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Teaching reading comprehension and vocabulary using memes

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In the digital age, memes have emerged as valuable tools for 21st-century learning. This study investigates how meme-based instruction can enhance learners' reading comprehension and vocabulary development. Using an explanatory sequential mixed-methods design, the study employed a quasi-experimental approach with control and experimental groups. Quantitative data were gathered through pretest and posttest to measure reading comprehension and vocabulary performance, followed by focus group discussions to explore learners' perceptions and experiences. The findings revealed a slight improvement in reading comprehension and a more pronounced enhancement in vocabulary among learners exposed to meme-based instruction. Learners also reported positive perceptions of memes, emphasizing their ability to motivate engagement, evoke humor, promote critical thinking, and facilitate deeper comprehension. These results underscore the potential of memes as innovative pedagogical tools that make learning more engaging and effective.

KEYWORDS

teaching vocabulary, teaching reading comprehension, memes in education, humor in learning, innovative teaching strategies

1 Introduction

The 2022 Programme for International Students Assessment (PISA) highlighted a concerning global decline in reading scores among 81 participating countries, including the Philippines. Despite this trend, the Philippines improved its ranking, moving up four spots to 75th place due to a notable increase in reading scores. This performance emphasizes the critical need to further develop the reading comprehension and vocabulary skills of Filipino students. Strengthening these foundational skills not only enhances academic performance but also equips students with essential critical thinking and analytical abilities necessary for success in higher education, future careers, and the global workforce ([Organisation for Economic Co-operation and Development, 2023](#); [Bautista and Lim, 2021](#)).

Conventional approaches to teaching reading comprehension and vocabulary often face challenges in effectively engaging today's digitally native students. Many educational practices still rely heavily on methods such as the use of textbooks and lectures, which may not fully resonate with the diverse learning styles and interests of modern learners. This gap in instructional strategies presents an opportunity to explore innovative approaches that can bridge the disconnect between formal education and students' digital literacy skills and cultural interests ([Prensky, 2001](#); [Smith, 2023](#)).

Addressing this issue requires the implementation of innovative strategies in teaching reading comprehension and vocabulary. Research indicates that integrating technology in classrooms, such as using interactive e-books and educational apps, can significantly enhance students' engagement and learning outcomes ([Al-Awidi and Ismael, 2012](#)). Motivation and engagement play a crucial role in the success of language learning. As [Purnama \(2017\)](#) notes, the inclusion of humor in English language teaching can capture students' attention and reduce classroom tension, making learning more enjoyable. Similarly, [Bolkan et al. \(2018\)](#) and

Salve (2019) emphasize that instructional humor can enhance learner engagement and participation by fostering a positive emotional climate. These findings align with Dörnyei's (2001) theory of L2 motivation, which underscores the importance of sustaining learners' interest and effort through meaningful, emotionally supportive learning experiences. Additionally, adopting a more personalized learning approach, where instruction is tailored to meet individual students' needs, has been shown to improve reading skills (Alrawashdeh et al., 2024). Collaborative learning strategies, where students work in groups to discuss and analyze texts, also cultivate a deeper understanding and critical thinking (Brown and Campione, 1994; Ramdani et al., 2022).

Another innovative strategy involves the use of memes in teaching reading comprehension and vocabulary. Memes are digital images or short texts, often humorous, that combine words and visuals to quickly share ideas in ways that are relatable to audiences (Shifman, 2014; Vazquez-Calvo et al., 2025). With their concise and often humorous content, memes can engage students and make learning more relatable and enjoyable. Studies have shown that memes can effectively enhance students' understanding and retention of new vocabulary by providing context and visual cues (Aedo and Millafilo, 2022; Amanda and Hadiyanti, 2024). Furthermore, the use of memes can stimulate critical thinking as students analyze the underlying meanings and cultural references embedded within them (Lipkin and Ganguly, 2018). By incorporating memes into the English classroom, educators can harness popular culture to make reading and vocabulary lessons more engaging and effective (Baysac, 2017; Kayali and Altuntaş, 2021). Given these potential, it is necessary to examine how memes may influence students' vocabulary development and reading comprehension in classroom contexts.

This study therefore investigated the effectiveness of teaching reading comprehension and vocabulary using memes among junior high school students. Specifically, it examined (1) the reading comprehension and vocabulary performance of the control and experimental groups in the pretest and posttest; (2) the significant difference between the pretest and posttest results in both groups; (3) the comparative mean gains in reading comprehension and vocabulary between the two groups; and (4) the learners' experiences during the integration of memes in their lessons. Through this investigation, the study aimed to contribute to the ongoing discourse on digital culture in education and provide empirical evidence on the pedagogical value of memes for enhancing vocabulary and reading comprehension.

2 Materials and methods

2.1 Research design

The quantitative-qualitative research method was used in the study, utilizing the two-group pretest-posttest quasi-experimental design. An account of the respondents' experiences in the focus group discussions were gathered to support the quantitative results. The design used two groups: an experimental group with whom memes were used in the lessons, and a control group with whom conventional teaching was employed.

Both the experimental and control groups were taught by the same English teacher. This teacher had 8 years of experience handling junior high school English classes and demonstrated competence in

both conventional approaches and the integration of digital media in instruction. Having one competent teacher for both groups minimized variability in teaching style, subject knowledge, and classroom management, ensuring that any differences in learning outcomes could be attributed to the instructional approach—specifically, the use of memes—rather than teacher-related factors. Consistency in teacher competence is critical, as research shows that teacher quality plays a significant role in shaping student achievement (Darling-Hammond, 2000).

To minimize external variables, the teacher followed lesson plans that specified the sequence of activities, the memes to be used, and the target vocabulary and comprehension tasks for each session. In the experimental group, memes were introduced at the start of lessons to present or reinforce target vocabulary, integrated into reading comprehension activities to encourage inference and contextual understanding, and revisited at the end of class to consolidate learning. The same instructional flow and scaffolding strategies were applied consistently across all sessions. For the control group, parallel lesson plans were used that excluded memes but addressed the same vocabulary items and reading comprehension exercises. This procedure ensured that the only instructional difference between groups was the integration of memes, thereby controlling for delivery, scaffolding, and other teacher-related variables.

2.2 Research participants

The research participants were Junior High School students from two class sections in a private school in the Philippines. These students were enrolled in Grade 10 and were taking English as a subject. The experimental group consisted of 45 students (20 males and 25 females), while the control group consisted of 46 students (20 males and 26 females). All participants willingly took part in the study.

The two sections were selected through purposive convenience sampling. They were chosen because they were accessible to the researchers and had similar performance and grades in English, ensuring that both groups started at a comparable level while maintaining the natural classroom composition. To further confirm this comparability, both groups took the Stanford Achievement Test (9th ed., Advanced 1) before the intervention. Pretest scores indicated that the groups had similar proficiency levels in vocabulary and reading comprehension, both within the “fairly satisfactory” range set by the Department of Education (see Table 1). This strengthened the basis that any observed differences in posttest outcomes could be attributed to the instructional approach rather than pre-existing group differences. The use of intact class sections, rather than random assignment, introduces potential selection bias. To mitigate this, groups were matched on prior English achievement and taught by the same teacher using parallel lesson plans.

2.3 Research instruments

The researcher utilized two instruments: a standardized test and an interview guide. The first instrument is the Stanford Achievement Test (SAT 9th edition, Advanced 1) which was used in conducting the pretest and post-test with the approval of the School Guidance Coordinator. The aforementioned standardized test assesses the principal curricular objectives in the field of reading, language,

TABLE 1 The pretest results of the control and experimental groups in vocabulary and reading comprehension, $n = 91$.

Reading skills	Control group, $n_1 = 45$				Experimental group, $n_2 = 46$				Comparative analysis	
	Mean PS (SD)	Grade	Description*	95% Class Interval	Mean PS (SD)	Grade	Description*	95% Class Interval	t-Value	p-value
Reading Vocabulary	63.85 (13.69)	77	Fairly Satisfactory	(59.85, 67.85)	67.17 (14.30)	79	Fairly Satisfactory	(63.04, 71.31)	-1.13	0.261
Reading Comprehension	58.89 (16.19)	74	Did Not Meet Expectations	(54.16, 63.62)	60.47 (16.63)	75	Fairly Satisfactory	(55.66, 65.27)	-0.46	0.648
OVERALL Reading Skills	60.66 (14.00)	75	Fairly Satisfactory	(56.57, 64.75)	62.86 (14.74)	76	Fairly Satisfactory	(58.60, 67.12)	-0.73	0.467

SD, Standard Deviation; PS, Percentage Score; * Significant at 0.05 using *T*-test for two independent samples. *Based on DO no. 8, s 2015: 90–100 Outstanding, 85–89 Very Satisfactory; 80–84 Satisfactory; 75–79 Fairly Satisfactory, and Below 75 Did Not Meet Expectations.

writing, listening, mathematics, and science. It has been utilized by the school to assess the concepts and competencies that are generally taught during the second half of any given year and the first half of the following year at the elementary, and junior high levels.

In the pretest and posttest, the respondents were made to answer the reading subtests that assess the vocabulary and reading comprehension of the learners. The test is structured to assess how students make sense of what they read, analyze and evaluate explicit and implicit information, and make connections from the text.

Moreover, in the vocabulary subtest, the learners were tested on how proficient they were in determining the synonyms of the given words and identifying the meaning of a word through context clues. The words tested are generally encountered in everyday life and in some subject areas that are taught in the school. In this study, vocabulary knowledge is defined as the learners' ability to correctly identify the meaning of a word through context clues, recognize synonyms or semantically related words, and demonstrate accurate word usage in sentence-level contexts. In addition, the reading comprehension subtest assesses learners within the context of three types of material: recreational, textual, and functional. The recreational and textual passages are published stories and articles that were originally written by esteemed and award-winning children's authors. These noteworthy contents reflect varied topics and cultural themes that appeal to the students with diverse settings, experiences, and interests. Reading comprehension, in this study, refers to the learners' ability to (a) grasp the main idea of a passage, (b) draw inferences from explicit and implicit information, and (c) integrate details across sentences to construct coherent understanding. These operational definitions shaped the design of both the vocabulary and reading comprehension subtests in the Stanford Achievement Test.

The rationale for linking memes to these areas lies in their multimodal nature. Memes situate words within humorous, visual, and culturally familiar contexts, which may support vocabulary development by strengthening semantic associations and recall (Altukruni, 2022; Baysac, 2017). Likewise, interpreting memes often requires learners to infer unstated meanings, connect text with images, and recognize cultural references, thereby reinforcing the inferencing and integrative skills central to reading comprehension (Shifman, 2014; Romero and Bobkina, 2017).

In the same vein, all test items were carefully analyzed and systematically underwent an intensive perusal by the experts of different national professional organizations in the United States

(U. S.), including the International Reading Association and National Council of Teachers of English. Also, a final review by different educators, both local and national, was conducted to ensure that there were no sources of biases and all forms of stereotyping (e.g., racial, gender, cultural, or ethnic). Moreover, the appropriateness of the item types and objectives of all subtests were determined by the National Item Analysis Program (NIAP).

In addition to the standardized test, a semi-structured interview guide was used to gather data on students' experiences with the integration of memes in their English lessons. A total of 15 students from the experimental group (mixed gender, selected through voluntary participation) took part in one focus group discussion. The session lasted approximately 45 min to 1 h and was held in the conference room of the school library, providing a conducive environment for open sharing. The discussion was audio-recorded with consent from participants and later transcribed verbatim for analysis.

The interview guide was developed by the researchers and validated by three expert validators, all of whom hold at least a master's degree in English language teaching. Their feedback was used to refine the wording, clarity, and alignment of questions with the study objectives. The final guide contained five open-ended questions designed to elicit students' perceptions, motivations, and challenges. Sample questions included: "How did memes help you understand unfamiliar words or passages?", "What did you like most about using memes in class?", and "What challenges did you experience in using memes as part of your lessons?" This process ensured that student voices were captured systematically while maintaining the credibility and trustworthiness of the instrument.

2.4 Procedures

The study was conducted over 8 weeks, with two 60-min English lessons each week (16 sessions in total). In the first week, both groups took the Stanford Achievement Test (9th ed., Advanced 1) as a pretest to establish their baseline performance in vocabulary and reading comprehension. After the intervention, the same standardized subtests were administered as the posttest. The eight-week gap between the two tests reduced the possibility of students remembering their previous answers. The number of items and the range of skills measured in the test also minimized memory effects.

In the experimental group, memes were integrated into the lessons on vocabulary and reading comprehension. At the beginning of each session, students were shown teacher-selected memes related to the target words or reading passage. Sample memes included humorous takes on vocabulary words (e.g., ‘indolent’ illustrated through a cartoon sloth caption) and cultural references tied to reading passages. Learners first analyzed the memes individually and then shared their interpretations in pairs or small groups. The teacher guided them in identifying the target vocabulary, finding synonyms, and using the words in short sentences. During reading activities, memes were used as advance organizers or post-reading prompts to encourage inference, contextual understanding, and deeper comprehension of the texts. At the end of certain lessons, memes were revisited to reinforce learning. In the final 2 weeks, students also created simple memes connected to the vocabulary and passages they studied. This served both as a review and as a performance task that encouraged creativity, critical thinking, and active use of language.

Lessons were delivered using a classroom projector and printed handouts of memes. No special software was required beyond standard image-viewing tools, ensuring replicability in resource-limited settings.

The control group received conventional instruction, which included textbook-based vocabulary drills such as definition matching, sentence completion, and synonym recognition, as well as comprehension questions based on the same passages used in the experimental group. Both groups studied the same content and objectives within the same time frame. The only difference was that memes were used in the experimental group. Instruction followed the DepEd English curriculum pacing guide, and activities were delivered via lecture and seatwork.

To support the quantitative results, focus group discussions (FGDs) were conducted after the intervention with 15 students from the experimental group. They were divided into three smaller groups with five students each to make the discussions more manageable and to allow everyone to participate actively. Each FGD lasted about 45 min to 1 h and was held in the conference room of the school library. The discussions were semi-structured and guided by five open-ended questions (e.g., “How did memes help you understand difficult words and reading selections?” and “What challenges did you experience when using memes in class?”). Participation was voluntary and based on consent. All sessions were audio-recorded, transcribed, and then analyzed thematically.

2.4.1 Incorporating memes

Memes were systematically incorporated in the lessons as instructional aids, guiding students to analyze vocabulary and story or poem elements by examining their structure, meaning, and impact. For instance, in the reading of *The Judgement of Paris*, students were first guided to unlock the meaning of unfamiliar vocabulary through memes. Words such as discord, vanity, and dilemma were introduced using teacher-selected memes whose imagery and captions reflected the concepts. For instance, discord was illustrated with a meme showing cartoon characters in a heated argument over something trivial, while vanity was represented with a meme of a person obsessively checking their reflection in multiple mirrors.

Before reading the selection, “*The Judgment of Paris*,” one of the words unlocked was “dilemma.” To introduce it, the teacher presented a meme showing a student torn between studying and sleeping, with

the caption, “When you have exams coming up.” (see Figure 1) The teacher then explained, “The student in the meme is facing a dilemma—whether to study for the exam or get enough sleep.”

Afterward, students were guided through the following questions: “What two choices does the person in the meme have to make?”; “Why is it hard for him to choose between studying and sleeping?” and “Based on the meme, what do you think the word ‘dilemma’ means?” Through this visual and contextual approach, students inferred that a dilemma is a situation in which a person must choose between two equally difficult or desirable options.

After unlocking these meanings, discussions were conducted on how the interaction of image and text produced the message, with particular attention to what elements were emphasized or highlighted. Learners examined how different captions could alter the interpretation of the same image, how humor or exaggeration shaped meaning, and how audiences might react differently to a meme depending on their perspective.

The use of memes also extended to scenes in the story to strengthen comprehension. When *Paris* was presented with the offers of the three goddesses, the lesson drew on memes that depict hard choices. The “Distracted Boyfriend” meme was used to illustrate how attention can shift depending on what is offered, while the “two paths in the forest” meme represented the challenge of being forced to choose one course of action with lasting consequences. Students



FIGURE 1
Meme used to introduce the word “Dilemma.” Modified by the researchers using the “Two Buttons” template (imgflip LLC, 2025a, <https://imgflip.com/memegenerator/Two-Buttons>). Adapted and used under fair use for educational and research purposes.

reflected on the similarities between these memes and Paris's predicament, noting how the structure of the memes mirrored his decision-making process.

Further, students created their own memes to demonstrate understanding of what they read, such as the poem *Invictus*. An example of the students' output is shown below (see Figure 2). The instructions were for students to infer the theme of the poem based on guide questions such as: "What message does the poem convey about facing challenges in life?"; "How does the speaker show determination despite suffering?"; and "How do the words and images in your meme communicate the same idea expressed in the poem?"

Through these activities, memes functioned not merely as motivational tools but as multimodal texts that supported vocabulary development, enhanced comprehension of literary content, and encouraged students to critically examine how meaning is constructed and conveyed.

2.5 Data analysis

Quantitative data were summarized with means and standard deviations. Baseline equivalence between groups at pretest was examined with independent-sample *t*-tests. Comparative analysis between pretest and posttest scores was done using *t*-test for 2 independent samples, and the comparative analysis of the mean gain between the control and experimental groups was done using paired *t*-test. For all comparisons, we report effect sizes: Cohen's *d* for independent test and Cohen's *d* for paired comparisons. In these tests, any statistic with a *p*-value less than the 0.05 level of significance was considered significant.

Power analysis was conducted *a priori* to determine sample adequacy. With $n_1 = 45$ and $n_2 = 46$, the study achieved ≥ 0.80 power

to detect moderate effects ($d \geq 0.50$ – 0.60) at $\alpha = 0.05$. For the repeated measures ANOVA with an assumed pre-post correlation of $r = 0.60$, total $N = 91$ yielded ≈ 0.80 power to detect small-to-moderate interaction effects ($f = 0.18$ – 0.20).

For the qualitative data, the focus group discussions were analyzed thematically following Braun and Clarke's (2006) six-phase framework. Transcripts were read and re-read to achieve familiarity, initial codes were generated systematically, and similar codes were then correlated into broader themes.

Themes.

were reviewed, refined and named to capture the patterns that reflected students' experiences with the use of memes. Codes and themes were finalized through iterative discussions among the researchers to ensure credibility. To strengthen trustworthiness, sample codes, excerpts, and their alignment with emerging themes are presented in Appendix. Reliability in coding was established through intercoder checking. Two researchers independently coded a subset of the transcripts and compared results. Differences in coding were discussed and resolved until consensus was reached, and the agreed coding was applied to the rest of the data. This process helped minimize bias and ensured consistency in the interpretation of results.

2.6 Ethical considerations

This study received formal ethics approval from the Ethics Review Committee of Cebu Normal University, which reviews three basic ethical principles significant to research involving people as subjects, which are: respect, beneficence, and justice. Participants were briefed on the study's purpose, methodology, their level of involvement, and the potential benefits and risks. They were informed of their right to choose whether or not to participate and were assured they could withdraw at any time without any consequences. Additionally, participants were reassured that their decision to participate, not participate, or withdraw, along with their responses, would have no impact on their grades. Lastly, upon pursuing this research, the approval of the respective school heads, teachers, and parents of the respondents concerned was secured.

3 Results and discussion

3.1 Results of vocabulary knowledge

Before the intervention, both groups performed at a fairly satisfactory level in vocabulary. Table 1 shows that the control group recorded a mean percentage score of 63.85 (SD = 13.69, CI = 59.85–67.85), while the experimental group obtained 67.17 (SD = 63.04–71.31). This indicated that both groups met the minimum vocabulary requirement set by the Department of Education, with the experimental group scoring slightly higher.

After the intervention, vocabulary scores improved for both groups, but the gains were greater for the experimental group. As shown in Table 2, the control group achieved 66.67 (SD = 12.41, CI = 63.04–70.29), while the experimental group improved to 70.80 (SD = 12.61, CI = 67.15–74.44), reflecting a satisfactory performance. These results suggest that integrating memes into vocabulary instruction supported stronger vocabulary development than



TABLE 2 The posttest results of the control and experimental groups in vocabulary and reading comprehension, $n = 91$.

Reading skills	Control group, $n_1 = 45$				Experimental group, $n_2 = 46$			
	Mean PS (SD)	Grade	Description*	95% Class Interval	Mean PS (SD)	Grade	Description*	95% Class Interval
Reading Vocabulary	66.67 (12.41)	79	Fairly Satisfactory	(63.04, 70.29)	70.80 (12.61)	81	Satisfactory	(67.15, 74.44)
Reading Comprehension	58.11 (17.83)	74	Did Not Meet Expectations	(52.90, 62.32)	63.41 (18.78)	77	Fairly Satisfactory	(57.98, 68.83)
OVERALL Reading Skills	61.16 (14.64)	75	Fairly Satisfactory	(56.89, 65.44)	66.05 (14.88)	78	Fairly Satisfactory	(61.74, 70.35)

SD, Standard Deviation; PS, Percentage Score; *Based on DO no. 8, s 2015: 90–100 Outstanding, 85–89 Very Satisfactory; 80–84 Satisfactory, 75–79 Fairly Satisfactory, and Below 75 Did Not Meet Expectations.

conventional methods. The visual and humorous features of memes likely made word associations more memorable. This is consistent with studies showing that multimodal texts, including memes, enhance vocabulary acquisition and retention in EFL learners (Arndt and Woore, 2018; Soracá Diaz, 2022). It also reflects systematic review findings that multimodal instruction improves vocabulary competency (Rahmanu and Molnár, 2024).

3.2 Results of reading comprehension

In the pretest, reading comprehension scores were lower than vocabulary scores for both groups. The control group recorded a mean percentage score of 58.89 (SD = 19.19, CI = 54.16–63.62), which did not meet expectations, while the experimental group obtained 60.47 (SD = 16.62, CI = 55.66–65.27), indicating fairly satisfactory performance. These results show that both groups struggled more with comprehension than with vocabulary before the intervention. This finding is consistent with Snow (2002), who emphasizes that reading comprehension requires higher-order cognitive processes, which are often more difficult to develop than vocabulary knowledge.

Following the intervention, reading comprehension improved in both groups, with stronger results in the experimental group. Table 2 indicates that the control group obtained a posttest score of 58.11 (SD = 17.83, CI = 52.90–63.32), remaining below expectations while the experimental group reached 63.41 (SD = 18.78, CI = 57.98–68.83), corresponding to a fairly satisfactory result. This suggests that memes may have contributed to comprehension gains by providing visual and cultural cues that encouraged inference and contextual interpretation. Similar findings have shown that multimodal and engaging materials support deeper comprehension and critical thinking (Romero and Bobkina, 2017; Shifman, 2014).

3.3 Overall reading skills

When combined, both groups had comparable overall reading skills at pretest: the control group scored 60.66 (SD = 14.00, CI = 56.57–64.75), and the experimental group scored 62.86 (SD = 58.60–67.12), both within the fairly satisfactory range. After the intervention, both improved—but the experimental group's gains were notably higher: control 61.16 (SD = 13.92, CI = 56.89–65.44);

experimental 66.05 (SD = 14.06, CI = 61.74–70.35). This result aligns with Guthrie et al.'s (2013) evidence that targeted, engaging interventions improve reading achievement. It also supports Slavin et al. (2009) argument that innovative, student-centered strategies promote educational equity and close learning gaps.

Table 1 presents the pre-reading skills of students in the control ($n = 45$) and experimental ($n = 46$) groups before the intervention. Both groups were generally at the Fairly Satisfactory level based on the Department of Education grading scale. For reading vocabulary, the control group obtained a mean percentage score of 63.85, while the experimental group scored slightly higher at 67.17; however, this difference was not statistically significant ($t = -1.13$, $p = 0.261$). In reading comprehension, the control group scored 58.89 (Did Not Meet Expectations) and the experimental group scored 60.47 (Fairly Satisfactory), but the difference likewise was not significant ($t = -0.46$, $p = 0.648$). For overall reading skills, both groups fell within the Fairly Satisfactory level (Control: 60.66; Experimental: 62.86), with no significant difference observed ($t = 0.73$, $p = 0.467$). These results confirm that the two groups were comparable in their reading performance prior to the intervention, thereby providing a sound basis for subsequent comparisons of post-test outcomes.

Table 2 presents the post-reading skills of students in the control ($n = 45$) and experimental ($n = 46$) groups after the intervention. Both groups generally improved, though their performance levels remained mostly within Fairly Satisfactory range. In reading vocabulary, the control group achieved a mean percentage score of 66.67 (Fairly Satisfactory), while the experimental group obtained a higher score of 70.80, which placed them at the Satisfactory level. For reading comprehension, the control group scored 58.11, which still fell under Did Not Meet Expectations, whereas the experimental group scored 63.41, corresponding to the Fairly Satisfactory level. In terms of overall reading skills, the control group posted a mean of 61.16 (Fairly Satisfactory), while the experimental group scored higher at 66.05 (Fairly Satisfactory). These results suggest that although both groups demonstrated some progress, the experimental group consistently achieved higher post-test scores across reading vocabulary, comprehension, and overall reading performance.

Table 3 shows the comparative analysis of pre- and post-test results on reading skills within the control and experimental groups. In the control group, a significant improvement was observed in reading vocabulary ($t = 2.50$, $p = 0.016$) with a small effect size ($d = 0.21$), indicating a modest gain in vocabulary knowledge. No significant changes were noted in reading comprehension ($p = 0.602$,

TABLE 3 The comparative analysis of the pretest and posttest reading skills results, $n = 91$.

	Pretest Reading Skills, Mean PS (SD)	Posttest Reading Skills, Mean PS (SD)	Mean Difference, Mean PS (SD)	t-value	p-value	Cohen's <i>d</i>	SE Cohen's <i>d</i>
Control Group, $n_1 = 45$							
Reading Vocabulary	63.85 (13.69)	66.67 (12.41)	2.81 (7.55)	2.50	0.016*	0.21	0.09
Reading Comprehension	58.89 (16.19)	58.11 (17.83)	−0.78 (9.99)	−0.52	0.602	−0.05	0.09
Overall Reading Skills	60.66 (14.00)	61.16 (14.64)	0.50 (7.63)	0.44	0.661	0.03	0.08
Experimental Group, $n_2 = 46$							
Reading Vocabulary	67.17 (14.30)	70.80 (12.61)	3.61 (11.80)	2.08	0.43***	0.27	0.13
Reading Comprehension	60.47 (16.63)	63.41 (18.78)	2.94 (16.18)	1.23	0.225	0.16	0.13
Overall Reading Skills	62.86 (14.74)	66.05 (14.88)	3.18 (12.20)	1.77	0.083	0.21	0.21

*Significant at 0.05 using Paired T-Test.

TABLE 4 The comparative analysis of the mean gains of reading skills, $n = 91$.

Reading skills	Pre reading skills, mean PS (SD)	Post reading skills, mean PS (SD)	Mean gain (SD)	t-value	p-value	Cohen's <i>d</i>	SE Cohen's <i>d</i>
Reading Vocabulary							
Control Group, <i>n</i> ₁ = 45	63.85 (13.69)	66.67 (12.41)	2.81 (7.55)	−0.39	0.697	−0.08	0.21
Experimental Group, <i>n</i> ₂ = 46	67.17 (14.30)	70.80 (12.61)	3.62 (11.8)				
Reading Comprehension							
Control Group, <i>n</i> ₁ = 45	58.89 (16.19)	58.11 (17.83)	−0.78 (9.99)	−1.32	0.190	−0.28	0.21
Experimental Group, <i>n</i> ₂ = 46	60.47 (16.63)	63.41 (18.78)	2.94 (16.18)				
Overall Reading Skills							
Control Group, <i>n</i> ₁ = 45	60.66 (14.00)	61.16 (14.64)	0.50 (7.63)	−1.26	0.212	−0.26	0.21
Experimental Group, <i>n</i> ₂ = 46	62.86 (14.74)	66.05 (14.88)	3.18 (12.20)				

*Significant at 0.05 using the T-Test for two independent samples.

$d = -0.05$) or in overall reading skills ($p = 0.661$, $d = 0.03$), suggesting stable performance in these areas. Similarly, in the experimental group, reading vocabulary significantly increased ($t = 2.08$, $p = 0.043$) with a small effect size ($d = 0.27$), while no significant improvements were found in reading comprehension ($p = 0.225$, $d = 0.16$) or overall reading skills ($p = 0.083$, $d = 0.21$). Taken together, the results indicate that both groups demonstrated slight but meaningful gains in reading vocabulary, while comprehension and overall reading ability remained relatively unchanged.

Table 4 compares the mean gains in reading skills between the control and experimental groups. Although the experimental group consistently showed higher numerical gains in reading vocabulary (3.62 vs. 2.81), reading comprehension (2.94 vs. −0.78), and overall reading skills (3.18 vs. 0.50), none of these differences were statistically significant, with effect sizes ranging from negligible to small ($d = -0.08$ to -0.28). When considered

alongside the within-group results in Table 3, the findings indicate that both groups demonstrated significant vocabulary improvements individually, but these gains did not translate into significant differences when directly comparing the control and experimental groups. Thus, while vocabulary development was evident within each group, the experimental intervention did not produce a statistically greater effect compared to the control condition.

3.4 Significant difference in the pretest and posttest results

To compare the pretest and posttest results, Table 3 shows the significant differences between the pretest and posttest scores for both the control and experimental groups.

Based on the table, the control group obtained a p -value of 0.016, which indicates that there is a significant difference in vocabulary. In the pretest, the control group received a 63.85 percentage score, and in the post-test, it yielded a 66.67 percentage score. Based on the results, the posttest percentage score is greater than the percentage score in the pretest. It suggests that there is an improvement in the control group's vocabulary skills. Numerically, the result proves that the conventional method has a positive impact on improving the vocabulary skills of the learners.

On the other hand, the control group got a p -value of 0.602 in the reading comprehension (RC), which shows no significant difference. The control group registered a 58.89 percentage score in the pretest and a 58.11 percentage score in the posttest. There is a notable decrease in percentage score in the post-test, which indicates that there is no significant improvement in the reading comprehension of the control group. The result implies that the conventional method has no bearing in improving the reading comprehension skills of the learners.

The decrease in reading comprehension in the control group can be linked to the learners' outlook on reading. Nanda and Azmy (2020) identified factors that affect reading comprehension such as carelessness, negative attitudes toward reading, poor background knowledge, lack of knowledge using reading strategies, lack of practice, and low participation in classroom reading. In order to improve the reading comprehension of the learners, the learners have to practice reading different reading materials, may it be in the library or in their homes. Above all, the teachers play a prominent role as they need to employ intervention programs using modern methods to address the problems that impede the learners to augment their reading skills (Gaytos et al., 2019).

Furthermore, the control group logged an overall p -value of 0.661, which means no significant difference in the pretest and post-test results of the reading skills. It is vital to note that the control group got pre-reading skills of 60.66 and post-reading skills of 61.16. There is an increase in percentage scores, but the difference exhibits no significant improvement in the reading skills. It can be deduced that the conventional method has no effect in improving the reading skills of the learners.

One of the challenges that the learners face today is that they do not have an interest in delving into the reading text and do not have the eagerness to go through the reading process. As a result, learners show a lack of understanding and analyzing the reading passage. The study of Orekoya et al. (2014) discussed suggestions on how this problem can be remedied. The researchers conveyed the benefits and importance of integrating humorous reading materials such as jokes, puns, and riddles to young readers. The use of humor in the classroom space helps the readers be motivated, and when they are motivated, they tend to develop the intrinsic value of reading. To add, teachers' humor plays a critical role in awakening the interest of the readers. According to Motlagh et al. (2014), teachers' humor is a potent tool in developing intrinsic motivation among learners. Intrinsic motivation encourages the readers to engage, analyze, and critically think as they leap through the pages of the material they are reading.

In the same way, the experimental group recorded a p -value of 0.043, which indicates that there is a significant difference in the vocabulary. In the pretest, the control group obtained a 67.17 percentage score, and in the post-test it logged a 70.80 percentage score. Grounded on the results, the posttest has a remarkable increase

in percentage score. The result suggests an improvement in the vocabulary skills of the experimental group. It signifies that the use of memes has an influence on improving the vocabulary skills of the learners.

In the same vein, the experimental group marked a p -value of 0.225 in reading comprehension (RC), which bears no significant difference. It can be noted that in the pretest, the experimental group registered a 60.47 percentage score and 63.41 percentage score in the posttest. There is a notable increase in percentage score in the post-test; however, the p -value indicates no significant improvement in the reading comprehension of the experimental group. This brings to mind that the integration of memes has no significant influence in improving the learners' reading comprehension skills.

In addition, the experimental group recorded an overall p -value of 0.083 which denotes that the pretest and post-test results of the overall reading skills have no significant difference. It is imperative to mention that the overall pre-reading skills of the experimental group are 62.86, and the overall post-reading skills are 66.05. The figures elucidate a notable increase; however, the improvement in test results is not substantial. The result reckons that the integration of memes is not significant in improving the reading skills of the learners.

The unintended result can be associated with the arguments of Al-Duleimi and Aziz (2016), stating that adding humor to teaching materials promotes an improvement to the English skills. However, the downside is if the humor incorporated in teaching materials (e.g., jokes, puns, funny story) is not handled properly, it may end up in the withdrawal of the learners. Moreover, injected humor in the form of memes may serve as a distraction for learners to fully grasp the essential aspects because it will lead to confusion. Humorous lessons utilized to illustrate class lessons, as substantiated by Weaver et al. (1988), are the ones that keep in the learners' cognitive reservoir; however, it does not increase the information acquisition. It is important to note that the integration of humor in the classroom should be handled properly, or else bridging the gap between the learners and the language skills will not be carried out.

3.5 Comparative analysis of mean gains in reading comprehension and vocabulary

Table 4 shows the significant difference in the mean gain of the participants' reading skills after they were exposed to the methods of teaching reading—conventional and use of memes.

The table shows that there is no significant difference between the mean gain in the vocabulary of both groups. The control and experimental group both attained a p -value of 0.697. Similarly, the reading comprehension (RC) of both groups charted a result of no significant difference between the mean gain after obtaining a p -value of 0.190. Additionally, both groups displayed no significant difference in the mean gain after attaining a p -value of 0.212 in the overall reading skills. The result exemplifies that the magnitude of improvement in both methods' vocabulary—conventional method and memes are the same. It implies that conventional method and memes can be utilized in teaching vocabulary as both ways marked a substantial improvement in the vocabulary skills of the learners. However, concerning reading comprehension, the effects of both

strategies are not comparable. It suggests that an improved intervention method to develop the reading comprehension skills of the learners may be recommended.

It is equally important to note that knowledge rests not only within the learner but in the learner's social and physical milieu (Hutchins, 1995). In the 21st-century, technology plays a vital role in the learner's environment. Technology allows learners to interact and helps expand their language skills. In addition, learners' interest and motivation play an integral role in developing their reading skills. For the learners to be motivated, teachers need to look for fresh and innovative methods to keep them awake, attentive, and retain information.

3.6 Learners' experiences in the integration of memes

In addition to the findings reflected in the pretest and posttest results on reading skills, this section discusses the participants' perceptions toward the integration of memes in teaching reading. The following excerpts from the experimental group are organized and presented according to emerging themes.

The themes presented below capture perspectives expressed by the majority of student participants in the focus group discussions. Representative quotations illustrate commonly shared sentiments, while select excerpts present less frequent viewpoints. Recurring patterns across groups indicated that the data saturation was reached, suggesting that the themes reflect both the predominant patterns and the range of individual experiences.

3.6.1 Memes ignite interest

Students expressed positive insights about their experience in using memes as part of the lessons. Their responses revealed that memes captured their attention and encouraged them to participate more actively in discussions.

"Memes are funny, and it motivates us to learn more. It gives us a small content about the topic."

"Memes make the lesson/discussions more entertaining, fun, and relatable."

"It is fun, and it pleases the mind because it makes you more interested in the topic."

"Memes help the discussions more entertaining to listen to."

Based on their verbatim responses, it was revealed that memes captured the interest of students, and it motivated them to listen and learn more. One of the reasons for this is the funny content that memes posit. Such positive attitude is drawn from the fact that memes can be used as a motivation in the class.

Purnama et al. (2017) clearly stated that memes could boost the learner's motivation, both internal and external motivation. In addition, Baysac (2017) reckoned that the electronic media in the form of memes significantly affects the learners' performance in the classroom space. Humorous memes nab the attention and the interest of the learners since memes could spark moments of laughter. In other words, the integration of memes can set the students' mood to be prepared throughout the learning process in the classroom.

3.6.2 Memes evoke humor

Participants expressed that one of the aspects they enjoyed most about using memes was the humor it brought into the learning process.

"Making memes gave us a chance to showcase our different sense of humor."

"It makes the lesson/discussion more entertaining and fun. We were laughing while learning."

"Memes can improve your sense of humor."

"It makes the context more understandable, and it gives a little bit of humor."

Clearly, the humor present in the memes gave joy and entertainment, thus making the students more attentive in the class. As argued by Gambarato and Komesu (2018), the humor found in the internet memes plays a critical role in the diffusion of content, hooking the audience's attention and alleviating the affective filter by giving positive feelings. Students get bored, especially when the subject is very philosophical, scientific, or laden with unfamiliar words. But once humor is injected to the subject, students tend to be awake and energetic in class (Ashipaolove, as cited by Baysac, 2017). The Relief Theory of Laughter, anchored in this study, also affirms that humor relieves psychological tension by releasing emotional energy and tension, and by overcoming inhibitions. When the learners are relaxed and free from the tension, it would be easier for them to grasp the reading passage.

3.6.3 Memes cultivate critical thinking

Creating and interpreting memes encouraged students to be both creative and reflective while enjoying the learning process.

"It was very fun making our own memes, but it makes us creative and smarter in some ways."

"Making memes makes our mind think critically and still have fun. It expands our knowledge and be entertained."

"It is enjoyable to make our own memes because even though you know it's hard, you still try and come up with a creative idea or meme."

"Of course, I enjoyed making my own memes because you can express your own feelings and give ideas through making memes."

"It makes me analyze the pictures and captions carefully before I respond to questions in the class."

It is evident that the students were having fun while they were learning. Likewise, memes allowed them to think critically while making their own memes as a summative assessment. Memes should be seen as a potential and powerful medium of teaching and learning English in fun ways since it contextually represents strong socio-cultural values/behaviors (Suseno, 2015). Accordingly, researchers like Lei et al. (2010) assert that the most effective teachers are those who

involve their learners in creative and enjoyable ways. As sustained by Kariko (2012), humor and creativity in utilizing internet memes are linked to the learners' achievements in their school work. Hence, one way to engage learners in creative ways is to incorporate memes into the classroom space. This is the challenge that language teachers need to partake into the demands of our 21st-century learners.

3.6.4 Memes facilitate better comprehension

Participants shared that memes helped them better understand unfamiliar words and reading materials.

"Even if you don't clearly understand the unfamiliar words and the story, but the memes itself tells a story."

"Memes capture my attention to understand the story because of the images on it."

"Yes, memes helps us understand the unfamiliar words and the reading materials better because memes have pictures, and most of my classmates are visual learners, and through memes, it help, us understand more."

One such example that helped students understand the word "diverged" from the poem "The Road Not Taken" was the meme of a car that took a sudden turn off the main road (see Figure 3). The image, captioned "My classmates" and "Me who did not understand the instructions," showed the idea of separating and moving in a different direction from others. Through discussion, students then connected this meaning to the poem, where *diverged* refers to making a decision that leads one down a different path in life.

This reflects the findings of Aedo and Millafilo (2022), who reported that using memes as multimodal texts helps learners acquire and retain vocabulary by linking verbal meaning with visual context. The above learners' disclosure means that memes can evoke students' understanding

of unfamiliar words and texts. Bearing that in mind, Hayati et al. (2011) stated that humor has an influential role in the recall ability and reading comprehension of the learners. Additionally, such improvement can be attributed to the fact that humor encouraged better comprehension and vocabulary retention among learners (Zabidin, 2015).

Memes serve as multimodal constructions, making the students focus on the reading material at hand since some of the participants are visual learners. Multimodal teaching materials foster the reading comprehension process through the connection between texts and images (Baharani and Ghafournia, 2015). Humor in language classes can contribute to the development of listening and reading comprehension (Schmitz, 2002). Thus, it is pertinent to the teachers to include humor in teaching reading.

Furthermore, the piece of evidence that memes help the reading skills of the learners runs parallel with the main theory in this study, which is the Distributed Cognition Theory by Hutchins (1995). This theory requires artifacts such as devices, technologies, or media. In this study, memes serve as learning artifacts that help learners retain bits of information, a process referred to as cognitive residue. In addition, the Dual Coding Theory (CDT) by Paivio (1986) applies in the progress of the learners' reading skills. The theory affirms the positive effect of visual illustrations on reading. Similarly, memes serve as graphic illustrations that help learners process and interpret information. In turn, memes facilitate the improvement of the reading skills of the learners.

3.6.5 Challenges in integrating memes

From the disclosed responses, another clear theme is the challenges that the learners encountered.

"Sometimes, the memes used were not that easy to connect to the topic. But it allows you to think so that you can really connect."

"The challenges we were able to experience when using memes in the English class is that some of the memes need better understanding and thorough analyzation."

"Some memes are cringed. Although it is to be expected because some memes are outdated. Fresh content can make a difference ... boomer"

The extracted responses imply that it is also imperative to consider the relevance of the memes. By the word relevant meaning, it is trending, current, and funny to the students. Likewise, relevant means it is appropriate for the learners to relate memes to the subject proper (Baysac, 2017). Although it would take a minute to realize the meaning and make a connection to the topic, the good side is it enables the learners to think critically. Another aspect to consider is the novelty of the memes. If the memes are fresh, it will boost the interest of the learners. Our learners are called 21st-century learners, and they often want fresh content that matches their advanced array of thinking.

Taking the accounts of the participants, their experiences reveal the value of memes when used in teaching vocabulary and reading comprehension. Memes, as a technological artifact, is an essential element of the 21st-century learning environment. Collectively, memes have a positive influence on learner's reading skills; however, there are challenges that pose potential difficulties. Nevertheless, these challenges can still be successfully addressed.



FIGURE 3
Meme used to introduce the word "diverged." Created by the researchers using the "Left Exit 12 Off Ramp" template (imgflip LLC, 2025c, <https://imgflip.com/memegenerator>). Adapted and used under fair use for educational and research purposes.

3.7 Integration of quantitative and qualitative findings

The combined analysis of quantitative results and qualitative feedback provides a more comprehensive understanding of the intervention's effects. Quantitative findings indicated small but significant vocabulary gains in both groups, particularly in the experimental condition. This aligns with students' qualitative reflections, where many described memes as making new words easier to remember (e.g., "Memes are funny, and it motivates us to learn more").

In contrast, reading comprehension scores did not show significant differences, yet focus group discussion revealed that memes played a supportive role in sustaining interest and reducing the perceived difficulty of texts. One student commented, "It is fun, and it pleases the mind because it makes you more interested in the topic." These accounts suggest that the contribution of memes may not be fully captured by test scores alone, as they influenced motivation and engagement.

Overall reading scores showed modest improvement in the experimental group but were not statistically significant. Still, qualitative accounts consistently emphasized the positive classroom atmosphere and heightened participation associated with meme use (e.g., "Memes make the lesson more entertaining, fun, and relatable"). Together, these findings indicate that while measurable performance gains were limited, the intervention fostered engagement and motivation, which may support learning in less direct ways.

3.8 Practical guidelines for teachers

Teachers who wish to integrate memes into reading instruction may consider several practical steps. First, it is important to select age-appropriate and updated memes that resonate with students' cultural references, since relevance strongly influences engagement and classroom receptiveness. Second, memes can be introduced as pre-reading prompts or motivational activities, serving to spark interest and activate prior knowledge before students tackle more complex texts. Third, memes may be incorporated into vocabulary practice by pairing target words with humorous or visual examples, which can aid memory and recall. Fourth, providing opportunities for students to design their own memes can serve as a creative review activity, reinforcing key concepts and encouraging deeper processing of the material. Finally, meme use should be balanced with conventional strategies to ensure that the lessons maintain academic rigor and do not become overly reliant on entertainment. These considerations can help teachers adapt meme-based instruction effectively within their classrooms.

4 Implications and limitations

The results of this study show that memes can be used as supplementary tools in English instruction. Their humorous and visual features made the lessons more engaging, lowered students' affective filters, and increased their motivation, which in turn supported vocabulary development and reading comprehension. Teachers may use memes not only as advanced organizers but also as springboards, motivational activities, or pre-reading tasks to encourage deeper comprehension and critical thinking. At the same time, memes must be chosen carefully so that they remain relevant, updated, and aligned with the lesson objectives.

This study also adds to the growing body on multimodal and technologically-enhanced learning by showing how memes, as cultural and cognitive artifacts, can help students make meaning in the classroom. Future research may build on this study by trying out memes in other grade levels, subject areas, or with larger group of learners. Longer studies may also be done to see if meme-based instruction can produce lasting effects on literacy skills compared to other multimodal strategies.

There are, however, limitations to this study. It was carried out in only one private school with Grade 10 students, which limits the generalizability of the results. The intervention also lasted for eight weeks only, which provides limited evidence about long-term effects. Future studies may address these limitations by including a wider range of participants, trying out the intervention in different school settings, and extending the period of implementation to capture long-term impacts. A delayed post-test was not included due to the time constraints in the school's academic calendar. Future studies should incorporate a delayed post-test examination retention effects.

5 Conclusion

Memes enhance motivation, humor, critical thinking, and classroom engagement, creating a more enjoyable learning environment and cultivating positive attitudes toward reading. Pedagogically, they may serve as advance organizers, springboards, or pre-reading tasks that meaningfully connect learners with textual content. Their visual and humorous qualities help reduce anxiety, sustain attention, and encourage participation, making them a valuable complement to conventional instruction.

While quantitative results revealed only modest gains in vocabulary and reading performance, qualitative findings highlighted significant engagement benefits. This study contributes to the expanding body of research on multimodal and technology-enhanced learning by illustrating how memes operate as cultural and cognitive artifacts that bridge academic literacy and digital culture. Integrating such authentic, learner-relevant materials reinforces sociocultural and constructivist perspectives, emphasizing interaction, relevance, and learner agency in language classrooms.

More broadly, the findings signal a pedagogical shift toward recognizing multimodal texts and digital genres as integral to literacy development in the 21st century. For language educators and curriculum designers, this underscores the importance of incorporating popular digital discourse—such as memes—to cultivate critical, visual, and cultural literacies alongside linguistic competence. Future studies may build on this work by examining long-term retention, wider subject applications, and diverse learner populations. Despite the challenges of curating appropriate and timely materials, memes remain a promising and innovative resource for enhancing language learning in dynamic and culturally responsive ways.

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.

Ethic statement

The studies involving humans were approved by Cebu Normal University Research Ethics Committee. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

MC: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Writing – original draft, Writing – review & editing. EB: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Writing – original draft, Writing – review & editing. IG: Formal analysis, Resources, Funding acquisition, Writing – original draft, Writing – review & editing.

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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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Appendix

TABLE A1 Sample codes, quotes, and themes from the thematic analysis.

Theme	Sample code	Supporting quote	Interpretation
Memes Ignite Motivation	Increased interest	<i>"Memes are funny, and it motivates us to learn more."</i>	Memes captured students' attention and encouraged sustained interest in lessons.
	Classroom engagement	<i>"Memes make the lesson more entertaining and relatable."</i>	The humorous and visual elements of memes enhanced participation and engagement.
Memes Evoke Humor	Enjoyment in class	<i>"We were laughing while learning."</i>	Humor helped lower tension and created a positive learning environment.
	Sense of humor development	<i>"Making memes gave us a chance to showcase our different sense of humor."</i>	Students valued humor as part of learning and expression.
Memes Cultivate Critical Thinking	Creativity and problem-solving	<i>"Making memes makes our mind think critically and still have fun."</i>	Creating memes encouraged students to think beyond recall and apply higher thinking skills.
	Expressing ideas	<i>"You can express your own feelings and give ideas through making memes."</i>	Students used memes as a medium for self-expression and critical engagement.
Memes Facilitate Better Comprehension	Visual support for understanding	<i>"Memes capture my attention to understand the story because of the images."</i>	Memes provided visual cues that aided comprehension, especially for visual learners.
	Word meaning and retention	<i>"Memes help us understand unfamiliar words and the reading materials better."</i>	The combination of images and text supported vocabulary learning and recall.
Challenges in Integrating Memes	Difficulty with relevance	<i>"Sometimes, the memes used were not that easy to connect to the topic."</i>	Some memes required more effort to interpret, which slowed learning for some students.
	Novelty issues	<i>"Some memes are outdated. Fresh content can make a difference."</i>	Outdated memes reduced engagement, suggesting the need for relevant and updated materials.