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EDITED BY

Kurniawan Saefullah,
Padjadjaran University, Indonesia

REVIEWED BY

Danijela Ž. Vukoicic,
University of Pristina, Serbia
Agus Danugroho,
Airlangga University, Indonesia

*CORRESPONDENCE

Mingqi Hu
✉ hmq8252186@hotmail.com

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Resilience-based cultural inheritance in ethnic communities: scale development from the perspective of sustainable tourism development

Mingqi Hu* and Zhuoran Zhang

Martin de Tours School of Management and Economics, Assumption University, Bangkok, Thailand

Introduction: The excessive commercialization and spatial compression resulting from tourism endanger the continuity of intangible cultural heritage (ICH) within ethnic communities. Resilience plays a critical role in the sustainable inheritance of ICH; however, the analysis of cultural inheritance through the lens of resilience remains inadequate, highlighting the need for theoretical exploration and evaluation. This study introduces the “Resilience-Based Cultural Inheritance (RBCI)” framework and develops an associated scale to address these deficiencies.

Methods: A mixed-methods approach was utilized in two representative ethnic communities in Guizhou, China, the Xijiang Miao and Zhaoxing Dong communities. In the first study, grounded theory was employed to elucidate the dimensions of RBCI. Multiple data sources, including interviews, online reviews, and travelogues, were employed to ensure the accuracy and reliability of the concepts. The second study involved three critical procedures for scale development and validation: item generation, structural exploration, and validity testing. These steps were undertaken to develop a comprehensive measurement tool to assess the cultural inheritance status of ICH in ethnic communities.

Results: This research introduces the concept of RBCI and constructs and validates its four-dimensional theoretical framework, which includes Cultural Core Activation (CCA), Dynamical Cultural Contexts (DCC), Moderate Cultural Adaptations (MCA), and Valuable Cultural Outcomes (VCO). Furthermore, it rigorously develops a 14-item RBCI scale characterized by strong reliability and validity. The RBCI framework integrates spontaneous resilience mechanisms and proactive adaptation strategies to mitigate external disturbances and achieve sustainability.

Discussion: This study operationalizes the core principles of resilience theory into distinct dimensions of cultural inheritance, emphasizing proactive adaptability as a unique resilience mechanism within cultural systems and moderate adaptation as a balanced process that remains aligned with core values. This study not only provides a management tool for assessing ICH inheritance in ethnic villages but also deepens the understanding of cultural inheritance and sustainable development from a resilience perspective.

KEYWORDS

conceptual structure, cultural inheritance, ethnic communities, Resilience-Based Cultural Inheritance (RBCI), scale development, sustainable tourism development

1 Introduction

The harmonious coexistence between humans and nature within ethnic communities has fostered a rich and diverse intangible cultural heritage (ICH), which plays a vital role in the development of tourism (Ruiz-Ballesteros, 2011). However, the restoration and utilization of ICH resources within these communities often diverge from their cultural essence and local characteristics, progressively encroaching upon the original, fragile domain of ICH. This encroachment has compromised the cultural continuity of ICH, leading to conflicts between the development and preservation of cultural resources, as well as a crisis in cultural inheritance (Hu et al., 2021). In practice, owing to its intangible nature, ICH is frequently overlooked by formal systems (Qiu et al., 2022). From the perspective of cultural inheritance (Gardiner and Scott, 2018), such oversight can precipitate negative cultural ecological issues. In this context, the implementation of United Nations Sustainable Development Goal (SDG) 11 has emphasized the importance of preserving cultural heritage, highlighting the need to safeguard local cultural assets and enhance the resilience of heritage communities (Gocer et al., 2024). Although ethnic communities are home to unique examples of resilient ecosystems (Dipasquale et al., 2014), empirical research into the resilience mechanisms for cultural heritage preservation and inheritance remains limited (Bec et al., 2016), thus creating a significant gap between global policy objectives and local implementation.

The theory of resilience provides a robust framework for addressing this gap, with its fundamental principle of “dynamic adaptation to disturbance” aligning closely with the “living continuity” inherent in ICH (Cominelli and Greffe, 2012; Quansah et al., 2022). Both concepts acknowledge that systems maintain self-continuity by adjusting their interactions with the external environment (Wang and Chiou, 2019). This theoretical alignment is crucial for understanding the transmission of ICH. Resilience is defined as the capacity to absorb disturbances (Folke et al., 2010) and enables a cultural system to withstand adversity, adapt to change, and pursue sustainable development (Holtorf, 2018). Resilience theory offers a framework for analyzing how ICH endures shocks and evolves through adaptation. Although resilience has garnered some attention in the field of cultural heritage, two significant limitations persist. Firstly, many studies predominantly view culture as an element of community resilience rather than as an autonomous system (Beel et al., 2017), focusing on the factors influencing cultural change (Tolkach and Pratt, 2022), response strategies (Szromek et al., 2021), and manifestations of cultural resilience (Li et al., 2024), with few examining the underlying rationale for cultural heritage’s resilience in preserving and transmitting cultural values amidst disruptions. Secondly, the development of tools for assessing ICH resilience is fragmented, and cultural resilience is often treated as a sub-dimension within broader evaluation frameworks. The existing indicators lack comprehensiveness (Hu et al., 2021) and universality (Chen and Cheng, 2025), impeding an effective assessment of the complex system of cultural inheritance within communities.

The identified gaps underscore three critical needs: (1) the construction of a theoretical framework that addresses the inheritance of ICH through the lens of resilience; (2) the

development of an empirically validated measurement tool that accommodates the distinct characteristics of ICH; and (3) the elucidation of the operational mechanisms of ICH resilience in ethnic villages affected by tourism development. In response, this paper proposes the “Resilience-Based Cultural Inheritance (RBCI)” conceptual framework to examine the dynamic process of ICH inheritance in ethnic villages amidst disruptions caused by tourism development, using resilience theory as its theoretical foundation. This study focuses on two well-known ethnic tourist villages in China, Xijiang Miao Village and Zhaoxing Dong Village, utilizing a mixed-methods approach to fulfill the research objectives. Specifically, Study 1 employs a grounded theory methodology to delineate the structural dimensions of RBCI, whereas Study 2 constructs and validates the RBCI scale. This research introduces a practical conceptual framework and an effective measurement instrument for assessing the status of ICH inheritance in ethnic village tourist destinations. Moreover, the results contribute to a conceptual system for cultural inheritance and broaden the application of resilience theory. Practically, this study offers strategic insights into the preservation of cultural heritage in ethnic villages and the sustainable development of their tourism sectors.

2 Literature review

2.1 Ethnic communities and intangible cultural heritage (ICH)

Ethnic communities integrate natural landscapes with unique ecological environments. They are important inheritors of ICH and manifest local cultural characteristics and historical continuity (Prasiasa and Widari, 2019). Social communities possess strong cultural cohesion. They can indicate the charm of ethnic tourism while fulfilling the immersive experience needs of tourists (Li et al., 2021; Wei and Lin, 2025). Furthermore, their abundant ICH resources reflect cultural diversity and ethnic creativity (Ma et al., 2023), underscoring the importance of their preservation and inheritance for community development (Wute, 2021). The survival and continuity of ICH are determined by both natural and human environments (Liu, 2010).

It is challenging to inherit ICH since the inheritance of ICH relies on intergenerational oral and hands-on transmission (Cominelli and Greffe, 2012). There is a lack of a unified definition of ICH; various countries provide diverse interpretations, yet all emphasize its significance in preserving cultural heritage and diversity (Rodzi et al., 2013; Zemska, 2021). ICH is transmitted and innovated by communities, rooted in local cultural spaces, and associated with production and lifestyle practices (Wu and Wang, 2018). Its essence lies in “living continuity,” which depends on human participation and embodies local spiritual values (Lenzerini, 2011).

Tourism development has facilitated urbanization and industrialization (Luo et al., 2016). As a result, ethnic communities face challenges, such as protective destruction and population outflows (Meado, 2013). The emergence of rural tourism has further exacerbated conflicts and assimilation between local and foreign cultures, diminishing residents’ willingness to preserve

their cultural heritage and their sense of identity (Kabote, 2015). Additionally, these communities face issues such as the destruction of cultural inheritance spaces, a shortage of inheritors, and insufficient funding (Peutz, 2017; Zhang et al., 2023). Consequently, finding ways to overcome these challenges and achieve sustainable cultural inheritance has become an urgent issue.

2.2 Cultural inheritance and tourism sustainable development

Cultural inheritance involves the intergenerational transmission and evolution of local culture within complex environments characterized by contradictions and conflicts (Swanson and DeVereaux, 2017). Poullos (2014) introduced the living heritage approach, which centers around the “3C” principle: “Continuity,” which ensures the sustained stability of heritage functions and community ties; “Core community,” denoting the group deeply involved in heritage preservation with a sense of ownership; and “Change,” which denotes the dynamic nature of heritage as it evolves within its historical and cultural context. The primary goal of this approach is not to preserve material authenticity but to maintain the connection between heritage and the community, thereby emphasizing the cultural significance of authenticity and supporting the sustainable development of the community (Nguyen et al., 2025).

Concerning the complex relationship between ICH and tourism development (Starčević et al., 2022), there are two prevailing perspectives in the theoretical and practical integration of culture and tourism. One perspective advocates for the development and utilization of ICH as a tourism asset (Kim et al., 2021), which promotes economic growth (Beeton, 2006) and generates economic benefits for communities. In tourism development, sustainable conservation measures can alleviate threats to ICH (Qiu et al., 2019; Su, 2020). The challenge lies in balancing ICH preservation and economic growth. A mutually reinforcing cycle can be developed through rural revitalization and ICH preservation. In the developed cycle, economic prosperity and cultural engagement can be fostered through cultural resource utilization. Ultimately, synergistic development can be achieved (Qin and Zhen, 2022). The other perspective emphasizes preservation, noting that the spatial dimension of ICH is prone to alteration with tourism development (Wong, 2015). Despite the obvious importance of cultural heritage, ICH in ethnic communities increasingly confronts conflicts with tourism and urbanization (Kim et al., 2021), which threaten the core of traditional practices and heighten the urgency of their preservation (Wendland, 2004). The spatial reorganization of ethnic communities often results in the degradation of cultural heritage and local identity, thereby compromising the integrity of their cultural landscapes (Gui and Lv, 2013). Traditional practices and structures are increasingly jeopardized by modern civilization, endangering handicrafts, folk songs, languages, and customs, and raising the risk of their extinction (Lenzerini, 2011).

We cannot isolate these two perspectives. The ICH functions as a living organism, defined primarily by its constant adaptation

to socio-historical changes. A cultural expression can only truly represent its cultural essence over time if it continues to reinvent itself and develop alongside the overall evolution of the culture to which it belongs (Lenzerini, 2011). Therefore, it is necessary to introduce a new theoretical framework to guide academic research on cultural inheritance and sustainable development within ethnic communities (Santa and Tiatco, 2019).

2.3 Resilience and resilience-based cultural inheritance (RBCI)

The term “resilience” originated in the field of mechanical physics in the 1950s, describing a system’s capacity to return to its original state after undergoing deformation due to external forces, with an emphasis on preserving its original structure and functions (Dillon, 1947; Hoffman, 1948). In the 1970s, Holling (1973) expanded the concept to ecosystem research, proposing that a system might either return to its previous equilibrium or transition to a new one following a disturbance. By the 1990s, the focus had shifted from natural systems to human ecology (Berkes and Folke, 1998), underscoring the ability of complex social-ecological systems to transform, adapt, and innovate in response to pressures. This expanded perspective has been widely applied to address complex social issues, including the dynamics of human-environment interactions in ethnic tourist destinations, which demonstrates its strong theoretical adaptability (Walker et al., 2004). In the field of cultural heritage, Holtorf (2018) defined cultural resilience as the capacity of a cultural system to absorb adversity, respond to change, and sustain long-term development. This definition reflects an endogenous adaptive logic characterized by a cycle of “disturbance-absorption-response-sustainability.”

Despite the valuable insights offered by cultural resilience, it remains predominantly a macro-level framework that focuses on entire cultural systems. When addressing the micro-level challenge of how cultural heritage in ethnic villages can be sustainably transmitted under the pressures of tourism development, cultural resilience provides limited explanatory power and lacks practical measurement methods. This theoretical shortfall highlights the need for the development of RBCI.

Importantly, cultural resilience does not completely align with RBCI (Table 1). Firstly, cultural resilience addresses both

TABLE 1 The difference between the concept of cultural resilience and RBCI.

Key point	Cultural resilience	Resilience-based cultural inheritance (RBCI)
Heritage scope	Encompasses both tangible and intangible cultural heritage	Focuses specifically on Intangible Cultural Heritage (ICH), which is more vulnerable to distortion
Research subject	Examines the cultural system at a macro level	Examines the cultural inheritance system at a micro level, emphasizing internal synergistic mechanisms
Adaptation logic	Emphasizes endogenous adaptation	Includes both endogenous adaptation and proactive enhancement

tangible and intangible heritage, whereas RBCI is specifically concerned with ICH. ICH is particularly susceptible to distortion and presents significant challenges in terms of protection (Cominelli and Greffe, 2012). Secondly, RBCI centers on the cultural inheritance system, a micro-level phenomenon that is crucial to the operation of cultural resilience (Odling-Smee and Laland, 2011; Ingold, 2020). The inheritance process depends on the coordinated interactions among internal elements and is essential for the transmission of culture across generations, a fundamental aspect highlighted by cultural resilience theories (Douglas and Wildavsky, 1983; Holtorf, 2018). Thirdly, RBCI extends beyond the focus on endogenous adaptation typical of cultural resilience by incorporating proactive enhancements through deliberate interventions. Resilient organizations, for example, continuously refine their practices, enhance performance, strengthen sustainability, and increase stakeholder satisfaction (Harcourt and Ateke, 2018; Saad et al., 2022). Granig and Hilgarter (2020) argue that such proactive strategies significantly bolster resilience. Although derived from organizational studies, the concept of proactive enhancement provides insightful theoretical implications for how ICH inheritance systems can actively improve their adaptive capacity. This proactive approach is consistent with the core of cultural resilience, which is the ability to thrive in the face of challenges or extreme events (Magis, 2010), and highlights its inherently proactive nature. Furthermore, Berkes and Ross (2016) emphasize that resilience at the community level largely depends on actor agency and continuous social interactions, thus supporting the notion of proactive adaptation within ICH inheritance systems (Bui et al., 2020).

Therefore, RBCI can be defined as the ability of an ICH inheritance system to respond to external disturbances through coordinated internal mechanisms, thereby facilitating cultural continuity, adaptation, and development. Its dynamic process, exemplified by the sequence “disturbance → response → adaptation → enhancement → continuity,” underscores both the endogenous stability and the proactive enhancement of the inheritance system. This conceptual framework not only elucidates the internal logic of cultural transmission but also offers practical guidelines for enhancing the resilience of ICH in ethnic communities affected by tourism-driven change.

3 Research design

3.1 Research methods

The primary objective of this study is to investigate the conceptual structure of RBCI and to develop and validate a corresponding scale. We adopted a mixed-methods research approach, which combines rigorous data collection procedures with statistical analysis to accurately assess the impact of multiple factors on the target outcomes (Wang et al., 2023). This article includes two main studies. Study 1 employed qualitative research methods. Using qualitative data, we applied grounded theory (Strauss and Corbin, 1998) to explore the potential dimensional structure of RBCI. Given the complexity of RBCI, this phase involved collecting relevant qualitative data from diverse samples using multiple methods. We utilized multidimensional validation

to effectively enhance information accuracy (Yu and Xu, 2019). Study 2 involved the design of measurement items based on the results of the qualitative research and conducted quantitative research. Data were collected through extensive surveys, and both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were utilized to develop an RBCI scale characterized by high reliability and validity.

3.2 Study field

This study selected the Xijiang Miao Community and Zhaoxing Dong Community in Guizhou Province as its research sites, based on three principal considerations: theoretical relevance, representativeness, and research feasibility.

Firstly, both sites are situated within the Qiandongnan National Cultural Ecosystem Conservation Areas, which is one of the regions in China with the highest density of ICH (Yuan and Fan, 2025). As quintessential settlements of the Miao and Dong ethnic groups, these communities offer rich examples of ritual traditions, craftsmanship, social structures, and cultural expressions. These features are emblematic of ethnic typicality and facilitate a thorough examination of the core characteristics of ethnic minority cultures in China (Hu et al., 2022; Jiang et al., 2023).

Secondly, Xijiang and Zhaoxing have experienced extensive and profound tourism development, which positions them as exemplary cases of cultural restructuring in response to external influences. The processes of commercialization, community governance, and cultural negotiation within these sites provide a pertinent practical context for analyzing the resilience of ICH inheritance mechanisms within tourism environments. Additionally, these communities illustrate the adaptation and evolutionary processes of cultural inheritance systems under duress (York et al., 2021).

Thirdly, the research team conducted extensive, continuous fieldwork at both sites throughout 2024. Through immersive observation and interviews with multiple stakeholders, the team acquired a comprehensive understanding of the communities' cultural ecologies, stakeholder relationships, and tourism operational dynamics, thereby collecting rich and reliable primary data. Furthermore, to enhance the credibility and robustness of the findings, the study utilized methodological triangulation, incorporating diverse sources such as interviews, online reviews, and tourist narratives. By contrasting and comparing data across different types and cases, the research scrutinized the emergence of new categories, ensuring theoretical saturation.

4 Study 1: research on the dimensional structure of RBCI

4.1 Data sources and collection

Data for this study were primarily collected from three complementary and mutually verified sources (Seyfi et al., 2019). The first source was online review data. We employed the template function of Bazhuayu Data Collector 8 to extract 5,810 online reviews from Mafengwo.com and Mtrip.com, two prominent

Chinese travel websites (Cao et al., 2021). Following the exclusion of advertisements, invalid entries, and comments that were too brief to provide meaningful insights, 3,595 valid reviews were retained. The second source was travelogue data, for which Python 3 was utilized to automate data extraction (Wang et al., 2023). This process was supplemented by manual screening to remove advertisements and travelogues not pertinent to the research theme, resulting in the retention of 31 valid travelogues. The combined word count of the valid reviews and travelogues was approximately 522,000 words. The third source comprised interview data. On-site interviews were conducted between April and May 2024, targeting respondents with profound cultural experience (Tsao and Ni, 2016). Participants, all of whom were over 18 years old, were purposively selected for their familiarity with the communities' intangible cultural heritage (Zhang et al., 2024). A total of 21 interviews were conducted with participants (11 females and 10 males) who were aged 20 years or older and represented a diverse range of educational backgrounds and occupations, including ICH inheritors, tour guides, tourism development company managers, local operators, and tourists. All local participants had resided in the communities for over 10 years (Table 2). This demographic diversity contributed significantly to the credibility and comprehensiveness of the qualitative findings (Zhang et al., 2024). Each interview, lasting approximately 30–40 min, explored participants' understanding and perceptions of intangible heritage, the cultural inheritance environment, and their attitudes toward its current state and significance. With informed consent, the interviews were recorded and transcribed. Saturation was achieved after the 18th interview, with three subsequent interviews adding no new categories, thereby aligning with widely accepted standards for saturation in qualitative theory-building studies (Guest et al., 2006). The interviews generated approximately 87,000 words of data.

4.2 Data coding

In this study, we employed grounded theory (Strauss and Corbin, 1998). Contrary to theoretical models predicated on empirical speculation, grounded theory facilitates the emergence of theories directly from data, thus providing a more accurate reflection of reality (Stumpf et al., 2016). This methodology not only deepens understanding but also enhances the practical relevance of the theory (Matteucci and Gnoth, 2017). To discern the dimensions underlying the RBCI, the raw textual data were subjected to a three-tiered coding approach, namely open, axial, and selective coding (Wang et al., 2024). A random sample comprising 75% of the texts was selected for coding, while the remaining 25% was reserved for a theoretical saturation test (Cao et al., 2021).

4.2.1 Step 1: open coding

Open coding entails the analysis of phenomena, assignment of descriptive names, and categorization of concepts (Strauss and Corbin, 2004). For this study, a coding team was formed, consisting of one professor, one doctoral student, and two

TABLE 2 Sample summary for interviewees $N = 21$.

Demographic characteristics		Frequency	Proportion (%)
Gender	Male	10	47.62
	Female	11	52.38
Age (years)	20–25	5	23.81
	26–30	5	23.81
	31–35	5	23.81
	36–45	3	14.29
	46 and above	3	14.29
Status	Tourists	10	47.62
	Tour guides	4	19.05
	Tourism development company managers	2	9.52
	Local operators	2	9.52
	Inheritors	3	14.29

trained master's students. Prior to the commencement of formal coding, all coders participated in standardized training, which included calibration exercises, codebook familiarization, and trial coding to ensure uniform understanding of the coding rules and category boundaries. Initially, the three graduate coders independently performed line-by-line coding of the textual data, engaging in repeated reviews of the raw materials, extraction of key information, and generation of initial concepts. Subsequent to this independent coding phase, multiple comparison meetings were convened to reconcile differences among coders. Discrepancies were resolved through discussion, with the professor adjudicating any unresolved cases. This procedure promoted consistency and minimized individual coder bias. Through the process of constant comparison and upward abstraction, redundant terms were consolidated and rare terms discarded, ultimately yielding 21 initial categories. Table 3 illustrates representative examples of the transformation of raw interview excerpts into initial codes during the open coding phase.

4.2.2 Step 2: axial coding

Axial coding is designed to establish logical connections among the initial categories derived from open coding and to extract core categories (Seyfi et al., 2019). At this stage, the initial categories were clustered according to the “preconditions-context-action/interaction-outcome” theoretical framework (Strauss and Corbin, 1998). Following standardized training, four researchers independently classified the 21 initial categories. The inter-coder consistency coefficient (Krippendorff's Alpha) was calculated to be 0.83, indicating a high reliability of the coding results (Krippendorff, 2018). Ultimately, four major categories were identified: Cultural Core Activation (CCA), Dynamical Cultural Contexts (DCC), Moderate Cultural Adaptations (MCA), and Valuable Cultural Outcomes (VCO). Table 4 further details how these initial codes were grouped into subcategories and integrated

TABLE 3 Examples of open coding^a.

Axial coding (Initial categories)	Open coding (Concepts)	Examples from raw materials
Inheritance Driven Activation	Inheritors transmit skills	TL-25: Wu Pinxian, a Dong ethnic group's folk song master, is a national-level inheritor. She has trained batch after batch of local singers and even trained foreign singers specializing in the Dong Grand Song.
Artisanal Craft Activation	Traditional handicrafts	TL-03: Miao batik has a long history, which can be traced back to ancient times. In ancient times, people called batik "Laxie" (a traditional term for batik).
Dynamic Policy Interventions	Protection policy	RE-488: In 1982, Xijiang Miao Village was listed as an ethnic customs tourist attraction on the Eastern Guizhou Tourist Route by the People's Government of Guizhou Province. In 1992, Xijiang Miao Village was listed as a provincial-level cultural relic protection unit of Guizhou Province. In 2005, the stilted buildings of Xijiang Miao Village were included in the first batch of the National Intangible Cultural Heritage List.
Coordinated Educational Synergy	Think tank support	TL-20: I sincerely hope that our experts and scholars can study the history of each ethnic group carefully and find out their historical origins with the Central Plains.
	ICH database	G-03: Our cultural heritage and information materials can also be preserved and disseminated through the establishment of digitized archives and databases.
	Immersive Experiences	G-03: For example, technologies such as (VR) and (AR) be utilized to create immersive cultural experience scenarios.
Cultural Integration Variation	Diminishing local customs and traditions	RE-1433: The commercialization rate of the Miao Village is over 95%, full of small hotels, restaurants, and souvenir shops; the homogenization is serious, and the Miao cultural atmosphere is almost invisible.
Economic Value	Driving consumption	RE-498: The beauty of Miao territory that attracts people's attention is the oriental charm condensed by thousands of stilted buildings, and the Miao girls wearing silver jewelry, with the tinkling sound of accessories, graceful and charming, as if standing by the water.
Demonstration Effect	Output of cultural practice experience	RE-1315: While maintaining the advantage of the original ecological style, improve the tourist experience through standardized management, and truly realize the positive interaction between ethnic cultural inheritance and tourism economic development.
	Cross-regional promotion of modes	M-01: We also publicized it through social media and other channels to make this show increasingly famous. Now, ah, many tourists come here for this big song performance!

The information was marked as "source-text number/sentence number."

^aThe original coding was conducted in Chinese, and this table presents select codes translated as examples to show the coding process. To preserve the original terms and expressions, some of the translations are "direct translations" from the Chinese language, without adjustments for English grammar. This approach ensures that the meanings and nuances of the original words are retained.

into the four major dimensions during the axial and selective coding stages. Clear names and definitions were established for these major categories, closely aligning with the core connotations reflected in the initial clustering.

4.2.3 Step 3: selective coding

Selective coding aims to identify the "core category" among a set of categories and elucidate their relationships, thus constructing a conceptual model (Seyfi et al., 2019). The major categories were summarized and compared with the interview data. On that basis, the core category was identified and incorporated into the conceptual framework of RBCI. A coding tree was developed to illustrate the hierarchical structure that connects the initial categories with the four principal categories of the RBCI framework (Figure 1). The research context can be summarized as follows: when the cultural inheritance system of ethnic villages faces various disturbances, ICH preserves its identity, engages in exchange, adapts through flexible practices, and generates new meanings in response to these challenges. In this process, CCA acts as the self-adaptive mechanism of RBCI, focusing on maintaining the stability of core characteristics and functional structures of the ICH inheritance system following disturbances. Accordingly, cultural identity can be effectively preserved during the inheritance process. If disturbances surpass the inheritance subject's bearing capacity,

DCC will be proactively organized by the subject to intervene and establish adaptive conditions, such as policy interventions, for facilitating survival and recovery. Subsequently, the inheritance subject activates MCA, which innovates the traditional cultural production model to respond proactively to challenges while preserving core values. Thus, the continuity and evolutionary development of the inheritance can be achieved. VCO continuously assesses the effectiveness of the evolving cultural inheritance through both positive and negative feedback mechanisms: positive feedback reinforces DCC, consolidates CCA, and optimizes MCA to create a virtuous cycle; negative feedback prompts targeted adjustments to DCC, CCA, and MCA, thereby driving the synergy of cultural inheritance and development (Figure 2).

4.2.4 Step 4: theoretical saturation test and coding assurance strategies

To ensure the validity of coding, this study employed several assurance strategies. First, for ensuring the accuracy and reliability of the concepts, multi-source data were used (Yu and Xu, 2019). Second, personal biases were mitigated through repeated discussions and comparative analyses among coders. Third, theoretical saturation was achieved in accordance with standard protocols (Cao et al., 2021), with 75% of the sentences coded, and the remaining 25% used for saturation testing. The final 25% of

TABLE 4 Open coding, axial coding, and selective coding.

Selective coding	Axial coding	Open coding	
(Major categories)	(Initial categories)	(Concepts)	
Cultural Core Activation	Inheritance Driven Activation;	Inheritors transmit skills;	
		Cultural and Natural Inheritance;	
	Knowledge Transmission Activation;	Craft Apprenticeship Training;	
		Spontaneous Learning;	
	Ritual Expression Activation;	Art performances;	
		Traditional Festivals and Custom Activities;	
	Artisanal Craft Activation;	Traditional Handicrafts;	
		Artisanal Spirit;	
	Traditional Wisdom Activation;	Ethnic Stories;	
		Symbolic Patterns;	
		Traditional Chorus;	
	Cultural Symbol Activation;	Color Symbols;	
		Traditional Cuisine;	
		Ethnic language;	
	Dynamical Cultural Contexts	Infrastructure Capacity;	Traditional Architecture;
			Museums;
			Atmosphere Creation;
		Adaptive Cultural Ecosystem;	Harmonious Coexistence;
Ethnic Customs;			
Dynamic Policy Interventions;		Protection Policy;	
		Promotion measures;	
Coordinated Educational Synergy;		Think Tank Support;	
		ICH Courses;	
Responsive Market Resources;		Economic Subsidies;	
		Corporate Investments;	
Evolving Production and Lifestyle;		Ecological Intuition;	
		Blending with Modernity;	
		Return to nature;	
		Experiencing Original Ecology;	
	Blend into Daily Life;		
Moderate Cultural Adaptations	Cultural Communication Variation;	Access to Cultural Knowledge;	
		Live stream Communication;	
	Digital Adaptive Variation;	Intelligent Experience;	
		Convenient Access;	
		ICH Database;	
		Immersive Experiences;	
	Cultural Integration Variation;	Diminishing Local Customs and Traditions;	
		Homogenization of Scenic Spots;	

(Continued)

TABLE 4 (Continued)

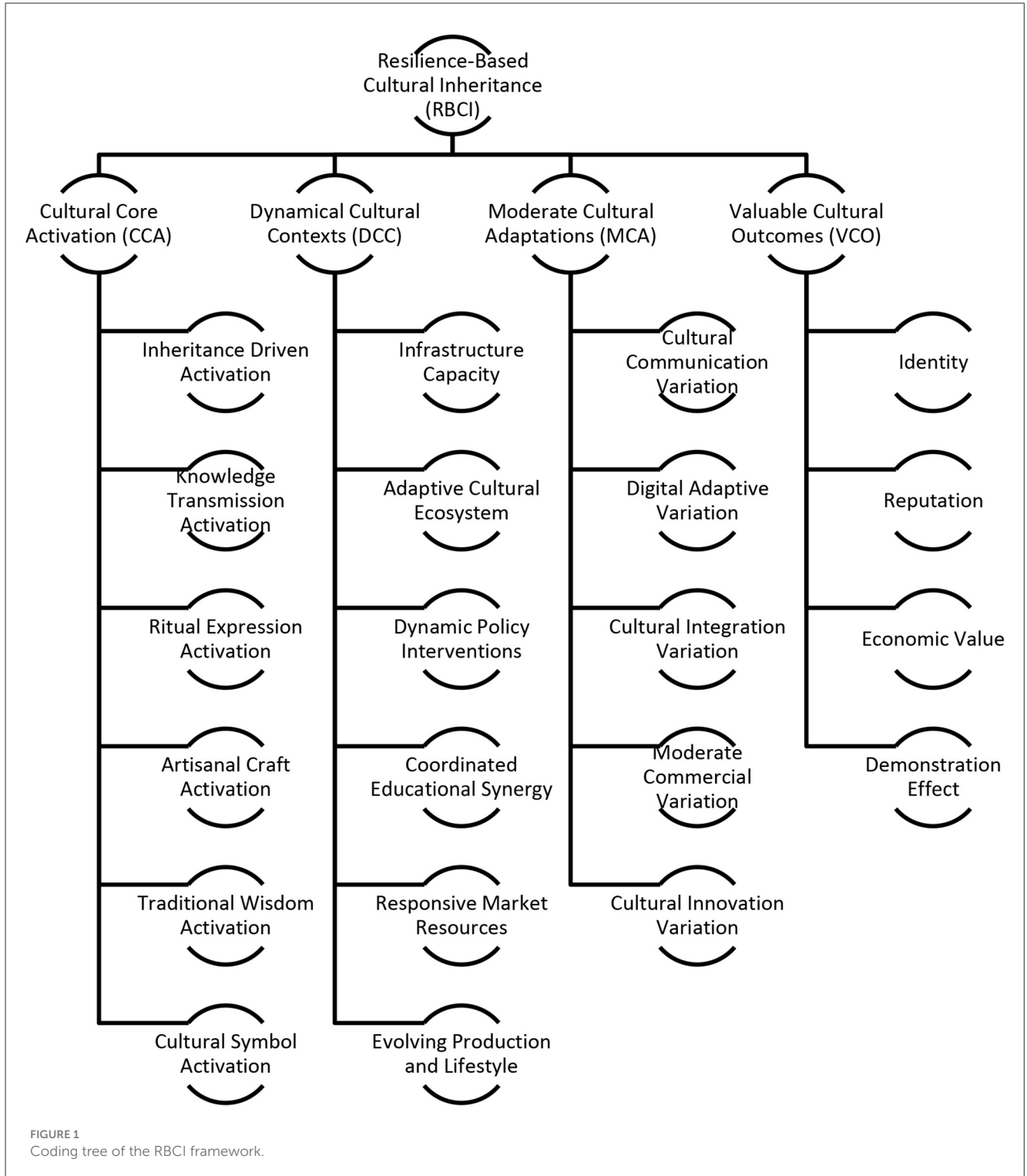
Selective coding	Axial coding	Open coding
(Major categories)	(Initial categories)	(Concepts)
Valuable Culture Outcomes	Moderate Commercial Variation;	Balancing ICH Inheritance and Investment Returns;
		Balancing Commercialization and Folk Customs;
		Trade-Off Between Commercialization and Authenticity;
	Cultural Innovation Variation;	ICH Innovation Goes International;
		Development of Cultural and Creative Products;
		Formation of External Groups' Cognition;
Valuable Culture Outcomes	Identity;	Cross-group Value Identification;
		Outward Extension of Cultural Symbols;
		Proactive Display of Local Culture;
	Reputation;	Discourse Recognition in Professional Fields;
		Driving Consumption;
	Economic Value;	Revenue Conversion;
		Output of Cultural Practice Experience;
	Demonstration Effect;	Cross-regional Promotion of Modes;

the data aligned with earlier findings, further validating theoretical saturation (Vogt et al., 2016).

5 Study 2: scale development and validation

5.1 Initial scale generation

The primary objective of this study is to develop and validate a scale for measuring RBCI. This process adheres to Churchill's three key procedures for scale development and validation: item generation, structural exploration, and validity testing (Churchill, 1979). In previous research utilizing grounded theory, we identified a four-dimensional structure of RBCI in ethnic villages. Grounded theory typically involves extracting data from typical survey respondents, which has resulted in a lack of a universally applicable measurement method. To bridge this gap, the current study aims to develop a comprehensive tool to assess the cultural inheritance status of ICH in ethnic villages. As part of the standard scale design process, we integrated relevant literature and raw data to preliminarily



design a questionnaire consisting of 21 items (MacKenzie et al., 2011).

Internal and external evaluation teams were established to refine the scale. The internal team, comprising two experts and two doctoral students specializing in cultural tourism, was primarily responsible for ensuring the alignment between constructs and items, and for eliminating complex, incomprehensible, or redundant expressions to ensure clarity and unambiguity of the

scale (Zhang S. et al., 2021). The external team, consisting of two experts and five graduate students, assessed content validity by evaluating the core conceptual connotations of the scale and determining the accuracy with which the items reflect the conceptual domains of each dimension (Schriesheim and Hinkin, 1990). Upon reviewing the concept of RBCI, the connotations of major categories, initial categories, and the items, a scoring method was employed (1 = not appropriate, 5 = highly appropriate)

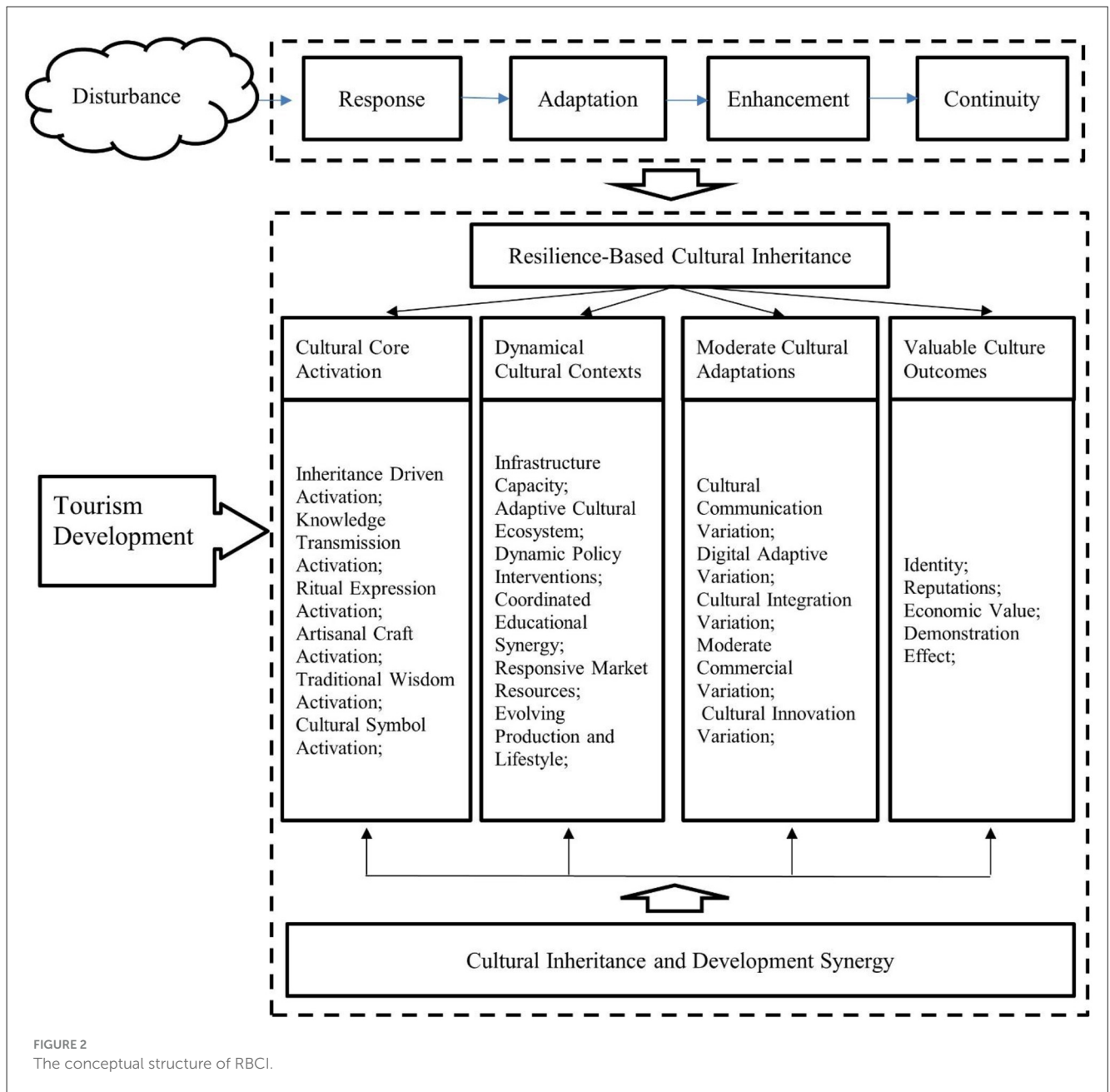


FIGURE 2 The conceptual structure of RBCI.

TABLE 5 Items elimination.

Original statement	Evaluation stage	Reason for removal	Indicator	Action
CCA6: Traditional handicrafts here are actively revitalized, reflecting a strong artisanal spirit.	Expert panel	Low content validity index	0.571 (<0.78)	Removed
DCC6: The local cultural ecosystem adapts well, allowing ethnic customs to coexist harmoniously with tourism.	Expert panel	Low content validity index	0.429 (<0.78)	Removed
MCA4: Balances commercialization with traditional culture	EFA	Low communality	0.345 (<0.50)	Removed
CCA5: Unique cultural symbols are clearly maintained and recognized	EFA	Low communality	0.195 (<0.50)	Removed
DCC4: Accesses market resources for Intangible Cultural Heritage development	EFA	Low communality	0.281 (<0.50)	Removed
CCA4: The expressions of traditional languages and songs remain stable	EFA	Low communality	0.320 (<0.50)	Removed
VCO4: Sets a good example for other communities	EFA	Low communality	0.388 (<0.50)	Removed

(Sun et al., 2020). According to Lynn (1986), for six or more experts, an item-level content validity index of 0.78 or higher is considered acceptable. Consequently, two items were removed (Table 5), and the wording of the remaining items was optimized. Ultimately, 19 initial items were selected for further research. All retained items underwent a review process to ensure their complete conceptual alignment with the theoretical definitions of the four RBCI dimensions. Prior to the full questionnaire survey, 61 questionnaires were distributed in the Xijiang Miao community for initial testing of the scale, which facilitated further revisions and improvements. The refined items are listed in Table 6 and were used in the official survey phase.

5.2 Data collection

The questionnaire employed a 7-point Likert scale for measurement. Data collection was primarily conducted offline. Paper questionnaires were distributed among distinct groups, including residents, tourists, and staff from tourism enterprises. Upon completion of the questionnaire, respondents were compensated with either a cup of milk tea or a voucher worth 15 yuan. The required sample size for both EFA and CFA should be at least five times the number of items in the scale (DeVellis and Thorpe, 2021). Following this guideline, a total of 388 questionnaires were collected, of which 338 were valid, resulting in an effectiveness rate of 87.11%. The valid questionnaire samples were divided into two equal groups: one ($N = 169$) for exploratory factor analysis and another ($N = 169$) for confirmatory factor analysis. The demographic characteristics of the questionnaire sample are presented in Table 7.

5.3 Exploratory factor analysis

Exploratory factor analysis was conducted to assess the validity of the items and to uncover common factors among the observed variables, thus exploring the dimensions of RBCI. Initially, Sample 1 ($N = 169$) was analyzed using SPSS 27.0. The results revealed a Kaiser-Meyer-Olkin (KMO) value of 0.839 and a chi-square value of 1,285.804 for Bartlett's test of sphericity ($p < 0.001$), with 171 degrees of freedom (df). These metrics indicate a significant correlation among the items, suggesting the presence of potential common factors, thus rendering the data suitable for factor analysis (York et al., 2021). Harman's single-factor test demonstrated that the first extracted factor accounted for only 30.024% of the variance ($< 50\%$), indicating the absence of common method bias (Podsakoff et al., 2003). Subsequently, the maximum variance method was utilized to extract and orthogonally rotate factors (Kim and Eves, 2012). Items were excluded based on the following criteria: rotated factor loadings below 0.5; loadings on two factors simultaneously exceeding 0.4; factor commonality below 0.5 (Straub, 1989). After this process, five items, MCA4: Balances commercialization with traditional culture (communality = 0.345); CCA5: Unique cultural symbols are clearly maintained and recognized (communality = 0.195);

TABLE 6 Scale items.

Construction	Questionnaire items
Cultural Core Activation (CCA)	CCA1: The core norms of Intangible Cultural Heritage are fully preserved and passed down
	CCA2: Inheritors systematically transfer core Intangible Cultural Heritage knowledge without simplification.
	CCA3: The core cultural meanings of traditional rituals remain undistorted
	CCA4: The expressions of traditional languages and songs remain stable
	CCA5: Unique cultural symbols are clearly maintained and recognized.
Dynamical Cultural Contexts (DCC)	DCC1: Dedicated facilities meet inheritance needs
	DCC2: Receive policy support for Intangible Cultural Heritage inheritance
	DCC3: Schools or communities conduct targeted ICH education
	DCC4: Accesses market resources for Intangible Cultural Heritage development
	DCC5: Intangible Cultural Heritage integrates into daily life of local people
Moderate Cultural Adaptations (MCA)	MCA1: Actively creating new communication formats while preserving core values
	MCA2: Utilizing digital tools for cultural display while retaining core content
	MCA3: Highlights local features while avoiding homogenization
	MCA4: Balances commercialization with traditional culture
	MCA5: Creative cultural products highlighting local characteristics.
Valuable Culture Outcomes (VCO)	VCO1: Fosters a strong cultural identity
	VCO2: Enjoys a good reputation for its unique local features
	VCO3: Brings obvious economic benefits
	VCO4: Sets a good example for other communities

DCC4: Accesses market resources for Intangible Cultural Heritage development (communality = 0.281); CCA4: The expressions of traditional languages and songs remain stable (communality = 0.320); VCO4: Sets a good example for other communities (communality = 0.388), were sequentially removed for failing to meet the communality threshold (≥ 0.50) (Table 5). This left 14 items with factor loadings ranging from 0.760 to 0.844 (Table 8). Furthermore, common factors were extracted based on the principle of eigenvalues exceeding 1, resulting in the identification of four common factors with a cumulative variance contribution rate of 73.366%. This indicates that the four common factors effectively explained the data. The results of the exploratory factor analysis were largely consistent with the coding relationship derived from grounded theory, providing initial validation of the scale's validity.

TABLE 7 Sample summary for scale exploration and validation $N = 338$.

Demographic characteristics		Sample 1 ($N = 169$)		Sample 2 ($N = 169$)	
		Frequency	Percentage%	Frequency	Percentage%
Gender	Man	100	59.17	93	55.03
	Woman	69	40.83	76	44.97
Age (years)	20 and below	5	2.96	5	2.96
	21–25	44	26.04	40	23.67
	26–30	67	39.64	50	29.59
	31–40	34	20.12	44	26.04
	41–50	16	9.47	19	11.24
	51–60	2	1.18	9	5.33
	60 and above	1	0.59	2	1.18
Marital status	Unmarried	31	18.34	38	22.49
	Married	130	76.92	120	71.01
	Divorce	8	4.73	11	6.51
Education	Junior high school and below	14	8.28	15	8.88
	High school/secondary school	23	13.61	37	21.89
	College	45	26.63	44	26.04
	Undergraduate	73	43.20	60	35.50
	Master and above	14	8.28	13	7.69
Occupation	Civil servant	17	10.06	18	10.65
	Doctors, teachers, and researchers	3	1.78	4	2.37
	Enterprise staff	73	43.20	69	40.83
	Freelancer	48	28.40	55	32.54
	Students	22	13.02	16	9.47
	Other	6	3.55	7	4.14
Average monthly income (¥RMB)	≤3,000	24	14.20	26	15.38
	3,001–6,000	74	43.79	69	40.83
	6,001–9,000	31	18.34	41	24.26
	9,001–12,000	30	17.75	25	14.79
	≥12,001	10	5.92	8	4.73
Role	Resident	54	31.95	57	33.73
	Tourist	83	49.11	83	49.11
	Tourism enterprise staff	26	15.38	22	13.02
	Others	6	3.55	7	4.14

5.4 Reliability test

Upon importing 169 valid questionnaires into SPSS 27.0 for reliability analysis, the data revealed that the overall Cronbach's α for the scale was 0.876. The Cronbach's α values for each dimension exceeded 0.8, with values for CCA, DCC, MCA, and VCO ranging from 0.833 to 0.869. Additionally, the reliability coefficient decreased when any item was deleted, demonstrating a strong correlation and high internal consistency among the factors in this study (Table 9). Consequently, it can be concluded that the items within each dimension of the scale are reliable.

5.5 Confirmatory factor analysis

To assess the scale's structural stability, this study executed a confirmatory factor analysis using the second sample ($N = 169$). As revealed by the data, the factor loading values for the 14 items ranged from 0.707 to 0.865. Thus, a high level of structural validity for the scale was indicated. The convergent validity was tested by calculating the Composite Reliability (CR) and Average Variance Extracted (AVE). As indicated by the result, the CR values for each dimension ranged from 0.827 to 0.882, all surpassing the threshold of 0.700. Moreover, the AVE values for each dimension

TABLE 8 Principal component analysis results of measurement items.

Items	Component				Commonalities	Skewness	Kurtosis
	Factor 1	Factor 2	Factor 3	Factor 4			
CCA1: The core norms of Intangible Cultural Heritage are fully preserved and passed down			0.835		0.764	-0.048	-0.856
CCA2: Inheritors systematically transfer core Intangible Cultural Heritage knowledge without simplification			0.817		0.761	0.047	-0.847
CCA3: The core cultural meanings of traditional rituals remain undistorted			0.830		0.75	0.096	-0.907
DCC1: Dedicated facilities meet inheritance needs	0.823				0.718	-0.014	-0.924
DCC2: Receive policy support for Intangible Cultural Heritage inheritance	0.790				0.694	0.027	-0.891
DCC3: Schools or communities conduct targeted ICH education	0.833				0.748	-0.139	-0.775
DCC5: Intangible Cultural Heritage integrates into daily life of local people	0.800				0.726	-0.111	-0.823
MCA1: Actively creating new communication formats while preserving core values		0.760			0.679	0.051	-0.887
MCA2: Utilizing digital tools for cultural display while retaining core content		0.777			0.701	0.226	-0.95
MCA3: Highlights local features while avoiding homogenization		0.816			0.689	-0.165	-0.569
MCA5: Creative cultural products highlighting local characteristics.		0.844			0.76	-0.07	-0.757
VCO1: Fosters a strong cultural identity				0.841	0.774	0.03	-1.037
VCO2: Enjoys a good reputation for its unique local features				0.807	0.738	-0.053	-0.64
VCO3: Brings obvious economic benefits				0.838	0.77	-0.036	-0.823
Rotation sums of squared loadings	Eigenvalue	2.933	2.785	2.278	2.276		
	Variance explained	20.951	19.891	16.269	16.255		
	Cumulative variance explained	20.951	40.842	57.111	73.366		

surpassed the threshold of 0.500, signifying robust convergent validity for the scale (Sun et al., 2020) (Table 10). Moreover, the square root values of the AVE for the four dimensions were higher than the correlation coefficients between them, indicating excellent discriminant validity among the dimensions (Table 11).

5.6 Model verification

Using the same sample, three competing models were analyzed using AMOS 24.0: Model 1 featured a single first-order factor with 14 items; Model 2 included a four-factor model; Model 3 consisted of a four first-order factor model. The validation results of these models indicated that Model 3 was the optimal factor structure for RBCI (Otoo et al., 2021) (Table 12). The overall fit indices for the measurement model were satisfactory: χ^2 was 85.130, χ^2/df was 1.199, within the acceptable range of 1–3; TLI, NFI, IFI, CFI all exceeded 0.90; GFI was above 0.9; RMSEA was 0.034, well below the threshold of 0.05, thus meeting the fit standards

(Bentler, 1988; Cao et al., 2021). These indices further substantiated the scale's validity and applicability. Beyond statistical superiority, Model 3's theoretical advantage is its alignment with the essence of RBCI as a multidimensional collaborative framework, accurately representing the four independent yet interconnected dimensions and retaining clear functional boundaries while reflecting the "dynamic interaction of multiple elements" inherent in resilience systems. This makes it the most suitable model for both theoretical consistency and practical relevance.

5.7 Structural equation path tests

We conducted a structural equation modeling path analysis, and the results are presented in Figure 3. The correlation coefficients among all constructs are below 0.750, indicating the absence of multicollinearity issues in the model. This finding suggests that the four dimensions are not only interrelated but also, from the perspective of the RBCI interaction framework,

TABLE 9 Reliability analysis of the scale.

Dimensions	Items	Mean	Factor mean	Std. Deviation	Cronbach's alpha if item deleted	Cronbach's alpha
CCA	CCA1	4.325	4.249	1.671	0.766	0.837
	CCA2	4.231		1.644	0.761	
	CCA3	4.189		1.662	0.793	
DCC	DCC1	4.462	4.391	1.701	0.835	0.869
	DCC2	4.314		1.648	0.837	
	DCC3	4.349		1.666	0.825	
	DCC5	4.438		1.625	0.833	
MCA	MCA1	4.296	4.425	1.591	0.819	0.854
	MCA2	4.456		1.562	0.813	
	MCA3	4.444		1.507	0.83	
	MCA5	4.503		1.536	0.795	
VCO	VCO1	4.314	4.290	1.655	0.751	0.833
	VCO2	4.278		1.543	0.802	
	VCO3	4.278		1.651	0.75	

TABLE 10 Convergent validity.

Paths	Unstd.	S.E.	T-value	p	standardized regression weights	Squared multiple correlations	CR	AVE
CCA1 <- CCA	1.000				0.778	0.696	0.827	0.617
CCA2 <- CCA	0.972	0.109	8.948	***	0.714	0.539		
CCA3 <- CCA	1.192	0.118	10.113	***	0.857	0.668		
DCC1 <- DCC	1.000				0.865	0.683	0.882	0.652
DCC2 <- DCC	0.826	0.081	10.245	***	0.707	0.677		
DCC3 <- DCC	0.943	0.074	12.685	***	0.823	0.500		
DCC5 <- DCC	0.880	0.069	12.753	***	0.826	0.748		
MCA1 <- MCA	1.000				0.817	0.621	0.876	0.639
MCA2 <- MCA	0.997	0.099	10.107	***	0.734	0.564		
MCA3 <- MCA	1.040	0.088	11.788	***	0.834	0.665		
MCA5 <- MCA	1.004	0.088	11.389	***	0.809	0.655		
VCO1 <- VCO	1.000				0.816	0.734	0.828	0.617
VCO2 <- VCO	0.872	0.093	9.407	***	0.751	0.510		
VCO3 <- VCO	0.930	0.095	9.741	***	0.788	0.605		

***P < 0.001.

CCA, DCC, MCA, and VCO do not exist in isolation. Instead, they form a dynamic interactive chain: CCA acts as RBCI's self-adaptive mechanism, ensuring the preservation of cultural identity in ICH inheritance amidst disturbances; when disturbances exceed the threshold of tolerance, DCC creates adaptive conditions to support survival and recovery; MCA challenges existing paradigms while upholding core values to ensure the continuity and evolution of inheritance; VCO assesses the effectiveness of inheritance through positive or negative feedback, thereby driving synergistic inheritance and development. This dynamic interactive chain also corroborates the theoretical framework proposed in Study 1. The

study employed rigorous research methods and robust quantitative analysis to validate the scale items, ultimately confirming that RBCI comprises four dimensions and 14 items.

6 Conclusions and discussion

6.1 Major findings

First, the results of this study reveal that cultural inheritance resilience represents a process chain consisting of "CCA, DCC,

TABLE 11 Discriminant validity.

Variable	VCO	MCA	DCC	CCA
VCO	0.785			
MCA	0.437***	0.799		
DCC	0.377***	0.305***	0.807	
CCA	0.475***	0.432***	0.504***	0.785
AVE	0.617	0.639	0.652	0.617

The correlation coefficients are all satisfied *** $p < 0.001$; The square root of AVE is shown in bold in the diagonal of the table.

TABLE 12 Model comparison results.

Model fit indicators	Model 1: One first-order factor model	Model 2: Four factor model	Model 3: Four first-order factor model
χ^2	640.84***	192.947***	85.13***
χ^2/df	8.323	2.506	1.199
GFI	0.577	0.844	0.931
TLI	0.432	0.883	0.985
RMSEA	0.209	0.095	0.034
NFI	0.493	0.847	0.933
IFI	0.525	0.902	0.988
CFI	0.520	0.901	0.988

*** $P < 0.001$.

MCA, and VCO.” Each of these four dimensions contributes uniquely to explaining how resilience is formed within ICH inheritance systems. CCA elucidates how core cultural meanings are preserved and activated; DCC illustrates how environmental and spatial conditions shape inheritance capacity; MCA demonstrates community agency through observable adaptive cultural variations; and VCO elucidates how value-based feedback reinforces and stabilizes the inheritance process over time. Unlike previous studies that focus on macro cultural systems and manifestations of cultural resilience (Beel et al., 2017; Tolkach and Pratt, 2022; Li et al., 2024), this research begins at the micro-level inheritance process. It addresses the previously insufficient explanation of the internal operational logic of sustainable cultural inheritance in existing studies on cultural resilience and provides more detailed evidence for understanding the micro-mechanisms of the inheritance system under external pressures.

Second, this study finds that the cultural inheritance process does not passively accept cultural shocks; instead, it achieves a moderate adjustment through continuous negotiation and selection. This balances the needs of inheritance with market demands, responding to the concept of actor agency as proposed by Berkes and Ross (2016) from the perspective of cultural inheritance. It provides possibilities for the proactive adaptation of ICH inheritance (Bui et al., 2020). Bui et al. (2020) also observed that communities do not passively endure disturbances but instead respond through adaptation, resulting in feedback loops and two-way interactions among processes that influence

community resilience. This study further demonstrates that community agency is not an abstract concept but is manifested in a series of observable and strategic actions. These actions take the form of various “adaptive cultural variations,” such as modifications in cultural communication, digital reinterpretation, intercultural integration, moderate commercial adaptation, and innovation based on traditional elements. As indicated by the cases in this study, moderate cultural adaptation does not signify distortion or degradation, consistent with the concept of “cultural plasticity,” proposed by Holtorf (2018). Instead, it represents the preservation and re-articulation of core cultural meanings within acceptable boundaries, allowing the culture to remain relevant, understandable, and sustainable in changing social contexts.

Third, the structural dimensions of RBCI proposed in this study provide an operational path for measuring cultural resilience. Although the importance of cultural resilience within the tourism destination system resilience framework is recognized by researchers, it is often treated as a secondary subsystem in practice due to difficulties in quantifying it (Hu et al., 2021). While numerous studies exist, they are limited geographically and are often oversimplified. For instance, the appropriateness of using indicators such as the number of ICH inheritors and the area of cultural spaces to measure cultural resilience is not comprehensive (Chen and Cheng, 2025). Therefore, this study proposes the method of measuring RBCI through scale items rather than statistical indicators and constructs corresponding measurement standards rigorously following the scale development process. Ultimately, a four-dimensional scale with 14 items was developed. The developed scale demonstrates good reliability and validity, and it can serve as a novel tool to support the quantitative research on cultural inheritance resilience.

6.2 Theoretical contributions

6.2.1 A complement to the application of cultural resilience theory

This study elucidates the micro-dynamic mechanism of resilience formation within complex cultural inheritance systems subjected to external pressures. From the perspective of cultural inheritance, this research addresses the dynamic adaptation and innovation processes of complex systems when confronted with external disturbances, as highlighted by resilience theory (Quansah et al., 2022; Liu et al., 2023). It addresses the theoretical void by providing targeted dimensional deconstruction and mechanism interpretation that resilience theory previously overlooked, particularly in the context of cultural inheritance, and it enhances understanding of core issues such as agency (Davidson, 2013; Fu et al., 2024). Furthermore, the four-dimensional RBCI framework developed in this study demonstrates that cultural resilience is not static but evolves through continuous interaction and feedback. These findings substantiate the origins of resilience, broadening the discourse on cultural resilience from a macro-systemic level to an observable and practical micro-application level.

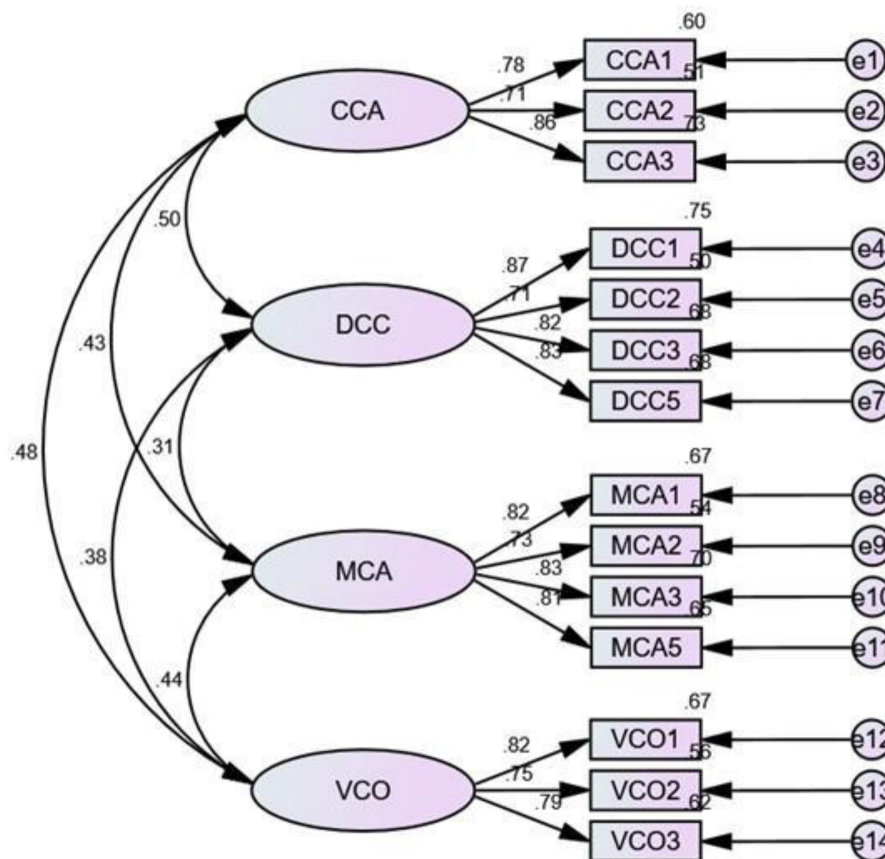


FIGURE 3 Results of structural equation path analysis.

6.2.2 Providing a new perspective for ICH inheritance

This investigation develops and validates a dedicated RBCI scale for ICH inheritance in ethnic villages, translating the abstract concept of “cultural inheritance” into specific, measurable indicators, thereby enabling standardized quantitative assessment of this dynamic process. Prior research on ICH inheritance has primarily focused on qualitative aspects, such as inheritance patterns (Yang et al., 2022) and influencing factors (Zhang Y. et al., 2021), yet lacked quantitative tools for operationalization. The development of this scale not only addresses a methodological gap in ICH inheritance theory but also offers a new analytical framework for interpreting the sustainability mechanisms of ICH inheritance and devising precise, effective inheritance strategies.

et al., 2022). However, the literature has generally been limited to analyses of specific cases and has not propose universal, practical approaches to these challenges. The “RBCI conceptual framework” introduced in this study addresses this gap. Moreover, this study posits that moderate adaptation serves as a regulatory mechanism within the boundaries of cultural cores, rather than a mere compromise. Limited and directional changes within culturally acceptable boundaries do not dilute the cultural core but rather act as a primary catalyst to activate cultural vitality and enhance the long-term sustainability of ICH systems. This perspective is particularly vital for ethnic communities heavily engaged in tourism, demonstrating that cultural sustainability and responsiveness to external demands can be synergistically and systematically managed.

6.2.3 Proposed moderate cultural adaptation for sustainable ICH

While existing research has shown that excessive market-oriented adaptation of cultural heritage undermines tourist satisfaction and loyalty (Cao et al., 2025), and insufficient adaptation may impede the sustainability of cultural inheritance (An and Yi, 2025), some research has proposed achieving cultural innovation without compromising core values (Yang

6.3 Managerial implications

6.3.1 Accurately assessing the status of cultural inheritance in ethnic communities

Based on the RBCI assessment scale developed in this study, it is possible to systematically evaluate the resilience of ICH inheritance in ethnic communities across four dimensions, providing managers with a visual diagnostic tool. In practical operations, quantitative

indicators on the scale can identify weaknesses in the inheritance system. For example, a low score in the MCA dimension might indicate issues such as “excessive commercialization” or “insufficient innovation” in ICH inheritance in response to tourism development. Similarly, a low score in the DCC dimension suggests environmental challenges, such as constrained inheritance spaces and inadequate policy support. This assessment method not only circumvents the subjectivity and ambiguity of traditional qualitative evaluations but also enables managers to dynamically monitor trends in inheritance resilience. This provides data to support the development of interventions and prevents cultural inheritance from merely reacting to crises passively.

6.3.2 Providing policy tools for enhancing the resilience of cultural inheritance in ethnic communities

Leveraging the RBCI theoretical framework, a problem-oriented policy toolkit can be crafted to address critical deficiencies in cultural inheritance. Within the CCA dimension, policies should protect the core elements of ICH, including the standardization of certification and support mechanisms for ICH inheritors. These measures safeguard foundational aspects such as traditional crafts, rituals, and symbolic practices, thus preventing their degradation (Yang et al., 2022). For the DCC dimension, policies on spatial planning and resource allocation are crucial. These include defining ICH conservation zones and employing a combination of public funding and social capital to provide stable physical spaces and financial support for inheritance initiatives (Maags and Holbig, 2016; Aigwi et al., 2021). In the MCA dimension, policies that drive innovation should facilitate the integration of ICH with modern cultural tourism and digital technologies. For instance, developing immersive ICH experience programs and digital preservation platforms are proactive approaches (Mei et al., 2025). Additionally, it is essential to establish oversight standards to limit excessive commercialization, which threatens to undermine the cultural core (Samadi and Yunus, 2012). In the VCO dimension, policies focusing on value conversion and transmission are imperative. Initiatives might include establishing marketplaces for ICH cultural and creative products and supporting ethnic cultural festivals. By merging the “culture + economy” and “culture + transmission” pathways, these policies enhance societal recognition of ICH and bolster incentives for its long-term preservation, thereby systematically enhancing the resilience of cultural inheritance in ethnic communities.

6.4 Limitations and future directions

This study offers significant contributions both theoretically and practically; however, it still has some limitations. Firstly, the empirical data for this study were obtained from two ethnic communities within Qiandongnan Prefecture. While these communities have strong cultural representativeness, they cannot fully reflect the diversity of ICH inheritance models present in other regions or outside tourism-focused contexts. Consequently, future research can conduct further verification and refinement across

diverse cultures, geographical locations, and stages of development to augment the universality of the RBCI scale. Secondly, although this study delineates the principal structural dimensions of RBCI, it does not empirically examine the external factors that influence the formation of RBCI. Future studies could employ methods such as Fuzzy Set Qualitative Comparative Analysis (fsQCA) to more thoroughly uncover the interactive relationships among various influencing factors in the cultural inheritance resilience formation process. Lastly, the findings reveal a substantial disparity between cultural supply and tourist demand, thereby highlighting the persistent tension between cultural preservation and necessary adaptation (Parga-Dans et al., 2020). The concept of “moderate adjustment,” introduced in this study, requires further theoretical refinement and empirical validation, particularly in terms of how communities might address market demands while preserving cultural integrity.

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 studies involving humans were approved by Assumption University Institutional Review Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

MH: Conceptualization, Data curation, Investigation, Writing – original draft, Writing – review & editing. ZZ: Conceptualization, Supervision, Validation, Writing – review & editing.

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Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

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