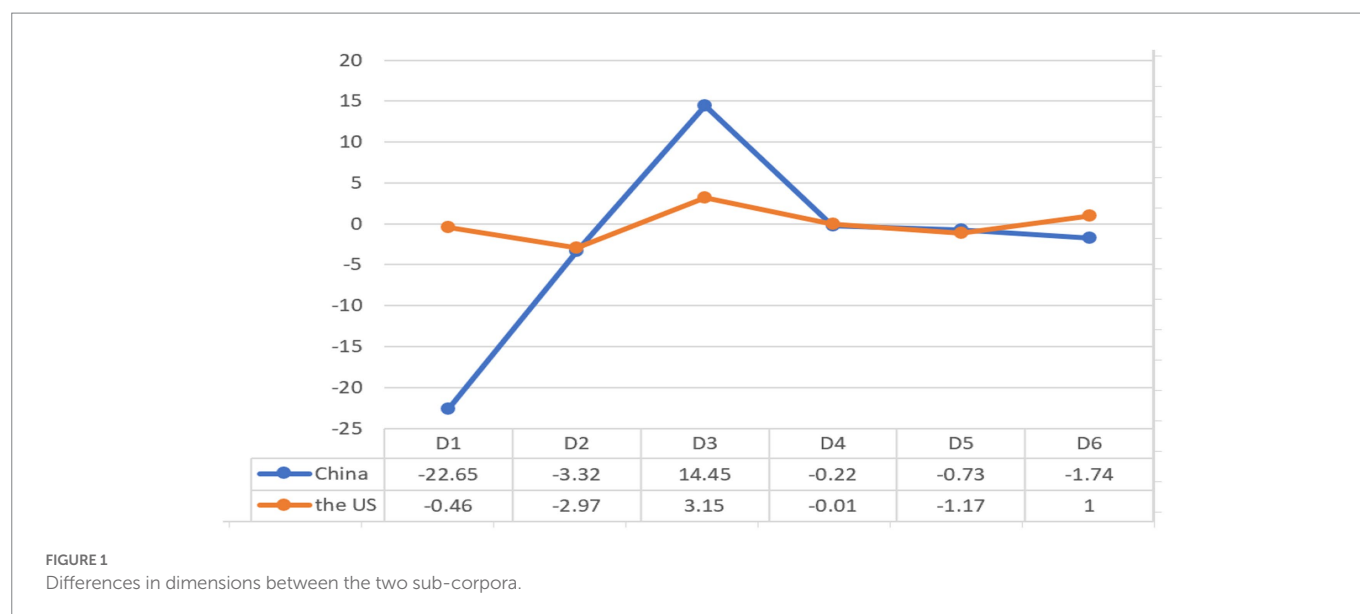


TABLE 4 Linguistic features that are significantly different between the two sub-corpora in Dimension 1.

Linguistic features	Mean		t-test	p-value
	China	US		
Private verbs	-0.9585	-0.351	-10.87	3.74e-13
That deletion	-0.6045	-0.0025	-18.833	< 2.2e-16
Present tense	-1.311	-0.19	-12.77	1.80e-12
Second person pronouns	-0.6425	0.1775	-33.133	< 2.2e-16
Pro-verb <i>do</i>	-0.792	-0.186	-28.567	< 2.2e-16
Total other nouns	3.38	2.091	2.5131	0.01921

frequently in the United States' diplomatic discourse than in China's diplomatic discourse, implying that the former has the feature of higher interpersonal interaction and higher expression of personal feelings compared to the latter. The dense information of China's diplomatic discourse is partly reflected in its high frequency of nouns, which is partially related to a lower frequency of first-person and second-person pronouns. Specifically, instead of using *we* for self-reference, China frequently uses *China* in its diplomatic discourse, even in spoken texts (Example 1). The United States uses more private verbs that express overt expression of attitudes and thoughts (Example 2), which makes the information in the US sub-corpus more affective, interactional, and generalized.

Example 1

At the international area, China is not known for bullying the weak. China has only been commended for speaking out for developing countries in defiance of the bullying by strong powers. That is why China has been winning friends all over the world.

Example 2

I think there are a number of areas of cooperation in terms of information sharing so we can track individuals, border security so that hopefully we can keep these individuals from returning, cooperation

around extremists and terror financing networks and creating safe havens for terrorists. So I think, again, a significant amount of work to do within the East Asian Ministers discussions as well.

Dimension 3 distinguishes between highly explicit, context-independent discourse and nonspecific, situation-dependent discourse, covering five linguistic features with large positive weights and three with large negative weights. High scores on this dimension suggest that the discourse does not depend on context for interpretation (Biber, 1988). Both sub-corpora have positive scores on this dimension, which are also the highest among the six dimension scores, showing a strong feature of independence from context. Nonetheless, the dimension score of China sub-corpus is significantly higher than that of the US sub-corpus, and the two sub-corpora differ in all the linguistic features in this dimension (Table 5).

Phrasal coordination and nominalizations occur much more frequently in China's diplomatic discourse, while WH relative clauses on object positions, WH relative clauses on subject positions, pied-piping constructions, time adverbials, place adverbials, and adverbs, are used slightly more frequently in the United States' diplomatic discourse. Accordingly, China's diplomatic discourse is more context-independent than the United States' diplomatic discourse by using phrasal coordination and nominalizations (Example 3), which are devices for idea unit expansion and informational integration (Chafe, 1982; Chafe and Danielewicz, 1986, to pack information into a text in a less context-dependent way by omitting context-dependent information such as the agent, time, and location. That the United States' diplomatic discourse is highly explicit, elaborated, and endophoric is embodied in its use of three different forms of relative clauses (Example 4), which pack information into noun phrases instead of expressing the information as separate and independent clauses. Though the two sub-corpora have different linguistic features, their marking of referents in an elaborated and explicit manner echoes the genre of diplomatic discourse.

Example 3

China is promoting industrial upgrading through scientific and technological innovation, advanced industrialization, IT application, urbanization and agricultural modernization all at the

TABLE 5 Linguistic features that are significantly different between the two subcorpora in Dimension 2.

Linguistic features	Mean		<i>t</i> -test	<i>p</i> -value
	China	US		
WH relative clauses on object position	−0.802	−0.7275	−8.9221	8.78e-11
Pied-piping relative clauses	−0.439	−0.2475	−5.9826	7.67e-07
WH relative clauses on subject position	−0.7775	−0.355	−8.7456	3.96e-10
Phrasal coordination	8.6795	1.344	22.026	< 2.2e-16
Nominalizations	3.0785	0.938	9.047	1.21e-08
Time adverbials	−0.9925	−0.021	−14.99	5.85e-14
Place adverbials	−0.48	−0.0895	−6.5562	7.62e-07
Total adverbs	−2.794	−1.8385	−10.782	1.43e-10

TABLE 6 Linguistic features that are significantly different between the two sub-corpora in Dimension 6.

Linguistic features	Mean		<i>t</i> -test	<i>p</i> -value
	China	US		
<i>That</i> verb complements	−0.4535	0.092	−6.5749	1.60e-07
Demonstratives	−1.287	0.9065	−17.965	< 2.2e-16
<i>That</i> relative clauses on subject position	0.519	3.232	−21.758	< 2.2e-16
<i>That</i> adjective complements	−0.089	0.95	−9.8172	1.27e-11
Total prepositional phrases	0.3895	−0.846	10.014	2.35e-10
Existential <i>there</i>	−0.909	0.383	−10.161	1.98e-10
Demonstrative pronouns	−0.6215	0.676	−17.938	< 2.2e-16
WH relative clauses on subject position	−0.7775	−0.355	−8.7456	3.96e-10
Phrasal coordination	8.6795	1.344	22.026	< 2.2e-16

same time, pursuing balanced and mutually reinforcing development between regions, and pushing for integrated urban-rural development.

Example 4

One of the biggest is the Foundation for the Future, which is based in Jordan and which is an independent NGO that supports civil society development throughout the BMENA region.

Dimension 6 deals with the elaboration of information generated under strict time constraints, leading to fragmentation of the presentation of information accomplished by tacking on additional dependent clauses, or an integrated presentation that packs information into fewer constructions containing more informative words and phrases (Biber, 1988). In general, the dimension score of the US

TABLE 7 Linguistic features of the two sub-corpora in Dimension 2.

Linguistic features	Mean		<i>t</i> -test	<i>p</i> -value
	China	US		
Past tense	−0.9355	−0.517	−9.662	3.74e-11
Third person pronouns	−1.11	−0.7695	−12.427	7.17e-15
Perfect aspect	−0.522	−0.559	0.23571	0.816
Public verbs	−0.425	−0.4695	0.30033	0.7669
Synthetic negation	−0.648	−0.48	−2.4881	0.01956
Present participial clauses	0.32	−0.1765	4.0255	0.0004244
Present tense	−1.311	−0.19	−12.77	1.80e-12
Attributive adj.	1.786	−0.329	7.916	1.43e-07
Past participial WHIZ deletion relatives	−0.229	−0.583	6.1712	4.85e-06
Word length	2.2605	0.0505	17.484	4.46e-15

sub-corpus is significantly higher than that of the China sub-corpus, and they have different linguistic features in this dimension (Table 6), indicating that the China sub-corpus contains significantly fewer features of texts produced online. The lower dimension score of China sub-corpus is characterized by limited use of *that*-clauses (including *that* complements to verbs or adjectives and *that* relative clauses on object positions), demonstratives, and existential *there*. The significant differences between these linguistic features indicate that though the diplomatic discourse of both countries represents a formal, planned type of discourse, the United States' diplomatic discourse is more likely to use *that*-clauses and demonstratives than China's diplomatic discourse, to expound on international affairs that could otherwise be described with denser information, as evidenced by Example 5. Both countries' diplomatic discourse has an informational focus, but the United States' diplomatic discourse shows the feature of being produced under real-time conditions compared to China's diplomatic discourse. The latter is associated with more formal and planned discourse.

Example 5

But we have a lot more going on across the region, and this trip is really an opportunity to showcase that these other dimensions of U.S. engagement in the Middle East and in the Gulf, particularly the emphasis that we have placed on building partnerships beyond the government-to-government level.

Similar dimensions of linguistic variation in China's and the United States' diplomatic discourse

The results of independent-sample *t*-tests show no statistically significant differences in the dimension scores of China's and the United States' diplomatic discourse on Dimensions 2, 4, and 5.

Low D2 scores indicate that the texts in the corpus are non-narrative, belonging to static, descriptive or expository types of discourse. The D2 scores for the China and the US sub-corpora are both low, demonstrating the non-narrative feature of diplomatic discourse. Table 7 shows that the

two subcorpora have limited use of perfect aspect, public verbs, and synthetic negation. All these linguistic features represent narrative action in texts. Specifically, perfect aspect is used to describe past events; public verbs are often markers of indirect and reported speech commonly used to introduce indirect statements; synthetic negation is one of the depictive details. The limited use of these features of narrative discourse indicates that both countries place more emphasis on discussing current efforts and future development rather than past achievements (Example 6). They do not tend to “express intellectual states (e.g., believe) or nonobservable intellectual acts (e.g., discover)” (Biber, 1988, p. 96). Meanwhile, it also implies that diplomatic discourse is often marked by non-narrative concerns, whether expository or descriptive.

Example 6

The United States will continue to provide lifesaving assistance to the millions of Darfuris who are affected by this conflict until the humanitarian situation improves.

Table 7 shows that Dimension 4 concerns the degree to which persuasion is marked overtly, involving the overt marking of authors' points of view and their assessment of the advisability or likelihood of an event presented to persuade the audience (Biber, 1988). The D4 scores of both sub-corpora are not high, implying that the diplomatic discourse in the present study does not show explicit marking of persuasion to its audience. Independent-sample t-tests reveal that there are no significant differences in the use of predication models (e.g., will/would/shall) and suasive verbs (e.g., command, stipulate) between the two sub-corpora (Table 8). The former presents direct statements that some events will occur, while the latter indicates the intention of something to happen in the future. Though the use of these linguistic patterns that signify overt markers of persuasion is limited in both countries' diplomatic discourse, the two sub-corpora have intermediate scores on this dimension, indicating that the genres of the two sub-corpora are relatively undistinguished on this dimension.

Dimension 5 distinguishes between highly abstract, technical discourse, and non-abstract types of discourse. Both sub-corpora have low values on this dimension, implying that the texts in the corpus convey information in a non-abstract way. It can be found from Table 9 that there are no significant differences in the use of adverbial subordinators and passive clauses, including agentless passives and by-passives, between China's and the United States' diplomatic discourse, suggesting that both sub-corpora do not make frequent use of these

linguistic features that mark informational discourse that is abstract. Passive constructions are frequently used to highlight the patient of the verb, the entity acted upon, which is usually an inanimate referent and is often an abstract concept rather than a concrete referent (Biber, 1988). Adverbial subordinators co-occur with passive forms to mark the complex logical relations among clauses. Since passive forms frequently appear in abstract and technical texts with formal style, the findings show that these two sub-corpora do not have the feature of the frequent use of these co-occurring features. Likewise, the mean of other linguistic features in this dimension is close to 0, indicating a mixture of two content types, namely, the abstract and technical one and the non-abstract one.

Discussion

The results show that the impact of different countries on dimensions of linguistic variation in diplomatic discourse is more significant than that of modes of discourse. As mentioned earlier, diplomatic discourse is a typical institutional political discourse produced under the government's strict supervision. Accordingly, the consistency of linguistic features of the diplomatic discourse of a country is closely related to maintaining its credibility and authority in the international community, promoting the dissemination of its diplomatic philosophies, and gaining support in international affairs. Though general spoken and written discourse often demonstrates different linguistic features, the present study's findings indicate that to highlight the solemn and formal characteristics of the diplomatic settings, spoken diplomatic discourse presents a large number of linguistic features of written diplomatic discourse. For instance, the spoken diplomatic discourse has low values on the linguistic features that best reflect colloquialism and interactivity, such as private verbs, second-person pronouns, contraction, logical negation, demonstratives, etc. In particular, the only dimension on which spoken and written diplomatic discourse differs significantly is D4, indicating that the overt expression of persuasion in spoken diplomatic discourse is more evident than that in written diplomatic discourse. Furthermore, since the spoken texts in the corpus are the remarks and speeches of leaders of the countries and spokespersons of the Ministry of Foreign Affairs of the People's Republic of China and the United States Department of State, they tend to provide not only detailed information to the audience to fully express their views, but also use linguistic devices such as prediction models, suasive verbs, and necessity modals, to justify their arguments so that the audience can accept their points of views (Chong and Druckman, 2007; Li, 2014). Accordingly, in diplomatic discourse, spoken discourse demonstrates many linguistic features typically and exclusively belonging to written discourse.

Diplomatic discourse of different countries often presents different linguistic features on account of their different national positions and national interests in international affairs. For instance, a developed country may hope to maintain its monopoly in certain fields through diplomacy, while developing countries may need international cooperation and support from other countries to strengthen their own development. Thus, while diplomatic discourse has some commonalities as a whole, there are differences in the diplomatic discourse of different countries. This feature is vividly presented in the present study. Namely, China and the United States have different ideologies and cultures, which partly contribute to the differences in linguistic features of the diplomatic discourse of the two countries.

TABLE 8 Linguistic features of the two sub-corpora in Dimension 4.

Linguistic features	Mean		t-test	p-value
	China	US		
Infinitives	0.569	1.338	-3.6596	9.84e-04
prediction modals	0.6675	0.0945	3.1416	0.005014
Suasive verbs	0.2575	0.1675	0.54565	0.5915
Conditional adverbial subordinators	-1.026	-0.0235	-17.05	1.44e-15
Necessity modals	0.346	-0.551	4.9821	7.02e-05
Split auxiliaries	-1.034	-1.028	-0.048144	9.62e-01
Possibility modals	-1.098	-0.297	-13.142	1.04e-15

TABLE 9 Linguistic features of the two sub-corpora in Dimension 5.

Linguistic features	Mean		t-test	p-value
	China	US		
Conjuncts	0.01	−0.061	0.70985	4.83e-01
Agentless passives	−0.7315	−0.5965	−2.69	0.01353
Past participial clauses	0.7625	0.05	4.504	0.0001667
By-passives	−0.1425	−0.2035	1.3103	0.2025
Past participial WHIZ deletion relatives	−0.229	−0.583	6.1712	4.85e-06
Other adverbial subordinators	0.224	0.0675	1.3176	0.2026
Predicative adjectives	−0.6985	0.7945	−11.054	3.78e-11

Regarding the second research question, the study shows that, regarding linguistic features, China's diplomatic discourse is most similar to learned exposition. In contrast, the United States diplomatic discourse is closest to involved persuasion. They present significant differences in information density (D1), contextual dependence (D3), and the degree of elaboration of information generated under strict time constraints (D6). First, the information density of the China subcorpus is significantly higher than that of the US subcorpus. The difference in D1 scores is due to the greater emphasis of China's diplomacy on providing more information in the conduct of international affairs by using more content words (mainly including nouns, verbs, adjectives, and adverbs) in diplomatic discourse. This is also evidenced by the findings of [Hu and Tian's \(2018\)](#) research on the English translations of China's diplomatic discourse, in which the authors point out that China's diplomatic discourse uses content words frequently to project its image of being down-to-earth in diplomacy.

Second, the context dependency of the China subcorpus is significantly low, as indicated by its higher D3 score. Though both countries' diplomatic discourse does not depend on context for interpretation, this feature is more pronounced in China's diplomatic discourse, as evidenced by its significantly higher score on this dimension. To be specific, the key linguistic feature characterizing the high D3 score of China's subcorpus is nominalization, which "allows the dense packing of complex ideas into elements of clause structure, the addition of modifiers and qualifiers, and the backgrounding and foregrounding of information in the discourse" ([Jucker et al., 2015](#)). In addition to the influence of the Chinese source language, the frequent use of nominalization largely depends on the diplomatic genre. In the case of Chinese, the structure in which the subject is omitted may trigger the use of nominalized structures in China's diplomatic discourse ([Hou, 2013](#)). Since "the frequencies of English nominalization are directly related to the formality of the text type in which it appears" ([Wang, 2003](#), p. 74), the frequent use of normalization in the China subcorpus indicates that the text type of diplomatic discourse in China is severe and formal.

Third, the China subcorpus has significantly lower D6 scores, marking its independence from on-line elaboration strategies for the

production of informational discourse ([Biber, 1988](#)). The less on-line information elaboration is always closely related to more shared background knowledge ([Biber, 1988](#)). In this case, the diplomatic discourse on the official websites of both countries is intended for professional and semi-professional readers who are expected to be interested in and have basic background knowledge of diplomacy. The lower D6 score of the China subcorpus suggests that China, represented by the Ministry of Foreign Affairs of the People's Republic of China in handling international affairs, may have assumed more background knowledge than the United States, represented by the US Department of States. The typical linguistic features, including *that* verb complements and demonstratives, are useful tools for "the expression of opinions, attitudes, or personal statements of individuals" ([Biber, 1988](#), p. 160). Accordingly, the high score of the US subcorpus may also echo its low D4 score, which suggests a low degree of explicitness in expressing the producers' views.

In terms of the third question, though some differences in linguistic features of China's and the United States' diplomatic discourse are identified, there are also some features that do not differ significantly between the two sub-corpora, which may indicate the commonalities of diplomatic discourse and the consistent genre features. Both China's and the United States' sub-corpora have low D2 scores, signifying their non-narrative feature. Their low D2 scores mainly result from the strong tendency of countries to place greater emphasis on current international affairs and future developments rather than past achievements. In this way, both China and the United States, as two major countries, hope to strengthen their images as responsible countries in proactively handling international affairs and show their abilities to promote global development in the future to gain more support. Meanwhile, the limited use of public verbs, referring to markers of indirect and reported speech commonly used to introduce indirect statements, in diplomatic discourse reinforces the authority of diplomatic discourse.

Besides, the degree of persuasion is not high in both countries' diplomatic discourse, as evidenced by their intermediate D4 scores, implying that diplomatic discourse is implicit in expressing the producers' points of view. Vagueness is a typical feature of diplomatic discourse, which is often prominent in various diplomatic settings, especially the press conference of the Ministry of Foreign Affairs. International situations are complex and changeable, and uncertainty is the norm. The feature of vagueness of diplomatic discourse makes it possible for countries to implicitly express their national positions in handling international affairs ([Nicholson, 1963](#)). In this way, vague expressions in diplomacy can avoid the adverse effects of misjudgments, facilitate strategic adjustment after the situation changes, avoid direct conflicts, and maintain and improve international relations. The results of the present study confirm previous findings that national positions and diplomatic stances are often implicitly expressed by the producers of diplomatic discourse.

Finally, there is no significant difference in the degree of abstractness of diplomatic discourse between the two countries. However, the D5 score of the China sub-corpora is below zero, and that of the US sub-corpora is above zero. This suggests that diplomatic discourse needs to show a clear tendency to express viewpoints and positions in a technical, abstract, and formal way. Nevertheless, the two sub-corpora are similar in this dimension in terms of content and style. The fundamental goal of diplomatic discourse is to make its audience understand the connotations of diplomatic discourse in handling

international affairs. However, diplomatic discourse must be concrete. Otherwise, it will lose its authority. Accordingly, diplomatic discourse strikes a balance between being understandable to the audience and maintaining authority, resulting in a mix of abstract and non-abstract content types.

Conclusion

The study explored Chinese and American diplomatic discourses using the multi-dimensional (MD) analysis proposed by Biber (1988). The study investigated the influences of countries and modes on linguistic variation in China's and the United States' diplomatic discourse. The study also presented the differences in linguistic features between the two countries' diplomatic discourse. The results showed that China's diplomatic discourse falls into the text type of "learned exposition," emphasizing conveying information. In contrast, the United States diplomatic discourse belongs to the text type of "involved persuasion," which is persuasive and argumentative.

The study identifies that the impact of different countries on dimensions of linguistic variation in diplomatic discourse is more significant than that of modes of discourse. Spoken diplomatic discourse exhibits many linguistic features usually associated with written discourse. By contrast, the diplomatic discourse of different countries often presents different linguistic features on account of their different national positions and national interests in international affairs.

The present study's findings have functional, practical implications in dealing with international affairs. As the authoritative and official channel for countries to express their national positions on various foreign affairs, diplomatic discourse plays a pivotal role in constructing the diplomatic discourse system, the discursive construction of the national image, and enhancing discourse power in the international community. The differences in stylistic features between China's and the United States' diplomatic discourse revealed by the present study make it possible to understand the differences between the two countries regarding ideologies and cultures, diplomatic philosophies, and national conditions. Meanwhile, a comprehensive understanding of the typical linguistic features of diplomatic discourse contributes to a further

understanding of the nature of diplomacy and the critical role of discourse in the construction of international order and handling of international affairs.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Applying data-driven learning in self-translation of academic discourse: A case study of a Chinese medical student

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This article reports on an experiment on the use of data-driven learning (DDL) in the revision of self-translation by a Chinese medical student. The think-aloud method is employed to investigate the difficulties the student encountered in self-translation and the effectiveness of DDL in improving the quality of self-translation. Results show that difficulties in the self-translation of medical abstracts are mostly associated with markers of rhetorical moves, terminologies, and conventional academic expressions and that they can be effectively solved by such corpus consultation strategies as checking possible options in bilingual dictionaries, using the most certain keywords to find collocations, and using the most possible accompanying words to find contexts. A comparison of translations before and after the application of DDL reveals that it could help improve translation quality in lexical choices, syntactic structures, and discourse practice. An immediate interview shows that the participant holds a positive attitude toward DDL.

KEYWORDS

data-driven learning, self-translation, corpus, abstract translation, medical English

Introduction

Translation plays an important role in the dissemination of academic discourse (Pisanski Peterlin, 2019). In China, it is common for scholars to translate their articles for international publishing purposes. This is also the case in many non-English-speaking countries. Pérez-Llantada et al. (2011) found that two of 10 Spanish academics use translation as their second language (L2) for writing, translating their own writings into English. However, due to these scholars' limited command of L2 and the linguistic and cultural interference during the transfer from L1 to L2, their translations are sometimes not of good quality and even hard for native English speakers to understand, thus risking the possibility of being rejected. As a result, how to improve the self-translation of academic discourse is an issue that bears practical importance for non-native English-speaking scholars who wish to get published internationally.

As corpora record and reflect authentic language use, many applications of corpora have been found in language learning and teaching. These applications have been both indirect and direct. Indirect application refers to specialists using corpus-derived information to design new dictionaries, textbooks, or other teaching materials, while direct application refers to language learners searching and using corpora themselves. The latter is highlighted by Johns (1990) who uses the term data-driven learning (DDL). Thereafter, a large number of studies have been conducted on the effects of DDL on students' second language competence, especially in writing (Huang, 2014; Tono et al., 2014; Samoudi and Modirghamene, 2022),

vocabulary acquisition (Lee and Lin, 2019; Lee et al., 2020), reading comprehension (Hadley and Charles, 2017), and translation (Gavioli, 2005, p. 114–118; Zanettin, 2009; Giampieri, 2019). Among studies on the DDL approach in translation practice, less attention has been paid to the self-translation of academic discourse. Given the fact that self-translation in academic settings is a fairly common practice (Pinto, 2012), such neglect is surprising, and more research should be done.

This study reports a case study of a Chinese medical student using corpora to revise her translation of a research article abstract following data-driven learning methods. It is a process-oriented study aiming to check how effective DDL is at helping a student solve problems in translation. We also intend to find some strategies for using corpora to improve the translation quality of academic discourse. Specifically, this study is going to answer the following four questions:

1. What difficulties would scholars encounter in the self-translation of academic discourse?
2. What corpus consultation strategies are effective in self-translation?
3. To what extent can DDL improve translation quality?
4. What are learners' attitudes toward corpus-based translation?

Literature review

Self-translation of academic discourse

Self-translation used to be regarded as a literary phenomenon, referring to authors translating their own literary works into another language (Popovič, 1976, p. 19). Self-translators are often those who are motivated by their intercultural experience with ambitions to create artistic or literary uniqueness (Hokenson, 2013, p. 40), so they are also called author-translators or rewriters (Bassnett, 2013, p. 13). Many studies have been done on literary self-translation, including studies of certain self-translators and their literary works (e.g., Larkosh, 2006; Li, 2017; Sorvari, 2018) as well as theoretical discussions of self-translations (e.g., Ehrlich, 2009; Wilson, 2009, 2017).

However, far less attention has been paid to the self-translation of academic discourse. The early work on this topic is found in Jung's (2002) study that compares self-translated academic texts with students' translations of the same texts. By focusing on linguistic and discourse features, Jung concluded that self-translators tend to adopt translation strategies not seen in other translators. Another typical text-based analysis was done by Al Zumor (2021), who examined the various linguistic strategies that Arab academics took when translating abstracts of their research articles from English into Arabic and found important cross-linguistic differences between the original texts and their translations. In addition, attention has also been paid to the self-translator's attitudes. Pisanski Peterlin (2019) interviewed nine experienced Slovene scholars about their experiences with and attitudes toward self-translation of academic discourse and found that scholars have mixed opinions on it, with some claiming it to be

challenging and time-consuming, while others arguing that it was worthwhile and important.

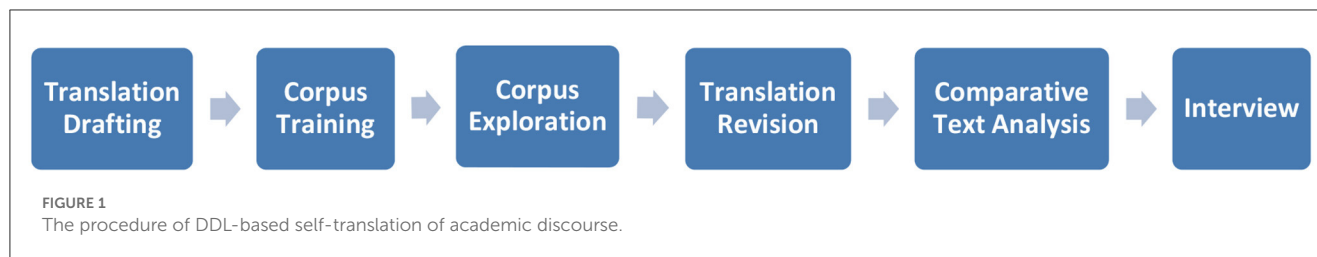
It is surprising that studies on the self-translation of academic discourse are so limited. These studies are either product-oriented, focusing on linguistic features of the translations, or translator-oriented, focusing on translators' attitudes. The process of self-translation has been largely neglected. Our research attempts to examine what difficulties scholars would encounter in translating their own academic texts and whether DDL would help them produce better translations.

DDL for writing and translation

Data-driven learning (DDL) was first defined as "the use in the classroom of computer-generated concordances to get students to explore regularities of patterning in the target language" (Johns and King, 1991). It usually involves the indirect use of corpus with concordance lines on handouts provided by teachers. Later, direct corpus use by learners was discussed as a contribution of a corpus-based approach to language teaching (Conrad, 2000). DDL emerged when the prevailing paradigm of communicative language teaching (CLT) was questioned. Since CLT emphasizes fluency over accuracy, many language teachers began to call for more focus on grammatical form, and DDL meets this demand. By providing authentic input and asking learners to discover language rules by themselves, DDL creates rich opportunities for focusing on form, drawing learners' attention to language features in context, and improving accuracy in their language output.

Earlier studies on DDL were basically theoretical, but recent years have witnessed an increasing number of empirical studies on second language learning, especially on L2 writing. There are basically three kinds of studies. The first kind focuses on the effect of DDL on the performance of L2 writing, as measured by quantitatively evaluating fluency, accuracy, and complexity (Luo, 2016; Meunier, 2019); by error correction (Crosthwaite, 2017, 2020; Satake, 2020; Zhu, 2021); or by some specific language features such as connectors (Cresswell, 2007). Generally speaking, the DDL approach proves to be effective for L2 writing, although its benefits are not observed in every aspect. The second kind is mainly on the learners' attitudes toward DDL (Geluso and Yamaguchi, 2014; Lin, 2016; Pérez-Paredes et al., 2019). It is found that most learners are positive toward DDL, claiming that corpus consultation can provide authentic language use in context. However, some participants are frustrated while using corpora because it is time-consuming and hard to come up with language rules by themselves. The third kind, which is inspiring to our current research, is about corpus consultation procedures in L2 writing. Kennedy and Miceli (2001) summarized four steps in corpus investigation, namely, formulating the question, devising a search strategy, observing the examples and selecting relevant ones, and drawing conclusions. Quinn (2015) also described a five-step corpora-reference process for self-revision and found that it can force students to consider unexplored aspects of language and refine their linguistic choices.

While there is much literature on corpus-based L2 writing, corpus-based translation practice by L2 learners has been explored



to a lesser extent. Very few studies have been done. Scott (2012) and Gallego-Hernández (2015) made surveys on corpus use habits among translators; Gavioli (2005, p. 114–118) and Giampieri (2019) demonstrated that translation quality improves when translators use corpora as references; Yumuk (2002) and Bernardini (2016) advocated the application of corpora in the translation classroom; and Pastor and Alcina (2009) provided a classification of corpora search techniques for translator training. The last study is important to our current research because it lists a category of corpus query probes for translation purposes, supporting our decision-making in choosing the most effective query probes for novice corpus users.

All these studies give valuable insights into the application of DDL to the translation of academic discourse. First, they confirm that DDL plays a positive role in L2 output (L2 writing and translation). Second, related empirical studies offer useful references on text quality evaluation, corpus user training, and user feedback, helping us design a more reliable research procedure (refer to Figure 1). However, these studies mainly focus on the effects of DDL on translation, and we believe that a thorough investigation of DDL in the translation process is essential because it would expand studies from “why we use DDL” to “how we use DDL” in translation and contribute to both translator training research and DDL research.

Materials and methods

Participant

This case study involves a fourth-year undergraduate student majoring in clinical medicine at Wenzhou Medical University, China. She had learned English as a second language for 12 years before entering college and has finished a compulsory 2-year college English course and a 1-year medical English course. She passed China's College English Test (Band 6, CET-6) with a score of 530, indicating that her English proficiency is at an advanced level. In CET-6, the writing and translation tasks are for academic purposes, and her score in these parts proves that she has well-commanded basic academic writing and translating skills. The participant was faced with the task of translating an abstract of her own research article from Chinese into English; she found it difficult and sought support from her English teacher.

Thus, this becomes the task of our experiment: how to translate a medical abstract discussing the effects of a new diabetes treatment in a clinical trial into English. The best way to help her may be to find a specialist who is good at English and familiar with medical academic discourse. Since such a specialist is not always available when needed, a corpus-based data-driven learning (DDL) approach

becomes a good alternative. The key point of DDL is that it offers learners a large number of cases of authentic language use, and learners can find specific linguistic features by vertically reading the node(s) in concordance. Repeated patterns can be easily found or judged by their frequency. It is an approach that would assist learners in self-translating abstracts or research articles, at present or in the future, with or without teachers' help.

Materials

This study experiments with the translation of a Chinese abstract by the participant on diabetes treatment. The Chinese version and its literal translation (by us) are as follows:

Source text in Chinese:

目的：探究新型饮食疗法对2型糖尿病的干预效果。方法：将100例2型糖尿病患者随机分为实验组($n = 50$)和对照组($n = 50$)，给予对照组患者食物交换份法，给予实验组患者新型饮食疗法。结果：实验组低血糖发生率以及住院时间明显少于对照组($p \leq 0.05$)。结论：给予患者新型饮食疗法干预可取得较为满意的效果，值得大力推广应用。

Literal translation in English:

Objective: To find the intervention effects of a new dietary treatment on type 2 diabetes. Methods: 100 cases with type 2 diabetes patients were randomly assigned to a test group ($n = 50$) and a control group ($n = 50$). The control group was given the food exchange treatment, and the test group was given a new dietary treatment. Results: The rate of hypoglycemia and length of hospital stay of the test group are significantly shorter than the control group ($p \leq 0.05$). Conclusions: The new dieting intervention can achieve relatively satisfactory results, and it is worthy of promotion.

Corpus

The corpus used in this study is a self-built monolingual corpus consisting of 60 English research article abstracts from *Diabetes Care*, a leading journal in diabetology, in order to present a closer theme and writing style to our translating task. It would provide authentic language usage in the medical abstract genre in aspects of markers of rhetorical moves (e.g., words like “objective,” “methods,” and “results” in the abstract), terminologies, and conventional academic expressions. The corpus is built by the student herself, under the guidance of the teacher. Before the experiment began, the teacher asked her to download from top-level international medical journals 60 abstracts of articles on diabetes published in recent years. Each abstract was kept as a text file in the txt format. There are 14,438 word tokens in the final corpus. Although not big in size,

it serves as a reference corpus with many advantages. First, when compared with large online corpora with millions, even billions, of word tokens, a mini reference corpus can provide language usages more in line with the needs of a specific translation task. The high correlation between input and possible output would make our participants more focused on linguistic forms. Second, because it is a monolingual corpus, it is easy for users to compile. As the participant said, she spent only a few hours building such a corpus. Third, because it is small, it is also quick to retrieve with corpus analysis toolkits. In a word, our goal is to develop a simple, low-cost model for corpus search that the participant can follow in her future translation projects.

Procedures

Based on Kennedy and Miceli's (2001) four-step corpus investigation process for L2 writing, we made a few modifications and came up with a DDL procedure for a beginner to use corpora for self-translation (refer to Figure 1). It had six steps and was carried out in 4 h, with each step lasting ~40 min. The experiment was done in the teacher's office with only three persons present: the participant, the teacher responsible for instruction, and a research assistant responsible for audio recording and query documentation.

- (1) Translation drafting: The participant was asked to translate her Chinese abstract with the help of all sorts of references she can find, either paper/electronic dictionaries or search engines like Baidu. She was asked to report her confusion and uncertainties in translation while drafting with the think-aloud method.
- (2) Corpus training: The participant was given a 40-min briefing on corpus use. With the self-made corpus prepared before, we briefed her about Antconc, a freeware corpus analysis toolkit. We first introduced her to basic features in the KWIC concordance interface and then explained the most basic rules of entering search terms. We follow Pastor and Alcina's (ibid.) basic search techniques for translation purposes. The first is probing lexical expressions by a word's lemma or partial form with the combination of a wildcard (*) so that all its inflections are displayed in KWIC together. For example, if we want to see how the verb "investigate" is used in context, we can enter "investigat*" in the search term box and get KWIC results of "investigate," "investigates," "investigating," and "investigated." The second is probing lexical expressions by combining two lemmas with a wildcard (*) at each end, such as "control* group*" for possible concordance lines of "control group," "controlling group," "control groups," and "controlling groups." It could help the participant confirm her assumption of collocations with grammatical forms.
- (3) Corpus exploration: The participant began to try her concordance exploration by trying different search terms with the think-aloud method. Since it was her first time using Antconc, the teacher observed her research process and gave some hints only when she found no clues in concordance research or stopped her think-aloud report for more than 10 s.
- (4) Translation revision: Based on the first translated version before the use of corpora, now the participant is asked to make revisions. She was also asked to report why she decided to make such changes to the think-aloud method.
- (5) Comparative analysis of texts: The two versions were compared on a qualitative basis to see whether there were any improvements in the second version and what were the limitations of concordance use.
- (6) Interview: The participant was asked to report her own attitudes on corpus-based translation revision activity.

Methods

(1) Think-aloud method

This method was used in translation drafting, corpus exploration, and translation revision. The think-aloud method refers to the method of asking participants to think out loud while performing a given task or immediately after the completion of the task (Eccles and Arsal, 2017). The former is called concurrent reporting, and the latter is called immediate retrospective reporting; our study adopts the former.

The key to concurrent reporting is to involve participants in a specific task and ask them to verbalize all the cognitive processes in a way of speaking to themselves. By using concurrent reporting, researchers can get a picture of what was going on in participants' cognitive processing of a task. In our case, the participant received a 5-min instruction to concurrently think aloud how she translated a given Chinese sentence into English. She would speak out whatever came to her mind, including general comments on the difficulty of the task, uncertainties of lexical equivalents and syntactic structures, worries about translation quality, and efforts to make improvements. If the participant was silent for more than 5 s during the tasks, she was reminded to keep talking aloud. All her reports are recorded and transcribed by a research assistant.

(2) Manual documentation of students' corpus queries

Documenting students' corpus queries can be done manually by the students themselves (Chambers and O'Sullivan, 2004) or through the collection of computer logs (Crosthwaite et al., 2019). In our case, since the participant was busy performing the think-aloud task, the research assistant did the documenting job manually.

The think-aloud transcription and corpus query records are analyzed together to ascertain the participant's cognitive process and corresponding problem-solving action at the same time.

Results and discussions

Difficulties in self-translation of academic discourse

The participant felt confused in translating three kinds of expressions, namely, markers of rhetorical moves, medical terminologies (including technical terms and semi-technical terms), and conventional academic expressions in medical abstracts. She found it particularly challenging to express in

TABLE 1 Expressions the participant felt confused.

Categories		Source text (literal translation)	Participant's translation
Markers of rhetorical moves		目的(objective)	goal
		方法 (methods)	way
		结果 (results)	result
		结论 (conclusions)	conclusion
Medical terminology	Technical terms	饮食疗法 (dietary treatment)	diet therapy
		二型糖尿病 (type 2 diabetes)	Type II Diabetes Mellitus
	Semi-technical terms	干预效果 (intervention effects)	intervention effects
		实验组(test group)	Test group
Conventional academic expressions		探究(to find)	searching
		分为...组 (be assigned to)	dividing...into
		明显少于 (significantly less than)	obviously less than
		满意的效果(satisfactory effects)	a satisfactory way

English the clinical trial design and results. Table 1 shows the participant's final choice for the confusing expressions in the first translation.

The participant expressed her confusion by thinking aloud. As for the markers of rhetorical moves, she said that it was easy to find equivalents in her own English vocabulary, but she was not sure whether the equivalent English expressions are commonly used in English medical discourse or in the abstract genre. For example, when she saw “目的” (objective), the first equivalent that came to her mind was “goal,” which she learned when she was a primary student by reciting English wordlists, with English and corresponding Chinese at the same line. As for “结论” (conclusion), she said that she was not sure if “conclusion” could be used alone, because in her memory “conclusion” occurred in the fixed chunk “in conclusion.” As for medical terminologies, she said that she would check a dictionary for their equivalents, but the problem was that a Chinese-English dictionary often provides more than one expression, and she was not sure which one is more widely used or more idiomatic. For example, the first result for the search of “二型糖尿病” in the Baidu online dictionary is “Type 2 Diabetes”; the abbreviation of “二型糖尿病” in her medical textbook, however, is “T.2 DM,” so she looked for more translations in the dictionary and chose “Type II Diabetes Mellitus,” the one most similar to that in her textbook. As for the conventional academic expressions in medical abstracts, she said that they are easy if translated literally, but she was again not sure if they are accepted in the medical community. For example, in describing how to arrange a clinical trial among different groups, the literal translation for “分组” (be assigned to) is “to divide somebody into different groups,” but she was not sure if native English speakers would understand this expression, although she joked that Chinese readers could. Moreover, she said that she was not certain about the grammatical form of certain words, being plural or single, verb or noun. In addition, she also worried that her translation must be very informal and not up to international publishing standards.

In summary, difficulties in translating academic discourse are usually found in the rendering of markers of rhetorical moves, terminologies, and conventional academic expressions. The reasons, from our analysis of the participant's think-aloud account, are caused by (1) fixed English-Chinese match in English-Chinese vocabulary lists, traditional and still popular among Chinese EFL learners; (2) confusion of too many options in Chinese-English dictionaries; and (3) L1 negative transfer in literal translation.

Corpus consultation strategies

With the problems identified above in mind, the participant started corpus exploration by herself. The teacher observed her search actions and gave hints when necessary. We recorded what she did and what she thought. The following shows some of the most revealing parts of her “think-aloud” account.

(1) Exploration for markers of rhetorical moves

First, the student inquired into the marker of the rhetorical move “goal*” for translating “目的.” Concordance showed zero hits, which went against her assumption. We suggested she combine the use of electronic dictionaries and corpora if she was not certain about the English equivalent. After checking an electronic dictionary, she found “target” and “objective” were close to “目的” in meaning and decided to check them one by one. The occurrences for “target*” were 7, but none served as a marker of a rhetorical move, while “objective*” had 64 occurrences, almost all of which were markers of rhetorical moves (refer to Figure 2). The student also realized that “objective” as a marker of a rhetorical move is always in the upper case in this journal. Following the same strategy, she found the equivalents for “方法,” “结果,” and “结论” and concluded that the best English translations for the four markers should be “OBJECTIVE,” “METHODS,” “RESULTS,” and “CONCLUSIONS.”

(2) Exploration of technical terms

1 **OBJECTIVE** To investigate glycemic and psychosocial outcomes
 2 **OBJECTIVE** To explore the effects of empagliflozin
 3 **OBJECTIVE** Statins may reduce the risk of
 4 **OBJECTIVE** Circulating N-terminal pro B-type
 5 **OBJECTIVE** In recent years, a growing number
 6 **OBJECTIVE** To use optical coherence tomography angiography (
 7 **OBJECTIVE** The incidence of type 1 diabetes has
 8 **OBJECTIVE** The risk of hypoglycemia in people
 9 **OBJECTIVE** To assess the relation of type 2
 10 **OBJECTIVE** To examine the association of maternal

FIGURE 2
Concordance lines of "objective*".

174 COVID-19 patients affected by type 2 diabetes.
 175 . In the Vitamin D and Type 2 Diabetes (D2d) study, repeated meas
 176) versus lispro in patients with type 2 diabetes on a basal-bolus insulin regir
 177 PPG control in patients with type 2 diabetes.
 178 ests (OGTTs) are predictive of type 1 diabetes. We performed a longitudinal
 179 changes during progression to type 1 diabetes and 2) GRC changes in relati
 180 ween progressors (n 5 298) to type 1 diabetes and nonprogressors (n 5 2, 2
 181 occur during the progression to type 1 diabetes. These GRC changes corres
 182 ent study, 23 participants with type 1 diabetes used three modes of the Ore

FIGURE 3
Concordance lines of "diabetes".

As for technical terms, we suggested our participant first try a keyword that she was most certain about and then find the exact expression for the certain term. For example, when translating “二型糖尿病” (type 2 diabetes), the participant did a query of “diabetes*” in AntConc and got a list of patterns such as “type 1 diabetes” and “type 2 diabetes” (refer to Figure 3). She then realized that the English equivalent of “二型糖尿病” was in lowercase with Arabic numerals. This conclusion is different from what she found in dictionaries (“Type 2 Diabetes” and “Type II Diabetes Mellitus”) before.

(3) Exploration of semi-technical terms

Translating semi-technical terms is also difficult for the participant because she thought aloud that her translation would be in Chinglish (Chinese English, non-idiomatic English interfered by Chinese features) if they are translated literally. The most typical example is “实验组” (test group in literal translation). The participant entered “test* group*” in AntConc but found 0 hits, which was against what she had previously anticipated. Since she had successfully found the expression “type 2 diabetes” by keying in the most certain keyword “diabetes,” a further investigation of “group*” (refer to Figure 4) was made to find possible terms for “实验组.” “Surgically treated group” was found in the concordance lines, along with several other expressions with capital letters such as “RT-CGM/GTS group,” “POC group,” and “RYGB group.” The student said that she then realized that native speakers use terms of treatments or diseases to name a group in clinical trials, and “test group” is not usually accepted. Interestingly, she also felt that “test group” may sound inhuman as if some patients are put in a biochemical test, but “treatment/disease + group” can reduce ambiguity and misunderstanding.

14 interventions. RESULTS The RT-CGM group demonstrated significantly lower
 15 individuals from the surgically treated group in the prospective Swedish Obe
 16 6 weeks) 70% (10%) with the control group unchanged: (baseline) 55% (12
 17 nmol/L [70–180 mg/dL]). The isCGM group wore an additional masked Enlit
 18 $P < 0.001$) times higher in the isCGM group compared with that in the SMBG
 19 worsening nephropathy in the placebo group was 1.2- to 2.0-fold higher for
 20 / GTS group and 36 in the POC group. The RT-CGM/GTS group exper
 21], $P = 0.017$) compared with the POC group. No differences in nocturnal hyp
 25 /dL per patient in the POC group. CONCLUSIONS RT-CGM/GTS c
 25 .18; 95% CI 0.04–0.82) for the RYGB group. There was a higher risk for
 26 compared with that in the SMBG group at 6 months. The change in the

FIGURE 4
Concordance lines of “group*”.

1 hange in FG level, diabetes incidence, and medication use. RESULTS After n
 2 increased type 2 diabetes incidence. Findings suggest that inflammation ar
 3 cts of empagliflozin on the incidence of obstructive sleep apnea (OSA) and
 4 .9 ± 0.5 vs. -1.9 ± 0.1 kg). Incidence of 3-point major adverse CV events,
 5 OBJECTIVE The incidence of type 1 diabetes has been rising
 6 tes Register, we studied the incidence of type 1 diabetes among children you
 7 ildren. CONCLUSIONS The incidence of type 1 diabetes decreased among y
 8 poglycemia (<3.0 mmol/L). Incidence of overall treatment-emergent adverse
 9 uartile range 3.4–9.6). The incidence rate of DPN events per 1,000 person-
 10 tween 2006 and 2011, the incidence rate (IR) reached a plateau in
 11 7.1-year median follow-up (incidence rate 9.6 per 1,000 person-years [95%
 12 % CI 7.8–11.7]). The LEAD incidence rate (per 1,000 person-years) increas
 13 EXTRACTION We extracted incidence rates of HHF, myocardial infarction (M
 14 s, we compared the RR for incidences of major adverse outcomes, including

FIGURE 5
Concordance lines of “incidence*”.

Another example is “发生率” (happening rate in literal translation). There are mostly two translations in dictionaries, namely, “occurrence rate” and “incidence rate.” The student at first wanted to try “occurrence rate” directly in the search box, but we told her that a single lemma of “occurrence” or “incidence” might help find more possible collocations. After searching “occurrence*” in AntConc, there was no result, which did not meet the student’s expectations. Meanwhile, there were 14 hits for “incidence*” (refer to Figure 5), among which five collocated with “rate” and nine had no collocates. Thus, the student concluded that “incidence” has the meaning of rate and frequency in itself and that the word “rate” was optional.

(4) Exploration of conventional academic expressions

Conventional academic expressions in medical abstracts are usually in the form of fixed syntactic structures. DDL can also play a part in improving translation quality at the sentence level. The strategy we offered is to find the accompanying word, a keyword that often appears in connection with a certain topic in context but not necessarily in a collocation or in the same sentence. For example, in an abstract, if we want to locate expressions for reporting findings of the research, we can look into the context of the accompanying word “Results.” Although the marker of the rhetorical move “Results” does not appear in the same sentence as the reporting-finding expressions, its context can offer a general picture of lexical choices and syntactic structures.

For example, in translating the first sentence of the abstract introducing the research objective, the participant was not sure

33	OBJECTIVE To assess the relation of type 2
34	OBJECTIVE To assess the efficacy and feasibility
34	OBJECTIVE To compare effects of the dipeptidyl
35	OBJECTIVE To compare four screening strategies for
35	OBJECTIVE To determine whether the benefits of
36	OBJECTIVE To evaluate the efficacy and safety
36	OBJECTIVE To evaluate whether the diagnosis of
37	OBJECTIVE To examine childhood BMI, fasting glucose,
37	OBJECTIVE To examine the association of maternal
49	OBJECTIVE To examine the comparative effectiveness of
49	OBJECTIVE To examine the association of diabetes
50	OBJECTIVE To examine the comparative effectiveness of
50	OBJECTIVE To examine the association between dietary
51	OBJECTIVE To examine the associations between change
51	OBJECTIVE To examine whether proinflammatory and hyperinsul
52	OBJECTIVE To explore the effects of empagliflozin
53	OBJECTIVE To investigate glycemic and psychosocial outcomes
53	OBJECTIVE To investigate school absenteeism before the
54	OBJECTIVE To investigate the association between treatment-
54	OBJECTIVE: To investigate the intervention benefits of
55	OBJECTIVE To investigate whether intermittently scanned con
55	OBJECTIVE To investigate whether intraindividual variabilit

FIGURE 6
Concordance lines of "objective".

how to translate “探究” (*search* in the literal translation), not only in lexical choices but also in syntactic structures. We suggested she try its accompanying word. Since the introduction part often occurs after the marker of the rhetorical move “OBJECTIVE,” the student tried “objective” (refer to Figure 6) in the concordance and found groups of expressions semantically equivalent to “探究,” such as “To assess” (two hits), “To examine” (eight hits), “To evaluate” (three hits), and “To investigate” (six hits). She then realized that the usual English expression for “探究” should be a “TO + VERB” construction with many choices of the verb.

Next, the student started to explore the conventional expression “分为...组” (*divide ... into* in literal translation). As her translation “divide*” turned up 0 hits in AntConc, she then tried to identify the accompanying word “METHODS.” But this time, the concordance lines are not so clear-cut for her to make a conclusion. Too many methods are involved. At this time, her professional knowledge in medicine gave her some ideas. She said that “分为...组” (*divide ... into*) is often preceded by the expression “随机” (*random*) in a clinical trial, so her second accompanying word choice was the English equivalent of “随机.” She consulted the Baidu online dictionary and found “random” to be the closest equivalent. The concordance lines of “random*” showed the phrase “randomize(d) to...” in high frequency (refer to Figure 7), and she discovered the syntactic structure “patients were randomized to A group or B group” is frequently used.

In summary, the strategies of corpus consultation that prove to be effective in our case are (1) checking possible equivalents offered by bilingual dictionaries; (2) using the most certain keywords to find collocations; and (3) using the most possible accompanying words to find context.

Comparative text analysis

As mentioned earlier, the evaluation of text quality in L2 writing through DDL is measured by quantitative measurements, such as the general score, fluency, accuracy, complexity, or the number of error corrections. They are not suitable in our case because, on the one hand, our data is small, and on the other hand, the revision of the translation is not error correction, as it is a choice of more acceptable expressions rather than the replacement of wrong ones with the right ones. As a result, we adopted a qualitative approach to analyze key changes between the two translations and then found at least three benefits that DDL can provide in improving translation quality, namely, more accurate lexical choices, more native-like syntactic structures, and more discipline-specific discourse practice.

(1) Lexical choice

Example 1:

Goal: Searching the intervention effects of a new type of diet therapy for Type II Diabetes Mellitus. (the first translation)

OBJECTIVE: To investigate the intervention benefits of a new diet treatment on type 2 diabetes patients. (the revised translation)

The most obvious changes in the revision are in lexical choices. The marker of rhetorical move “Goal” was changed into “OBJECTIVE” with all letters capitalized, which was a more common marker of rhetorical move expression in empirical research article abstracts. The verb “Searching” was changed into “To investigate,” an expression of much higher frequency in concordance, highlighting an action in the future. The noun phrase “intervention effects” may include both positive and negative results, and when it was changed into “intervention benefits,” its semantic meaning focused only on the positive side, which is what the source text really means. The change of the medical noun phrase “diet therapy” into “diet treatment” and “Type II Diabetes Mellitus” into “type 2 diabetes” makes the translation more professional and accurate. We can assume with certainty that corpus-based DDL can provide users with authentic language use and help them confirm the most native-like expressions in lexical choice and their corresponding grammatical form.

(2) Syntactic structure

Example 2:

Way: Dividing 100 Type II Diabetes Mellitus patients into the test group (n = 50) and control group (n = 50), with the control group receiving food exchange therapy and the test group receiving new diet therapy. (the first translation).

METHODS: A total of 100 patients with type 2 diabetes were randomized into a food exchange group (n = 50) and a new diet treatment group (n = 50). (the revised translation)

The key change here is that the verbal structure “dividing somebody” in the active voice is replaced by “somebody be randomized” in the passive voice. This change is made by concordance proof that native speakers use such expressions to illustrate methods of carrying out a clinical experiment in different groups. When the active voice is replaced by the passive one, the focus of the sentence changes from researchers who conduct the

RESEARCH DESIGN AND METHODS In this continuous glucose monitoring (CGM) were the final 3 weeks. **RESULTS** Participants were participants with diabetes and CV disease were with prandial lispro treatment, patients were ; A1C 62.6 ± 1.1% were glycemia were recruited. Participants were **DESIGN AND METHODS** In this double-blind **randomized study**, adults with type 1 diabetes (T1D) and **randomized** to 26 weeks of HCL (Medtronic 670G) or continuation **randomized** to HCL (n = 61) or control (n = 59). Baseline mean (**randomized** to empagliflozin (10 and 25 mg) or placebo daily in **randomized** to blinded URLi (n = 336) or lispro (n = 337) injected 0–2 **randomized** to rtCGM (n = 30) or isCGM (n = 30). All participants **randomized** to RT-CGM/ GTS or point-of-care (**randomized trial**, 46 overweight T2DM patients without renal impairment

FIGURE 7

Concordance lines of “random”.

experiment to patients who get involved in the clinical trial, which conforms to the medical discourse where objective facts are more valued than subjective presence. Meanwhile, since our participant found that native speakers use specific treatment or disease names to modify “group,” she replaced the expression “control group is therapied by food exchange method” with the nominal expression “food exchange group,” and “test group is therapied by new diet therapy” with “new diet treatment group.” When clauses are expressed in nominal phrases, the sentence becomes more concise and clearer.

(3) Discipline-specific discourse practice

Example 3:

Conclusion: It is a satisfactory way give the patients interventions of new type diet therapy, and it is worth promoting and applicate. (the first translation)

Conclusion: The result provides evidence that the new diet treatment can have beneficial effects. (the revised translation)

The most obvious change here is the deletion of the last sentence in the first version “and it is worth to promote and applicate.” This change was made after the participant went through all concordance lines with “conclusion” as the accompanying word. She realized that the conclusion section in medical abstracts only reports conclusions in an objective manner, and there is no concordance line about promotion. She thought that it was a shared discourse practice in the international medical community and then boldly deleted the last sentence. It demonstrates that DDL can improve an L2 writer’s awareness of discipline discourse conventions and offset the negative influence of L1 linguistic and cultural transfer.

Learner’s attitudes toward DDL

A short interview was conducted immediately to see the participant’s attitudes toward corpus-based translation and her difficulties in using the corpus.

The participant’s attitude toward DDL was very positive. To her, corpus exploration was an interesting process, and she can check her own assumptions of language use in concordance and find the most native-like expressions. She said that she was very worried about her Chinglish and now she was very happy to find that corpus consultation can help her improve her translation and

writing quality in English. She was sure that she would spend more time in the future building a bigger corpus related to her research area and making full use of the corpus in L2 writing and translation.

The participant also thought that the exploration of the corpus was somewhat time-consuming. She remarked that she was not accustomed to reading concordance lines in vertical order. But she thought it was because she had no experience before, and all the difficulties would be overcome if she consulted it on a regular basis.

Conclusion

This study reports an experiment involving a Chinese medical student using a corpus to improve her self-translation of a medical abstract. We came up with many interesting discoveries.

In translation drafting, we found that difficulties were mostly in looking for equivalents for markers of rhetorical moves, medical terminologies, and conventional academic expressions. According to the participant’s think-aloud reports, these difficulties were caused by her fixed English-Chinese match resulting from reciting English-Chinese vocabulary lists, too many options in Chinese-English dictionaries, and negative L1 transfer resulting from literal translations. In corpus exploration, three corpus consultation strategies proved effective in improving translation quality: checking possible equivalents offered by translation dictionaries, using the most certain keywords to find its collocations, and using the most possible accompanying words to find contexts. A comparative analysis of the original translation and the revised version reveals at least three improvements, namely, in lexical choices, syntactic structures, and discipline-specific discourse practice. The participant was very positive about the DDL approach.

Although we made such interesting discoveries, there is still more work we can do in the future. First, based on this pilot study, we can expand our study into different groups of learners with different commands of English and translation skills. We can also do more quantitative text analyses to measure the improvement if the data are big enough. In addition, even though we spend quite a lot of time designing the research, the experiment itself lasts for only 4 h, making the observation of corpus search practice rather limited. As a result, a long-term case study can be followed in the future.

Data availability statement

The datasets presented in this article are not readily available due to privacy concerns. Requests to access the datasets should be directed at: YL, connie@163.com.

Author contributions

YL and ZH designed the study. YL collected and analyzed data and wrote the article. ZH supervised the project and revised the article. Both authors contributed to the article and approved the submitted version.

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The pragmatic functions of emojis in Arabic tweets

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Emojis have been used on different platforms and in different languages to express feelings and emotions in online communication, which has led to their widespread familiarity among social media users worldwide. The current study is concerned with the pragmatic functions (speaker and contextual meanings) of emojis in Arabic tweets. The study used mixed methods to analyze the use of emojis and emoji position to identify their functions and possible gender similarities and differences. The dataset of this study consists of 421 Arabic tweets by Arab users at the beginning of 2022 (149 by male users and 272 by females). This study addressed three questions: (1) What are the common emojis used in Arabic tweets and their position in the tweet? (2) What are the pragmatic functions of these emojis? (3) What are the possible differences and similarities between male and female users in the use of emojis? The findings revealed that *Loudly Crying Face*, *Red Heart*, *Face with Tears of Joy*, *Broken Heart*, *Smiling Face with Heart-Eyes*, *Pleading Face*, *Slightly Smiling Face*, *Pensive Face*, and *Weary Face* were preponderant in Arabic tweets. Also, this study found seven pragmatic functions ranging from the most to the least frequent: *Multiple functions*, *Reaction*, *Action*, *Decoration*, *Physical action*, *Softening*, and *Tone modification*. Regarding the role of gender, there were both similarities and differences in terms of the frequency of emoji use, emoji position, and function. Moreover, the findings showed the importance of context to interpreting the functions of emojis. Finally, the findings have implications for emoji designers and Natural Language Processing (NLP).

KEYWORDS

emoji, pragmatic functions, hashtags, social media, Arabic

1. Introduction

Communication is essential to people; they use words to communicate their feelings and thoughts, which refer to verbal communication. However, the new generation currently tends to use emoticons more than words or sentences as a means to express their feelings, such as happiness or sadness, which refer to non-verbal communication. Word use has decreased as sign language and emoticons have increased in use. According to [Pavalanathan and Eisenstein \(2015\)](#) that emojis are “picture characters” which include not only faces, but also concepts and ideas, such as weather, vehicles and buildings, food and drink, or activities (e.g., running and dancing). However, emoticons are the expressions of emotions that mimic non-verbal cues in speech ([Rezabek and Cochenour, 1998](#); [Wolf, 2000](#); [Crystal, 2006](#)).

Recently, emojis have become available on any form of electronic device because they are conversational, full of meaning, and strengthen the tone and closeness between participants, resulting in their widespread use among social media users ([Danesi, 2017](#)). According to [Danesi \(2017\)](#), the graphic system generally includes emoticons, emojis, stickers, images, videos, and so on, which help the users to communicate their feelings in online communication. As mentioned by [Hymes \(1972\)](#), using a language requires linguistic competence and communicative competence as

well as knowing the rules of the language and how to use these rules to communicate. The same applies to using emojis, which requires communicative competence and knowing how to use the emoji in the appropriate way, as well as facility in switching from alphabetic writing to emoji writing, which is another feature of emojis subsumed under code switching (Danesi, 2017). Consequently, Internet users must be competent in choosing and combining emojis with messages to be able to write meaningful messages that maintain the relations between the users and indicate their positive sides (Danesi, 2017). The correct use of emojis is thus essential for effective conversation (Imran et al., 2020). For example, when someone sends a message with a happy face to his boss when they do not have a close relationship, it is seen as unprofessional. On the other hand, if they have a close relationship, it is seen as a friendly tone. Sending a message without an emoji cannot be seen as a complete thing and shows that the sender is not interested in the conversation too (Imran et al., 2020). In addition, the interpretation of emojis is important because failing to interpret emojis correctly may lead to misunderstanding and miscommunication between people (Imran et al., 2020). Danesi (2017) mentioned that one participant reported that he made his comments pleasant by adding a smiley face in them, even when the news was bad, and at the same time it gave him a sense of belonging to the person to whom he was writing. Further, there are some conditions for the use of emojis, such as the sender's mood at the moment of sending and a close relationship with the receiver (Konrad et al., 2020).

Emojis can be used in many contexts including, work, study, chatting, discussion, and even advertising. For instance, emojis can be used by teachers to provide visual feedback to their students. Also, students use emojis in their study groups. Emojis are used in chatting either private or public as well as in online discussion platforms to discuss the last issues. Lastly, emojis are used by brands to attract the consumers' attention (Romig, 2015; Sampietro, 2019; Alshboul and Rababah, 2021; Etman and Elkareh, 2021; Cavalheiro et al., 2022).

A single emoji may mean thousands of words, which is why the graphic system is not considered a universal language (Herring and Dainas, 2018). There are many functions of emojis and people vary in their uses and interpretations regarding emojis (Miller et al., 2016, 2017). Variations in interpreting emojis are due to a number of reasons, such as the familiarity between the sender and the receiver, the gender of the receiver, and the culture in which the emoji is utilized. For example, the pizza emoji is frequently used in American culture, the love emoji is frequently used in French culture, and the rose emoji is frequently used in Arabic culture (Miller et al., 2016; Tigwell and Flatla, 2016). Broadly speaking, emojis are used by various cultures, age groups, and genders as means to express a variety of feelings and thoughts just by clicking a button. One emoji may have more than one meaning in online communication as people interpret the emojis in different ways, and the meaning largely depends on the context where the emoji is used (Al Rashdi, 2018; Alshboul and Rababah, 2021; Dainas and Herring, 2021). Emojis are treated as an autonomous language by many language scholars, as they can be used without any textual accompaniment to replace the words (Dainas and Herring, 2021).

Computer-mediated communication (CMC) refers to "the process by which people create, exchange, and perceive information using networked telecommunications systems that facilitate encoding, transmitting, and decoding messages" (Romiszowski and Mason, 2013, p. 398). Computer-mediated discourse (CMD) is the communication produced when human beings interact with one another by transmitting messages *via* networked or mobile computers, where 'computers' are

defined broadly to include any digital communication device. CMD is a specialization within the broader interdisciplinary study of computer-mediated communication (CMC) which is distinguished by its focus on language and language use and the use of methods of discourse analysis to address that focus" (Herring and Androutsopoulos, 2015, p. 127). Social media platforms provide a perspective on social interaction that enables researchers and linguists to understand social networking and study language use on the Internet.

Twitter is a form of database that contains a large number of tweets and links, as well as providing information about the users and the total numbers of their tweets and followers. The Twitter platform has been compared to Google Search as a useful website to collect the information, to negotiate meaning, and maintain relations. "Hashtags are an emergent convention for labelling the topic of a micropost and a form of metadata incorporated into posts" (Zappavigna, 2012, p. 1). It can thus be said that hashtags are a common way to discover trendy topics and issues in social media, which is different from websites that rely on one type of interaction, such as question and answering websites (Scardigno and Mininni, 2020). Recently, Twitter has become one of the most common social media networks used in Arabic countries (Blogger, 2021). Tankovska (2021) stated that Saudi Arabia was one of the top countries in Twitter users in January 2021, where Twitter was used mainly to communicate with other people, exchange information, and find out about "hot" public issues.

A number of studies of emojis has been conducted regarding their use in languages like Chinese (Herring and Ge, 2020), Turkish (Yüce et al., 2021), Indonesian (Muzakky et al., 2021), English (Tantawi and Rosson, 2019; Konrad et al., 2020), and Spanish (Sampietro, 2019). However, there have been few such studies of Arabic. In addition, studies of emojis in Arabic have focused on certain platforms, such as WhatsApp, Facebook, and Telegram, but few have focused on Twitter, even though different platforms may render different emojis with different functions as will be explained widely in the literature review. Hence, the current study seeks a linguistic understanding of emoji use in naturally occurring Arabic tweets. The purpose of the current study is to identify the most common emojis used in Arabic tweets, analyze their functions, and identify possible differences in emoji use between male and female users. This study will shed light upon the functions of emojis in Arabic tweets, and seeks to draw linguists' attention to one of the most important topics for research within the next few years. This study is significant because it will help people to understand the importance of context to interpret the meaning of emojis in our daily communication.

2. Emojis

The word "emoji" derives from a Japanese word formed from *e*, meaning "picture," and *moji* meaning "letter." Consequently, emoji can be defined as a picture-word; it can be used as singular or plural in English (Danesi, 2017). *Merriam-Webster Dictionary* defines emoji as "any of various small images, symbols, or icons used in text fields in electronic communication (as in text messages, email, and social media) to express the emotional attitude of the writer, convey information succinctly, communicate a message playfully without using words, etc" (Emoji, 2021).

The first use of emoji started with Scott Fahlman in 1982 when he used a smiley face ":-)" at the end of the sentence in an e-mail message to indicate a positive mood. Then, in the late 20th century a typical collection of emojis was made by Shigetaka Kurita through the

use of Japanese mangas and kanji (Blagdon, 2013). In the beginning, there were only 176 emojis, whereas by 2019 the entire number of emojis had reached 3,019 (Wirza et al., 2019). As a result of the growth of technology, a larger number of emojis have been made with different emoji faces and different skin tones, and a dictionary has been created specifically of emojis and their meanings; for example, the *Oxford English Dictionary* selected the emoji of a face with tears of joy as the trendy word in 2015 (Kramer, 2015). Furthermore, Apple released the IOS5 system, which included emojis, as a step toward increasing the popularity of emojis and emphasizing their power in 2010. Also, emojis have been unified in the Unicode standard form, allowing them to be utilized in practically all languages and applications around the world (Danesi, 2017; Ge and Herring, 2018; Konrad et al., 2020; Abbas and Ubeid, 2021; Al-Garaady and Mahyoob, 2021). Emojis were created to make emoticons more comprehensive in pictures; however, both emojis and emoticons have similar functions such as tone marking (Konrad et al., 2020).

Recently, the use of alphabetic writing has been somewhat supplanted by emojis in how users communicate with each other in online communication (Imran et al., 2020). Some problems appeared when people wanted to share their ideas or feelings in the virtual environment because of the absence of facial expressions, gestures, intonation, and prosody that help to convey the intended meaning. However, CMC solved this problem by enabling social media users to use a great variety of emojis as a means to express their emotions and feelings, including happiness, sadness, and anger. Thus, emojis provide various gestures as means to enhance online communication and make it to some extent similar to face-to-face communication and thereby enhance its position as an alternative to it (Dolot and Opina, 2021). Emojis serve to make clear the real meaning of the written message. For example, using the face-with-tears-of-joy emoji after a joke signals laughter or humor. According to Lo (2008), a message with a smiley face conveys a positive meaning, in contrast to a message without a smiley face. In addition, emojis provide various types of faces with different facial expressions, resulting in several other interpretations.

According to Na'aman et al. (2017), emojis could have different functions, such as content words or indicated particular attitudes. Herring and Dainas (2017) indicated that there were several functions of emojis, such as reaction, tone, action, mention, riff, and narrative sequence. Moreover, Al Rashdi (2018) found that emojis indicated the tones of the messages, created alignments among group members, and created interactive communication. Similarly, Gibson et al. (2018) stated that the “face covering hand” emoji served to indicate laughter and ironic in the message. As mentioned by Danesi (2017), emojis were used to perform phatic functions, such as opening and ending a conversation and avoiding silence. More generally, emojis were used to perform emotive functions, such as expressing opinions and attitudes or sentiment, that were essential for online communication. In addition, while 90% of respondents agreed in their interpretation of the face-with-tears-of-joy emoji, the interpretations of the least frequent emojis differed based on the context and the relation between the sender and receiver (Dainas and Herring, 2021).

As mentioned by the previous studies, there are many functions for the emojis. However, emoji position in the sentence plays an important role in identifying the function of the emoji (Arafah and Hasyim, 2019a,b; Park and El Mimouni, 2020; Etman and Elkareh, 2021). For example, if the emoji is positioned at the beginning of the sentence, then it functions to start the sentence. However, if the emoji is positioned at

the end of the sentence, it functions to close the sentence and to replace the punctuation marks.

According to Doiron (2018), emojis became an important part of the lexicon because most people are able to recognize and use them routinely in their daily interaction as means to disambiguate meaning. As Romig (2015) stated, emojis can be used to make comments stickier instead of the traditional way of commenting and to provide visual feedback for students. For example, a face with sunglasses indicates that a piece of work is cool. It is thus clear that emojis have different pragmatic functions in social media platforms and thus merit closer scholarly consideration.

3. Literature review

This section discusses previous studies that touch on the functions of emojis in different platforms of social media, such as Twitter, Facebook, WhatsApp, Telegram, and so on, either in Arabic or other languages. Although early studies on emojis proposed that they have similar functions as emoticons, emojis are more multifunctional. As mentioned by Dainas and Herring (2021), there were many reasons which lead to different functions for emojis, such as the context and different platforms render emojis in a different way. That is why emoji is more open to several interpretations. Also, social and cultural factors affect how social media users interpret emojis. Therefore, there is a suggestion that each emoji functions pragmatically in online communication (Herring and Dainas, 2017).

On Twitter, Tantawi and Rosson (2019) investigated the paralinguistic function of emojis in the United States based on data collected from Twitter messages. The findings showed that 43% of emojis had the paralinguistic feature of attitudes, such as playfulness, praise, and confusion. Also, the face with tears of joy and loudly crying face emojis were frequently used by American users. In terms of topic analysis, it was found that “society” was a common topic, showing that Twitter is used for discussing recent issues in society, in contrast to other platforms. Therefore, this study provides evidence that Twitter is typically used to discuss the latest trends in society. In addition, Al-Rawi et al. (2020) explored the effect of gender on emoji usage during the COVID pandemic. The data were collected from Twitter hashtags related to COVID-19, from which 600 emojis were collected and analyzed to understand the sentiment of each emoji. The findings showed that men used emojis in a positive way, such as the folded hand emoji and global emoji to show solidarity. In contrast, women used the emojis negatively, such as the broken heart emoji. In addition, some emojis were related to topics during the pandemic like health care, mortality, and financial and employment issues. However, the findings cannot be linked to a certain country because the tweets were collected from several countries. Additionally, Yüce et al. (2021) examined the functions of emoji in Turkish. The data were collected from Turkish tweets by sport clubs, and the emojis were analyzed using content analysis. The findings showed that the emojis used by sport clubs denote the colors and symbols related to their clubs, such as the lion emoji that is Galatasary club's symbol and the eagle emoji that is Besiktas club's symbol. The importance of using emojis can help sport clubs in their marketing communication goals in creating loyalty that need to be conveyed on individuals effectively. Although the emojis in their study indicated positive meanings, their study was limited in that emojis were analyzed without context and might have different meanings depending on the context. Etman and Elkareh (2021) examined the use

of emojis across Arabic dialects including Saudi, Egyptian, Kuwaiti, Emirati, Iraqi, and Lebanese. The data were collected from Arabic tweets and included numerous emoji for facial expressions and hand gestures. The findings showed that Arab users use emojis to express their facial expressions. In addition, the face with tears of joy was the most common emoji across Arabic dialects and is used to indicate laughing then loudly crying. However, their study differs from the current study as follows: Their study aimed to discover the alternative ways Arabs use emoji across different dialects to compensate for the absence of a non-verbal component, while the aim of the current study was to identify the pragmatic functions of emojis. Also, they analyzed the data with the help of custom Python scripts, while the current study analyzes the data based on taxonomy of [Herring and Dainas \(2017\)](#). However, the other studies on emojis on Arabic were on different platforms.

For instance, [Mahzari \(2017\)](#) identified the verbal and non-verbal strategies of expressing congratulations on Facebook. The data of his study were collected from Facebook comments by Saudi users, and the findings showed that Saudi users used certain strategies for congratulations, such as congratulations, offering wishes, praise, and so on. These strategies were used with emojis such as the red rose, slightly smiling face, red heart, and bouquet of flowers, which were the emojis most used by Facebook users. In addition, these emojis were categorized into seven functions; however, expressing endearment was the most frequent function in the data. The researcher suggested that additional studies need to be conducted on other platforms, such as WhatsApp, Twitter, and Text message, to better understand the functions of emoji in different contexts. Also, [Alshboul and Rababah \(2021\)](#) analyzed the functions of emojis in Jordan. The data were collected from a Facebook group with 400 members. The researchers built a corpus of emoji to analyze their functions. Also, they administered a questionnaire as a means to identify any differences in emoji use between male and female users. The findings revealed that emojis were used to indicate emotive functions, conative functions, phatic functions, poetic functions, referential functions, and metalingual functions. In addition, they found that women used emojis to share their feelings more than men. The researchers pointed out that there is a need to analyze the functions of emojis in other social media platforms. In addition, [Herring and Dainas \(2020\)](#) assessed gender and age influences on the interpretation of emoji functions among English speakers based on data collected from public groups on Facebook whose members differed by gender and age. The findings showed that gender does not affect the interpretation of emojis, but age does. The younger users interpreted the emoji as softening or tone, while older users interpreted the emoji as action. Thus, emoji use is not defined by gender, as male and female interpretations of emoji are similar, differing only in their proportions of use. Moreover, [Dolot and Opina \(2021\)](#) investigated the functions of graphicons in Filipino using data collected from chats in Facebook groups and analyzed based on Herring and Dainas's model of graphic functions ([Herring and Dainas, 2017](#)). The findings showed that Filipino users used emojis more than stickers. Also, five additional functions beside those of Herring and Dainas's model were discovered: response, replacement, sharing, complement, and attention. The findings of this study hold implications for future research on all graphicons in a message as well as confirming the value of concentrating on private messages on other platforms. So far, response and sharing are used on certain platforms like WhatsApp or Facebook due to the nature of these platforms as places where users share their photos or answer questions, unlike other platforms.

On WhatsApp, [Al Rashdi \(2018\)](#) examined the functions of emojis in Oman. The data were collected from WhatsApp, with 15

male respondents and 30 female ones. The findings showed that there are seven functions of emojis in Omani WhatsApp. For instance, emojis were used to signal emoticons, to signal celebrities, to signal approval, to signal the opening and close of the conversation, to serve as linking devices and as contextualization cues, and finally for use as a response to compliments. However, some distinct emojis in the data were used for the same function. For example, a face blowing a kiss and a thumbs-up sign were used to indicate approval. Therefore, the results demonstrated that emojis were not only used as indicators of language users' emotions, but also they worked for many other communicative functions. As the researcher mentioned, additional studies should be done to examine emojis in mixed WhatsApp groups, as the surrounding text is crucial to understand the function of the emoji. Also, [Sampietro \(2019\)](#) explored the functions of emoji in Spanish by focusing on three domains: the illocutionary, discourse, and stylistic domains. The data were collected from WhatsApp chats from the researcher's family and friends and included 1,077 emojis. The results showed that emojis are used to foster relations between people, as in the smiling face with smiling eyes; serve to open and end the conversation, as in the face blowing a kiss; and are used in informal groups and contexts, as in a grimacing face and the face with tears of joy. As the researcher noted, more work is needed on formal groups to explore the functions of emoji more thoroughly. Nevertheless, the face blowing a kiss was found in this study to be used to open and end conversations, as it is customary on WhatsApp to open and end chats. However, it may be also used for other purposes on other platforms. Further, [Muzakky et al. \(2021\)](#) examined the pragmatic function of the folded hand emoji among Indonesians. The data were collected from four lecturing WhatsApp groups and screenshots of the messages. The findings showed that the folded hand emoji is not used only to express emotions, but serves the three pragmatic functions of thanking, apology, and request. It has been suggested that researchers explore gender effects and interview users to better understand their specific purposes for using it.

On Telegram, [Abbas and Ubeid \(2021\)](#) explored the connection of emojis to the surrounding messages and how they affect the interpretation of meaning by collecting data from a chat group on Telegram used by Iraqi students as data to analyze the frequency and functions of the emojis used. The findings showed that the emojis were used to indicate parallel emotions, attitudes, and humor, enhance emotion intensity, express irony, modify illocutionary force, and enhance attitude intensity. Their study revealed that there is a relationship between emojis and text, and emojis were used to communicate facial expressions as well as body language as in face-to-face communication. In addition, [Ge and Herring \(2018\)](#) analyzed whether an emoji sequence functions like an utterance. The data were collected from messages on a Chinese website, Sina Weibo, by 87 celebrities. The findings showed that the emoji sequences functioned as verbal utterances containing verbs, adjectives, and pronouns with an OVS word order. Also, the users used these emoji sequences to express actions and activities, such as a smiling face with heart eyes, dancing, and women holding hands. In addition, the findings indicate that emojis in Sina Weibo website have syntactic properties related to those of the Chinese language. This study offers some important insights into the syntactic properties of emojis in the Chinese language and proposes that emojis have a syntax.

Different tools such as interview and survey have been used to investigate the use of emojis in data collection. For example, [Herring and Dainas \(2018\)](#) investigated whether gender affects the use and interpretation of emojis. The data were collected through a survey assessing how male and female respondents interpreted the emojis. A comment with an emoji in a Facebook group was included in the survey, and respondents were asked to choose the function of the emoji. The findings showed that female users used emojis more than males: 92% of female users in contrast to 78% of males. Also, there was no difference between men and women in their interpretations of the emojis, as they were largely in agreement. Also, [Imran et al. \(2020\)](#) studied the gender differences in using emoticons based on data collected through an online questionnaire completed by 75 participants, whose gender, age, and qualifications were elicited. The findings showed that men tend to use emoticons as means to replace words more than women. In addition, where male users used emojis to emphasize meaning, female users used emojis to express their feelings. Also, most of the participants interpreted the emotions easily because emoticons allow the users to express their feelings and emphasize the meaning in online communication, unlike words alone. In addition, [Al-Garaady and Mahyoob \(2021\)](#) investigated the functions of emojis in social media applications in Saudi Arabia based on a survey-based questionnaire given to 143 students at Taibah University. The findings showed that female users used emojis more than male ones. The most common emojis were the face with tears of joy, followed by the smiling face with heart eyes, pleading face, loudly crying face, red heart, and finally thumbs-up emoji. However, the face with tears of joy was used by both males and females, in contrast to the other emoji, which were used more by female users. As the researchers stated, learners have a tendency to use emojis instead of words to avoid spelling mistakes and to connect the language with the meaning.

Likewise, [Wirza et al. \(2019\)](#) investigated the effects of gender on emoji use in Indonesia based on data collected by interviews with 20 male and 20 female university students and messages with emojis, finding a slight difference between male and female students in emoji choice: Where the males used the folded hand emoji more than the females, they in turn used the loudly crying face more than males. Gender influenced emoji choice as well as the number of emoji used in the messages, but it does not entirely determine emoji use, as both used the face with tears of joy emoji to communicate their feelings in online communication. Also, [Konrad et al. \(2020\)](#) examined how emoji and stickers are used by English speakers. The data were collected using semi-structured interviews and a large-scale survey to understand emoji and sticker use. The findings show that emojis are used for expressing emotions. However, stickers are more intense than emojis and are used in very close relationships, in contrast to emojis. It has been mentioned that further research should be done to explore emoji and stickers on other platforms and to compare Asian and Western usage.

The previous studies showed the similarities and differences in terms of the use and functions of emojis across the different platforms of social media. However, Twitter hashtags that include trendy topics in social media need more studies to explore how Twitter users use emojis and their functions in the tweets on trendy hashtags. Therefore, the current study seeks to identify the most common emojis used in Arabic tweets, analyze their functions and positions, and identify possible differences in emoji use between male and female users.

4. Research methodology

4.1. Aims and research questions

The main goal of the current study is to analyze the use of emojis and emoji position to identify their functions and possible gender similarities and differences. The research questions are:

1. What are the common emojis used in Arabic tweets and their position in the tweet?
2. What are the pragmatic functions of these emojis?
3. What are the possible differences and similarities between male and female users in the use of emojis?

4.2. Data collection

The data of this study were collected from Twitter, because it is widely used by Arabs. [Blogger \(2021\)](#) noted that there were 27.08 million social media users in Saudi Arabia in 2021, 71.40% of whom use Twitter. Since this study focuses on functions of emojis in Arabic tweets, only Arabic tweets with emojis were collected. The researchers manually collected only the Arabic tweets with emojis because this study focuses on emojis within context in order to identify their functions. Therefore, the researchers excluded the tweets that have only text, only emojis, language other than Arabic, or the gender of tweeter was not clear. The gender was specified based on the person's name on the profile, profile description, and the masculine or feminine marker of tweeter in the Arabic words in the tweets. In addition, Arabic tweets from 29 various Arabic hashtags were collected in order to gather a variety of emojis. The selected hashtags included topics popular at that time in Saudi Arabia like The Boulevard, Friday Day, National Day of Saudi Arabia, final exams, Salam Mall Movie, and Chelsea vs. Liverpool. Those hashtags were selected for this study because they were active at the time of data collection. With regard to time, data collection took place at the beginning of 2022. A total of 421 tweets (272 and 149 by female and male users, respectively) randomly by using manual selection, with a total number of words of 2,853. In all, 102 distinct emojis were collected with their context from Arabic tweets, with 439 emoji collected total; however, repeated emojis were treated as one when counting frequency. The researchers used Excel sheets to help them in counting the frequency of emojis and functions. For instance, Loudly Crying Face emoji was used 31 times in the corpus; however, the repeated emoji was counted as one when they appear in the same tweet and have the same function.

4.3. Data analysis

The emojis were analyzed with the help of [Herring and Dainas's \(2017\)](#) taxonomy, which provides the functions and formal definitions of all types of graphicons. Since this study focuses on the functions of emojis, their taxonomy suits the functions of emojis found in Twitter. In other words, Herring and Dainas proposed a taxonomy for the functions of graphicons in 2017, then in a study in 2018, they asked participants to choose the function of an emoji from a list to test the taxonomy. The findings showed that the participants agreed with the researchers' interpretation. Also, while other models fit certain platforms like WhatsApp or Telegram, they were not suited to the Twitter platform.

For example, in Twitter, there is no opening or ending conversation. Therefore, we analyzed the emojis based on Herring and Dainas's taxonomy because they interpreted the functions of emojis not only from their perspective as researchers, but also from the perspective of participants, which could validate their taxonomy. In the current study, the researchers are native speakers of Arabic, and they are from Saudi Arabia. Therefore, their linguistic and cultural background helped them to understand and interpret the functions of emojis based on the context of Arabic tweets. Reliability was achieved by the following procedures. The first researcher analyzed the pragmatic functions of the first 50 Arabic tweets. The function of each emoji was revised by the second researcher, and then the discrepancies were resolved through discussion. The same procedure in terms of analyzing, revising, and solving the discrepancies was followed for the rest of tweets.

The data were analyzed qualitatively and quantitatively. Mixed-methods research is defined by Loewen and Plonsky (2016) as "Research that combines different paradigms and research traditions in an effort to arrive at a more complete understanding of the object under investigation. Most often mixed methods refers to the combination of qualitative and quantitative research methods" (p. 117). In the qualitative analysis section, the researchers used some tweets from the data as means to show the emojis and their functions in Arabic tweets, based on the context. It is worth mentioning that Arabic is written and read from right to left, unlike English. However, there are some spelling mistakes in some tweets in the data, which were left intact. However, the personal information was omitted from the examples shown to protect the privacy of the Tweeter users. In the quantitative analysis section, the researchers discussed the frequency of emojis and functions in Arabic tweets. Also, a comparison between genders was made in order to show the similarities and differences in emoji use and emoji function. As a way to preserve the data during online communication, the tweets were copied in text format and pasted into a Microsoft Excel document, which allowed the frequency of each emoji type and function to be counted. That is by adding the emoji in the search box in the document, the frequencies as well as the functions of the emoji could be obtained (Table 1).

5. Results

5.1. The pragmatic functions of emojis in Arabic tweets

1. Tone modification

Example 1:  يمه

Transliteration: iummah 

Translation: Mother 

Example 1 consists of a short tweet from a female user taken from a hashtag "word that you love," and the user mentions mother. In this tweet, it can be seen that the broken heart emoji () changed the whole tone of the tweet it accompanied. Despite the fact that the user said mother, the tone of this word was completely changed from positive to negative through the broken heart emoji to add sadness feeling to her tweet.

Example 2:   اشعار من شخص تحبه

Transliteration: aiš'ār min šaḥṣ tuḥibuh  

Translation: A notification from someone you love him  

Similarly, Example 2 consists of a tweet from a male user taken from a hashtag "what is the most beautiful thing in life," and it stands for

TABLE 1 Formal and lay descriptions of the pragmatic functions.

Function	Formal description	Example
Tone modification	"Graphicon directly modifies text, clarifying how a message should be interpreted"	I just realized I have a calculus exam Tomorrow 
Softening	"Making the comment less forceful or more polite."	Please help me! 
Reaction	"Graphicon used to portray a specific emotion in response to something that has been posted"	[In response to a photo of an attractive celebrity] 
Action	"Graphicon used to portray a specific physical action"	Ha ha, you missed 
Mention	"Mentioning a graphicon rather than using it"	Sending kisses 
Riff	"Graphicon is a humorous elaboration on, play on, or parody of a previous graphicon or comment"	-
Sequence	"A series of consecutive graphicons (often of the same type) that convey a narrative of some kind as opposed to a composite message"	-
Physical action	"literally doing what the emoji expresses while typing their comments"	This is me right now 
Decoration	"The emoji has no function except to make the text more visually interesting or appealing"	That makes me happy 
Multiple functions	"The graphicon has multiple, distinct meanings"	[In response to a prompt asking "what makes you happy" alongside an image of a mug with a yellow smiley face]: Like this smiley mug  [tone and mention]

Formal and lay descriptions of the pragmatic functions (Herring and Dainas, 2017).

receiving a notification from a person that you love. In this tweet, it can be noted that the use of the pleading face emoji () changed the whole tone of the tweet it accompanied. Although the user said a beloved person, the pleading face emoji changed the tone of the tweet from positive to negative, expressing sadness.

2. Softening

Example 3:   الفلوس لحد يضحك عليكم ويقول غيرها

Transliteration: alfulūs laḥad iḍḥak 'alaikum ūi yqūl gairha  

Translation: Only money, no one laughs at you and says something else  

Example 3 consists of a tweet from a female user with the hashtag "what is the most beautiful thing in life"; she reports that money is the best thing in life, whereas other users mentioned such things as family, achieving one's dreams, and smiling. The user mentioned money and hence used the face with tears of joy emoji () to lighten and soften her comment to be acceptable to others.

Example 4:  أحتاج قهوه 
 Transliteration: aḥtağ qahūūūūah 
 Translation: I need coffee 

The previous tweet shows the use of emoji to soften a request in Arabic tweets, not only to soften a comment as in Example 3. Similarly, Example 4 consists of a short tweet from a male user in which he mentions that he needs coffee. However, it can be seen that the smiling face with sunglasses emoji () was used to soften his request and make it more courteous.

3. Reaction

Example 5:      العائلة
 Transliteration: al‘ā ‘yilah    
 Translation: The family    

Example 5 consists of a short tweet from a female user taken from a hashtag “what is the most beautiful thing in life,” to which she replies “the family.” Based on the nature of the hashtag topic, the user reacted to her comment using the red heart emoji () indicating her emotions in response to the comment itself. However, it can be noted here the red heart emoji was repeated in this tweet more than once to emphasize her emotions.

Example 6:                                     

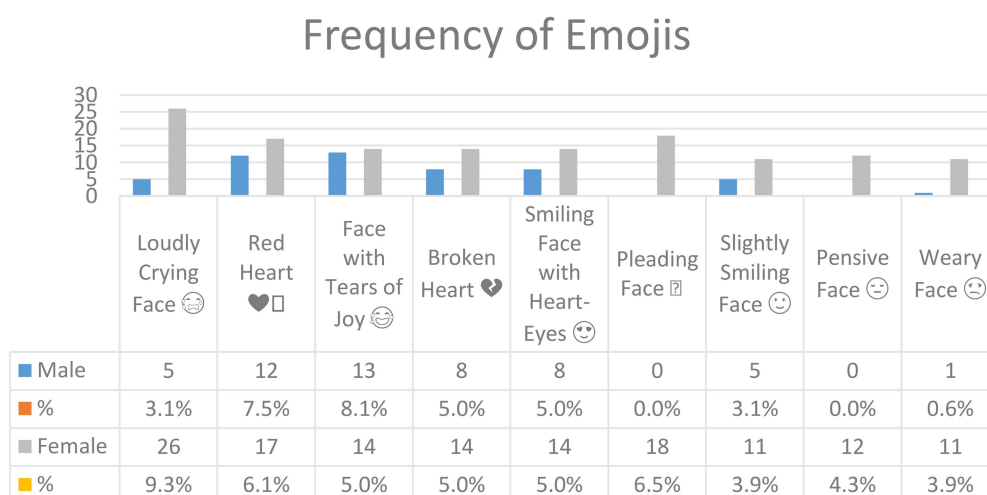


FIGURE 1
The most common emojis in Arabic tweets.

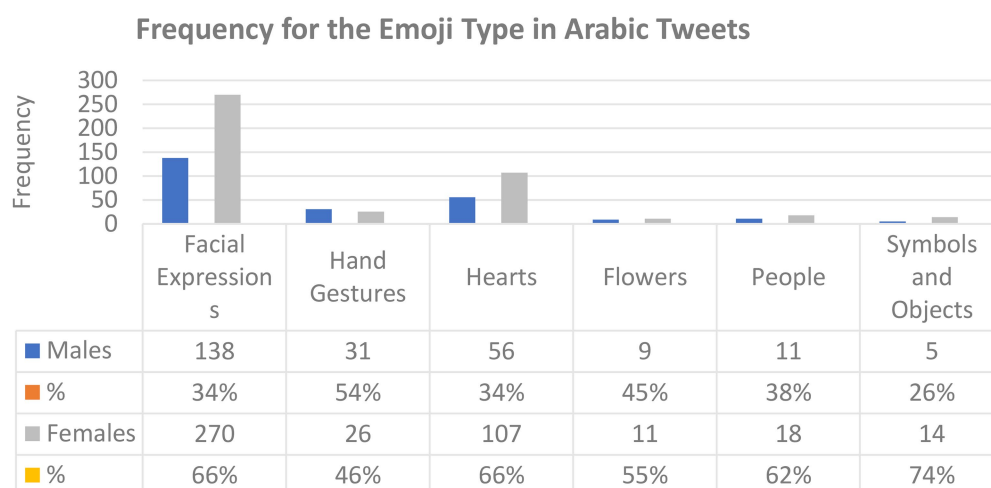


FIGURE 2
The frequency of use by emoji type in Arabic tweets.

function, the positions of emojis in tweets, and a summary of gender differences.

Figure 1 shows the most common emojis used by Arab users and their frequencies. Whereas the total number of collected emojis was 102, only emojis whose frequency is 10 or more were included in Figure 1 (see Appendix A for those with lower frequency). There are nine emojis in Figure 1 above; another 93 were used fewer than 10 times. However, it is clear from Figure 1 that the *Loudly Crying Face* was used the most in Arabic tweets corpus, 5 times by male users and 26 times by females, followed by *Red Heart* (male, 12; female, 17), *Face with Tears of Joy* (male, 13; female, 14), *Broken Heart* and *Smiling Face with Heart-Eyes* (male, 8; female 14), *Pleading Face* (male, 0; female, 18), *Slightly Smiling Face* (male, 5; female, 11), *Pensive Face* (male 0; female, 12), and *Weary Face* (male, 1; female, 11).

In other words, *Loudly Crying Face* (😭) is the top emoji used by female users, *Face with Tears of Joy* (😂) the top emoji used by males. In addition, *Red Heart* (❤️) is the third most common emoji among

female users and the second most common males. However, there were some emojis that were used only by male users, including , ,

🤔, 😐, 🙌, 🍄, 👉, 🎂, 🤡, 🧑‍🚒, 🙏, 🤔, 😄, ❤️, 🙌, 🌿, 🕌, 😘, 🧑‍🚒, 🙌, ❤️, 🍀, 🍷, and 🧡. Similarly, some emojis were only used by female users, including 🙄, 😞, 😄, 🧑‍💻, 🙌, 💪, 🧑‍🚒, 🤡, 😞, 😡, 😞, 😐, 🙌, 🙄, 🌸, 😞, 🕊️, 🐼, 😘, 😞, 😄, 🔥, ❤️, 🙌, 💜, 😞, ❄️, 🗣️, 🙌, 🙄, 🧑‍💻, and 🧑‍🚒. These emojis are categorized by type in Figure 2.

Figure 2 shows the types of emojis used by male and female users in Arabic tweets. It is clear from this figure that they shared similarities in terms of emoji type: Both tend to use emoji for facial expressions, hand gestures, hearts, flowers, people, and other symbols and objects in their

Frequency of Functions

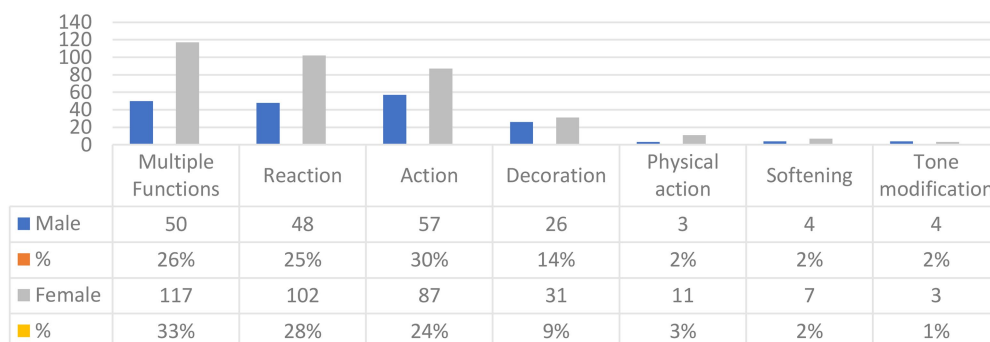


FIGURE 3
The frequency of functions in Arabic tweets.

Frequency of Emojis for Multiple Functions

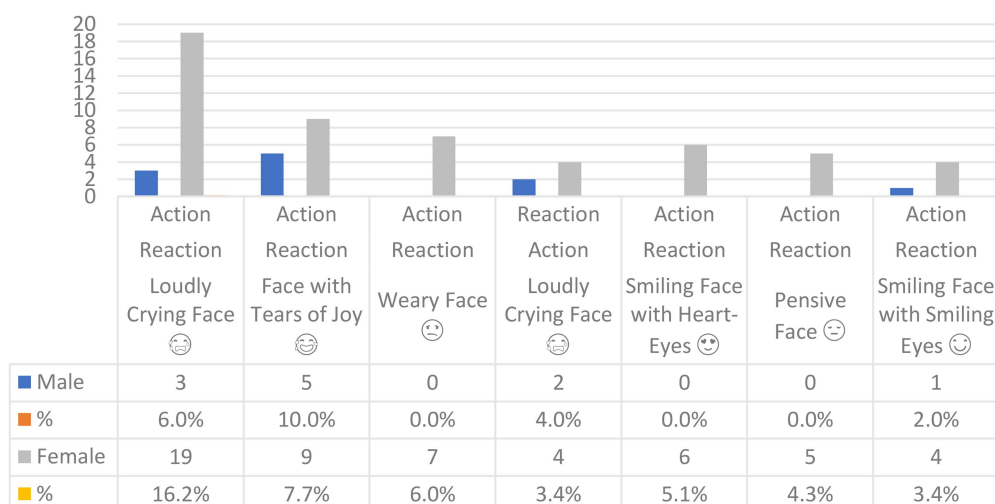


FIGURE 4
The most common emojis used for multiple functions in Arabic tweets.

tweets. Female users used emojis related to facial expressions, hearts, symbols, and objects more than males. Both males and females used emojis related to hand gestures, flowers, and people with only slight differences in frequency.

Figure 3 shows the pragmatic functions for which emoji are used in Arabic tweets by both male and female users and their frequency. There were only seven pragmatic functions of emojis that emerged from Arabic tweets corpus which are similar to Herring and Dainas (2017). It is clear from Figure 3 that *Multiple functions* was used the most in our corpus (male, 50; female, 117), followed by *Reaction* (male, 48; female, 102), *Action* (male, 57; female, 87), *decoration* (male, 26; female, 31), *physical action* (male, 3; female, 11), *softening* (male, 4; female, 7), and *tone modification* (male, 4; female, 3). Despite the fact that there were 439 instances of 102 emojis collected, we could not find an emoji with the functions of *riff*, *mention*, or *sequence* in the corpus due to the nature of Twitter platform because the collected tweets were comments to hashtags, not chats as on other platforms.

Figure 4 shows the emojis used for *Multiple functions* in the corpus and their frequency. In all, 81 emojis were used for *Multiple functions*, but only those used five or more times are included in Figure 4 (see Appendix B for the lower-frequency emoji). However, the same emoji was used for different functions. For example, *Loudly Crying Face* was used for *Action-Reaction* as well as for *Reaction-Action* based on the possibility of function one and function two (See Appendix B).

Figure 5 shows the emojis used for *Reaction* in Arabic tweets and their frequency. Note that while a total of 34 emojis were used for *Reaction*, only those with a frequency of four or more are included in Figure 5 (see Appendix C for the lower-frequency emoji). Thus, a total of eight emoji appear in Figure 5 above.

Figure 6 shows the emojis used for *Action* in Arabic tweets and their frequency. In all, 57 emojis were used for action, but only those with a frequency of five or more are included in Figure 6 (see Appendix D for the lower-frequency emoji). There is thus a total of 10 emojis in Figure 6 above.

Frequency of Emojis for Reaction

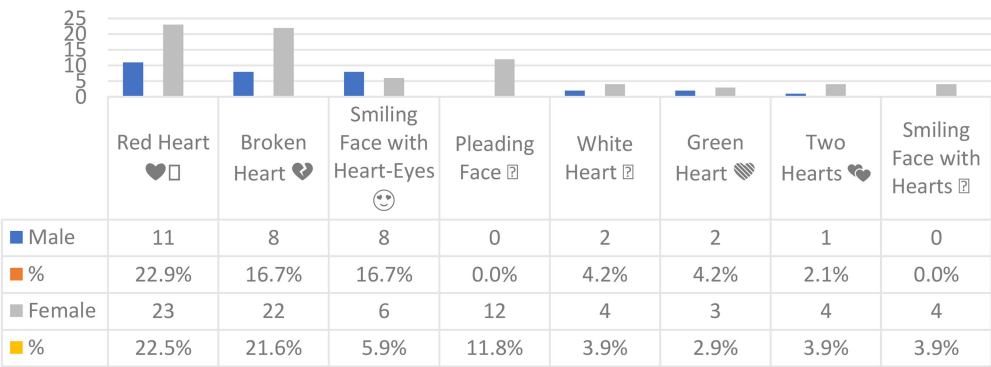


FIGURE 5
The most common emojis used for *Reaction* in Arabic tweets.

Frequency of Emojis for Action

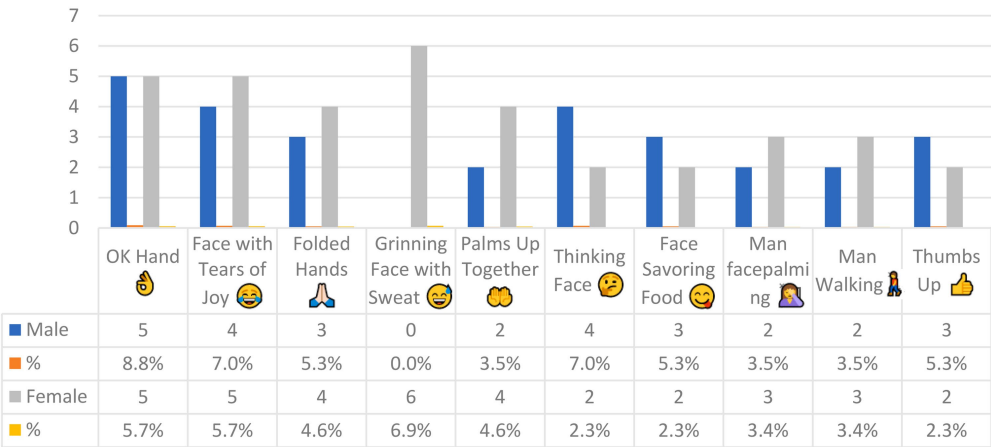


FIGURE 6
The most common emojis used for *Action* in Arabic tweets.

Frequency of Emojis for Decoration

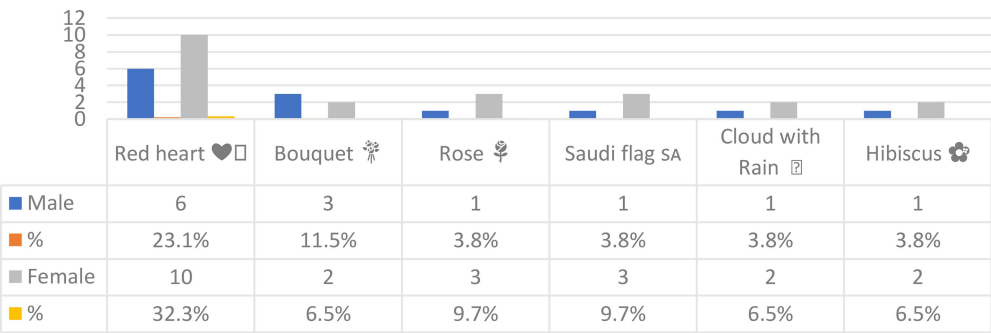


FIGURE 7
The most common emojis used for *Decoration* in Arabic tweets.

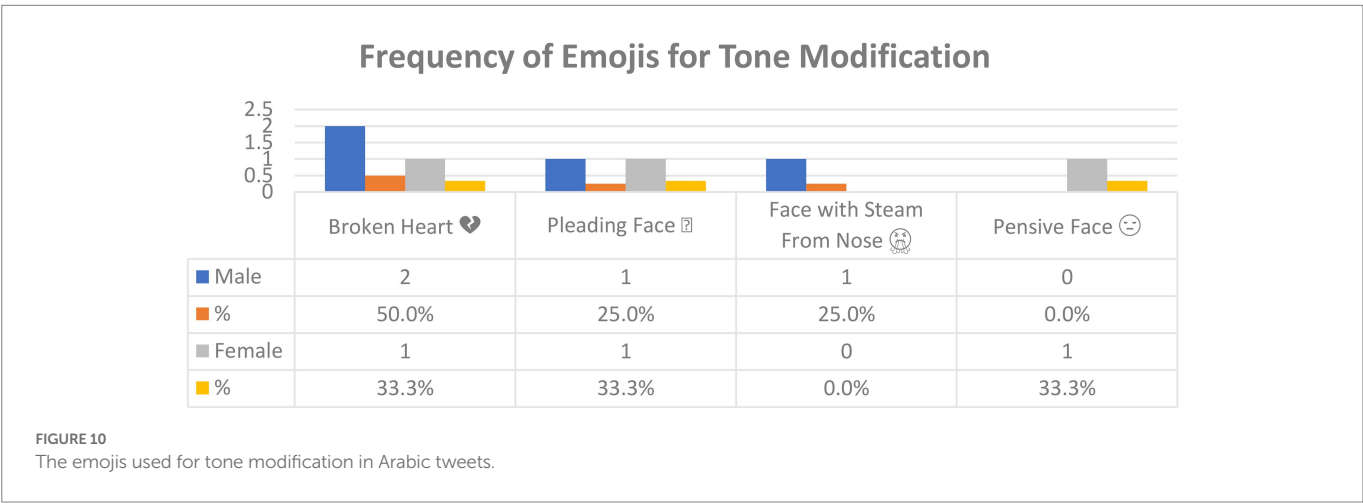
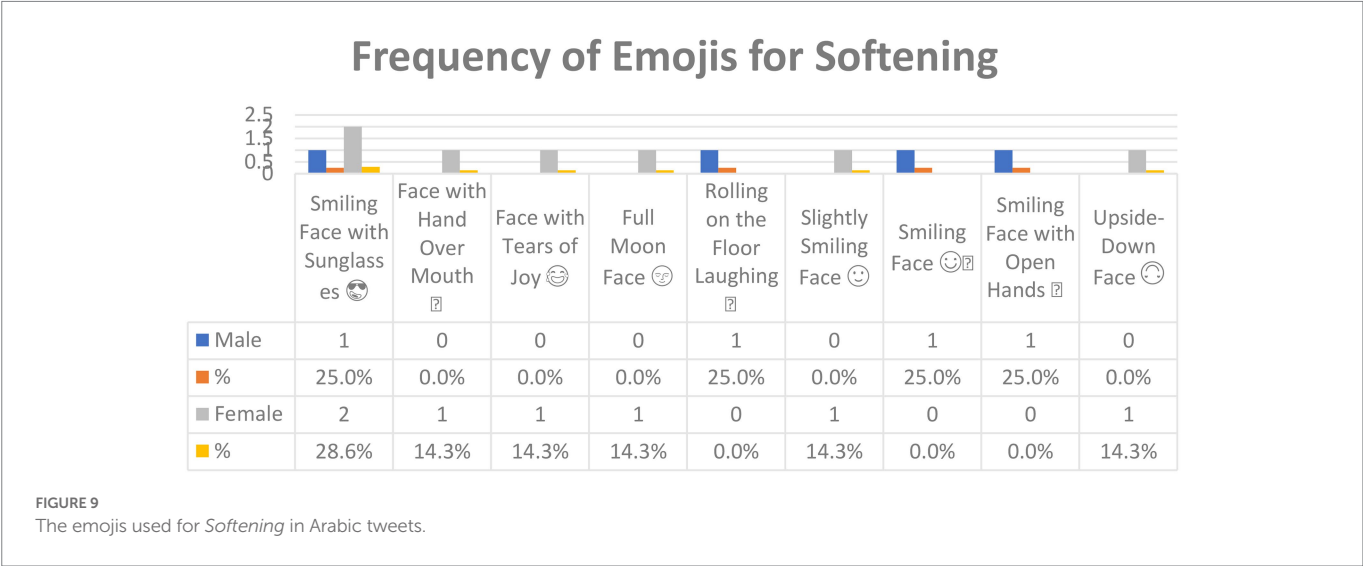
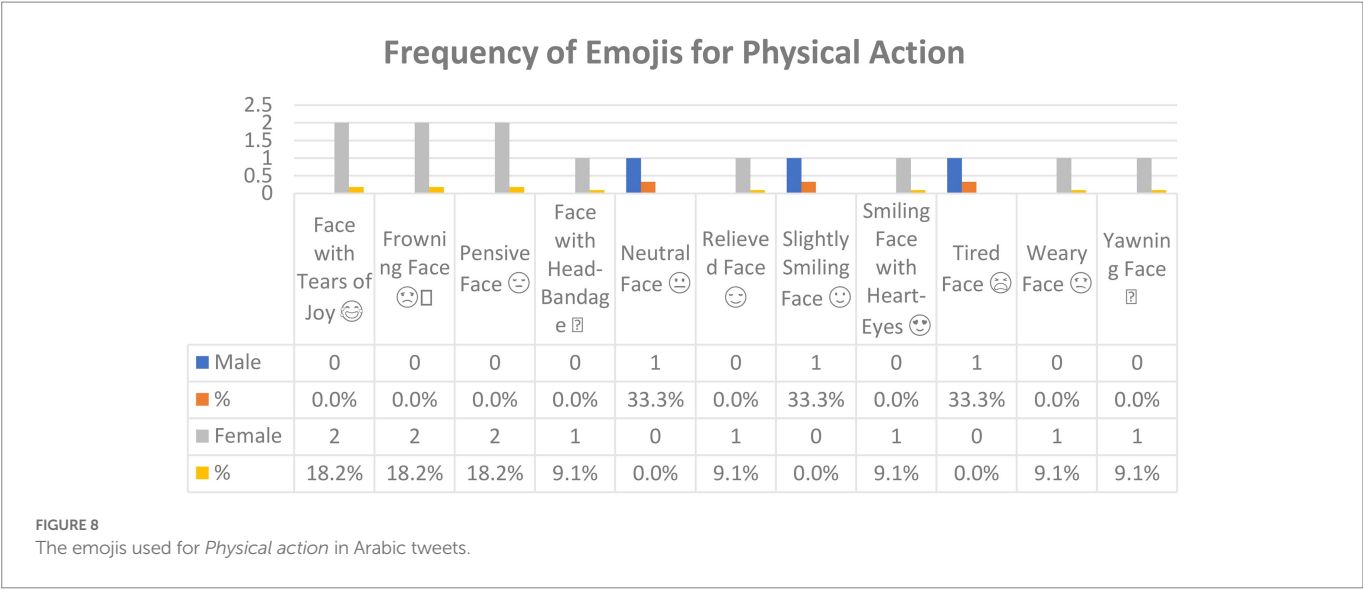


Figure 7 shows the emojis used for *Decoration* and their frequencies. In all, 24 emoji were used for Decoration, but only those with a frequency of three or more are included in Figure 7 (see Appendix E for the lower-frequency emoji). There are thus six emojis in Figure 7.

Figure 8 shows the emojis used for *Physical action* in Arabic tweets and their frequencies. In all, 11 emojis that were used for this function.

Figure 9 shows the emojis used for *Softening* in Arabic tweets and their frequencies. In all, nine emojis were used for this function.

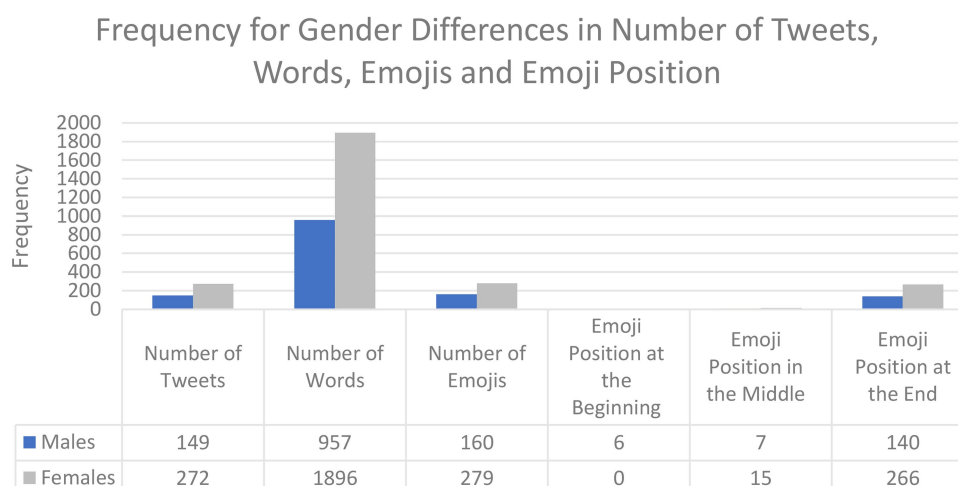


FIGURE 11

Gender differences in the number of tweets, frequency of words and emojis, and emoji position in Arabic Tweets.

Figure 10 shows the emojis used for *tone modification* in Arabic tweets and their frequency. In all, four emojis were used for this function. *Broken Heart* was used twice by male users and once by females, followed by *Pleading Face* (male, 1; female, 1), *Face with Steam From Nose* (male, 1; female, 0), and *Pensive Face* (male, 0; female, 1).

Figure 11 suggests possible differences between male and female users in Arabic tweets in terms of the number of words in tweets, emojis, and emoji position. Although there is a difference between the number of the tweets collected for this study by gender, it is clear from this figure that there is no great difference in the number of words used per tweet: 6.42 words for males and 6.97 words for females. In terms of emoji use, more emojis were collected from women than men (279 versus 160, respectively), but only a slight difference in the number of emojis per tweet: males, 1.07 versus females, 1.02. In terms of emoji repetition; women repeated emojis more than men did: 52 times versus 26 times, respectively. In terms of emoji position, men used emojis at the end of their tweets 140 times, in the middle 7 times, and at the beginning 6 times, while women used emojis at the end of their tweets 266 times, in the middle 15 times, and never at the beginning.

6. Discussion

The main purpose of this study was to identify the common emojis used in Arabic tweets and analyze the pragmatic functions of these emojis, examine emoji position within the tweet, and identify possible gender differences. Regarding the common emojis used by Arabs on Twitter, it was obvious that *Loudly Crying Face* (😭), *Red Heart* (❤️), *Face with Tears of Joy* (😂), *Broken Heart* (💔), *Smiling Face with Heart-Eyes* (😍), *Pleading Face* (🙏), *Slightly Smiling Face* (😊), *Pensive Face* (😞), and *Weary Face* (😓) were used the most in Arabic tweets. We noted that these emojis are used to denote emotions. The results here were consistent with those of prior studies regarding the common emojis in different languages and platforms (Sampietro, 2019; Tantawi and Rosson, 2019; Wirza et al., 2019; Al-Garaady and Mahyoob, 2021; Etman and Elkareh, 2021). The results also indicated that Arab users tend to use different types of emoji, including facial expressions and hand gestures, to express their emotions and feelings in online

communication, consistent with the findings of numerous studies. Moreover, it should be noted that Arab users tended to use emojis at the end of their tweets more widely, not only to end their tweets and to replace the punctuation marks, but also to indicate the functions they need to express in the context of that tweet. Additionally, there were few times where emojis were used at the beginning of the tweets, not only to prepare for the comments, but also to show the function that the user wants to convey in the tweet.

Seven pragmatic functions were found in Arabic tweets, similar to the arguments of Herring and Dainas (2017): *Multiple functions*, *Reaction*, *Action*, *Decoration*, *Physical action*, *Softening*, and *Tone modification*. *Mention*, *Riff*, and *Sequence* were not found in Arabic tweets, contrary to Dolot and Opina (2021), and this difference is probably to be attributed to the nature of the Twitter platform since the collected tweets were comments from public hashtags which involve only one person in the tweet. However, *Mention*, *Riff* and *Sequence* involve more than one person in the comment. Also, *Multiple functions* was the most frequent function used due to the nature of the data collected, as they were tweets to hashtags, not messages or comments. According to Herring and Dainas (2017), *Reaction* is used to express an emotion in response to something that has been posted. However, in this study emojis were used to express an attitude, not only emotions, in response to something that has been posted. Also, softening was used to make the comment more polite. However, it was found that emojis were used to soften requests as well as comments.

Consistent with Alshboul and Rababah (2021), some emojis were used for referential functions like *Kaaba* (🕌), and, as reported by Yüce et al. (2021), emojis were to depict the color of the sport teams like *Blue Heart* (💙) and *Yellow Heart* (💛) as a means to communicate with their fans and show interest and enthusiasm. According to Siyang (2018), every country has a unique culture and differences, and this cultural diversity can be seen in some emojis used in Arabic tweets like *Kaaba* (🕌), *Blue Heart* (💙), and *Yellow Heart* (💛).

Regarding possible gender differences, the results showed that females tend to use emojis and repeat them more than males, consistent with Herring and Dainas (2018), Al-Garaady and Mahyoob (2021), and Alshboul and Rababah (2021), but contrary to Imran et al. (2020) and

Herring and Dainas (2020). Also, it was found that gender affects emoji use as *Loudly Crying Face* was the emoji used most by the women studied, while *Face with Tears of Joy* was the one used most by males. In addition, certain emojis were used by males only and vice versa, consistent with Wirza et al. (2019), Al Rashdi (2018), and Al-Rawi et al. (2020). Moreover, men tend to use emojis more widely at different positions in their tweets, while women never use them at the beginning of their tweets. Furthermore, the women used facial expressions, hearts, and symbol emojis more than men did. Finally, it was found that *Multiple functions*, *Reaction*, and *Physical action* were used by women more than men, while *Action*, *Decoration*, and *Tone modification* were used by men more than women. In contrast, *Softening* was used by men and women equally.

7. Conclusion

This study has focused on the common emojis used in Arabic tweets, their pragmatic functions and positions, and possible gender-based differences and similarities through a mixed qualitative and quantitative method. This section summarizes the findings and offers recommendations. This study found *Loudly Crying Face* (😭), *Red Heart* (❤️), *Face with Tears of Joy* (😂), *Broken Heart* (💔), *Smiling Face with Heart-Eyes* (😍), *Pleading Face* (🙏), *Slightly Smiling Face* (😊), *Pensive Face* (😞), and *Weary Face* (😓) to be the common emojis used by Arab users in Twitter. Also, the emojis used in Arabic tweets have pragmatic functions similar to those identified by Herring and Dainas (2017). Only seven pragmatic functions were found, however: *Multiple functions*, *Reaction*, *Action*, *Decoration*, *Physical action*, *Softening*, and *Tone modification*. *Mention*, *Riff*, and *Sequence* were not found in Arabic tweets. With regard to *Tone modification*, it was the least frequent, which is inconsistent with Herring and Dainas (2020), Dolot and Opina (2021), and Dainas and Herring (2021). Also, it was found that the emojis used for *Reaction* derived from hearts, while the emojis used for *Action* were drawn from hand gestures or people, unlike Herring and Dainas (2018). In addition, the emojis used for *Physical action* and *Multiple functions* were from facial expressions, unlike Herring and Dainas (2018). Regarding gender differences, there were slight differences between men and women in terms of emoji use and repetition. Also, there were certain emojis used only by men, and vice versa. This highlights the importance of context in studying emojis, as noted in previous studies of the role of context in understanding the functions of emojis. Emojis are extremely dependent on context and may give different results within context.

The results of this study have implications for the field of Natural Language Processing in terms of creating a computer programming language that is able to identify and classify the functions of emojis based on the context of tweet in Arabic, which is a challenging task. Also, the results have implications for the designers of emojis to create a solution for the emojis that can be interpreted for two different functions as found in *Loudly Crying Face*. It was interpreted for action and reaction. This study has some limitations and suggests recommendations for future research. Since this study focuses on emojis, there are some limitations that should be acknowledged. The number of collected tweets and emojis is limited to generalize the findings to another platform. This study includes only 102 distinct emojis, so future studies should explore a wider range of emojis and their functions, not only on Twitter but also other platforms like WhatsApp, Instagram, or YouTube. Also, this study investigated the functions of emojis from the researchers' perspective; future studies should investigate the functions of emojis from the users'

perspective using interviews or surveys to explore not only gender differences but also age differences. Finally, the use of stickers or avatars needs to be studied.

Author's note

All emojis/emoticons have been reproduced from <https://www.twemoji.com> and are licensed under CC-BY 4.0.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

Author contributions

AA and MM contributed to conception and design of the study. AA organized the database, wrote the introduction, literature review, and discussion with conclusion of the manuscript. MM performed the statistical analysis, wrote the methodology, and the analysis of the manuscript. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2022.1059672/full#supplementary-material>

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Advice-seeking and advice-giving in Arabic computer-mediated communication in the medical context

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The current study aims to examine the discourse patterns and strategies of advice-seeking and advice-giving through Arabic computer-mediated communication (CMC) in the medical context. The contribution of this study lies in examining and analyzing the discourse patterns of CMC between patients and doctors in Arabic, how these patterns help doctors understand the advice sought and inquiries made by their patients, and how they help patients understand the comments made by their doctors on their inquiries. The data consist of 300 messages categorized into 150 advice-seeking (postings) and 150 advice-response (replies) messages. They were manually collected from a public medical website by copying and pasting them into an Excel spreadsheet for coding and statistical analyses. Two models were used to analyze the speech acts of advice. Morrow's model was used for advice-seeking, while Hinkel's taxonomy was used for advice responses, after some modifications were made to both models. The findings revealed that advice-seeking and advice-response messages had three parts: opening, middle, and closing. The study revealed that both patients and doctors used the opening and closing parts occasionally, unlike the middle part, which was used more often. For advice-seeking, describing the medical problem was the most frequent strategy used by patients when they asked for advice, followed by yes/no questions. These types of strategies were used in advice-seeking more frequently than others. Additionally, it was found that asking yes/no questions and describing the medical problem was the most frequent compound strategy used by patients seeking advice. However, for advice responses, the results revealed that giving clarification/information was the most frequent strategy used by doctors, followed by direct advice. When compared with other types, these two types were used frequently in the advice responses. The results also demonstrated that giving clarification/information and direct advice was the most frequent compound strategy used by doctors in advice responses.

KEYWORDS

advice-seeking, advice-giving, CMC, Arabic, patients, doctors

1. Introduction

In recent decades, with the development of the Internet in terms of computer-mediated communication (CMC) modes, patients do not have any longer to seek advice from doctors in clinics. Instead, they have started using websites for several reasons. For instance, it is easier than going to clinics, which saves time and gives patients an opportunity to ask about anything they may want to know because of increased privacy. No earlier study has attempted to investigate advice-seeking and advice responses in Arabic through CMC in a medical context, despite the

importance of this field, which reflects people's healthcare concerns in terms of communication between patients and doctors on online platforms. Therefore, this study aims to examine the discourse patterns and strategies of advice-seeking and advice-giving in Arabic through CMC in a medical context by adapting [Morrow's \(2006\)](#) model and [Hinkel's \(1997\)](#) taxonomy. The strategies of advice-seeking are the methods that the patients use when they ask for advice, whereas the strategies of advice-giving are the means that the doctors employ when they give advice to patients. The compound strategies show the common strategies that are used together for each advice-seeker and advice-giver and their frequency. [Morrow's \(2006\)](#) model was used for advice-seeking, while [Hinkel's \(1997\)](#) taxonomy was used for advice responses. [Morrow \(2006\)](#) analyzed the content of messages posted on a website about depression in terms of discourse patterns and features, which were classified into three types: problem messages (e.g., openings and closings, describing the problem, expressing feelings, and types of questions in requesting advice), advice messages (e.g., solidarity and positive regard, direct imperatives to indirect suggestions and hints), and messages of thanks. Regarding the types of questions, [Morrow \(2006\)](#) interpreted the use of yes/no questions when the patient offered one or two answers with some competence in dealing with his/her problem. Therefore, the questions were classified into two types: yes/no questions and WH questions because of the discourse functions and meanings in the medical context in the current study. In contrast, [Hinkel \(1997\)](#) analyzed the responses related to advice-giving and explored three types (e.g., direct, indirect, and hedged advice), and she expanded the analysis to identify the types of hedges in advice (e.g., possibility hedges) ([Hinkel, 2005](#)). The models were employed and modified to cover the new discourse patterns and strategies in both advice-seeking and advice-giving in the Arabic online medical context. Earlier studies in Arabic on the discourse realization of speech acts in the medical context focused on the advice that is used in Arabic and English TV health programs ([Ahmed and Ahmed, 2019](#)) and what advice-giving strategies the departments of health in Saudi Arabia and Australia provided to the public during the COVID-19 crisis on Twitter ([El-Dakhs, 2021](#)) but not on medical websites. Therefore, the current study is distinguished by its focus on advice-seeking by patients and advice-oriented responses by doctors on Arabic medical consulting websites with the aim of answering the following questions:

1. What are the discourse patterns and strategies of advice-seeking in the online medical context?
2. What are discourse patterns and the strategies of responses to advice-seeking in the online medical context?
3. How do the advice seekers and givers construct the message in the online medical context?

2. Theoretical background

2.1. Speech act theory

The theory of speech acts was developed and originated by Austin; later, [Searle \(1969\)](#) developed the theory further into more speech acts inspired by Wittgenstein's use theory, Austin's speech act theory, and Grice's implicatures theory. Speech act theory is concerned with how the speaker can make his/her communicative

goal clear through speech and how the listener can recognize and understand that intention ([Austin, 1962; Searle, 1975](#)). [Austin \(1962\)](#) claims that a speech act is a speaking unit that performs specific functions and that a single speech act can be further divided into three other acts: a locutionary act (the main act of speaking), an illocutionary act (when someone says something with a specific purpose with reference to the communicative intention of the speaker's mind), and a perlocutionary act (refers to the effect of an utterance on the addressee).

[Searle \(1968\)](#) argued that sentences can have different strengths but one literal meaning. For example, according to context, they can have the force of a promise, prediction, threat, or warning, and "one and only one literal meaning" ([Searle, 1968](#), p. 406). Speech acts are not merely spoken words. However, they are verbal actions that occur worldwide. This means that when someone says something, he/she does something using his/her words. Therefore, speech acts imply that the speaker performs an action that changes the current state of affairs ([Mey, 2001](#), p. 96). [Fought \(2006\)](#) indicated that a speech act is an utterance that constitutes a social action. For instance, "give me that" is a directive speech act in which the speaker directs the receiver to perform an act. When utterances contain threats or elements of physical or mental harm, the speech act theory is appropriate to use ([Haiman, 1993](#)).

2.2. Speech act of advising

The speech act of advice is considered a face-threatening act (FTA) to people who receive the advice. [Brown and Levinson \(1987\)](#) employed the notion of face and clarified that every person has two types of face: positive and negative. A "positive face" refers to the desire to be approved of or appreciated by others, whereas a "negative face" refers to the freedom of action or the desire not to be imposed upon by others. Therefore, advice-givers tend to use various discourse strategies to make the advice seem acceptable by reducing the threat, such as using hedges, indirect advice, positive regard, etc. for politeness purposes. [Holmes \(1995\)](#) defined politeness as "an expression of concern for the feelings of others" (p. 3), and people can express their concern for others verbally and non-verbally. [Spiers \(1998\)](#) pointed out that politeness is used mainly to ease social interaction by providing a ritualistic form of verbal interaction that reduces the severe nature of many speech acts, such as commands, requests, questioning, advice, etc. In other words, the speaker maintains both his/her face and the face of the addressee in social interactions.

From the perspective of speech act theory, [Searle \(1969\)](#) defined the speech act of advising as "telling you what is best for you" (p. 67). He also, in his classification, classified advising within the directive category. Therefore, as a directive speech act, advising means that the recipient is required to perform an action according to the speaker's desire; however, this action is for the sake of the recipient. The speech act advising implies the speaker's authority and expertise and the recipient's need for advice. Therefore, advising is different from other speech acts because it leaves acceptance to the recipient ([Bouwmeester, 2010](#)).

[DeCapua and Dunham \(1993\)](#) define advice as "opinions or counsel given by people who perceive themselves as knowledgeable, and/or who the advice seeker may think are credible, trustworthy, and

reliable” (p. 519). Moreover, Tsui (1994) defines advice as “a directive which advocates a course of action for the benefit of the addressee, and in which the consequence of compliance is desirable” (p. 122). Regarding the theoretical concept of advice in the medical context, Van Poppel (2019) specified four felicity conditions for advising in the context of health:

1. Essential condition: Advising concerns an attempt by the advisor to make the receiver perform a beneficial act to treat or prevent a problem that might affect the latter’s health.
2. Propositional content condition: The advisor predicates a future act that is beneficial to the receiver’s health.
3. Preparatory conditions:
 - a. The advisor has some reason to believe that the act will be useful for the receiver’s health by preventing, treating, or detecting a health problem.
 - b. The advisor believes that the receiver is willing to perform the action.
 - c. The advisor believes that the receiver is able to perform the action.
 - d. The advisor is a health authority with knowledge and experience of the action and its effects.
 - e. It is not obvious to both the advisor and receiver that the receiver will perform the action during the normal course of events.
 - f. The advisor believes that the receiver has not yet done or is not yet performing the action.
4. Sincerity conditions:
 - a. The advisor wants the receiver to do the action.
 - b. The advisor believes that the action benefits the receiver’s health.

Mićić (2013) indicated that the medical language is a register used by doctors; hence, it seems like an odd language outside the context of medicine. According to Bloom (1982), “medicine” can be defined as the science of preventing, treating, and diagnosing diseases. It also refers to the drugs used to treat any disease or injury. There are some characteristics of medical language, such as the extensive use of words that are largely related to the subject matter. This means that each word, phrase, or sentence uttered in the medical context is special and refers to medical jargon. In addition, medical language is characterized by the use of passivization and an impersonal style. Therefore, specialists use third-person rather than first-person pronouns (Mey, 2009). However, it is expected that a simple language used by doctors and patients will be understood.

3. Literature review

3.1. Advice in computer-mediated communication

Several studies have been conducted to investigate the speech act of giving health advice in different contexts, including radio advice programs (DeCapua and Dunham, 1993), TV health programs

(Ahmed and Ahmed, 2019), Twitter (El-Dakhs, 2021), and online forums (Morrow, 2006; Kouper, 2010; Locher, 2013; Pung, 2017; Bates, 2021). For example, in the context of radio advice programs, DeCapua and Dunham (1993) examined the patterns in American English used by speakers (adults) when requesting and giving advice. The researchers collected data through calls from two different radio advice programs. The results showed that explanation, elaboration, and narration were the main strategies used by speakers when requesting and giving advice. These strategies were used by people to successfully interact with each other. It was observed that before advice-givers gave advice, callers gave a long clarification for the problem. Among these strategies, this study pointed out that narration was used more by both advice-seekers and advice-givers. The results also indicated that requests for advice by advice-seekers were implicit, sometimes vague, or included no requests at all. This is because the advice-seeker expects the request to be evident from the description of the problem. On the TV health programs, Ahmed and Ahmed (2019) examined the advice given in Arabic (Green Apple) and English (doctors) programs. The results showed that all pieces of advice in the two programs were used in polite expressions, which reflects the strong relationship between advising speech acts and politeness. The results also indicated a difference between the two programs regarding the types of politeness employed. It was found that in the English program, positive politeness strategies were used in all texts. However, in the Arabic program, negative politeness strategies were mostly used. In addition, the data clarified that in the English program, imperative sentences were used more than declarative ones, whereas in Arabic, the data showed more use of declarative sentences in comparison with imperative ones.

During the COVID-19 crisis on Twitter, El-Dakhs (2021) analyzed what advice-giving strategies the departments of health in Saudi Arabia and Australia provided to the public. The results showed that direct advice strategies were the most preferred among both Saudis and Australians. The use of direct advice strategies is preferred in the health domain. In terms of differences, the results indicate that Saudis preferred to use more direct advice strategies and external modifiers, whereas Australians used more conventional indirect strategies and internal modifiers. It also clarified that the Saudi health department, in terms of modifiers, used more religious expressions, whereas the Australian health department used some downgraders to try to sound reader-friendly and create engaging discourse.

Among peer advice interactions in an online community at LiveJournal.com on the topic of motherhood, Kouper (2010) studied how people take part in soliciting and giving advice, what strategies are used, and how they deal with the potential face threats in advice exchanges. The results showed that requests for information or opinions were the most common type of advice solicitation, followed by problem disclosures. It was also pointed out that requests for advice and problem disclosures were identified as systematically occurring in the data: “orientation, justification, and appreciation.” The use of these elements can vary frequently in terms of the frequency and positioning in the message. Therefore, messages that solicit advice vary in length, content, and structure. Such messages are often written in a narrative manner. It is often found that one message contains several questions or requests for advice. In addition, the results indicate that people in this community used all four strategies (hedged advice, direct advice, indirect advice, and descriptions of personal experiences) in advice-giving. The most common forms of advice were direct advice and

sharing of personal experiences. However, in cases where there is greater sensitivity, people share personal experiences more often than hedged or indirect advice.

In an online forum among Malaysian women, [Pung \(2017\)](#) examined advice-seeking and advice-giving strategies and the influence of their culture. The results showed that the most frequently used strategies for advice-seeking were question-asking, followed by problem description, whereas an explicit request for advice was the least preferred strategy. However, for advice-giving strategies, the most preferred were giving or offering advice directly, followed by giving indirect advice, describing one's own experiences, and providing general information. The findings also showed that the examination of many aspects of the interactions among women revealed participants' cultural influence at the level of message content as well as the discourse.

Another study on an online forum, [Bates \(2021\)](#) investigated the mitigation strategies used when requesting and providing advice for recovery for people with eating disorders. The results showed that participants in the forum used different mitigation patterns for advice-seeking and advice-giving in the forum. For advice-seekers, the results indicated that mitigation devices and discursive moves were used to minimize the illocutionary force of a request and cope with the stress of the disorder. It was noticed that instead of directive acts, hedges were the most common mitigating devices in the data and were used by advice-seekers to soften the force of the request. On the other hand, for advice-givers, the findings revealed that affective appraisals, personal experience, empathy displays, and concessive patterns were the main discursive moves used by advice-givers to soften the message, express empathy, and reduce the advisee's psychological vulnerability. Overall, it was observed that mitigation is an important way to deal with multiple stressors and multidimensional vulnerabilities in discourse.

Another communication context that receives attention in advice studies is the health domain. For example, [Locher \(2013\)](#) focused on computer-mediated advice regarding health issues and collected data from question-and-response letters in an online archive. An analysis of the data showed that the texts were segmented into "discursive moves." The letters contained several parts, such as the problem, general information, explanation of points made, and farewells. While the analysis of the responses pointed out that there was both direct and indirect syntactic advice-giving, advice was included within the entire composition of the letters where the advice-seekers could make their own decisions by being given options. In addition, [Morrow \(2006\)](#) studied the discourse features of messages (postings and replies) posted on an Internet discussion forum on the topic of depression. The researcher classified these messages into three categories: problem messages (describing a problem), advice messages (responding to the problem messages), and thanks messages (written in response to the advice messages). The results showed that the discussion begins with "a problem message," i.e., a presentation of the symptom by using metaphorical language to describe the medical problem, types of questions used to request advice, and the lack of direct requests for advice. This is usually followed by one or more advice messages in response. It was observed that sometimes there were many replies to the advice messages, either from the writer of the initial problem message as a "thanks message" or from others as "comments" on the advice messages. The results also indicated that the problem, advice, and thanks messages had similarities in terms of style

but differed in terms of their discourse characteristics. In terms of the style, the researcher found that both the problem messages and the advice messages were written in an informal style, including the use of, for example, "u" for "you." The author discussed three types of messages.

For the first type, [Morrow \(2006\)](#) revealed that problem messages were different in terms of structure and content. Some messages have three parts: an opening, a description of the problem, and a closing. However, not all of these parts could be found in all problem messages. The consistent part was a description of the problem. In addition, the findings indicated that there were relatively few direct requests for advice in "problem messages." In addition, yes/no questions and WH questions were employed as a request for advice, and [Morrow \(2006\)](#) interpreted the use of yes/no questions when it was employed by patients with some competence in dealing with their problems. A similar use of yes/no questions was observed in [Heritage and Sefi's \(1992\)](#) study on visiting nurses. They found that direct requests for advice were relatively few, and requests for advice were often in the form of yes/no questions that required confirmation. [Heritage and Sefi \(1992\)](#) explained the reason for using yes/no questions as a result of a desire to appear competent to handle one's own affairs.

For the second type, advice messages, the results clarified that to make the advice less threatening to those who received it, advice-givers used different strategies to avoid that threat, such as, for example, showing empathy. It was observed that the advice-givers used an expression of empathy (as an opener) in most of the advice messages, saying, for example, "I just wanted to say that I am in the same boat as you." Other expressions such as "good luck" or "take care" were used more in the closings to communicate a positive regard, and some expressions such as "feel free to talk to me" were used as offers. The results also showed that the majority of the advice-givers mentioned their own experiences before offering advice to advice-seekers. However, sometimes, advice-givers referred to someone else's experience. In addition, sometimes when advice was not given, the advice-givers felt forced to explain the reason.

For the third type, thanks messages, the results showed that most expressed appreciation for the advice, and those messages were initiated with an expression of thanks in the opening sentence. In some cases, the writers admitted that they had done what was recommended. However, this was done without admitting that their actions aligned with the advice that they had received. Some thanks messages tended to be shorter. Overall, this study suggested that contextual factors affected the use of discourse patterns in terms of what the message writers said, what they avoided, and how they gave and received advice. In addition, [Hinkel \(1997\)](#) analyzed the responses to advice-giving and explored three types of advice-giving: direct, indirect, and hedged. [Hinkel \(1997\)](#) categorized advice that included hedges as hedged advice. In addition, [Hinkel \(2005\)](#) expanded the analysis to identify the types of hedges and relied on the system outlined by [Brown and Levinson \(1987\)](#), [Hübner \(1983\)](#), and [Quirk et al. \(1985\)](#). According to [Hinkel \(1997\)](#), hedges are defined as linguistic mitigating devices, e.g., particles, "tentativizers" ([Brown and Levinson, 1987](#), p. 153), weakeners, and minimizers, employed to redress a potential FTA and reduce the speaker's responsibility, for his or her cooperativeness, "informativeness, truthfulness, relevance, and clarity which on many occasions need to be softened for the reasons of face" ([Brown and Levinson, 1987](#), p. 146). In addition, [Hinkel \(2005\)](#) analyzed and discussed the types of hedges in English, such as

epistemic hedges, lexical hedges, possibility hedges, downtoners, assertive pronouns, and adverbs of frequency, which are affected by context.

Our review of previous studies shows that, to date, no study has attempted to investigate seeking and responding to advice in Arabic in the medical context through CMC, such as the use of a medical website. The current study aimed to fill this gap by investigating the discourse patterns of advice-seeking and advice responses to identify the strategies and structure in Arabic through CMC in the medical context.

4. Methodology

4.1. Data collection

The data for this study were collected in April 2022 from advice-seeking and advice-response messages on the Altibbi website (<https://altibbi.com>) about various symptoms in various health contexts, such as surgery, psychiatry, medicine, and ophthalmology. This website is one of the most important medical websites and is presented by a group of medical professionals who answer various health-related questions in Arabic. It is considered the first website in the Arab world to provide online medical consultation and certified information. It is set up as a site where patients with various medical problems can ask doctors about them freely and anonymously. At the time of data collection, the Altibbi website had more than 20 million users, more than 900,000 types of medical information, more than 137,343 doctors in service, more than 3,000,000 medical questions, and 4,350,504 medical consultations. There are more websites, but this one was chosen for the study of advice-seeking and advice responses for several reasons. First, it is certified by the ISO and is licensed. Second, it received the World Summit Award for the best online medical content for Arab readers. Therefore, this website provides a good context for studying advice-seeking and advice responses in the medical context.

The messages analyzed were posted from April 3–5, 2022. On this website, there were two filters. First, when choosing the type of question, we had the option to choose the most recent questions or the most frequently visited ones, but we opted for the former. The second filter was then classified. We did not determine any specific classification based on symptoms. However, we did a general search for all types of symptoms to obtain general data in the field. To obtain reliable results, we collected the data naturally and in the order the responses appeared on the website, without overlooking any questions or choosing any specific field. In addition, although there were some misspelled words in some sentences, no modifications were made. This process was performed manually by copying and pasting the data into an Excel file because of the ease of coding and extracting frequencies. The data consisted of 300 messages, including 150 advice-seeking messages and 150 advice-response messages. The advice-seeking messages were posted by 59 male and 91 female patients between the ages of 15 and 52. Their ages were divided into three groups to categorize the range of ages, and it was then found that the first group included 112 patients between the ages of 15 and 28; the second group included 11 people between the ages of 29 and 39; and the third group included 27 people between the ages of 40 and 52. In contrast, among the

advice-responders, there were 123 male doctors, and 27 were female. All the personal information of doctors and patients was omitted in our research to protect their privacy, and we focused only on the language used in advice-seeking and advice responses. However, we only mentioned general types of information, such as age, gender, and the language of advice-seeking and advice responses. Although the website is public, and it requires no consent to access the data, the Institutional Review Board (IRB) at our university approved the study based on the procedures for collecting data and protecting the privacy of users of the website.

The advice-seeking messages were sent by patients to doctors asking for help with their problems, while the advice-response messages were sent by doctors in response to the advice-seeking messages. Those messages were written in Arabic except the use of some medical terms, whether by the patients or doctors, which were in English, such as the words “cloraxene,” “trichotillomania,” and so on. For advice-seekers, we included a header with age and gender identified but not names or photos. In addition, we included a classification that indicates what field the problem pertains to. In addition, there were topics and advice-seeking icons. However, we found that the topic-and advice-seeking icons usually had the same expressions used by patients or completed each other as one explanation. Therefore, in the analysis, we considered the topic and advice-seeking icons to be comments. On the other hand, for the advice-response messages, there were gender-and advice-response icons. Although the advice-seeker often received only one reply from a doctor, four advice-seekers received two replies from different doctors. Therefore, we relied on the first replies and neglected the second.

4.2. Procedure

Two models were used in this study. First, *Morrow's (2006)* model of code classification was used to analyze the data obtained in terms of the strategies of the speech act of advice-seeking. However, we found that some strategies were not available in our data, such as the advisory giver's stance. In addition, we found that new expressions, such as “suffering from” or religious expressions, required new codes for strategies. These differences were due to the nature of the data as well as the Arabic context. Therefore, we used *Morrow's (2006)* model, with some modifications, which was appropriate for Arabic data. In contrast, to analyze advice responses, *Hinkel's (1997)* taxonomy of advice was used, which is divided into three classifications: direct advice, hedge advice, and indirect advice. However, the third classification (indirect advice) was not available because of the nature of the data and the medical context, as patients come to the site specifically to ask for help. Therefore, doctors, in giving advice, should use either direct advice or hedge advice.

Several steps were taken to analyze the postings of the speech act of advice-seeking and advice-response messages in terms of their strategies and construction. The data were collected by copying and pasting them into an Excel file to be coded based on *Morrow's (2006)* and *Hinkel's (1997)* work.

Reliability was established by the researchers. The first author analyzed the first 50 advice-seeking posts and the first 50 replies given independently, and they were revised by the second researcher to work out and agree upon a set of criteria for identifying the strategies

employed in the messages. Discrepancies were resolved through discussion by adding new codes owing to the nature of the data. The same procedure was performed with the rest of the posts and replies in terms of analyzing, revising, and resolving discrepancies through discussion.

5. Results

The results were divided into two sections: qualitative and quantitative. In the first section, examples of interactions between the patient and doctor are discussed in depth. In the second section, the focus will be on the types of strategies as well as the types of compound strategies employed in advice-seeking and advice-giving by patients and doctors.

5.1. Qualitative analysis

The following are some examples of the interactions that took place between patients and doctors in Arabic on the medical website. Two of these interactions are taken from the same situation: one example is a posting by the patient, and the other is a reply by the doctor. The Arabic text is followed by a transliteration (see [Appendix A](#) for Arabic symbols) and translation.

In [Example 1](#), the patient began his posting by describing the medical problem: “My cumulative blood sugar is 5.9.” This was followed by using a yes/no question, such as “Am I diabetic?” There was no use of an opening or closing. In the response, the doctor started the reply by using “My dear brother” as an opening, followed by giving clarification/information as in “you are in the pre-diabetes stage, and you do not need treatment.” This was also followed by giving direct advice: “you must commit to improving your diet and exercise,” which was used to conclude the reply. Doctors employed various imperatives either with or without using “should” (see [Table 1](#) for more examples).

In [Example 2](#), the patient initiated her posting by requesting direct advice, i.e., “Tell me” and followed it by using a religious

expression to thank the doctor in advance for the advice that will be given later, i.e., “may Allah reward you.” The patient followed her thanks by asking a question using a WH question, i.e., “What is the reason for tilting and moving one’s neck involuntarily towards the right or left side and the inability to move it forward when experiencing anxiety and tension?” The doctor began the reply by giving clarification/information, suggesting that a “Clinical examination is important,” followed by giving a direct advice, i.e., “You have to see a neurologist.” Patients used various imperatives when they asked for advice (see [Table 2](#) for more examples).

In [Example 3](#), the patient began the posting by describing the medical problem: “My eyes were exposed to the mobile flashlight for a long time, more than a quarter of an hour... not the first time.” This was followed by asking yes/no questions, such as “Am I in danger?” The patient concluded her posting by expressing feelings about herself, i.e., “I feel very worried,” which was intensified by using the adverb “very.” The doctor replied to the patient’s question: “Am I in danger?” with a yes/no answer when the doctor said “There is no risk.” At the same time, the doctor’s response can be considered a positive one. In addition, the doctor followed his response “There is no risk” by giving a direct advice: “it is better not to do it again,” in which the doctor advises the patient not to be exposed to the mobile flashlight again. In other examples, the doctors used hedges instead of using only imperatives in their advice, which are examples of hedge advice, as in, for instance, “it is possible to take...,” “you can take...,” “perhaps, you can take...,” etc. (see [Table 3](#) for more examples).

In [Example 4](#), the advice seeker initiated her posting by giving personal information about her patient, the baby, and mentioned that “my baby is 6 months old, followed by a description of the medical problem but not a general one. However, the mother of the patient used a strategy of “expressing suffering” when she said that “He is suffering from a severe cough with the presence of phlegm” to describe the problem in a very precise way. In addition, the mother of the patient used a WH question, “What is the best medicine for his condition?” The doctor replied to the question directly by giving clarification/ information without using any other strategies, responding with “Bronchicum,” which is a natural cough remedy.

In [Example 5](#), the patient initiated the posting with a greeting, i.e., “Peace be upon you,” followed by a yes/no question: “are my test results normal?” The patient closed the posting with an expression of thanks and wished the doctor well during the holy month of Ramadan. The two strategies employed in the closing are considered positive politeness strategies.

The doctor replied to the greeting directly: “Peace be upon you and Allah’s mercy and blessings be upon you; happy Ramadan to all” as a response. The doctor followed the greeting response strategy of asking for more clarification by using questions such as “Sorry, are you complaining of palpitations? Feeling hot even in cold weather? Palms sweating?” The doctor employed more than one question to clarify the condition before giving the advice; however, these questions did not receive a response from the patient because of the nature of the website, which provides only a space for the posting and reply, but not additional responses.

The previous strategies employed by patients and doctors in advice-seeking and advice-giving are summarized in the following section to identify the most common strategies used in the online

EXAMPLE 1

Male patient:	السكر التراكمي عندي 5.9 هل كذا انا مريض سكر
Transliteration:	al-sukkar al-trakumi ‘indi 5.9 haL kitha ?ana mari:d sukkar
Translation	My cumulative blood sugar is 5.9. Am I diabetic?
Doctor’s response:	اخي الكريم انت في مرحله ما قبل السكر ولا تحتاج الى علاج ولكن يجب عليك الالتزام بالحميه الغذائيه وممارسه الرياضه على الاقل رياضه المشي ١٥٠ دقيقه اسبوعيا واعادة التحليل بعد ٣ اشهر
Transliteration:	?akhi al-kari:m ?ant fi: marḥalah ma qabl al-sukkar wala taḥtaj ?ila ‘ilaj walakin yajib ‘alayk al-?iltizam bi al-ḥimyah al-ghitha?iyyah wa mumarasat al-riya:ḍah ‘ala al-?aqal riyadah al-mashi 150 daqi:qah ?usbu:‘iyyan wa ?i’a:dat al-taḥli:l ba’d 3 ashhur
Translation:	My dear brother, you are in the pre-diabetes stage, and you do not need treatment. However, you must commit to improving your diet and exercise, walking at least 150 min per week and undergoing re-analysis after 3 months.

TABLE 1 Examples of direct advice using imperatives by doctors.

	Arabic examples of direct advice by doctors	Translation
1	برجاء عمل ايكو على القلب	Please <u>do</u> an echocardiogram on the heart.
2	يجب تناول المليينات	You <u>should take</u> laxatives.
3	برجاء اتباع نصائح الدكتور	Please <u>follow</u> the advice of the doctor.
4	مارس الرياضة والتغذية المتوازنة	<u>Practice exercise</u> and balanced nutrition.
5	يجب عليك الالتزام بالحمية الغذائية	You <u>must stick to</u> the diet.
6	برجاء الرجوع لطبيب الأنف	Please <u>refer to</u> the nose doctor (the otorhinolaryngologist).
7	تحتاج الى استشارة طبيب	You <u>need to</u> consult a doctor.
8	يلزم الإستمرار في العلاج	Treatment <u>must be</u> continued.
9	يجب عمل موجات فوق صوتيه	You <u>should do</u> an ultrasound.
10	اوقفي القرفة فوراً	<u>Stop</u> ingesting cinnamon immediately.
11	تحتاج لمراجعة طبيب الجراحة للفحص	You <u>need to</u> see a surgeon for examination.
12	عليك مراجعة طبيبك	You <u>should see</u> your doctor.
13	يجب تجنب الوقوف لفترات طويلة	You <u>should avoid</u> standing for a long time.
14	الرجاء عمل عينه من مكان الغده	Please <u>provide</u> a sample from the gland.
15	يستحسن ان لا يكون مره اخرى	It is better <u>not to be</u> in this situation again.
16	الافضل اجراء فحص عند طبيب عيون	It is best <u>to get</u> an examination by an ophthalmologist.
17	اعتبريها دوره	<u>Consider it</u> a menstrual cycle.
18	انتظر الدورة الشهرية التي تنفي الحمل!!	<u>Wait for</u> the menstrual cycle, which will indicate lack of pregnancy.
19	مارس الرياضة والتغذية المتوازنة وتناول العسل والمكسرات، واستعد للجولة القادمة	<u>Practice sports</u> and balanced nutrition. <u>Eat</u> honey and nuts and <u>get ready</u> for the next round.
20	اعمل التحليل	<u>Do</u> the medical test.
21	لا بد من مراجعه طبيب لتقييم الحاله	You <u>must see</u> a doctor to evaluate the condition.
22	يفضل عمل أشعه على الصدر	It is preferred <u>to do</u> a chest X-ray.
23	اسألني في الصيدلية	<u>Ask at</u> the pharmacy.
24	لا يجب أن تقلقي فقط خذي مسكنات ألم	Do not worry, just <u>take</u> pain relievers.
25	يفضل أخذها مساء قبل النوم	It is preferred <u>to take it</u> in the evening before sleep.
26	راجع اختصاصي جراحة	<u>See</u> a surgeon.
27	حافظ على ذلك	<u>Keep</u> it up.
28	لازم يكون تحت اشراف طبي	It <u>must be</u> under medical supervision.
29	حافظ على النظافة	<u>Keep</u> it clean.
30	تابع مع طبيب الجراحة	<u>Follow up</u> with the surgeon.
31	انتظري ٣ أيام	<u>Wait</u> three days.

medical context in Arabic. Different strategies are employed by patients and doctors; however, they refer to advice-seeking and advice-giving in this context.

5.2. Quantitative analysis

The second section also contains two subsections. The first focuses on the types of strategies as well as the types of compound strategies employed in advice-seeking by patients and how they construct their postings. In the second section, the types of strategies and compound strategies used by doctors in advice responses are explained, and how they construct their replies to the patients' postings.

5.2.1. Types of strategies employed by patients in advice-seeking

Table 4 shows the types of strategies employed in advice-seeking. The construction of advice-seeking has three main parts: opening, middle, and closing. It was also noticed that opening and closing were used occasionally. As can be seen, the opening includes a greeting, which was used 19 times (5%), as well as the use of an address term, which was used six times (2%). Also, it is obvious that a greeting, such as *asslamu alaykum* (peace be upon you), and address terms, such as *duktu:r* (doctor), were used more commonly by women than men.

In addition, the results show that in the closing, both expressions of thanks, such as *shukran* (thank you) and prayers, such as *jazak allah khayr* (may Allah reward you well), were used with the same

EXAMPLE 2

Female patient:	افيدوني جزاكم الله خيرا ما سبب ميلان و تحرك الرقبه لا إراديا نحو الجهة اليمنى أو اليسرى و عدم المقدرة على تحريكها للأمام أثناء القلق و التوتر؟
Transliteration:	?afi:du:ni jazakum allah khayran ma sabab mayala:n wa taḥarruk al-raqabah la ?iradiyyan naḥw al-jihah al-yumna ?aw al-yusra wa ‘adam al-maqdirah ‘ala taḥri:kiha lil?amam athna? al-qalaq wa al-tawattur?
Translation:	Tell me, may Allah reward you. What is the reason for tilting and moving one's neck involuntarily towards the right or left side and the inability to move it forward when experiencing anxiety and tension?
Doctor's response:	الفحص السريري مهم عليك مراجعة طبيب أعصاب للفحص السريري لإجراء اللازم من تصوير وتحليل للدم وغيره أو لتوجيهك للتخصص المعني
Transliteration:	al-faḥṣ al-sari:ri muhim ‘alayk muraja‘at ṭābi:b ?a‘sa:b li al- lfaḥṣ al-sari:ri li ?ijra? al-lazim min taṣwi:r wa taḥli:l li addam wa ghayrih aw li tawji:hik li attakhassuṣ al-ma‘ni.
Translation:	Clinical examination is important. You have to see a neurologist for clinical examination to undergo the necessary imaging, blood analysis, etc. or get a referral to the relevant specialist.

frequency, and were used six times (2%) in terms of the total. They were used more frequently by female than male patients. In this case, prayers are considered a kind of wish in Islamic culture.

In the main part of advice-seeking, it can be seen that describing the medical problem was the most frequent strategy, being used 142 times (36%). The second most frequent was using yes/no questions; however, we found two methods of asking questions: yes/no questions and WH questions. Yes/no questions were used 84 times (21%), followed by another type of question, WH questions, which were used 45 times (11%). Expressions of suffering were noted, followed by expressions of feelings. These strategies were used 32 (8%) and 28 times (7%), respectively. Another type was making a request using direct advice, followed by asking the doctor to look at the medical report/x-ray. These strategies were used 19 (5%) and 13 times (3%), respectively. Although the number of postings in the data was greater for female patients and they employed more strategies, the male patients used more expressions of feelings and asked the doctor to look at the medical report/x-ray more often. In addition, female and male patients were equal in their use of expressions of suffering.

However, the middle part, which is the main component of advice-seeking due to its frequent occurrence, has two main types: one is related to describing the problem, while the other is related to requesting advice. The first part, which describes the problem, is divided into three parts: describing the medical problem in general or describing the problem by expressing suffering or feelings. However, for the other part, which is related to requesting advice, the advice was requested in four ways: by using yes/no questions, using WH questions, using direct advice, or asking the doctor to look at the medical reports/x-ray.

5.2.2. Types of compound strategies employed by patients in advice-seeking

Figure 1 has been prepared to identify the most frequent types of compound strategies used by patients seeking advice. These compound strategies were arranged from the most to the least

frequent. The results revealed 48 linguistic patterns (See Appendix B for the rest of the compound strategies). However, only the most frequent types of compound strategies used four times and above in advice-seeking will be explained.

Although describing a medical problem was the most frequent strategy, it was not always used alone, as shown in Figure 1. Describing the medical problem and using yes/no questions was the most frequent compound strategy, as it was used by 19% of patients. The second most frequent type was describing the medical problem and using WH questions, followed by the third type, which involves a description of the medical problem. These strategies were used 8 and 7%, respectively. The fourth and fifth types of compound strategies were equally used (6%). For instance, the fourth type involves a description of the medical problem, asking questions using yes/no questions, and asking questions using a WH question. The fifth type involves a description of medical problems and expressions of feelings. The sixth type involved describing the medical problem, asking questions using a WH question, and expressions of suffering, which was used 4% of the time. However, the rest of the compound strategies were employed only 3% of the time. Although the compound strategies were used more by female patients than by male ones, it was observed that the male patients used the strategy of describing the medical problem by expressing feelings more than female patients (10 and 3%, respectively). In addition, the eighth and ninth types of compound strategies were used more frequently by male patients than by female ones. However, the difference was slight.

5.2.3. Types of strategies employed by doctors in advice-giving

Table 5 presents the types of strategies employed by doctors. It is clear that the construction of advice-giving has three main parts: opening, middle, and closing. It is also clear that opening and closing were occasionally used, which is similar to the construction of seeking advice in Table 4. In other words, there were similarities in terms of the opening and closing parts. As can be seen, the opening includes a greeting/greeting response, such as *assalamu alaykum/wa ‘alaykum assalam* (peace be upon you/peace be upon you), which was used six times (2%), while the use of an address term occurred only five times (2%). Although a greeting was used 19 times by patients, a greeting response or greeting was used six times by doctors. This means that greetings did not always receive a similar response in this context. Regarding the closing part, it is obvious that the use of prayers/religious expressions or wishes occurred five times (2%), as in *allah yishfi:k* (may Allah heal you) or *?atmanna laka ashshifa? al’ajil* (get well soon) while an expression of thanks was used only one time. This section was closed using expressions of wishes rather than thanks.

In the middle part, giving clarification/information was the most frequent strategy, followed by giving direct advice. These strategies were used 115 (40%) and 107 times (37%), respectively. The first two types were the most common, as they were used with high frequency compared to the others. Yes/no answers were used 17 times (6%), followed by hedge advice, which was used 15 times (5%), and positive regard, which was used 10 times (3%). Giving a link to more information was used five times (2%), followed by asking for more clarification, which was used four times (1%), making it the least frequently used strategy.

TABLE 2 Examples of direct ways of asking for advice by patients.

	Arabic examples of direct ways of asking for advice	Translation
1	ارجو نصيحتي في الامر	Please <u>advise me</u> on the matter.
2	ارجو ان تدلوني عليه جزاكم الله كل خير	Please <u>guide me</u> to it and may Allah reward you with all the best.
3	افيدوني جزاكم الله خيرا	Please <u>advise me</u> and may Allah reward you.
4	ارجوكم من فضلكم اجيبوني	Please <u>answer me</u> .
5	forxiga and komb6 ارجو بيان رديل دواء ال	Please <u>explain</u> the medicine of forxiga and komb6.
6	ارجو من حضراتكم تفاصيل الاشعة	I am <u>asking</u> you for the details of the x-ray.
7	عاوز اعرف علاج اللي ف الصورة	I <u>want to</u> know the medicine for the one in the picture.
8	اريد ان افقد بعض من وزني	I <u>want to</u> lose some weight
9	اريد الابتعاد عن التدخين	I <u>want to</u> quit smoking.
10	اريد دوا لتنزليها كي اصوم ولا اخسر الشهر كامل	I <u>want</u> medicine to reduce it so that I can fast and not lose the whole month (the holy month of fasting, Ramadan).
11	دلوني ايش اسوي	<u>Guide me</u> regarding what to do.
12	ارجو الاجابه	Please <u>answer</u> .
13	أفوتنا مأجورين	<u>Answer us</u> and may Allah reward you.
14	اجيبوني جزاكم الله خيرا	<u>Answer me</u> and may Allah reward you.
15	اريد بعض النصائح والارشادات وجزاكم الله خيرا	I <u>want</u> some advice and guidance; may Allah reward you.
16	ارجو نصحي بعلاج مجرب للجرثومة	Please <u>advise me</u> with a proven treatment for bacterium.
17	أريد أشياء طبيعیه لا أريد أدویه و شكرا	I <u>want</u> natural things. I do not want drugs, thank you.

EXAMPLE 3

Female patient:	تعرضت عيني لكتشاف الجوال لمدة طويلة اكثر من ربع ساعة...وليس أول مرة ... هل انا في خطر؟...علما بانني اجريت عملية تصحيح ابصار من سنة...اشعر بالقلق الشديد
Transliteration:	ta'arraḡat 'aynay li kashshaf al-jawwal li muddah tawil:lah ?akthar min rub' sa'ah...wa laysat ?awwal marrah...hal ?ana fi khaṭar...?ilman bi?anni ajrayt 'amaliyyah taṣḥi:h ?iṭsar min sanah...?ash'ur bi al-qalaq al-shshadi:d.
Translation:	My eyes were exposed to the mobile flashlight for a long time, more than a quarter of an hour... not the first time... Am I in danger? ... Noting that I underwent a vision correction operation a year ago... I feel very worried.
Doctor's response:	لا خطر يستحسن ان لا يكون مره أخرى
Transliteration:	la khaṭar yustaḥsan ?an la yaku:n marrah ?ukhra.
Translation:	There is no risk, but it is better not to do it again.

5.2.4. Types of compound strategies used by doctors in advice-giving

This section clarifies the most frequently employed types of compound strategies used by doctors. These strategies were arranged from most to least frequent. Researchers identified 30 patterns of compound strategies. However, only the first seven types of compound strategies, which have a higher frequency in advice-giving, are displayed in Figure 2 (see Appendix C for the remaining types of compound strategies).

Although the strategy of giving clarification/information was the most frequent in Table 5, it was not employed alone. However, it was mostly used with direct advice. Therefore, Figure 2 shows that giving clarification/information and direct advice was the most common type

of compound strategy used by doctors in advice-giving, as it was used 51 times (34%). The second most frequent pattern was giving direct advice, followed by clarification. These strategies were used 27 (18%) and 16 times (11%), respectively. It also clarifies that the fourth type, which involves clarification/information, direct advice, and hedge advice, as well as the fifth, which includes a yes/no answer and giving clarification/information, were used with the same frequency 6 (4%). In addition, the sixth, giving clarification/information and positive regard, and the seventh, a greeting/greeting response, giving clarification/information, and direct advice, were used with the same frequency, 4 (3%), making them the least frequently used compound strategies.

6. Discussion

The current study aimed to examine the discourse patterns of advice-seeking and advice-giving in Arabic to identify strategies and their construction through CMC in the medical context. The findings revealed that advice-seeking and advice-response messages have three parts: opening, middle, and closing. However, not all of these parts can be found in all messages. It was noticed that both patients and doctors used the opening and closing parts occasionally, and they are considered positive politeness strategies in terms of greetings and farewells or thanks. When a closing is used by doctors, it expresses empathy and positive regard. This is unlike the middle part, which was most frequently used. It can be said that the reason behind using an opening and closing depends slightly on the nature of the context, which is CMC, particularly due to the physical absence of doctors when patients are seeking advice. This is unlike FTF communication, where patients mostly use greetings as an opening (e.g., hello) or messages of thanks as a closing (e.g., thank you) because of the physical presence of the doctor at the time of interaction.

TABLE 3 Examples of hedge advice by doctors.

	Arabic Examples of Hedge Advice by Doctors	Translation
1	بالإمكان استخدام Movicol sachets	It is <u>possible to use</u> Movicol sachets.
2	بإمكانك مراجعة الطبيب للنظر في هذا	You <u>can see</u> a doctor to look into this.
3	بعد تمام الالتئام يمكنك اكل ما تشاء	After complete healing, you <u>can eat</u> whatever you want.
4	تقديري تأخذنيهم عادي بعد الدورة اذا استمرت معك الاعراض	Normally, you <u>can take</u> them after your period if symptoms persist.
5	يمكن اخذ الشريط الثاني مباشرة بعد الاول بدون فتره راحه	You <u>can take</u> the second tablet immediately after the first one without a break.
6	ممكن تتبع فترة التبويض بالعديد من الوسائل	It is <u>possible to track</u> the ovulation period in many ways.
7	ليس ضروري عمل شيء، ربما الماء البارد والابتعاد عن العادة	It is not necessary to do anything, but <u>perhaps you could drink cold water</u> and get away from the habit.
8	ممكن تناول منظمات الجهاز الهضمي	It is <u>possible to take</u> digestive regulators.
9	ربما نحتاج إلى علاج نفسي مكثف	<u>Perhaps we need</u> intensive psychotherapy.
10	ليس له تأثير على مريض الصرع ويمكن استخدامه بامان مع دواء ديباكين ٥٠٠ ملجم	It has no effect on epileptic patients and <u>can be used</u> safely with Depakine 500 mg.
11	يمكنك استعمال مخدر موضعي عند ظهور الحكه	You <u>can use</u> a local anesthetic when itching happens.
12	إذا لم تتحسن يمكنك مراجعة طبيبك	If you do not get better, you <u>can see</u> your doctor.
13	يمكن استخدامه بامان مع دواء ديباكين ٥٠٠ ملجم	It <u>can be used</u> safely with Depakine 500 mg.
14	يمكن استخدام مقياس حرارة رقمي لتتبع التغيرات الصغيرة في درجة الحرارة	You <u>can use</u> a digital thermometer to track small changes in temperature.
15	يمكنك المتابعة مع معالج نفسي للإستماع لك ومساعدتك	You <u>can follow up</u> with a therapist who will listen and help you.
16	يمكن الاستغناء عن المتحرك بالتثبيت الثابت	You <u>can replace</u> the mobile one (mobile dental braces) with a permanent one.

EXAMPLE 4

Female patient:	طفلي عمره ستة أشهر يعاني من سعال حاد مع وجود بلغم مازو افضل دواء لحالته
Transliteration:	tifli ‘umruh sittat ?ashhur yu‘ani min su‘a:l ḥa:d ma‘ wuju:d balgham ma huwa ?afḍal dawa? li ḥalatih.
Translation:	My baby is 6 months old. He is suffering from a severe cough with the presence of phlegm. What is the best medicine for his condition?
Doctor's response:	Bronchicum
Translation/description:	(It is a natural cough remedy.)

It was also found that 142 (36%) patients described their medical problem, making it the most frequent type of advice-seeking. This finding is inconsistent with Kouper's (2010) study, which showed that requests for information or opinions are the most common type of advice solicitation. However, this is similar to Morrow's (2006) study in the health domain on an Internet discussion forum, which showed that the description of the problem was the main part of advice-seeking. The intended meaning in describing the problem can be understood by doctors as patients asking for advice (Decapua and Dunham, 1993). Although describing the problem was the second most frequently used strategy, it was used mostly through asking questions, either the yes/no or WH type. However, more yes/no questions were used than WH questions. Questions are considered a request for advice. The use of yes/no questions can be interpreted as implying that the patient has some competence in dealing with his/

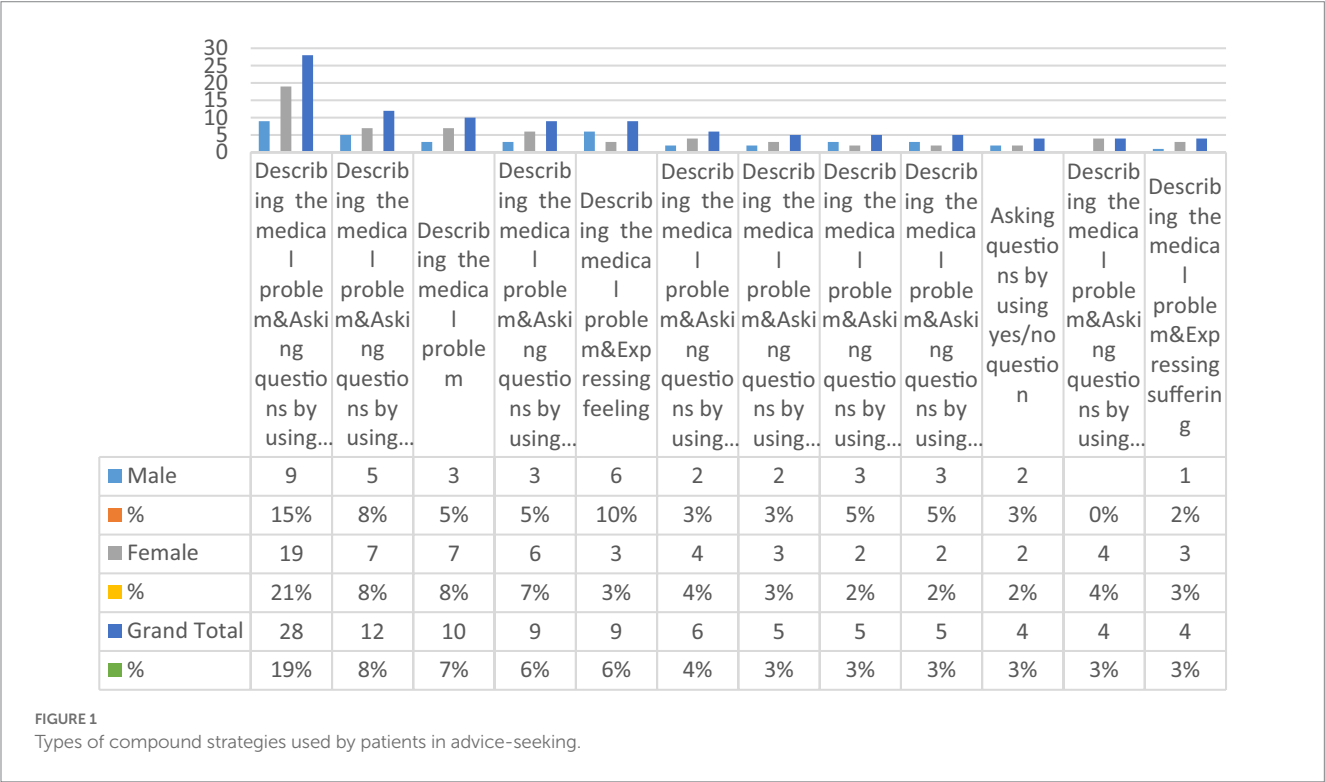
EXAMPLE 5

Female patient:	السلام عليكم اريد ان اسأل هل نتائج تحاليلي طبيعية؟؟ و شكرا رمضان كريم
Transliteration:	assalamu ‘alaykum ?uri:d ?an ?as?al hal nata?ij tahāli:li ṭabi: ‘yyah?? wa shukran ramadān kari:m.
Translation:	Peace be upon you. I want to ask, are my test results normal? Thank you, happy Ramadan.
Doctor's response:	و عليكم السلام ورحمة الله وبركاته رمضان كريم على الجميع عفوًا هل تشكون من خفقان؟ الشعور بالحراره حتى في الاجواء الباردة؟ تعرق باطن الكف؟
Transliteration:	wa ‘alaykum assalam wa raḥmatu allah wa barakatuh ramadān kari:m ‘ala aljami:‘afwan hal tashku:n min khafaqan? al-shu‘u:r bi al-ḥararah ḥatta fi al-ajjwa? al-baridah? ta‘arruq baṭin al-kaf.
Translation:	Peace be upon you and Allah's mercy and blessings be upon you; happy Ramadan to all. Sorry, are you complaining of palpitations? Feeling hot even in cold weather? Palms sweating?

her medical problem (Heritage and Sefi, 1992; Morrow, 2006). Additionally, it has been noted that patients' descriptions of their problems sometimes included descriptions of feelings and/or suffering that came in the form of affirmative and negative statements among male and female patients (e.g., I suffer from dizziness, I do not suffer from..., I feel..., or I do not feel...). These descriptions were remarkable for their frequent use, and this is indicative of an important function that enables a patient to describe his/her problem to a doctor in an easily understandable way. The findings in Morrow's (2006) study

TABLE 4 Types of strategies used by patients in advice-seeking.

Types of strategies in advice-seeking	Males	%	Females	%	Grand total	%
Opening						
Greeting	7	4%	12	5%	19	5%
Using address term	2	1%	4	2%	6	2%
Middle						
Describing the medical problem	56	35%	86	36%	142	36%
Asking questions using a yes/no question	25	16%	59	24%	84	21%
Asking questions using a WH question	18	11%	27	11%	45	11%
Expressing suffering	16	10%	16	7%	32	8%
Expressing feelings	15	9%	13	5%	28	7%
Requesting using direct advice	8	5%	11	5%	19	5%
Asking the doctor to look at medical reports/x-ray	8	5%	5	2%	13	3%
Closing						
Thanks	2	1%	4	2%	6	2%
Use of prayers	2	1%	4	2%	6	2%
Grand total	159	100%	241	100%	400	100%



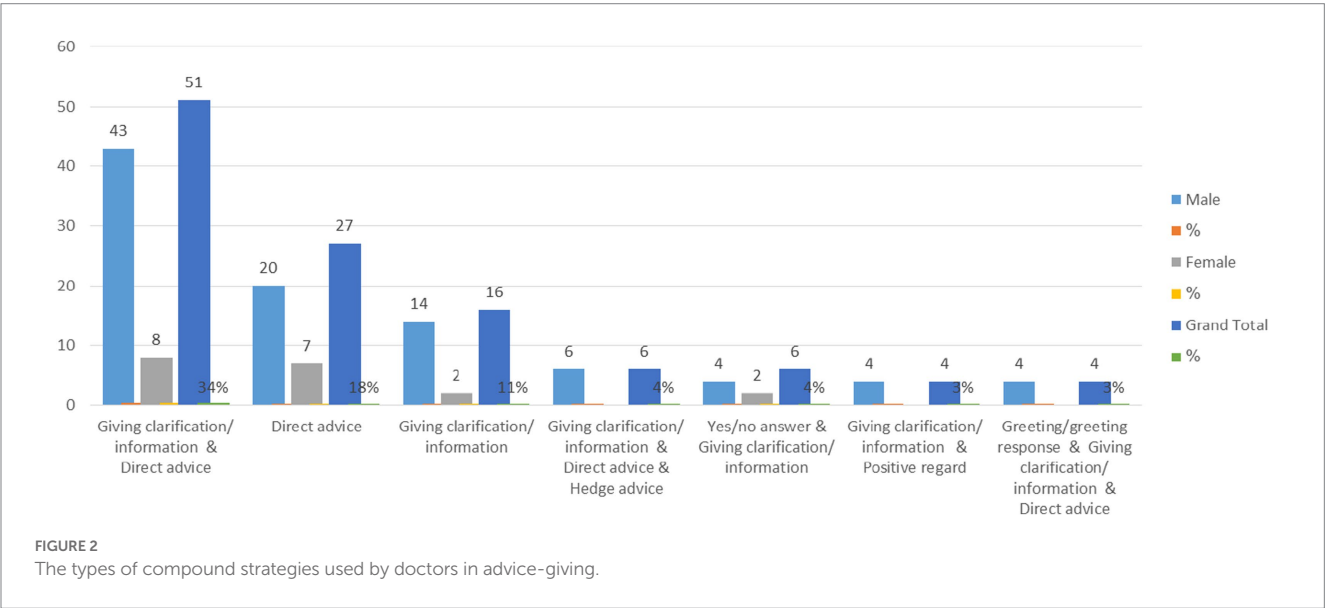
pointed out that the use of expressions of feelings was found in the data. However, the authors of the study did not find suffering expressions in advice-seeking. These differences could be due to the nature of the symptoms, as well as the nature of the patient-doctor interaction in the Arabic context.

Additionally, the results indicated that asking questions using yes/no questions and describing the medical problem was the most frequent compound strategy used by patients seeking advice.

Moreover, it was noted that yes/no questions were used more often than WH questions in advice-seeking, which may indicate a preference in using the types of questions besides describing the problem to show competence of dealing with the patient's problem, as mentioned above. It was also observed that some patients used more than one type of WH question, and they sometimes used yes/no questions with them. This finding is in line with Kouper's (2010) study, which showed that one message often contains several

TABLE 5 Types of strategies employed by doctors.

Types of strategies in advice-giving by doctors	Male	%	Female	%	Grand total	%
Opening						
Greeting/greeting response	6	3%		0%	6	2%
Address terms	5	2%		0%	5	2%
Middle						
Giving clarification/ information	97	41%	18	35%	115	40%
Direct advice	88	37%	19	37%	107	37%
Yes/no answer	14	6%	3	6%	17	6%
Hedge advice	11	5%	4	8%	15	5%
Positive regard	9	4%	1	2%	10	3%
Giving a link for more information	1	0%	4	8%	5	2%
Asking for more clarification	4	2%		0%	4	1%
Closing						
Using prayers/religious expressions/wishes	4	2%	1	2%	5	2%
Thanks		0%	1	2%	1	0%
Grand total	239	100%	51	100%	290	100%



questions and supports the findings of Pung (2017). Another thing to note is that doctors sometimes do not respond to yes/no questions with yes/no answers, as they also use clarifications. It could be that doctors want to ensure that patients understand their answers clearly due to the nature of the context, which is related to people's health. In addition, brief answers such as yes/no answers are not adequate in the medical context, especially for patients with whom the doctors are not familiar. It has also been noted that some patients ask for advice on behalf of others (e.g., my son), which occurred occasionally, emphasizing the ease of seeking advice for anyone and at any time for any symptom. These expressions were

used normally due to it being a context where young children cannot ask for themselves. Although the number of postings was not equal for the male and the female patients, the former used expressions of feelings or asked the doctor to look at the medical reports/x-rays more than the latter. In addition, the genders were equal in expressing suffering. In terms of the compound strategies, the male patients described the medical problem and expressed feelings more than the female ones. Some patients uploaded an x-ray and asked doctors to look at it to interpret the results. However, it was not clear why the patient did not ask his/her doctor, or what the reason was for seeking advice in an online context, not

through face-to-face communication; in particular, the x-ray was usually requested by a doctor, and the result was interpreted to the patient in a follow-up appointment.

For advice responses, on the other hand, the results showed similarity in being less frequently used in opening and closing parts in advice responses for the same reason, unlike the middle part. In addition, giving clarification/information was the most frequent strategy, followed by direct advice. Doctors used imperatives when the medical problem was obvious to them and the patient needed to take immediate action based on the doctor's advice. However, hedge advice was observed with possible actions that the patient might take or when the medical problem was not obvious to the doctors or there was a doubt about giving direct advice. Most hedges were used in the strategy of giving clarification, not in the advice itself, as Hinkel (1997, 2005) found. In contrast, Bates (2021) found that the use of hedges was the most common strategy used by advice-seekers, not advice-givers. Providing clarification/information and direct advice were used remarkably often compared to other types. Kouper (2010) arrived at a similar conclusion in the analysis of advice interactions in an online community, which showed that the most common form of advice used was direct advice, followed by sharing of personal experiences. However, Kouper's (2010) study is inconsistent with the current study in terms of sharing personal experiences, which could be due to the nature of the context, that is, healthcare. The results also showed that giving clarification/information and direct advice was the most frequently used compound strategy used by doctors in advice responses, as it was used 51 times (34%). It seems that doctors know that there will be no reply from patients due to the nature of the context (Altibbi), which lacks a mechanism for providing a response from patients. Therefore, doctors try to provide sufficient clarification and direct advice to ensure that patients understand them correctly. This might be the reason for the use of this type of compound strategy at a high frequency. Additionally, it was revealed that prayers/religious expressions were used in advice. This result is supported by El-Dakhs' (2021) study, which showed that the Saudi Health Department used more religious expressions in advice-giving. In addition, Hosni (2021) strongly agreed with this result when finding these expressions in his study in Arabic. Therefore, it can be said that these expressions are used because of Islamic principles. Moreover, asking for more clarification by doctors occurred only four times (1%). This pattern is used when a doctor wants to know more information about a patient's condition. However, there was no reply by patients because of the nature of the website, which had two parts: advice-seeking and advice responses. No later comments were available for the patients. Morrow (2006) considered asking questions by advisory givers as indirect advice. It has also been found that advice-givers employed positive regard strategies (e.g., do not worry) for advice-seekers to help them feel optimistic about their case. This finding is supported by Morrow's (2006) study, which showed that this strategy was used to communicate positively. In addition, it was observed that the verb "advise" (e.g., I advise you...) in the current data was used 12 times. This finding supports the findings of Hosni's (2021) study, which claims that the verb "advise" was found to be used in the Arabic data but was never used performatively in the English part. It can be said that these differences occur because of cultural differences or the context itself.

7. Conclusion

The current study aimed to identify the discourse patterns and strategies of advice-seeking, advice responses, and the construction of messages in Arabic through CMC in the medical context on the Altibbi website. Two models were used to analyze the speech acts regarding advice. Morrow's (2006) model was used for advice-seeking, while Hinkel's (1997) taxonomy was used for advice responses with some modifications to both models according to the data. Therefore, the results showed that the types of advice-seeking and advice-response strategies had three parts: opening, middle, and closing. It was noted that both patients and doctors used the opening and closing parts occasionally, unlike the middle part, which was used more frequently. For advice-seeking, the results revealed that describing the medical problem was the most frequent strategy used by patients when they asked for advice, followed by asking yes/no questions. These two types were used in advice-seeking more frequently than other types of strategies. Additionally, it was found that using yes/no questions and describing the medical problem was the most frequent compound strategy used by patients seeking advice. However, for advice responses, the results showed that giving clarification/information was the most frequent strategy used by doctors, followed by giving direct advice. When compared to other types, the first two were used frequently in the advice responses. In addition, the results showed that giving clarification/information and direct advice was the compound strategy most frequently used by doctors in advice responses.

The implications of these findings can help doctors and clinics understand the language used by patients when seeking advice or requesting medical consultation in an online context, because doctors give advice based on the patient's description of the symptoms and questions, not based on a clinical examination. Some patients feel comfortable seeking advice in an online context when the medical problem is related to something that is not taboo in society, such as symptoms or medical problems related to illegal relationships and the use of drugs. Websites for medical consultations need to give patients a chance to respond to the doctor's response, as the patient's inability to provide only one posting constrains the interaction between the patient and doctor. In some responses, it was found that doctors ask for more clarification or provide a link to patients for more information about the symptoms. In other words, it is better to give the patient a chance to interact with the doctor and enable them to better understand their medical case by responding to the doctor's questions, which would give patients a chance to follow up with questions. The findings can benefit online medical consultations in terms of helping patients understand the language used by doctors when giving advice, which would improve the service for patients, whether the advice was sufficient or not, because the consultation is based on the oral descriptions provided by patients, not a clinical examination.

One limitation of this study is that it aimed to investigate advice-seeking by patients and advice responses by doctors. There was no focus on patients' comments after they received doctors' advice because the option to post follow-up questions was not available to the patients. Therefore, further research should include more sequences following the advice given by doctors. In addition, for future research, it is recommended to examine gender and age differences in advice-seeking in CMC in Arabic, because the data were limited in this study.

Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

Author contributions

NA-M and MM contributed to conception and design of the study, manuscript revision, read, and approved the submitted version. NA-M organized the database, wrote the introduction, literature review, and discussion with conclusion of the manuscript. MM performed the statistical analysis, and wrote the methodology and the analysis of the manuscript. All authors contributed to the article and approved the submitted version.

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