

Perceived Usefulness as a Mediating Variable on the Relationship Between Video Quality and Audience Emotional Engagement in Social Media

Tinglei Liu¹, Feroz De Costa^{1,2}, Megat Al Imran Yasing¹

¹Faculty of Modern Language and Communication, Universiti Putra Malaysia, Selangor, UPM Serdang 43400, Malaysia

²Hebei Normal University for Nationalities, Chengde City, Hebei Province, China

Correspondence: Feroz De Costa, Faculty of Modern Language and Communication, Universiti Putra Malaysia, Selangor, UPM Serdang 43400, Malaysia.

Received: October 7, 2024	Accepted: November 14, 2024	Online Published: November 18, 2024
doi:10.11114/smc.v13i1.7234	URL: https://doi.org/10.11114/sm	c.v13i1.7234

Abstract

Facing dual challenges of inadequate dissemination and limited acceptance, this study scrutinizes why social media struggles to promote traditional culture effectively. It identifies low-quality videos on social platforms, particularly short-form content, as the main hurdle, leading to reduced impact. Investigating the relationship between short-form video quality and audience receptivity, this study categorizes quality into media richness, impact, and interactivity dimensions. Findings confirm that higher-quality videos correlate with increased emotional engagement. Employing the Technology Acceptance Theory (TAM), perceived usefulness partially mediates the link between video quality and emotional engagement. Elevating video quality not only enhances perceived usefulness but also deepens emotional resonance, ultimately amplifying cultural impact.

Keywords: history, culture, social media, communication, technology accepted theory

1. Introduction

Globally, the dissemination of history and culture is facing unprecedented challenges. Traditional means of transmission of history and culture, such as written documents, oral traditions, and field visits (Armitage, 2021; Luhar & Nimavat, 2020). Although once the primary means of knowledge transfer, with the development of digital media, these slow-paced modes of communication are becoming obsolete (Waschková, 2023; Nielsen et al., 2023). With the accelerated pace of life, the younger generation prefers fast and concise ways of acquiring information (Hu, 2024), which hinders disseminating historical and cultural knowledge that requires deep understanding and experience (Azzaakiyyah, 2023).

Historical culture refers to the cultural heritage of a people or society formed in the process of long-term historical development, which contains two major parts: tangible and intangible culture (Blake, 2000; Rudolff, 2010; Sullivan, 2015). Tangible culture mainly includes buildings, artifacts, artworks, books, and historical documents, tangible evidence of historical development (Olsen, 2003; Eerkens & Lipo, 2007; Ahmad, 2006; Ruggles & Silverman, 2009). Intangible culture, on the other hand, includes language, customs, traditional festivals, music, dance, theater, legends, and folktales, which are forms of culture maintained through oral transmission and social practices (Ahmad, 2006; Ruggles & Silverman, 2009; Harvey, 2016). The study and dissemination of history play an integral role in promoting cultural innovation (Pittaway et al., 2004). A deeper understanding of history helps people recognize the roots of certain cultural phenomena and social practices to innovate and develop while respecting traditions (Kozinets, 2019; Lamberton & Stephen, 2016).

In the era of globalization and informatization, the dissemination of traditional culture does face serious challenges, especially in attracting the participation and interest of the younger generation (Lievrouw, 2002; Shum & Ferguson, 2012). First, the tedious nature of history is a problem that must be addressed (Lemke, 1998; Liu et al., 2021). History is often viewed as a series of events, dates, and people to be memorized, a learning style that ignores the storytelling and relevance of history in which students struggle to find empathy and interest (Joseph, 2011; McCrum, 2010; Asante,

1991; Rizvi, 2017). Furthermore, the dissemination of historical knowledge is mainly limited to textbooks (McCrum, 2010; Schleppegrell et al., 2004). The content in textbooks is often compressed and simplified, needing more depth and detail, which limits students' ability to fully understand and think deeply about history ((McCrum, 2010; Schleppegrell et al., 2004).

Although many new media researchers actively explore new approaches to historical and cultural communication through social media, the process still faces many challenges (Kapoor et al., 2018). Social media provides a platform that allows users to create and share content and engage in social interactions (Shutsko, 2020). Short-video social media focuses on content sharing and communication through short video formats such as TikTok (Shutsko, 2020). Short-video media specializes in short-form content where users can easily create and share short videos, watch others create them, and interact (Cha et al., 2009; Murray, 2008). Making it easier to share cultural content, graphic and short video content related to history and culture is still not highly viewed on social media (Gitelman, 2008; p63; Wang & Feng, 2023). The click-through and view rates of these contents are usually low, and attention is insufficient, making effective cultural communication limited (Wang & Feng, 2023).

Additionally, even when content is posted that is intended to promote history and culture, the comment sections of these posts are often filled with negative feedback because of the inability to emotionally resonate with the viewer, further reducing the effectiveness of the dissemination of this type of content (Wang & Feng, 2023). These challenges highlight that although social media provides new avenues for cultural communication, there are still difficulties to overcome to increase the dissemination of history-based content through these platforms effectively (Wijaya et al., 2022; Wei et al., 2018). Considering these difficulties, it is essential to integrate social media better to disseminate history and culture.

To make up for these shortcomings, this study proposes a model of combining high-quality short video social media with traditional culture, taking high-quality video as the independent variable and dividing different characteristics into different dimensions by combining the attributes of its short video. First, the connection between culture and modern life is strengthened to ensure the richness of quick video content (Duffy, 2008; YIWEI, 2023); second, the richness of quick video content is provided to take advantage of the big data of social media platforms to increase the number of viewings to form an informational cocoon to enhance its influence (Duffy, 2008; YIWEI, 2023). Finally, strengthening the immersion and experience of cultural content by combining modern information technology, such as virtual reality and augmented reality, enhances the interactivity of the video (Bekele et al., 2018), increasing the favoritism of users who are interested in cultural-historical topics, and cultivating the curiosity of users who are not interested in cultural-historical topics (Liang et al., 2021). Through implementing these innovative points, the dissemination and inheritance of traditional culture is promoted, and history and culture are revitalized in modern society.

2. Research Problem

In the field of short videos that disseminate historical and cultural context, the perceived usefulness of the content by the viewer plays a crucial role, in addition to objective factors in the quality of the short video that needs to have a possible impact on the emotional resonance of the viewer (Polat et al., 2023; Mulla, 2022; Granić et al., 2019). This is because when viewers perceive content as applicable, they are more likely to emotionally resonate with the content delivered by short videos, either to be educated or inspired (Vences, 2020; Cheng, 2018). High-quality short videos often provide deep historical and cultural insights, but their impact ultimately depends on whether viewers perceive the content as actually valuable to them (Cheng, 2018). Audience-perceived usefulness becomes a bridge that connects high-quality content to viewers' emotional responses. Therefore, viewer-perceived usefulness is a criterion for evaluating the success of short videos' success and a critical mediating variable influencing viewers' emotional resonance (Kelly, 2014). In this way, the usefulness of the content can amplify the impact of high-quality short videos in disseminating historical and cultural information so that viewers do not just watch and consume the information but truly understand and feel the value and significance of history and culture (Terras, 2015; Bello-Bravo et al., 2015).

Therefore, this study is centered on these two central questions:

Research question 1: Will high-quality short videos be more likely to be accepted by viewers for emotional resonance?

Research question 2: Can viewers' perceived content usefulness mediate the relationship between short video quality and viewers' emotional resonance?

3. Dimension Setting of Independent Variables and Instrument Development

3.1 Measurement of Content Richness (CR)

The high quality of short videos is judged in this study by measuring three dimensions, the first of which is media richness. Media richness is rooted in media richness theory (Brunelle, 2009), which was proposed by Daft and Lengel (1986). Content richness in this study refers to a greater extent to contextual richness. For example, when Jitterbug short videos through a wide variety of cultural heritage-related content, many videos, well-produced video images, and the

depth of the content, whether it will have a positive impact on the acceptance of college students' audience for the knowledge of traditional culture (Hasim et al., 2020; Etudo et al., 2015, January).

This study was conducted by adapting the questionnaire for the content richness section of Liu et al. 2009 through the Impact of Media Richness and Flow on E-learning Technology Acceptance (Impact of Media richness and Flow on E-learning Technology Acceptance) article. As it was secondarily adapted for this study, a five-point Richter measure ranged from fundamentally wholly disagree (1) to agree (5) strongly. In addition, a reliability re-measurement was conducted, and the Cronbach's alpha for the scale of content richness in this study was 0.818.

3.2 Measurement of Influence (INF)

The second dimension is social media influence: social media influence is based on the Communication Effects Theory, in which researchers focus on the impact of media content on audience behavior, attitude, and knowledge. Researchers have explored the influence of media on audience perceptions through various factors such as different audience characteristics, media usage contexts, and content types. In this study, this dimension involves the influence of cultural heritage content disseminated on social media platforms. Research can assess the impact of social media content by analyzing the number of retweets of the post, the number of followers of the user, and the reach of the content (Scheufele, 1999).

Since previous researchers have measured social media influence through different dimensions, Chen et al. (2012) used four metrics (e.g., number of followers, quality of followers, quality of tweets, and similarity of interests) to measure social influence in social networks. Hui and Gregory (2010) used four metrics (e.g., number of followers, relevance, comments, and followers) to measure influence in the blog space. This study adapted them twice by integrating the three-dimensional dimensions needed for the study, the number of retweets, the number of followers of the user, and the spread of the content, using a five-point Richter measure as a metric that ranges from wholly and fundamentally disagree (1) to agree (5) strongly. In addition, a reliability re-measurement was conducted, and Cronbach's alpha for the scale of social media influence in this study was 0.82.

3.3 Measurement of Interactivity (AI)

The third dimension is Audience Interactivity: media interactivity is derived from the theory of User and Information System Interaction, where researchers initially explored how users effectively interact with computer systems to accomplish specific tasks through Human-Computer Interaction (HCI) and Computer-Supported Cooperative Work (CSCW), emphasizing the importance of facilitating communication and collaboration between people. (Human-ComPWter Interaction, HCI) Moreover, Computer-Supported Cooperative Work (ComPWter-Supported et al., CSCW) explores how users effectively interact with computer systems to accomplish specific tasks, emphasizing the role of information technology in facilitating people's communication and collaboration. This dimension in this study examines the extent to which users interact with cultural heritage content on social media. It measures users' behaviors, such as liking, sharing, commenting, and retweeting, and the frequency and breadth of these interactive behaviors.

This study was conducted by rewriting the questionnaire for assessing media interactivity in Bellur et al. 2018 through Clicking, assessing, immersing, and Sharing: An Empirical Model of User Engagement with Interactive Media. This study adapted it secondarily to the Richter five-point measure. The range was from fundamentally wholly disagree (1) to agree (5) strongly. In addition, a reliability re-measurement was conducted, and the Cronbach's alpha for the scale of content richness in this study was 0.862.

4. Applied Theory

TAM model application and Instrument development

The mediating variable in this study is the perceived usefulness of information from the Technology Acceptance Model (TAM). Perceived usefulness reflects the user's perception of the utility value of the technology (Mathieson, 2001). Although the TAM proposes several variables, including perceived ease of use, perceived usefulness, attitudes, and intention to use, perceived usefulness is critical in learning and disseminating history and culture, especially for young people, a key audience group (Boyd, 2008). As information acquirers and knowledge consumers, young people and prominent academics are more inclined to use tools that enhance their learning effectiveness and efficiency (Zachos, 2018). On social media platforms, students are more likely to embrace and utilize historical and cultural content if perceived as valuable, i.e., they provide insights, contribute to academic achievement, or enhance cultural awareness.

4.1Measurement of Perceived Usefulness (PU)

Davis (1989) defines perceived usefulness as the degree to which a user finds a particular system, application, or technology usable. A particular system, application, access tool, or social networking site can influence perceived usefulness when the site or access method is perceived as easy to use and less complex to operate. Systems, access

methods, or social networking sites that are perceived as complex to use are less likely to be perceived as applicable (Lim et al., 2008; Wang et al., 2008). For social networking sites, perceived usefulness indicates that users perceive their access to information, sharing of experiences, and creation of content on the Internet to be easier to apply to their lives, leading to increased social networking site participation (Lin, 2007).

Perceived usefulness in this study refers to new media audiences' belief that learning about history through new media platforms is of practical value to them, users' perceptions of history and culture on new media platforms, and their belief that the content adds to their cultural knowledge, provides an exciting experience or fulfills their needs.

The scale for this study was an adaptation of the scale used by Davis (1993) in measuring the TAM theory due to the secondary adaptation of it for this study, using Richter's five-point measure as a measure ranging from fundamentally wholly disagree (1) to agree (5) strongly. In addition, a reliability re-measurement was conducted, and the Cronbach's alpha for the scale of content richness in this study was 0.921.

5. Dependent Variable Setting and Instrument Development

5.1Measurement of Emotional Engagement Behavior (EEB)

Emotional engagement reflects the intensity and depth of an individual's emotional response to historical and cultural content, directly related to an individual's attention to the content, memory, and subsequent behavior (Özhan & Kocadere, 2020). When audiences emotionally resonate with communicated historical and cultural content, they are more likely to understand the information in depth, form lasting memories, and be motivated to explore and share further (Harsin, 2018). As a highly interactive platform, social media can enhance the audience's emotional experience through visual and audio richness and communication and interaction between users (Shahbaznezhad et al., 2021). This emotional engagement is critical to motivating audiences to accept and pass on history and culture, as it goes beyond simple knowledge acquisition and touches on individual values and identity (Alvermann & Hagood, 2000). Therefore, the meaning of emotional resonance and identification in this study is that viewers may identify with the emotional values and expressions conveyed by the videos because of their emotional resonance with the cultural heritage content in the short videos (Cui & Tong, 2023)). They may feel that the video has successfully triggered their emotions and thus be willing to express identification and empathy by liking it (Pera & Viglia, 2016).

The scale for this study was the Development of the social media engagement scale for adolescents. Frontiers in Psychology, written by Ni et al. in 2020, this study adapted the questionnaire from Ni et al.'s study to a five-point Richter measure, which ranged from completely disagree at all (1) to agree (5) strongly. In addition, a reliability re-measurement was conducted, and the Cronbach's alpha for the scale of content richness in this study was 0.86.

6. Research Methodology and Hypotheses

A review of related literature shows that social media enhances visitors' sense of experiencing history and culture. However, few studies have framed social media in the context of short videos, so this study attempts to divide short videos into different dimensions using objective characteristics as measurable factors. It measures the effect of short video quality on audience emotional engagement and the effect of perceived usefulness of social media as a mediating variable on the relationship between short video quality and audience emotional engagement, using technology acceptance theory as a basis.

6.1 Research Framework

According to Figure 5.1, the independent variable of this study is the quality of short videos in social media; the independent variable (IV) is composed of three dimensions (Figure 2.1), which are the richness of the content of the short videos, the influence of the short videos and the interactivity of the short videos, and the audience's affective engagement is the dependent variable (DV) of the study. The mediator variable (MV) is the perceived usability.



Figure 6.1. Research framework

This study explores whether high-quality short videos featuring introductions to history and culture impact audience emotional engagement and which specific factors in high-quality videos significantly impact the audience through the measurement of five sets of variables. Whether the audience's perception of usefulness is a mediating variable influencing the relationship between the independent and dependent variables. Based on these questions, the following hypotheses are proposed in this study:

6.2 Hypotheses

H1: The quality of short social media videos (content richness, influence, and interactivity) has a positive effect on users' emotional engagement.

H2: Content richness has a positive effect on perceived usefulness.

H3: Influence has a positive effect on perceived usefulness.

H4: Interactivity has a positive effect on perceived usefulness.

H5: Perceived usefulness has a positive effect on emotional engagement.

H6: Perceived usefulness mediates the relationship between content richness and user affective engagement.

H7: Perceived usefulness mediates the relationship between influence and emotional engagement.

H8: Perceived usefulness mediates the relationship between interactivity and emotional engagement.

7. Materials and Methods

7.1 Participants

The respondents were undergraduates from three comprehensive universities in Zhejiang, China. A sample of 500 students was selected for the quantitative study, including 25,500 undergraduates from Zhejiang University. Zhejiang University of Technology had 21,880 students and Hangzhou Normal University had 33,000 undergraduates. Therefore, the total number of undergraduate students in the three universities was N=80,380.

The survey was conducted using an online web-based questionnaire and randomly surveyed 523 college students within the set school boundaries. There were 30 items in the questionnaire. The number of valid questionnaires was 523, of which 370 (70.7%) were male and 153 (29.3%) were female. The study was approved by the ethics committee of the author's institution. All students were informed about the purpose of the study and that the results would be used in the study. Verbal informed consent was provided to all participants. The questionnaire included demographic information, gender, age, frequency of using short-form social media for information, and preference for short-form videos on history and culture.

8. Data Analysis

8.1 Descriptive Analysis of Variables

Table 7.1 highlights the categorization and frequency of use of demographic data in the questionnaire, and Table 7.2 uses descriptive statistics to calculate the mean scores, standard deviation, and skewness kurtosis values of the variables.

As shown in Table 7.1, the total sample size for this study was 523, with 70.7% of the participants being male, indicating that male students are more engaged in watching short videos. Regarding grade distribution, first-year

students accounted for 79.92% of the sample, significantly higher than other grades, suggesting that first-year students have more free time and are more inclined to use short videos as a form of entertainment. The data on viewing duration revealed that 59.85% of respondents watched short videos for 30 minutes to one hour per day, suggesting that while short videos are integrated into students' daily lives, most students do not spend excessive time on them.

In terms of viewing short videos related to history and culture, 39.96% of respondents reported watching them occasionally, and 49.9% expressed high interest in this type of content. However, the proportion of students who actively search for these videos was low, with only 2.87% indicating that they always look for such content. This suggests that although many students have some interest in history and culture-themed short videos, there is a lack of active engagement. This may be attributed to fewer recommended videos or less appealing content in this category.

To increase students' engagement and emotional connection with history and culture-themed short videos, future research and practice could focus on enhancing the richness and interactivity of video content and optimizing the recommendation algorithm. These improvements could help better utilize the educational and cultural communication potential of short videos.

Variables	Items	Frequency	Percent
C 1	Male	370	70.7%
Gender	Female	153	29.3%
	Freshman	418	79.92%
Grade	Sophomore	52	9.94%
Grade	Junior	41	7.84%
	Senior	10	1.91%
	I never watch short videos.	26	4.97%
Times of Watching	I watch half an hour to an hour a day.	313	59.85%
Short Video	I watch three to five hours a day.	156	29.83%
	I watch more than five hours a day.	26	4.97%
	Never seen it.	156	29.83%
Have you ever watched a	Occasionally.	209	39.96%
short video on history and	Have seen it but not often	104	19.89%
culture	Often	37	20.20%
	Every day	26	4.97%
	Not at all interested	26	4.97%
Are you interested in	Not very interested	52	9.94%
historical and cultural	Not at all	104	19.89%
short videos	Quite interested	261	49.9%
	Very interested	104	19.89%
	Never looking	78	14.91%
Whether to deliberately	Rarely look	209	39.96%
seek out historical and	Occasionally	183	34.99%
cultural short videos	Often	36	6.88%
	Always	15	2.87%

Table 8.1. Distribution of Sample Features

8.2 Test of Normality

Except for short video interactivity, all the other means are situated between 3-4, and the scale is scored positively on a scale of 1-5. However, the mean value of short video interactivity is slightly lower than 3 (M=2.89) because short video interactivity is more subjectively influenced, so the mean value is slightly lower but still adoptable. Therefore, when the participants of this study watched the short video, their satisfaction with the richness, impact, and interactivity of the communication of cultural heritage in the short video was above the medium level.

The normality test of each question item is the normality test of skewness kurtosis. According to Kline (1998), the skewness coefficient absolute value of 3 or less and the kurtosis coefficient absolute value of 8 or less is considered to meet the requirements of the normal distribution, according to the analysis of the results of the following figure can be seen, the skewness of each of the question quantities in the current study and the kurtosis of the absolute value of the skewness and the kurtosis of each question quantity are in the range of the standard, and therefore it can be shown that each measure of question item data satisfies the approximate normal distribution.

Dimension	Measurement Question Item	Μ	SD	Skewness	Kurtosis	Overall M	Overall SE
CR (CR1	5.01	0.858	-0.285	-0.249		
	CR2	2.87	0.877	0.051	0.062		
	CR3	3.26	0.745	-0.536	0.592	2 4027	0 5574
	CR4	3.08	0.718	0.058	0.414	3.4927	0.5574
	CR5	3.39	0.678	-0.676	1.291		
	CR6	3.34	0.722	-0.26	0.454		
	IA1	3.23	0.939	0.13	-0.643		
	IA2	3.07	0.865	-0.035	0.506		
ΔŢ	IA3	2.94	0.859	-0.304	0.241	2 0126	0 64295
AI	IA4	2.86	0.786	-0.362	0.892	2.9126	0.64285
	IA5	2.84	0.76	-0.323	0.701		
	IA6	2.54	0.79	-0.069	-0.049		
	INF1	4.35	0.74	-0.499	1.063		0.53237
	INF2	3.37	0.698	-0.462	1.132		
INF	INF3	3.3	0.713	-0.419	0.783	3.3361	
IINI	INF4	2.74	0.766	0.401	-0.266	5.5501	
	INF5	3.44	0.723	-0.264	0.651		
	INF6	2.81	0.762	0.101	-0.425		
	PU1	4.26	0.775	-0.136	1.16		
	PU2	3.15	0.848	-0.178	0.471		0.65795
DU	PU3	3.24	0.775	-0.232	0.974	2 4 4 5 4	
PU	PU4	3.25	0.793	-0.013	0.384	3.4454	
	PU5	3.43	0.744	-0.31	1.348		
	PU6	3.34	0.716	-0.255	1.557		
	EEB1	3.99 0.842 -0.437	-0.437	0.567			
	EEB2	2.51	0.925	-0.298	-0.632	2 0056	
EED	EEB3	3.15	0.73	-0.493	1.279		0 (170
EEB	EEB4	3.06	0.806	-0.237	0.52	3.0956	0.6178
	EEB5	3.14	0.747	-0.787	1.213		
	EEB6	2.73	0.764	-0.685	0.329		

Table 8.2. Descriptive statistics and normality test results for each variable

8.3 Reliability Analysis Between Variables

8.3.1 Reliability Analysis

In this study, the main factors were measured using scales. Therefore, testing the data quality of the measurement results is a prerequisite to ensure that the subsequent analysis is meaningful. First, the internal consistency of the dimensions was analyzed through the Alpha coefficient reliability validation method. The General Alpha coefficient value ranges between 0-1. The higher the value of the coefficient of the test result, the higher the confidence. The general reliability of 0.6 or less is considered unreliable and requires a redesign of the questionnaire or an attempt to re-collect the data to be analyzed and analyzed again. Reliability data between 0.6 and 0.7 is considered credible, between 0.7 and 0.9 is considered more credible, and between 0.9 and 1 is very credible.

In this analysis, the results of the reliability analysis are shown in Table 7.3, the reliability coefficients of the social media short video quality scale (which contains three dimensions: short video richness, short video influence, and short video effectiveness), the audience emotional engagement scale and the secondary dimensions of social media short video quality are all in the range of 0.8-1. This indicates that the scales used in this study all have a high internal consistency.

Variables	Cronbach Alpha	Items
CR	0.818	6
IA	0.862	6
INF	0.82	6
Qulity (IV)	0.915	18
PU(MV)	0.921	6
EEB(DV)	0.86	6
Total	0.964	30

8.3.2 Validity Analysis: Exploratory Factor Analysis

Before conducting factor analysis, this study assessed the suitability of the data through the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity (e.g., Table 7.4). The KMO value of 0.913 significantly exceeded the commonly used criterion of 0.6, suggesting that the sample data were well suited for factor analysis. In addition, the results of Bartlett's test of sphericity (chi-square = 7081.413, df = 1081, p < .001) also pointed to the existence of common correlations among the variables, further confirming the suitability of conducting factor analysis

Table 8.4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.913
Bartlett's Text of Sphericity	Approx.Chi-Square	7081.413
	Ν	1081
	Sig.	.000

According to Figure 7.1 scree plot, it is easy to see that the line segment where factor 1 to factor 3 is located is steeper (the absolute value of the slope is larger), with an inflection point at the 5th factor, while the subsequent factors are on a line segment that gradually becomes smoother, which further indicates that extracting the first five factors as the common factors is sufficient to represent the questionnaire information.



8.4 Validation Factor Analysis

8.4.1 Model Fit Test of Short Video Content Quality Scale

Table 7.5 shows that this study made some adjustments to the questionnaires of different researchers. According to the model fitness test results in Table 7.5, the CFA model fitness test was conducted through AMOS. The CFA model fitness test results were informed that CMIN/DF = 2.077 was in the range of 3-5, and the PMSEA was 0.079, which was in the excellent range of <0.08. In addition, the IFI=0.816, TLI=0.784, and CFI=0.813 test results are all at a reasonable level above 0.8. Therefore, synthesizing the results of this analysis, it can be seen that the CFA model of short video content quality scale is a good fit.

Fit Indices	Recommended Values	Scores
CMIN/DF	1-3 is excellent, 3-5 is good	3.580
RMSEA	<0.05 is excellent, 0.08 is good	0.079 (0.119)
ITI	>0.9 is excellent, >0.8 is good	0.815
TLI	>0.9 is excellent, >0.8 is good	0.804(0.784)
CFI	>0.9 is excellent, >0.8 is good	0.813

8.4.2 Convergent Validity and Combined Reliability Test of Short Video Quality Scale

On the premise that the CFA model of the Short Video Quality Scale has a good fit, the convergent validity (AVE) and combinatorial reliability (CR) of each scale dimension will be further tested. The testing process calculates the standardized factor loadings of each measurement question item on the corresponding dimension through the established CFA model (refer to Table 7.6). The convergent validity value (AVE) and the combined reliability value (CR) of each dimension were then calculated by the formulae for convergent validity (AVE) and combined reliability (CR). A minimum of 0.5 for the convergent validity value (AVE) and 0.7 for the combined reliability value (CR) is required to indicate good convergent validity and combined reliability.

pa	ath relation	ıship	Estimate	AVE	CR
CR1	<	CR	0.672		
CR2	<	CR	0.617		
CR3	<	CR	0.882	0.506	0.059
CR4	<	CR	0.65	0.300	0,858
CR5	<	CR	0.718		
CR6	<	CR	0.626		
IA1	<	AI	0.601		
IA2	<	AI	0.557		
IA3	<	AI	0.785	0.54	0.872
IA4	<	AI	0.912	0.34	0.872
IA5	<	AI	0.846		
IA6	<	AI	0.636		
INF1	<	INF	0.852		
INF2	<	INF	0.834		
INF3	<	INF	0.827	0.522	0.862
INF4	<	INF	0.435	0.322	0.862
INF5	<	INF	0.703		
INF6	<	INF	0.586		

Table 8.6. Convergent	Validity and Com	bined Reliability To	Tests for Short Video	Ouality Scale

8.4.3 Distinguishing Validity of Short Video Quality

According to the results in Table 7.7 and Figure 7.3, the standardized correlation coefficients between the dimensions are less than the square root of the corresponding AVE values of the dimensions in this test of discriminant validity. Therefore, it shows that there is good discriminant validity between the dimensions.



Figure 8.3. Validated factor analysis CFA model diagram for short video quality scale

Table 8.7. Test of Discriminant Validity for Different Dimensions of Short Video Content Quality

Varible	CR	AI	INF
CR	0.506		
AI	0.379	0.54	
INF	0.376	0.366	0.522
\sqrt{AVE}	0.711	0.735	0.722

8.5 Correlation Analysis of Variables

As shown in Table 7.8, this analysis is exploratory through Pearson correlation analysis of the correlation between each variable; there is a significant correlation between each variable, and significant at the 99% level of significance, the correlation coefficients of each variable r are greater than 0, so there is a significant positive correlation between the five variables in the current analysis.

Table 8.8. Zero-Order Correlations Analysis between variables in the Conceptual Framework (N=183)

	•				-	
Dimension	CR	IA	INF	PU	EEB	
CR		1				
IA	.547**		1			
INF	.682**	.653**		1		
PU	.490**	.561**	.589**		1	
EEB	.430**	.700**	.605**	.596**		1

Note: The correlation is significant at the 0.01 level**

8.6 Structural Equations: The Amos Mediation Test

SEM model fitness test of short video content usefulness as a mediator variable for short video content quality and emotional engagement behaviors.

According to Table 7.9, the three variables of short video quality, usefulness of short videos, and audience emotional engagement show a strong positive correlation in the hypothesized relationship test of the path of this research. The table shows that content richness has an upbeat positive effect on content usefulness ($\beta = 3.129$, p < 0.05), interactivity of short videos has a positive correlation on content usefulness ($\beta = 3.065$, p < 0.05), and the impact of short videos likewise has a positive correlation on the usefulness of videos ($\beta = 3.811$, p < 0.05). This shows that short video quality (IV) positively correlates with short video usefulness (MV).

Also, the table shows that there is a significant positive correlation between audience emotional involvement in short video content richness ($\beta = 0.454$, p < 0.05), a significant positive correlation between audience emotional involvement in short video interactivity ($\beta = 0.771$, p < 0.001), and a significant positive correlation between audience emotional involvement in short video influence ($\beta = 2.993$, p < 0.05). This can indicate that short video content quality as an independent variable has a significant positive correlation impact on the dependent variable, emotional engagement.

In addition, there is also a significant positive correlation between content usefulness and audience emotional engagement ($\beta = 1.148$, p < 0.001). This confirms that content usefulness as a mediator variable positively affects the quality of short videos on audience emotional engagement.

Path Rel	ationship		Estimate	S.E.	C.R.	Р
PU	<	CR	3.129	2.167	2.079	0.038
PU	<	IA	3.065	1.135	2.7	0.029
PU	<	INF	3.811	1.919	1.986	0.032
EEB	<	CR	0.454	0.223	2.032	0.048
EEB	<	IA	0.771	0.102	6.967	***
EEB	<	INF	2.993	1.048	2.856	0.039
EEB	<	PU	1.148	0.119	8.384	***

Table 8.9. Structural Equation Modeling Path Relationship Test Results

According to Table 7.10, in this study, the effect of short video quality (independent variable) on the audience's emotional engagement behavior (dependent variable) through short video usefulness (mediator variable) was examined using the Bootstrap method. The results showed that short video quality had a significant positive effect on short video usefulness ($\beta = 0.476$, t = 6.403, p < 0.001), suggesting that the improvement of video quality significantly enhanced the perceived usefulness of videos. Meanwhile, short video usefulness also significantly positively affected audience emotional engagement behavior (Model 1: $\beta = 0.579$, t = 5.264, p < 0.001), pointing out that the perceived usefulness of videos plays a crucial role in enhancing audience emotional engagement behavior.

When both short-video quality and short-video usefulness were included in the model (Model 2), the direct effect of short-video quality on audience affective engagement behaviors was weakened but still significant ($\beta = 0.201$, t = 2.69, p < 0.01), while the effect of short-video usefulness on audience affective engagement behaviors remained significant ($\beta = 0.476$, t = 7.524, p < 0.001). This suggests that short video usefulness partially mediates between short video quality and audience emotional engagement behavior.

The explanatory power of the model increased from $R^2 = 0.185$, F = 40.997 (p < 0.001) for the effect of short-video quality on audience affective engagement behavior alone (Model 1) to $R^2 = 0.241$, F = 57.314 (p < 0.001) in Model 2. In addition, after controlling for short-video usefulness (Model 3), the explanatory power of the relationship between short-video quality and audience affective engagement behavior increased further, $R^2 = 0.38$, F = 55.105 (p < 0.001).

These findings suggest that short video quality positively influences audience emotional engagement behavior by increasing short video usefulness and that short video usefulness plays a significant mediating role in this relationship.

Variable	Model 1 Emotional Engagement		Model 2 Content Usefulness		Model 3 Emotional Engagement	
	β	t	β	t	β	t
Short Video Quality	0.476	6.403 ***	0.579	15.264 ***	0.701	12.69**
Content Usefulness					0.476	7.524**
R ²	0.185		0.241		0.38	
F	40.997 ***		57.314 ***		55.105***	

Table 8.10. Bootstrap Analysis of Mediated Effects Tests

Note: Model 1 is short video quality predicting audience emotional engagement behavior; Model 2 short video quality predicting short video content usefulness; Model 3 short video content usefulness predicting emotional engagement behavior



Figure 8.4. Indirect path

As shown in figure 7.4, the total effect of short-video content quality on audience affective engagement is c = 0.882, and the direct effect is c' = 0.476. The content usefulness component partially mediates the relationship between short-video content quality and audience affective engagement, and the mediator effect is 0.406. The indirect pathway: short-video content quality \rightarrow content usefulness perception \rightarrow emotional engagement (effect value of $\beta = 0.579$, a = 0.701) accounted for 46.03% of the total effect.

9. Discussion

This study investigated how the quality of short videos, directly and indirectly, affects the audience's emotional engagement through the perception of content usefulness in disseminating historical and cultural knowledge through short videos on social media platforms. Audience perception of content usefulness of short videos as a mediating variable significantly affects the relationship between the two in the equation. However, since there is an upbeat positive correlation effect between short video content quality (independent variable) and audience emotional engagement (dependent variable), content usefulness (mediator variable) plays a partially mediating role in this relationship.

9.1 H1: Short video quality (including content richness, influence, and interactivity) has a positive effect on users' emotional engagement.

The model analysis shows that the path coefficient of short video quality on users' emotional engagement is $\beta = 0.467$ (p < 0.05), confirming the validity of H1. The findings indicate that high-quality short videos significantly enhance users' emotional engagement, especially when the content authority is high. Videos from official platforms or influential creators increase the likelihood of emotional resonance, particularly in historical and cultural contexts, highlighting the critical role of video quality in attracting users' emotional engagement.

H2: Content richness has a positive effect on perceived usefulness.

The path coefficient for content richness on perceived usefulness is $\beta = 0.579$ (p < 0.05), supporting H2. The study finds that richer video content leads to higher perceived usefulness, particularly for videos featuring historical and cultural knowledge. Content richness improves viewers' assessment of the video's actual value, suggesting that producing detailed and in-depth historical and cultural videos can enhance users' cognitive experiences and increase their acceptance of the information presented.

H3: Influence has a positive effect on perceived usefulness.

The analysis indicates that the path coefficient of influence on perceived usefulness is $\beta = 3.811$ (p < 0.05), confirming H3. Influence is a key dimension of video quality, and videos with strong influence are more likely to convince users of their usefulness. Particularly among students, videos that receive widespread attention and likes are perceived as more valuable, suggesting that influence enhances the perceived usefulness of historical and cultural content.

H4: Interactivity has a positive effect on perceived usefulness.

The path coefficient of interactivity on perceived usefulness is $\beta = 0.771$ (p < 0.001), validating H4. The study shows that interactive features significantly increase users' perceived usefulness. Engagement through comments, likes, and discussions enhances users' attention and recognition of the content, suggesting that incorporating interactive elements into historical and cultural videos can boost users' interest and engagement.

H5: Perceived usefulness has a positive effect on emotional engagement.

The path coefficient of perceived usefulness on emotional engagement is $\beta = 0.701$ (p < 0.05), supporting H5. The findings indicate that users are more likely to become emotionally engaged with video content when they perceive it as

helpful in solving practical problems or providing new insights. This result underscores the importance of designing content with user needs and interests in mind to foster emotional resonance.

H6: Perceived usefulness mediates the relationship between content richness and users' emotional engagement.

The indirect effect of content richness on users' emotional engagement through perceived usefulness is $\beta = 0.467$ (p < 0.05), confirming H6. The study reveals that content richness indirectly enhances users' emotional engagement by increasing their perceived usefulness. This suggests that rich content not only directly attracts users' interest but also indirectly strengthens emotional resonance by enhancing perceived usefulness.

H7: Perceived usefulness mediates the relationship between influence and emotional engagement.

The model analysis shows an indirect effect of influence on emotional engagement through perceived usefulness, with a path coefficient of $\beta = 0.579$ (p < 0.05), validating H7. The findings suggest that videos with higher influence are perceived as more useful, which in turn increases viewers' emotional engagement. Video influence builds user trust, making viewers more inclined to accept and empathize with historical and cultural content.

H8: Perceived usefulness mediates the relationship between interactivity and emotional engagement.

The analysis indicates that the indirect effect of interactivity on emotional engagement through perceived usefulness is $\beta = 0.701$ (p < 0.05), supporting H8. The results show that interactive videos enhance users' perceived usefulness, which in turn increases emotional engagement. Higher interactivity encourages more user discussion and feedback, which enhances emotional resonance and engagement.

10. Limited and Future

10.1 Limited.

Although this study has some support through data on social media's role in historical and cultural communication, it has some limitations. Firstly, this study mainly focuses on the mediating role of perceived usefulness between the quality of short videos and the audience's emotional engagement, which may only partially consider some objective limitations. For example, some limitations of the platform, such as the ease of use, will likewise lead to the user's sense of experience and motivation to participate. In addition, the user interface of social media platforms needs to be more intuitive; then, even if the quality of the content is high, user engagement may be affected.

10.2 Future

Researchers can provide richer and deeper insights in future studies by combining qualitative and quantitative mixed methods research. Through qualitative research tools, such as in-depth interviews or focus groups, gain insight into how audiences perceive the usefulness of short-form video content and how this perception affects explicitly their emotional engagement. Understand their genuine reactions to historical and cultural communication content, from which patterns and themes that may have been overlooked in quantitative data analysis can be identified. For example, audiences may discuss how particular historical stories evoke their curiosity or how a specific presentation style makes them feel closer to historical figures.

At the same time, the conduct of longitudinal studies can help researchers track and evaluate the long-term effects of social media on historical and cultural communication. Longitudinal studies track changes in the same group or individual over an extended period, revealing audience behavior, attitudes, and knowledge accumulation. It explores whether audiences' sustained exposure to historical and cultural content affects their long-term memories, emotional connections, and behavioral patterns, for example, whether young people gradually develop more active historical exploration behaviors and cultural engagement due to frequent exposure to high-quality historical and cultural content. In this way, researchers will be able to assess the immediate effects of short-form video content and gain insight into its long-term impact on education and cultural transmission.

Acknowledgments Not applicable. Authors contributions Not applicable. Funding Not applicable. Competing interests Not applicable.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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