

The Mediating Role Mechanism of Generative AI in the International Communication of Chinese Culture

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ABSTRACT Generative artificial intelligence (GenAI) has emerged as a transformative mediator in the international communication of Chinese culture, reshaping how cultural content is produced, translated, and received by global audiences. This study examines the mediating role mechanism of GenAI in cross-cultural communication, drawing on data from a mixed-methods survey of 312 international cultural communication practitioners and audiences across 18 countries. The findings reveal that GenAI functions as a multi-dimensional mediator encompassing linguistic translation, cultural adaptation, emotional resonance enhancement, and interactive engagement facilitation. Structural equation modeling confirms that GenAI-mediated communication significantly enhances audience willingness to engage with Chinese cultural content ($\beta = 0.62$, $p < 0.001$), with cultural transformation serving as a partial mediator accounting for 41% of the total effect. The study also identifies notable challenges including algorithmic bias, cultural authenticity concerns, and the risk of homogenized representation. These findings contribute to theoretical understanding of AI-mediated cultural diffusion and offer practical insights for leveraging GenAI to advance China's international cultural communication strategy.

INDEX TERMS Generative artificial intelligence, Chinese culture, international communication, mediating mechanism, cultural transformation, cross-cultural engagement

I. INTRODUCTION

The rapid advancement of generative artificial intelligence technologies has fundamentally altered the landscape of international cultural communication. Since the release of ChatGPT by OpenAI in late 2022, generative AI tools have proliferated across domains including text generation, image synthesis, video production, and multimodal content creation [1]. These capabilities carry profound implications for how cultures are represented, transmitted, and received across national and linguistic boundaries. For Chinese culture specifically, which encompasses rich traditions of intangible cultural heritage, philosophical thought, artistic expression, and contemporary creative industries, GenAI presents both unprecedented opportunities and complex challenges for global dissemination [2].

China has invested substantially in international cultural communication as a component of its broader soft power strategy. Initiatives including the Confucius Institute network, international cultural festivals, media expansion through CGTN and Xinhua, and digital platforms such as TikTok (Douyin) have sought to enhance global awareness and appreciation of Chinese culture [3]. However, persistent challenges including language barriers, cultural

cognitive differences, ideological prejudices, and asymmetric information flows have constrained the effectiveness of these efforts. Traditional approaches to cultural communication often struggled to achieve genuine audience engagement, frequently resulting in superficial exposure without deeper cultural understanding or emotional connection [4].

Generative AI introduces a qualitatively different mediation mechanism. Unlike conventional translation tools or static cultural presentations, GenAI systems can dynamically adapt content to local cultural contexts, generate personalized narratives, simulate interactive cultural experiences, and facilitate two-way communication between cultural producers and audiences [5]. The mediating role of GenAI extends beyond mere linguistic conversion to encompass cultural decoding and recoding, emotional resonance cultivation, and participatory engagement stimulation. Understanding this mediating mechanism is essential for optimizing the application of GenAI in Chinese cultural communication and for developing theoretical frameworks that capture the specificity of AI-mediated cultural diffusion [6].

This study addresses the research gap by systematically investigating how GenAI mediates the international communication of Chinese culture. Drawing on mediation analysis framework and technology acceptance model, we examine the structural relationships among GenAI utilization, cultural transformation processes, and communication effectiveness outcomes. The research questions are: (1) What dimensions constitute GenAI's mediating role in Chinese cultural communication? (2) How does GenAI-mediated cultural transformation influence audience engagement willingness? (3) What factors moderate the effectiveness of GenAI as a cultural communication mediator?

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Generative AI and Cultural Heritage Communication

The application of generative AI in cultural heritage communication has attracted growing scholarly attention. Chen et al. [7] conducted a systematic review of digital media strategies for global dissemination of intangible cultural heritage, identifying AI and holographic technologies as efficient tools for expanding international communication horizons. Their analysis of twelve empirical studies revealed that AI-driven approaches significantly improved audience interaction and involvement levels compared to traditional methods. Bi and Nasir [8] explored innovative approaches to preserving intangible cultural heritage through AI-driven interactive experiences, demonstrating that generative AI can transform historical narratives into animated shorts and interactive games, achieving artistic restoration and integration of ancient and modern cultural elements.

Recent research has specifically examined the role of GenAI in Chinese cultural contexts. Wang and Adzharuddin [9] introduced the concept of synthetic authenticity to describe algorithmically produced content that mimics traditional heritage, finding that audiences show higher trust in AI-generated cultural content featuring traditional aesthetic cues, expert voiceovers, and transparent AI disclosure. The Digital Dunhuang project represents a paradigmatic case of AI-enhanced cultural preservation, utilizing high-precision digital restoration and online interactive exhibitions to bridge the gap between the public and traditional culture [10]. These developments suggest that GenAI is not merely a technical tool but an active agent in reshaping cultural representation and reception.

2.2 Mediating Mechanisms in Cross-Cultural Communication

The concept of mediation in cross-cultural communication has evolved significantly with the advent of AI technologies. Traditional mediation frameworks emphasized human interpreters, cultural brokers, and institutional intermediaries as bridges between different cultural systems [11]. The emergence of AI-mediated communication introduces a new layer of technological

mediation that operates alongside, and increasingly substitutes for, human mediators. Kim et al. [12] empirically verified the effect of AI mediation on intercultural communication and cultural transformation in multicultural university environments, finding a statistically significant full mediation effect of cultural transformation on the relationship between AI mediation and communication success among female participants from high-context cultural backgrounds.

This study extends these insights by proposing a multi-dimensional mediating mechanism framework. Drawing on Hall's high-context/low-context culture theory [13] and the technology acceptance model [14], we posit that GenAI mediates Chinese cultural communication through four interconnected pathways: linguistic mediation (translation and localization), cognitive mediation (cultural framing and context provision), emotional mediation (resonance stimulation and empathy cultivation), and behavioral mediation (engagement facilitation and participatory interaction). These pathways operate sequentially and cumulatively to transform raw cultural content into communicative forms that resonate with international audiences.

2.3 Hypotheses Development

Based on the theoretical framework, we develop the following hypotheses. H1: GenAI utilization positively influences linguistic accessibility of Chinese cultural content. H2: GenAI utilization positively influences cultural contextualization of Chinese cultural content. H3: GenAI-mediated cultural transformation positively influences audience emotional resonance. H4: Cultural transformation partially mediates the relationship between GenAI utilization and audience engagement willingness. H5: Audience digital literacy moderates the mediating effect of cultural transformation.

III. METHODOLOGY

3.1 Research Design and Sample

This study employed a mixed-methods approach combining quantitative survey research with qualitative interviews. The quantitative phase involved an online questionnaire distributed to 412 international audiences who had exposure to Chinese cultural content through AI-mediated platforms, yielding 312 valid responses (response rate = 75.7%). Participants were recruited through stratified sampling across 18 countries representing diverse cultural regions: North America (18%), Europe (24%), Southeast Asia (22%), East Asia (16%), South Asia (12%), and others (8%). The sample demographics included 52% female, age range 18-55 ($M = 31.4$, $SD = 9.2$), with 48% having prior experience using GenAI tools.

3.2 Measurement Instruments

All constructs were measured using multi-item scales adapted from established instruments and validated through pilot testing ($n = 35$). GenAI utilization was assessed using a 6-item scale measuring frequency, diversity, and sophistication of GenAI tool usage in accessing Chinese

cultural content (Cronbach's alpha = 0.87). Cultural transformation was measured through 8 items capturing perceived changes in cultural understanding, attitude shifts, and cognitive restructuring (alpha = 0.91). Audience engagement willingness was assessed using 5 items measuring intention to seek, share, and interact with Chinese cultural content (alpha = 0.84). Emotional resonance was measured with 4 items (alpha = 0.79). Digital literacy was assessed using a 7-item scale (alpha = 0.86). All items used 7-point Likert scales anchored from strongly disagree (1) to strongly agree (7).

3.3 Analytical Strategy

Data analysis proceeded in three stages. First, confirmatory factor analysis (CFA) was conducted to verify the measurement model's validity and reliability. Second, structural equation modeling (SEM) with maximum likelihood estimation was employed to test the hypothesized relationships. Third, mediation analysis using bootstrapping (5,000 resamples) was performed to examine the indirect effects, following the procedure recommended by Preacher and Hayes [15]. Moderation analysis was conducted using the PROCESS macro (Model 7) to test the conditional indirect effect of digital literacy.

IV. RESULTS

4.1 Measurement Model Validation

The CFA results indicated excellent model fit (chi-square/df = 1.84, CFI = 0.96, TLI = 0.95, RMSEA = 0.052, SRMR = 0.041). All factor loadings exceeded 0.70, and composite reliabilities ranged from 0.81 to 0.92, exceeding the 0.70 threshold. Average variance extracted (AVE) values ranged from 0.58 to 0.71, above the 0.50 criterion, confirming convergent validity. Discriminant validity was supported as the square roots of AVE for each construct exceeded inter-construct correlations.

4.2 Structural Model and Hypothesis Testing

The structural model demonstrated good fit (chi-square/df = 2.03, CFI = 0.94, TLI = 0.93, RMSEA = 0.058, SRMR = 0.048). Hypothesis testing results supported all proposed relationships. H1 was supported: GenAI utilization significantly predicted linguistic accessibility (beta = 0.71, $p < 0.001$, 95% CI [0.62, 0.80]), indicating that GenAI tools effectively bridge language barriers in Chinese cultural communication. H2 was supported: GenAI utilization significantly influenced cultural contextualization (beta = 0.68, $p < 0.001$, 95% CI [0.58, 0.77]), suggesting that AI systems provide valuable cultural framing that enhances comprehension.

H3 was supported: Cultural transformation significantly predicted emotional resonance (beta = 0.74, $p < 0.001$, 95% CI [0.65, 0.82]), demonstrating that AI-mediated cultural adaptation fosters deeper emotional connections. The total effect of GenAI utilization on engagement willingness was significant (beta = 0.62, $p < 0.001$). Mediation analysis revealed a significant indirect effect through cultural transformation (beta = 0.25, $p < 0.001$, 95% CI [0.18, 0.33]), supporting H4. The mediation was partial, with cultural

transformation accounting for approximately 41% of the total effect. The direct effect remained significant (beta = 0.37, $p < 0.001$), indicating that GenAI also influences engagement through pathways beyond cultural transformation.

4.3 Moderation Analysis

H5 was supported: Digital literacy significantly moderated the mediating effect (index of moderated mediation = 0.08, $p = 0.012$, 95% CI [0.02, 0.14]). For participants with high digital literacy (1 SD above mean), the indirect effect was stronger (beta = 0.31) compared to those with low digital literacy (beta = 0.18). This conditional effect suggests that audiences with higher digital literacy are better able to benefit from GenAI-mediated cultural transformation, possibly because they can more effectively navigate and interpret AI-generated cultural content.

4.4 Qualitative Findings

Semi-structured interviews with 24 participants provided rich contextualization of the quantitative findings. Thematic analysis revealed three major themes. First, participants valued GenAI's ability to provide culturally contextualized explanations that went beyond literal translation, such as explaining the philosophical significance of Chinese landscape painting or the social meanings embedded in traditional festivals. Second, participants reported that interactive GenAI features, such as virtual cultural experiences and personalized cultural recommendations, significantly enhanced their sense of connection with Chinese culture. Third, concerns were raised about cultural authenticity, with some participants noting that AI-generated content occasionally oversimplified or stereotyped Chinese cultural elements, potentially reinforcing rather than dispelling cultural misconceptions.

V. DISCUSSION

The findings of this study contribute to theoretical understanding of AI-mediated cultural communication in several ways. First, the results empirically confirm that GenAI functions as a multi-dimensional mediator in the international communication of Chinese culture, operating through linguistic, cognitive, emotional, and behavioral pathways. This extends prior research on AI mediation in intercultural communication [12] by specifying the mechanisms through which GenAI facilitates cultural engagement. The identification of cultural transformation as a partial mediator is particularly significant, as it suggests that GenAI's effectiveness depends not merely on technical capabilities but on its ability to catalyze genuine cultural understanding and adaptation among audiences [16].

The moderation effect of digital literacy has important practical implications. As GenAI tools become more prevalent in cultural communication, the digital divide may create new inequalities in cultural access and engagement. Audiences with lower digital literacy may be unable to fully benefit from AI-mediated cultural content, potentially exacerbating rather than reducing cultural communication gaps [17]. This finding underscores the need for digital

literacy education as an integral component of international cultural communication strategies.

The challenges identified in the qualitative phase warrant serious attention. The risk of cultural homogenization through AI-mediated representation parallels concerns raised in the broader literature on algorithmic bias and cultural representation [18]. When GenAI systems are trained predominantly on datasets reflecting dominant cultural perspectives, they may produce content that flattens cultural diversity into stereotypical representations. This risk is particularly acute for Chinese culture, which encompasses enormous internal diversity across regions, ethnicities, and historical periods. Ensuring culturally sensitive and authentic AI-mediated communication requires ongoing human oversight, diverse training data, and collaborative frameworks involving cultural practitioners [19].

VI. CONCLUSION

This study provides empirical evidence for the mediating role mechanism of generative AI in the international communication of Chinese culture. The findings demonstrate that GenAI enhances audience engagement willingness through both direct pathways and indirect mediation via cultural transformation. The four-dimensional mediating framework, linguistic, cognitive, emotional, and behavioral mediation, offers a comprehensive theoretical lens for understanding how AI technologies reshape cross-cultural communication. The moderation effect of digital literacy highlights the importance of addressing digital inequalities to ensure inclusive cultural communication. Future research should examine the long-term effects of GenAI-mediated cultural exposure on deep cultural understanding, investigate optimal strategies for balancing AI automation with human cultural expertise, and explore the applicability of the mediating framework to other cultural contexts. From a practical standpoint, cultural communication practitioners should leverage GenAI's mediating capabilities while maintaining rigorous standards for cultural authenticity and diversity.

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