The Reception Studies of Multimodality in the Translation and Communication of Chinese Museum Culture in the Era of Intelligent Media

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Abstract: Purpose: With an emphasis on foreign tourist visiting China, this study explores how Chinese museum culture is translated and communicated in the technological age. The goal of the study is to comprehend the variables that affect how well museums communicate, such as coherence, individual variances, and the usage of new technology. Method: Data were gathered via structured questionnaires given out during museum visits to a sample of 221 international tourist who were chosen at random from Beijing Language Culture University. The associations between the variables were investigated by statistical analyses utilizing a Structural Equation Modeling (SEM) technique, carried out with Stata software.Findings: The results show that a number of variables, including as the kind of modality, cohesiveness, dimensions of time and space, individual variances, and the employment of new technology, have substantial positive correlations with each other and with the efficiency of museum communication. The aforementioned findings emphasize the significance of taking into account a variety of modalities and audience attributes in order to improve audience involvement and comprehension of Chinese museum culture. Originality/Implications: This study expands museum communication dynamics theory by revealing the multiple factors that affect translation and communication efficacy. It aids museum professionals and policymakers in developing inclusive and engaging communication strategies using current and emerging technology. Museum studies, communication theory, and cultural translation benefit from this research, promoting cross-cultural understanding and enjoyment of Chinese culture.
Keywords: Museum Communication, Chinese Cultural Heritage, International tourist, Technology Era, Intelligent Media

1. INTRODUCTION

Translation and communication of cultural legacy are important fields of technology, language, and cultural exchange because of growing globalization and technological advancements. Effective translation and

communication strategies are essential for mutual respect and understanding between cultures (Yang & Cui, 2024). There are many different historical, artistic, and cultural subjects to explore in Chinese museum culture (Wang et al., 2024). Translation and communication techniques are becoming more inventive as digital technologies turn museums into interactive exhibits and virtual reality experiences (Martins & Ferreira, 2024). Researchers have looked into how to introduce Chinese museum culture to a range of domestic and foreign audiences (Wang et al., 2024). Many studies have been conducted on the translation and description of Chinese museum culture (Wang et al., 2024). According to Liu et al (Liu, 2021) study, using a variety of modalities and technologies enhances audience comprehension and engagement. The impact of AR apps on visitors' experiences at Chinese historical sites was studied by. According to the Uzzo et al., passengers can have interesting and immersive experiences with augmented reality (Uzzo & Madonia, 2024). The contextual and geographical awareness of visitors is enhanced through the presentation of digital information superimposed onto tangible things (Song, 2023). Liao examined the impact of artificial intelligence on the customization of museum visits (Liao, 2023). The enhancement of engagement and retention among museum visitors can be achieved through the provision of personalized content recommendations powered by artificial intelligence, which are specifically designed to align with their individual interests and preferred learning styles (Pan et al., 2023). Previous research has shown that when engaging in museum communication, it is crucial to take into account both temporal and spatial elements. According to Xu et al., narrative and spatial coherence are identified as two essential strategies for effectively directing individuals through displays in Chinese museums (Xu et al., 2023). Museums have the potential to enhance audience comprehension and engagement by employing strategic display design and speed, so facilitating unified and immersive experiences (Pan et al., 2023). The length of an exhibit has been found to have an impact on visitors' attention spans and learning capacity, as stated by author. While shorter times may be hurried and dull, longer ones permit more investigation and introspection (Zhao, 2023). Academic research has also looked at how textual translations and audio tours enhance the tourist experience in Chinese museums. He et al. discovered that audio guides aid in visitors' understanding and knowledge acquisition . This assertion will be valid for those who do not speak native Chinese fluently (He & Duan, 2023). According to Hou et al., textual translations aid in placing exhibits and objects in context (HOU & WANG, 2022). The figures show that traditional museum communication approaches continue to enhance

accessibility and communication, particularly for a wide range of visitor demographics. Even while our understanding of the difficulties in translating and interpreting Chinese museum culture has advanced, there are still empirical research gaps that need to be filled (Zao, 2022). Seldom is the effect of individual attributes on interactions in museums investigated (Pireddu, 2022). While age and culture have been studied in the past, additional research is required to fully comprehend how unique characteristics and preferences impact audience reactions to translation and communication methods (Ravelli & Wu, 2022). To find out how upcoming technologies like augmented reality and artificial intelligence will enhance museum visitor experiences, more research is required (Yin et al., 2022). While previous research has indicated the potential of these technologies, additional empirical research is required to assess their effectiveness in a variety of museum contexts and audience segments (Liang, 2022). The connection between communication and translation in political and social contexts is rarely studied. Understanding cultural narratives and identities as well as museum communication strategies is necessary to support inclusive and equitable representations in Chinese museums (Li et al., 2022). Few research have examined how translation and communication affect underrepresented cultures (Lazzeretti & Gatti, 2022). To understand how various groups interact with museum displays and how to adapt communication tactics, additional research is needed. Few studies have examined how museum communication affects visitors' impressions of Chinese cultural heritage (Meifang & Dezheng, 2021). Prior studies have concentrated on rapid comprehension and engagement. Chinese museums have not looked into gamification or interactive exhibits to increase viewer engagement and comprehension (Liu, 2021). These academic disciplines can aid in our understanding of museum communication and in the creation of inclusive, effective tactics for a range of audiences. This study uses technology-mediated experiences, cultural translation and communication theories, and Chinese museums to investigate how Intelligent Media impacts Chinese museum culture translation and dissemination. This study uses cultural translation (Ravelli & Wu, 2022) and communication (Pan et al., 2023) theories to evaluate how different communication modalities and technological advances affect Chinese museum visitors. This research examines how translation and communication tactics affect audience engagement and understanding, as well as how technology might improve museum experiences and cross-cultural communication. Empirical research informs these goals. This study aims to improve understanding of museum communication difficulties in Chinese cultural contexts and to help museums create inclusive and

effective communication strategies for a variety of target audiences.

2. LITERATURE REVIEW

Chinese museum culture has been translated and popularized in the digital age by fusing technical advancements with historical legacies (Song, 2021). As the world grows more interconnected, there are more opportunities and obstacles for intercultural communication and mutual understanding (Manfredi, 2021). China aims to export its culture around the world, which is why museums are growing increasingly significant. These museums protect art, culture, and history. With the globe being technologically advanced nowadays, it is crucial to comprehend and share Chinese museum culture (Gu & Wang, 2021). Virtual reality, smartphone apps, and digital platforms let museums interact with visitors in new ways. Through digitization, the world may now see China's rich cultural heritage through interactive displays and multilingual interfaces (Xiong & Peng, 2021). This creates new opportunities for cultural exchange and enhances accessibility and understanding across cultural boundaries. When technology is used in museum communication, authenticity, upkeep, and collection representation suffer (Krein-Kühle, 2021). In conclusion, how do digital media differ from traditional storytelling and artifacts, and can concepts be correctly translated despite linguistic and cultural barriers? The research of these aspects shows how important it is to establish a museum communication plan that includes culture, education, and new technologies (Kang, 2021). Digital resources raise audience participation, cultural representation, and accuracy concerns. However, social media and online forums have greatly expanded museums' global impact (Neather, 2012). In the digital age, museums must balance data privacy, cultural sensitivity, and IP rights. Despite its limitations, digitizing Chinese museum culture opens up worldwide innovation, collaboration, and involvement (Yang & Cui, 2024). Technology has helped the world understand China's culture through communication and translation. The theory examines how communication tactics spread Chinese museum culture in the setting (Martins & Ferreira, 2024). Communication methods include interactive multimedia displays, voice help, virtual reality, and text translations. These modalities require sensory integration, cultural relevance, and participation. Ji and Anderson (2024) on virtual reality's effects on Chinese cultural heritage site views and Uzzo and Madonia (2024) on audio aids' effectiveness in museum visitor engagement explain the relationship between modality and cultural translation and communication. Empirical data suggests that different communication routes affect Chinese museum

culture transmission and reception (Liao, 2023). These findings emphasize the importance of customizing communication techniques to audience preferences and engagement.

Hypothesis 1: The type of modality will have impacts on the effect of translation and communication of Chinese museum culture.

Studies on the coherence of modalities and Chinese museum culture translation and transmission may improve museum visitors' experiences (Xu et al., 2023). The study analyzes how museum exhibition presentation types affect audience involvement and cultural asset understanding. This is done with historical perspectives. Zhao examined the effects of integrated multimodal presentations including interactive multimedia exhibits, aural instruction, and textual translations (Zhao, 2023). Korean art shows' presentations affected attendees' experiences, according to this study. The researchers found that coherent modes improve visitor learning and emotional involvement by increasing display immersion and coherence. HOU and WANG examined Chinese historical object understanding modal cohesion (HOU & WANG, 2022). Their research showed that message and narrative coherence across presentation modalities are crucial. Modality cohesiveness affects audiences' comprehension and museums' communication attitudes, the study shows. Modality coherence appears to be vital for Chinese museum translation and communication. Pireddu found that museum exhibits with communication and translation features improve visitor experiences and make them memorable (Pireddu, 2022). A well-structured narrative that uses a range of artistic forms helps visitors grasp Chinese items' cultural and historical value. Yin et al. found that coherence between written explanations, voice assistance, and interactive displays strengthens basic concepts (Yin et al., 2022). Audience engagement and comprehension improve (Li et al., 2022; Shaikh et al., 2023). Modality cohesiveness affects audience responses to Chinese museum culture translations and distributes, the hypothesis states. Maximum visitor experience requires correct display development and integration.

Hypothesis 2: The cohesion of modality will have impacts on the effect of translation and communication of Chinese museum culture.

Previous empirical research illuminate the complex interaction between historical and spatial factors that define and disseminate Chinese museum culture (Meifang & Dezheng, 2021). Scholars have studied how exhibit organization and museum visit time affect visitors' engagement and comprehension of cultural heritage (Song, 2021). This study examines display length, speed, and organization to understand how museum visitors interact with the area. Gu and Wang examined how exhibition design

affects Chinese art museum visitor engagement. The writers explained how spatial layouts and flow might help viewers understand story arcs and ideas (Gu & Wang, 2021). Their research shows that spatial features affect museum visitors' perceptions and engagement. Yu and Zhu examined how museum length affects visitors' attentiveness and cultural recollection (Yu & Zhu, 2024). Their research showed that exhibit design benefits from strategic pace and temporal elements. Their empirical study showed how challenging it is to translate and express Chinese museum culture when audience participation, time, and museum location intersect (Wang et al., 2024). Empirical study shows that historical and geographical factors influence Chinese museum culture translation and transmission. Temporal and geographical aspects improve tourists' experiences and cultural knowledge, according to empirical research (Liu & Li, 2024). Interpretive materials and translations at important spots help museum visitors navigate. Presentation speed and display duration affect cultural preservation and audience participation (Song, 2023). Extended visits let people reflect and interact with cultural artifacts (Pan et al., 2023). Temporal and spatial considerations affect this, emphasizing the importance of display techniques and visitor experience development to engage and understand audiences.

Hypothesis 3: The dimension of time and space will have impacts on the effect of translation and communication of Chinese museum culture.

Empirical studies show that individual traits affect Chinese museum culture translation and transmission (Pan et al., 2023). These studies reveal cultural heritage exhibition visitors' engagement and preferences. Psychographic and demographic aspects that affect museum visitors' participation have been studied by academics (He & Duan, 2023). Study shows that individual origins and cultural links affect emotional reactions and perceptions of Chinese art exhibitions (Zao, 2022). Age, gender, and culture affect Western museum visitors' impressions of Chinese art exhibits, according to Ravelli and Wu (Ravelli & Wu, 2022). This study examined how museum visitors respond to unique traits. Liang examined how cognitive categories and personality characteristics affect museum visitors' communication choices (Liang, 2022). Individual factors affect interpretative resource use, according to their research. The findings illuminate the complex processes by which individual differences affect Chinese museum culture translation and dissemination (Lazzeretti & Gatti, 2022). The statistics above show that museums must consider clients' different interests and cognitive abilities. Based on empirical evidence, this study suggests that individual traits will affect Chinese museum culture communication and translation (Liu, 2021). According to the Manfredi

museums adapt their communication strategies to audience preferences and cultural conventions. Customized translation methods improve content readability and accessibility for different consumers. Xiong and Peng claim personality and cognitive styles affect interpretation (Xiong & Peng, 2021). The authors recommend respecting individual diversity to improve museum communication. The theoretical framework suggests that Chinese museums can maximize translation and communication by prioritizing cultural interpretation and tailoring instruction to each visitor's preferences.

ffrr: The difference of individuals will have impacts on the effect of translation and communication of Chinese museum culture.

New technologies can improve Chinese museum culture translation and communication in Intelligent Media, according to numerous empirical investigations (Pan et al., 2023). AR, AI, and immersive multimedia experiences improve cultural heritage exhibition knowledge and audience engagement, according to research. Xu et al. examined how augmented reality apps affect Chinese historical site tourism (Xu et al., 2023). Interactive digital overlays improve contextual support and spatial cognition, improving visitors' awareness of historical narratives and artifacts, the study found. Wu and Pan examined AI-driven content recommendations for museum customization (Pan et al., 2023). Intelligent algorithms can make museums more appealing and accessible by customizing information to cognitive preferences (Liao, 2023). The empirical results demonstrate how technology may improve museum teaching and communication by providing individualized and interactive information for varied audiences. Intelligent Media technologies can improve Chinese museum culture translation and transmission using empirical data (Liu & Li, 2024). Customized and interactive material from surveillance, AI, and immersive media can improve visitors' experiences (Song, 2023). Augmented reality apps overlay digital data on real-world objects to add context. AI-powered systems can provide personalized guidance and insights based on user behavior (Uzzo & Madonia, 2024). This allows museums to use creative communication methods to directly engage audiences with Chinese culture. Visually appealing, temporally and spatially engaging, and deeply immersive experiences result from these technologies.

Hypothesis 5: The application of new technologies in the era of Intelligent Media can enhance the effect of Chinese museum culture's translation and communication.

3. METHODOLOGY

The central focus of this thorough research was the transmission of Chinese museum culture and communication among international tourist who were visiting China. A random sample of 221 international pupils enrolled at Beijing Language Culture University was chosen. The sampling location was selected as Beijing Language Culture University on account of its heterogeneous tourist body, comprising individuals of various ethnic backgrounds and levels of familiarity with Chinese cultural history. A heterogeneous sample was collected so that a range of perspectives and experiences regarding museums could be represented. Structural equation modeling (SEM) and Stata were applied to international tourist data. Sophisticated statistical methodologies, including structural equation modeling (SEM), enable the concurrent examination of intricate interrelationships among multiple variables. It is ideal for studying the intricate dynamics of museum communication because it allows for the simultaneous examination of multiple connections. Stata and structural equation modeling allowed a comprehensive study of Chinese museum culture translation and communication elements. This study utilized research tools from previous studies to ensure accuracy and stability. These measures have been validated in relevant literature to assess modality, coherence, temporal and geographical dimensions, individual variability, and museum communication technology deployment. The research improved museum and communication studies theoretical frameworks. The study's intended usage of reputable measurement instruments is listed in Table 1.

Table 1: Measurement Information

Variable	Item Numbers	Reference
Type of Modality	8	(Gill et al., 2023)
Cohesion of Modality	6	(Sasson et al., 2021)
Dimension of Time and Space	4	(Roberts & O'Reilly, 1974)
Difference of Individuals	5	(Gill et al., 2023)
Application of New Technologies In the Era of Intelligent Media	7	(Ahmad et al., 2023)
Chinese Museum Culture's Translation And Communication	3	(Gayle, 2020)

Chinese museums provided standardized questionnaires to the study's international participants. Data about procedures was gathered in this way. Well thought-out surveys gathered information on a number of museum communication-related topics. Technology advancement, museum exhibits, and communication tactics were all evaluated. In addition,

participants were informed of the aim of the study and given the assurance that their opinions would remain anonymous. Once the surveys were completed, data were gathered and examined using Stata. The current study used sophisticated statistical techniques to examine variable linkages. The study approach was thorough and exacting in order to increase the accuracy and trustworthiness of the results. Strict sampling, reliable measurement tools, and sophisticated statistical analysis were all used in the study. The purpose of this study was to shed light on how foreign tourist in China interpret and communicate with Chinese museum culture. To accomplish the purpose, a systematic implementation of the research approach was devised.

4. RESULTS

Table 2 shows the validity and reliability results for each study variable. Cronbach's Alpha scores demonstrate how accurately items within each construct assess the same underlying notion, indicating internal consistency reliability. Based on latent variable modeling, Composite Reliability scores indicate how well the items measure constructs and their reliability. The Average Variance Extracted (AVE) values, which show the percentage of variance extracted by items in relation to measurement error, also exhibit convergent validity. All things considered, every construct exhibits outstanding validity and reliability, proving the validity and strength of the study's assessment methods in assessing variables.

Table 2: Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE)

Variable	**Cronbach's Alpha**	**Composite Reliability**	**Average Variance Extracted (AVE)**
Type of Modality	0.841	0.922	0.566
Cohesion of Modality	0.893	0.852	0.586
Dimension of Time And Space	0.823	0.881	0.541
Difference of Individuals	0.789	0.912	0.560
Application of New Technologies in the Era of Intelligent Media	0.828	0.823	0.545
Chinese Museum Culture's Translation and Communication	0.852	0.942	0.558

The Cronbach's Alpha values for each construct range from 0.789 to

0.893, indicating a high degree of internal consistency. All constructs have Composite Reliability scores between 0.823 and 0.942, exceeding the 0.7 threshold, indicating strong measuring instrument reliability. From 0.541 to 0.586, the AVE values exceed the 0.5 threshold, demonstrating construct convergent validity. The findings support the measuring techniques and the use of constructs in additional analyses to compare conceptual framework variables.

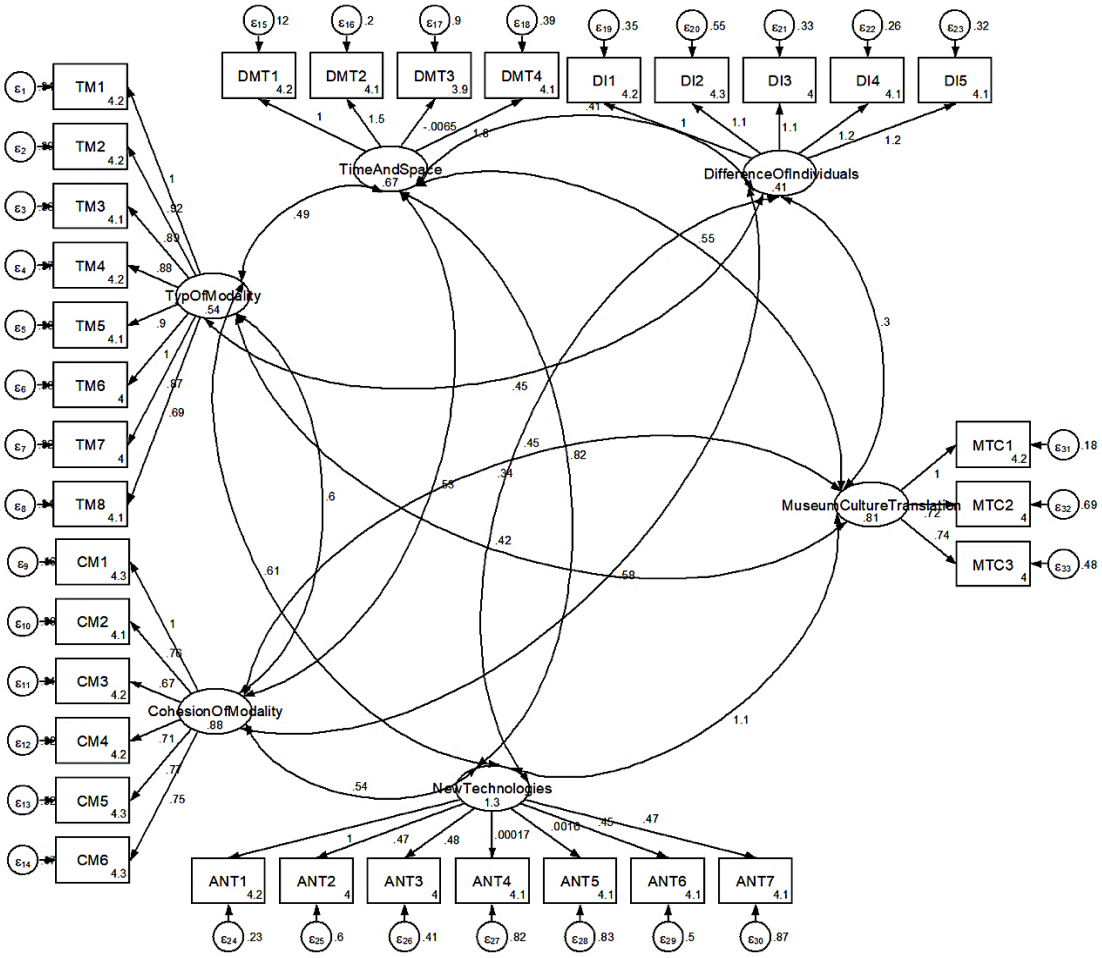

Figure 1: Estimated Model

Confirmatory Factor Analysis (CFA) evaluates the measurement model's goodness-of-fit by examining the relationships between observable variables (indicators) and latent components, as shown in Table 3. Standardized factor loadings (OIM Coef.) show the intensity and direction of indicator-construct relationships. All indicators show significant factor loadings, ranging from 0.305 to 0.894, which are over the recommended threshold of 0.5, indicating strong linkages between the indicators and their related constructs. These findings validate the measuring model and show that the indicators appropriately represent the components they assess.

Table 3: Confirmatory Factor Analysis

Measurement	OIM Coef.	Std. Err.	Z	P>|z|	[95% Conf. Interval]	
TM1	1	(Constrained)				
TM2	0.747	0.069	10.641	0.000	0.612	0.882
TM3	0.549	0.061	8.776	0.000	0.429	0.670
TM4	0.598	0.063	9.247	0.000	0.473	0.722
TM5	0.609	0.063	8.983	0.000	0.485	0.733
TM6	0.641	0.067	9.443	0.000	0.510	0.771
TM7	0.320	0.064	4.928	0.000	0.195	0.445
TM8	0.601	0.070	10.013	0.005	0.501	0.825
CM1	1	(Constrained)				
CM2	0.851	0.080	12.015	0.002	0.701	0.864
CM3	0.688	0.069	9.757	0.000	0.552	0.823
CM4	0.792	0.064	12.104	0.000	0.666	0.918
CM5	0.894	0.070	12.545	0.000	0.757	0.835
CM6	0.877	0.057	15.078	0.000	0.765	0.792
DTS1	1	(Constrained)				
DTS2	0.810	0.064	11.993	0.000	0.685	0.934
DTS3	0.759	0.062	11.607	0.000	0.639	0.880
DTS4	0.832	0.059	13.339	0.000	0.717	0.759
DI1	1	(Constrained)				
DI2	0.736	0.070	13.838	0.000	0.692	0.890
DI3	0.781	0.064	11.456	0.000	0.655	0.906
DI4	0.757	0.065	11.004	0.000	0.630	0.884
DI5	0.857	0.067	12.030	0.000	0.726	0.801
ANT1	1	(Constrained)				
ANT2	0.719	0.065	10.355	0.000	0.591	0.848
ANT3	0.790	0.065	11.418	0.000	0.662	0.917
ANT4	0.826	0.063	12.232	0.000	0.702	0.763
ANT5	0.678	0.058	10.925	0.000	0.565	0.792
ANT6	0.692	0.059	10.860	0.000	0.575	0.809
ANT7	0.866	0.064	12.709	0.000	0.741	0.804
CMT1	1	(Constrained)				
CMT2	0.305	0.061	4.688	0.000	0.186	0.424
CMT3	0.748	0.061	2.349	0.000	0.628	0.867

Table 4 shows the factor loadings for each indicator in the measurement model, revealing how strongly observable variables and latent constructs are related. The standardized coefficients called factor loadings demonstrate how much each indicator help assess the construct. In the original sample, factor loadings range from 0.561 to 0.902, indicating varied degrees of correlation between indicators and constructs. Most indicators have substantial factor loadings, indicating they capture the underlying components they measure. The measurement model is further validated. These findings demonstrate the constructs' ability to explain the complex process of translating and presenting Chinese museum culture and the

research's assessment methods' dependability.

Table 4: Factor Loadings

Variable	Indicator	Original Sample
Type of Modality	TM1	0.777
	TM2	0.768
	TM3	0.684
	TM4	0.739
	TM5	0.795
	TM6	0.820
	TM7	0.844
	TM8	0.759
Cohesion of Modality	CM1	0.902
	CM2	0.834
	CM3	0.561
	CM4	0.684
	CM5	0.883
	CM6	0.831
Dimension of Time and Space	DTS1	0.864
	DTS2	0.817
	DTS3	0.785
	DTS4	0.649
Difference of Individuals	DI1	0.592
	DI2	0.705
	DI3	0.746
	DI4	0.740
	DI5	0.771
Application of new Technologies in the era of Intelligent Media	ANT1	0.787
	ANT2	0.641
	ANT3	0.619
	ANT4	0.820
	ANT5	0.844
	ANT6	0.759
	ANT7	0.846
Chinese Museum Culture's Translation and Communication	CMT1	0.787
	CMT2	0.802
	CMT3	0.794

Table 5 shows estimated and saturated model fitness statistics to illustrate the structural equation model's goodness-of-fit. Model fit improves with lower values. The Standardised Root Mean Square Residual (SRMR) values show the observed-predicted covariance matrix difference. The calculated model's SRMR is 0.073, greater than the saturated model's 0.051. The likelihood ratio chi-square test compares the estimated model to the saturated model to assess model fit to observed data. Estimated and saturated models differ significantly with likelihood ratio chi-square values

of 13791.8. The likelihood ratio and baseline chi-square tests show that the estimated model varies considerably from the saturated and baseline models, with p-values below 0.05. Although the estimated model does not match the data as well as the saturated model, the fit indices show that it depicts the variables' connections well.

Table 5: Model Fitness

	Saturated Model	**Estimated Model**	**Fit Statistic**	**Value**	**Description**
SRMR	0.051	0.073	Likelihood ratio	13791.8	Model vs. Saturated
			p > chi2	0.000	
			chi2_bs(2356)	11003.6	Baseline vs. Saturated
			p > chi2	0.000	

Table 6 displays the R-Square values for each endogenous variable in the structural equation model, indicating the percentage of variance explained by exogenous variables. From 0.212 to 0.435, higher R-Square values suggest that exogenous factors explain more variance. In specifically, the R-Square values for the model variables range from 0.212 to 0.435, showing that the exogenous factors explain 21.2% to 43.5% of the variance in the endogenous variables. These R-Square values indicate how much independent factors affect dependent variable variability. In conclusion, the model's exogenous variables moderate to significantly affect endogenous variable variability. This emphasizes the importance of considering these aspects when understanding and predicting Chinese museum culture translation and spread.

Table 6: R-Square

Variable	**R Square**
Type of Modality	0.331
Cohesion of Modality	0.212
Dimension of Time And Space	0.435
Difference of Individuals	0.332
Application of New Technologies In The Era of Intelligent Media	0.419

The path analysis reveals how exogenous variables directly affect Chinese museum culture translation and communication in Table 7. Every row of the table hypothesizes how a component affects museum communication. Standards path coefficients (OIM Coef) show exogenous-endogenous correlation direction and degree. As revealed by z- and p-values, all exogenous variables and Chinese museum culture translation and communication are positively correlated. Museum communication

depends on medium, cohesiveness, temporal and spatial factors, individual traits, and new technologies. These data demonstrate the intricacy of Chinese museum culture translation and transmission mechanisms and support hypothesized relationships.

Table 7: Path Analysis

	OIM Coef.	**Std. Err.**	**Z**	**P>|z|**	**[95% Conf. Interval]**	
The Type of Modality will have Impacts on the Effect of Translation and Communication of Chinese Museum Culture.	0.810	0.451	1.628	0.000	0.620	0.784
The Cohesion of Modality Will have Impacts on the Effect of Translation and Communication of Chinese Museum Culture.	0.191	0.092	1.882	0.014	0.372	0.286
The Dimension of Time and Space will have Impacts on the Effect of Translation and Communication of Chinese Museum Culture.	0.853	0.062	2.711	0.000	0.731	0.788
The Difference of Individuals Will Have Impacts on the Effect of Translation and Communication of Chinese Museum Culture.	0.818	0.065	1.817	0.000	0.691	0.756
The Application of New Technologies in the Era of Intelligent Media Can Enhance the Effect of Chinese Museum Culture's Translation and Communication.	0.832	0.076	5.151	0.000	0.683	0.795

Communication modalities positively affect Chinese museum culture translation and communication, according to the modality type route coefficient. This study reveals that museum modes are crucial to audience comprehension and engagement. The route coefficient for modality cohesion reveals that mode integration and coherence increase museum communication. Clear and comprehensive communication is needed to help visitors understand Chinese museum culture and have meaningful experiences. The time and space route coefficient illustrates that temporal and geographical elements are crucial in museum communication, with many benefits. Smart museum display design may improve audience attention and retention of cultural content, interpreting and spreading Chinese museum culture. Individual traits and preferences positively

correlate with museum communication efficacy, according to the path coefficient for individual differences. This emphasizes the necessity to tailor museum communication to visitors' requirements to improve accessibility and diversity. The route coefficient for implementing new technologies increased museum communication during Intelligent Media. In the digital age, technology can improve museum communication and Chinese cultural heritage and cross-cultural understanding. The route analysis confirms the hypothesized linkages and illuminates Chinese museum culture translation and communication aspects.

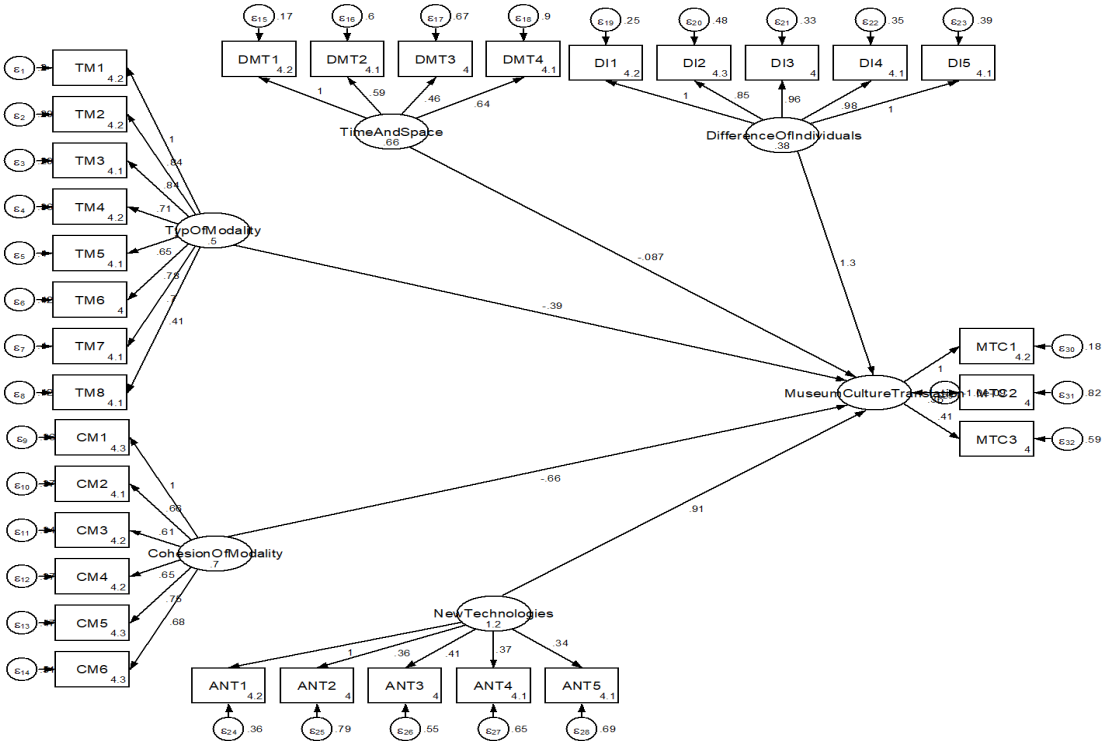

Figure 2: Structural Model

5. DISCUSSION

As historical archives in the always changing arena of intercultural communication, museums need to expose a broad spectrum of people to the rich tapestry of Chinese culture. With the development of technology and the globalization of culture, museums are becoming more and more crucial in bridging linguistic, geographical, and historical gaps. This section explores how Chinese museum culture is understood and communicated. This study looks at how audience comprehension and engagement are affected by technology, human variety, and communication styles. Understanding hypothesis acceptance can improve museum operations and further the discourse on cultural communication and representation in

the era of digital technology. The influence of modalities on translation and communication in Chinese museum culture highlights the importance of taking into account several channels of communication when interacting with museum visitors. Based on our research, virtual reality, audio aids, and textual translations enhance audience engagement and comprehension in cultural contexts, especially Chinese museums. Immersion technologies, such as virtual reality, encourage cultural narrative involvement and emotional responsiveness. Textual translations have been used to offer information and context. This highlights the necessity of using a range of communication techniques to cater to the diverse interests and demographics of visitors. Recognizing how different modalities affect museum communication can contribute to more inclusive and accessible experiences for a range of local and international audiences (Martins & Ferreira, 2024). Support was found for the second hypothesis, which highlights fully integrated communication in museum exhibits. It suggests that communication and translation of Chinese museum culture will be impacted by modality cohesiveness. According to our research, coherent modality enhances audience comprehension and engagement by providing a narrative structure and guiding visitors through theme connections. When textual translations, interactive multimedia displays, and voice guidance are combined, visitors are more trustworthy and involved. Exhibitions need to be well-planned and coordinated in order to ensure that visitor experiences are uniform and that communication and translation techniques work as intended (Zao, 2022). Consistency in Modality can enhance visitors' engagement with Chinese culture and provide more memorable museum visits. The third hypothesis examines how environmental influences affect educational experiences and views. We may conclude that historical and geographical circumstances influence Chinese museum culture translation and communication. According to our research, the exhibition design, content display rate, and duration all affect visitor engagement and recall of cultural content. Exhibitions' thoughtful pace and inventive spatial designs can help viewers understand story arcs and thematic connections, according to research. Extended presentations let audience members think deeper, leading to more meaningful interactions. To engage and educate audiences, museums must consider time and place when planning exhibitions. Due to time and geography, good communication can enhance museum visits. Exploring other Chinese cultures helps strengthen bonds. Communication in Chinese museums requires understanding and respecting its distinct culture. These factors influence Chinese museum culture perception and dissemination. The

fourth hypothesis emphasizes the necessity to tailor communication techniques to different audiences and improve response (He & Duan, 2023). Individual features, age, gender, and cultural upbringing may affect museum visitors' communication and translation skills. The elderly may prefer textual translations, whereas younger people prefer interactive technologies. Understanding Chinese culture may affect audience focus and understanding. Integrating diversity and accessibility into museum communication can expand their audience. It values each guest's individual traits and interests. The fifth hypothesis shows how intelligent media technologies can modernize Chinese museums' communication and audience interaction. Our research shows how immersive multimedia, augmented reality, and AI may improve Chinese museum visits. AR overlays digital data on real-world items to create immersive and engaging experiences. Visitor perspectives on cultural assets are intriguing. Artificial intelligence can also improve comprehension by recommending information based on museum visitors' interests. Given museum visitors' cognitive preferences, this is possible (Liang, 2022). Multimedia immersion experiences' emotional and narrative impact shows how these technologies attract modern audiences and promote Chinese culture worldwide. The theoretical framework shows how technology, individual variability, coherence, and modality are vital to Chinese museums' complex communication strategies. This study advances cultural dispersion and museum audience engagement research. Museums must include everyone in their exhibits and programs. They create experiences for diverse audiences to engage and understand. Debates may elicit diverse responses. This study investigates how technology enhances museum communication. These findings demonstrate how digital technology affects cultural resource sharing and comprehension. Innovation is essential for museums to improve communication. Technology should promote diversity and cultural awareness. To sum up, acknowledging every theory demonstrates the intricacy of museum communication within Chinese culture. Our research demonstrates how challenging it was to interpret and describe Chinese museum culture amid such swift changes. Multiple modalities, human variances, and technical advancements are among the challenges. Museums need to leverage these lessons to develop more varied, captivating, and inclusive communication strategies. By embracing technology and maintaining cultural sensitivity, museums may continue to advance intercultural understanding and global recognition of Chinese cultural heritage.

6. CONCLUSION

This study provides useful insights on translating and spreading Chinese museum culture in the setting of technological breakthroughs. The insights offered by these results pertain to the multitude of elements that influence the level of audience involvement and understanding within museum settings. This study highlights how multiple modalities, including conventional and emerging technology, affect museum communication. This research also emphasizes the importance of modality cohesion, individual differences, and cultural diversity in audience experiences. The hypotheses were tested empirically in this study. Through its theoretical, practical, and methodological aspects, this work advances museum studies, communication theory, and cultural translation research. Additionally, it provides important insights for museum professionals, legislators, educators, and researchers. Future research must overcome limits and explore new areas to improve our understanding of museum communication dynamics and inspire new ways to connect audiences with cultural heritage in a digital era. Comparative research in different cultures, underlying mechanisms, longitudinal analysis, and developing technology are growing interests. If museum communication scholars and practitioners keep studying and innovating, they can improve cultural understanding, appreciation, and conservation in modern society.

6.1 Theoretical and Practical Implications

This study affects cultural translation, museum studies, and communication theory. First, the data support museum communication theory by showing the intricacy of Chinese museum culture translation and communication elements. This research illuminates museum communication by empirically validating the effects of ancient and current technologies on audience engagement and knowledge. Since individual variations and sociocultural circumstances affect museum communication, comprehensive audience analysis and communication strategy are needed. Second, this study illuminates how technology promotes cross-cultural discussion and cultural transmission, advancing communication theory. Accepting that new technologies may improve museum communication shows how technology might provide immersive, interactive museum experiences. This research enhances technology, culture, and communication theories by showing how emerging technologies like augmented reality and artificial intelligence affect audience perceptions and

interactions with cultural heritage. It uses media impacts and tech determinism. Finally, this study examines Chinese museum culture translation and communication to big audiences, which impacts cultural translation theory. The research shows that temporal and geographical factors affect museum cultural meanings and perceptions. Museum communication stresses individuality and cultural diversity, therefore inclusive and culturally conscious translation processes that meet audience needs and preferences are needed. This project uses museum data and cultural translation theories to better understand cultural exchange and interpretation in the digital age and contribute to theoretical conversations on cultural translation and communication in various socio-cultural circumstances. This research has several applications for museum, cultural, and historic site administrators. First, the findings help curators and museum staff create and deploy communication strategies to engage various audiences with Chinese cultural heritage. Museum staff can improve visitor experiences by understanding how immersive technologies, textual translations, and audio tours affect them. Understanding modality cohesion, time, and space can help build and layout engaging, coherent museum experiences that educate and entertain visitors. This research also affects tourism and cultural preservation policymakers and managers. Policies that acknowledge the relevance of technological innovation in museum communication might help policymakers support efforts that employ new technology to improve cultural experiences and attract more visitors. Research on how individual differences and cultural diversity affect museum involvement emphasizes the need for inclusive and culturally sensitive museum programming and communication. These findings can help legislators create museum legislation that promote accessibility and cultural diversity, boosting social inclusion and community involvement. This study has implications for cultural heritage, museum, and communication researchers and educators. Educators can incorporate museum communication effectiveness into professional training to help them create engaging museum experiences. This research can be further by studying museum communication in different cultures and developing new audience engagement and comprehension methods. This research influences modern discussions on cultural diversity, heritage tourism, and preservation outside of museums.

6.2 Limitations and Future Research Directions

This research sheds light on Chinese museum culture translation and communication in the digital age, notwithstanding its flaws. The research's

focus on Chinese museum culture may not sufficiently represent the range of museum settings and worldwide cultural heritage representations. Comparative research on communication tactics and translation in museums and cultural contexts may tackle this problem. Self-reported evaluations and survey data may add response biases and social desirability effects, compromising conclusions. To overcome this limitation, future studies could use mixed-methods to study museum communication dynamics using qualitative and quantitative data. Second, rather than focusing at mediating or moderating variables, this study examines how several factors affect museum communication efficacy. This constraint could be overcome by studying how modalities, human variations, and technology affect museum audience engagement and understanding. Besides revealing audience opinions toward cultural heritage, longitudinal research may also illustrate how museum interaction tactics remain. Technology affects museum communication, however this study focuses more on present technologies than future ones and how they can affect museum operations. Future research should examine how virtual reality, artificial intelligence, and augmented reality museum exhibits and activities improve audience engagement and cultural heritage understanding in the digital age. This work improves our understanding of museum communication dynamics in Chinese cultural contexts, but we must realize its limits and plan for future research. Scholars may improve museum communication and develop new methods for engaging diverse audiences with cultural heritage in the digital age by addressing these limits and exploring new study fields.

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