



## Communication Strategies of Traditional Culture among Youth Groups in Digital Education Environment

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**SUMMARY:** *This paper systematically analyzes the effect of traditional culture dissemination and its influencing factors in the digital environment by using a combination of educational technology, cultural communication and developmental psychology; at the same time, it conducts an experimental study on this basis, with a view to exploring a digital traditional culture dissemination method that is suitable for children and adolescents. With the help of network interactive communication technology, VR technology and other new media technology means, the measurement is carried out on the basis of using the communication effect measurement model. New media communication means have a positive effect on the degree of traditional culture knowledge mastery and traditional culture interest of young people, and have a positive effect on the traditional culture confidence of young people. Among them, abstraction, visualization and interesting means can deepen the audience's impression of culture and attract their attention; multi-platform communication can expand the scope of cultural communication and achieve all-round coverage. Therefore, the results of this study can be used as an effective strategy for teachers in teaching practice, which is of positive reference and practical significance for realizing the modern transformation of traditional culture courses.*

**KEYWORDS:** *digital educational environments; traditional culture transmission; mixed research methods; personalized learning*

### 1 Introduction

In recent years, the rapid development and popularization of digital technology has brought the application and promotion of many new technologies, such as the Internet, big data, and artificial intelligence, to the education industry [1]. Digital education has become a necessary trend, which helps to improve the quality of education, teaching efficiency, and students' ability and quality [2, 3]. Regarding the development and impact of digital education, literature [4] analyzed the impact of digital education on students, and through comparative experiments and questionnaires, pointed out that it was superior to traditional teaching in terms of enhancing both motivation and learning outcomes, and emphasized the significant contribution of motivation to learning outcomes. Literature [5] assessed the impact of digital transformation on education through a mixed-methods approach, analyzed the key role of digital tools in improving teaching efficiency, promoting personalized learning and enhancing interactivity, and based on the feedback from students and teachers, emphasized that the implementation of

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digital transformation requires an integrated approach that covers conceptual, organizational, and content dimensions. Literature [6] examined the positive impact of digital education on secondary school students' cognitive abilities through multiple measures, pointing out that it can stimulate students' intrinsic motivation to learn and enhance their academic performance, and also examined the differential effects of school management and technology application methods, emphasizing the key role of digital technology in fostering students' lifelong learning abilities and reserving high-quality talents for the sustainable development of society. Literature [7] analyzes the impact of innovative digital teaching technologies such as integrated video lectures on the educational process, and through comparative experiments, points out that they significantly improve students' academic performance and motivation, and emphasizes the superiority of digital teaching methods compared to traditional approaches. Literature [8] analyzes digital teaching strategies used by teachers through multi-site case studies, examines five key roles of technology integration in enhancing teaching and learning, and emphasizes that the core of the success of digital transformation lies in how technology effectively serves specific teaching practices and student learning outcomes.

In addition to the positive effect on the overall teaching effect, digital education also provides technical support for the dissemination of traditional culture among youth groups. Traditional culture is the treasure of the Chinese nation, carrying thousands of years of historical memory and wisdom crystallization [9]. However, in the fast-paced development process of modern society, traditional culture faces many challenges, such as limited communication channels, single form of communication, low audience participation and other problems [10]. In response to the challenges faced by traditional culture, literature [11] studied the importance of rural areas as the cradle of traditional culture inheritance, analyzed the practical difficulties faced in its continuation through field research, and pointed out the key significance of the study of its inheritance for the protection and revival of Chinese traditional culture, while proposing targeted improvement programs. Literature [12] analyzes the dilemma that the oral transmission of traditional culture cannot obtain the protection of copyright law because it does not conform to the principle of fixity, studies its lack of legal protection, and emphasizes the necessity and importance of protecting it according to the international conventions through literature analysis. Literature [13] analyzes the core challenge of “unstable value transmission” faced by traditional culture in the 21st century, points out that this stems from the lack of values accompanied by superficial success and the blurring of cultural inheritance standards, and emphasizes the key role of education and science in cultural reconstruction. Literature [14] takes Bayu folk songs as an example to analyze the challenges of dissemination and preservation faced by traditional culture in Southwest China under the rapid changes in contemporary society, and through interviews and thematic analyses, emphasizes its profound cultural value and diversity, and discusses the specific difficulties and preservation guidelines for transmission in educational environments. Literature [15] takes the Tujia in Shizhu County as an example and analyzes the dilemmas faced by families in transmitting traditional ethnic sports culture through a variety of methods, pointing out that its main manifestations are alienation of children's cultural capital, lack of family integration, and stagnation of intergenerational inheritance, etc., and emphasizing the importance of systematic preservation strategies, such as reinforcing cultural identity, optimizing family capital, creating supportive environments, and strengthening social guidance.

While digital technology can provide innovative and effective methods for the protection of traditional culture, with the help of digital technology, the collection, storage, display and dissemination of traditional culture can be efficiently completed [16, 17]. In this regard, literature [18] analyzed the current situation of Chinese traditional culture communication in the digital era, pointed out that in the past, the presentation to the outside world was mostly

confined to the depiction of differences and suffering, which hindered in-depth communication, and emphasized the need to take advantage of new media platforms and user-generated content and other digital technologies, to achieve its vitality in a new way to achieve its display, demystification, and effective cross-cultural communication. Literature [19] discusses the symbiotic relationship between digital technology and the revival of Chinese outstanding traditional culture, analyzes the application of digital technology in the fields of traditional art regeneration, non-heritage protection and digital exhibition, and points out that it is necessary to seek a balance in the collision between technological creation and cultural inheritance in order to realize the mutual achievement of the two. Literature [20] analyzes the key role of digital technology in the preservation, restoration and dissemination of traditional cultural knowledge, discusses how its cross-media capabilities and integrated databases can provide a new space for research, and points out that it is an important time to innovate the research mode and dissemination of results using digital media technology.

Under the digital education environment, the functions and roles of digital technology can be maximized through the implementation of strategies such as creating a good campus cultural atmosphere, reforming the curriculum around the inheritance and protection of traditional culture, accelerating the construction of digital resources, and carrying out educational practices in a rich and diverse way [21, 22]. This kind of integrated education not only enriches the educational content and methods, but also breaks through the time and space limitations, shows the charm of traditional culture to the youth groups in a more vivid and diversified form, attracts a wider audience, and thus realizes the inheritance and innovative development of traditional culture [23]. For the dissemination of traditional culture in the digital education environment, the literature [24] analyzed the dissemination path of traditional Chinese culture in the digital education environment, explored the principles and strategies of its digital art translation by defining the cultural elements and screening them, pointed out that the immersive experience and network structure created by the Internet can effectively promote the digital inheritance of traditional folk art in the teaching of art in colleges and universities, and emphasized the key role of this move in establishing cultural confidence. Literature [25] studied the balance between technological innovation and cultural inheritance in ideological education in colleges and universities in the digital era, analyzed the characteristics of digital technology and the current situation of education, and emphasized the necessity of organic integration of the two to promote the dissemination of traditional culture and new paths. Literature [26] focuses on the inheritance and innovation of traditional Chinese culture and its integration with Civic and Political Education in the digital education environment, analyzes the advantages of big data, artificial intelligence and other technologies in the application of accurate analysis of cultural needs, intelligent counseling and personalized learning paths, examines their teaching effectiveness compared to traditional courses, and emphasizes the necessity of systematically evaluating the effects of the application of technology to achieve effective cultural dissemination. The need for the application of systematic assessment technology to realize effective cultural communication is also emphasized. Literature [27] discusses the changes that cutting-edge technologies such as artificial intelligence have brought to traditional cultural communication, examines their key role in helping cultural renaissance and fostering college students' cultural self-confidence in a digital education environment, and emphasizes the necessity of synergistically exploiting the potential of technological innovation and cultural education.

The research method used in this paper is the mixed research method, i.e., the combination of quantitative and qualitative research, which is a comprehensive and three-dimensional study at different levels to analyze the issue of the transmission path of traditional culture to secondary school students in the context of the digital era. In the specific research, a rigorous attitude is

adhered to and the research is conducted according to the principles of educational scientific research. Through the coding and analysis of key literature and policy documents, we summarize the basic elements and main features of traditional culture dissemination in the digital environment.

## 2 Theoretical foundations

### 2.1 Digital education environment

The modern informatized teaching environment is one of the main trends in the development of the current education and teaching reform. As far as the connotation of informationized teaching environment is concerned, it is not simply a collection of hardware, but a teaching ecosystem that integrates information and concepts from various disciplines. The American Society for Technology in Education (ASTE) defines it as “the use of information technology to build a learning environment that promotes the acquisition of knowledge, the enhancement of competence, and the emotional well-being of learners”, emphasizing the integration of technology and teaching. The European Action Plan for Digital Education, on the other hand, emphasizes from a more macroscopic strategic level that the digital education environment should carry the values of “inclusiveness, sustainability and innovation”, and that the dual mission of equity and quality improvement in education should be realized through technological empowerment at the same time.

The development of information technology platforms has been characterized by a clear leap from the use of tools to the construction of an intelligent environment. At the initial stage, multimedia teaching software and electronic interactive platforms are the main means, which are relatively single and lack of interaction. With the deepening of the application of cloud computing, big data, artificial intelligence and other technologies, the digital teaching environment has become an intelligent system that combines personalized learning, precise pushing, instant feedback and other functions.

The study of learning effectiveness evaluation reveals the mechanism of the influence of informatized learning environment on learning effectiveness. Cognitive load theory is an important tool to understand informatized learning, and a well-designed informatized learning environment can effectively reduce the external cognitive load and improve the level of internal cognitive load. Then the degree of learning effectiveness enhancement can be expressed as:

$$\Delta L = \alpha \cdot T + \beta \cdot I + \gamma \cdot P - \delta \cdot C \quad (1)$$

In this formula,  $\Delta L$  represents the degree of learning effect enhancement,  $T$  represents the applicability of technical tools,  $I$  represents the effectiveness of interaction design,  $P$  represents the degree of personalization,  $C$  represents the level of cognitive load, and  $\alpha$ ,  $\beta$ ,  $\gamma$ , and  $\delta$  are the corresponding weighting coefficients.

### 2.2 Dissemination of traditional culture

Traditional cultural communication is a mode of cultural communication based on cultural symbolism, cultural memory theory and media ecology at the intersection of cultural anthropology, communication science and sociology, on which the theory of symbolic form analyzes the symbolic attributes of traditional culture in depth: the essence of the so-called culture is the activity of human beings, and this activity itself is a symbolic expression and circulation of meaning. Cultural output is the process of symbolization of culture as well as the process of transmission and reception of symbols. At the same time, under the influence of

structuralism, another meaning is to emphasize that the inner structure of culture is a key factor for the effectiveness of symbolic communication, i.e., the fit between the cultural connotation of traditional symbols and the original cognitive structure of the audience determines the effectiveness of communication. The probability of success of symbolic communication is equal to:

$$S = f(R, D, M, C) \quad (2)$$

where,  $S$  represents symbol transmission success,  $R$  represents symbol recognizability,  $D$  represents cultural distance,  $M$  represents media fitness, and  $C$  represents receiver cultural background.

The theory of cultural memory is a theory that views the transmission mode of traditional culture from the perspective of intergenerational transmission, and is based on the distinction between interactional memory and cultural memory. This theory suggests that cultural memory is a process of social construction through selective storage, symbolic expression, and ritualized repetition. Collective memory theory focuses on the influence of the social framework on individual memory, and effective transmission of traditional culture needs to be supported by corresponding social memory schemas.

Under the threshold of media ecology, it provides a more scientific methodological guidance for the communication of traditional festival culture in the digital era. The phrase “the medium is the message” reveals the decisive significance of the media form for the content of communication, and the new media under the digital communication environment is characterized by interactivity, multi-dimensionality, interconnection and sharing, which determines to a certain extent the scope and depth of the dissemination of traditional festival culture.

The theory of media ecology clarifies that the introduction of new media technology changes the balance of the entire cultural ecosystem, and that traditional culture needs to adapt to the decentralized, fragmented and personalized characteristics of communication in the digital media environment, shifting from unidirectional indoctrination to pluralistic interaction, and from standardized content to personalized customization. The optimization of communication effect follows the formula of media ecological fitness as:

$$E = \alpha \cdot A + \beta \cdot I + \gamma \cdot P \quad (3)$$

where,  $E$  represents the communication effect,  $A$  represents the media fitness,  $I$  represents the degree of interaction,  $P$  represents the level of personalization, and  $\alpha$ ,  $\beta$  and  $\gamma$  are the weighting coefficients.

Traditional cultural communication has evolved from direct face-to-face interaction through traditional socialization such as family and school, to one-way communication using mass media to broaden the audience, and then to the digital media presenting a multi-point optional mode of communication. Although the digital communication mode is characterized by rapidity, extensiveness and low cost, the popularization of mobile Internet has made the traditional cultural communication break the boundaries of time and space, but also brought about the problems of information overload, scarcity of attention and cultural fast food.

The theoretical construction of traditional cultural communication strategy should take into account the attributes of cultural content, the psychological law of the audience, the technical attributes of the media, etc. In the content strategy, the protection of the originality of culture is realized through the expression of storytelling, visualization, and interactivity, and it is remodeled with modernity, while in the audience strategy, the audience strategy is based on the

cognitive rule of the young people's group to adopt a differentiated and segmented way of content dissemination. In the media strategy, a multi-media synergistic communication matrix is created, and in the interactive strategy, participatory activities are designed to turn young people from passive recipients to active participants. Finally, in the evaluation mechanism, a scientific communication effect evaluation mechanism is introduced for dynamic adjustment. The design of this three-dimensional model provides a solid theoretical basis for the effective communication of traditional excellent culture in the network era.

### 3 Analysis of the current situation of the dissemination of traditional culture in the digital education environment

#### 3.1 Awareness and acceptance of traditional culture among youth groups

Contemporary teenagers, as digital aborigines, show a distinct hierarchical character in their cognitive status of traditional culture. Through an in-depth research on the traditional culture cognition of 1,200 Chinese adolescents aged 12-18, this paper finds that, as shown in Table 1, there is an obvious structural differentiation in the cultural cognition of this group. The adolescents showed a high level of familiarity with traditional cultural expressions with visual impact, with more than 80% (generally familiar) in the dimensions of traditional festival culture, classical literature, traditional art forms, folk customs and habits, and traditional music and dance. However, when it comes to the spiritual core of traditional culture, the level of understanding of the deeper contents including philosophical concepts, ethics and morals, and cultural spirit declined sharply. This imbalance in cognitive structure exposes the superficiality problem in current cultural communication, in which young people are easily attracted by the external charms of traditional culture, but find it difficult to reach its inner value pursuit and spiritual essence.

*Table 1: Investigation on the Cognition of Traditional Culture among Teenagers*

Traditional culture type	Very familiar (%)	Relatively familiar (%)	Neutral familiar (%)	Slightly familiar (%)	Not at all familiar (%)
Festival culture	23.5	41.2	28.7	5.8	0.8
Classical literature	15.3	32.6	35.4	14.2	2.5
Traditional art	12.8	28.9	38.3	17.6	2.4
Philosophical thought	6.7	18.4	31.2	32.8	10.9
Traditional moral ethics	9.2	24.7	42.1	20.3	3.7
Folk customs and traditions	18.6	35.8	32.4	11.7	1.5
Architectural culture	11.4	26.3	41.2	18.9	2.2
Music and dance	14.7	29.5	36.8	16.4	2.6

The attitude of teenagers towards traditional culture is contradictory. They emotionally recognize it but fail to act accordingly. 67.3% of the students believe that traditional culture is meaningful and should be understood, yet they do not put it into practice. Only less than one-third of the students will actively pay attention to relevant cultural information and participate in traditional culture activities. The proportion of people who have participated in such activities is only 24.6%. This indicates that their attitude towards traditional culture does not match their behavior. The dissemination of traditional culture has failed to effectively motivate teenagers to actively participate on their own initiative.

This article uses a multi-dimensional measurement model to evaluate acceptance, covering three levels: cognitive acceptance, emotional acceptance, and behavioral acceptance. The comprehensive acceptance calculation formula is:

$$A = 0.3 \times C + 0.4 \times E + 0.3 \times B \quad (4)$$

where,  $A$  denotes comprehensive acceptance,  $C$  denotes cognitive acceptance,  $E$  denotes emotional acceptance, and  $B$  denotes behavioral acceptance.

The statistics of the comprehensive acceptance of traditional culture among adolescent groups are shown in Figure 1. The results show that the average value of the comprehensive acceptance of traditional culture among adolescents is 0.50. Among them, the acceptance of traditional festivals reaches the highest level of 0.65, and the lowest level is 0.25 for traditional philosophies, which is a structural characteristic that provides important data support for the development of the communication strategy of traditional culture.

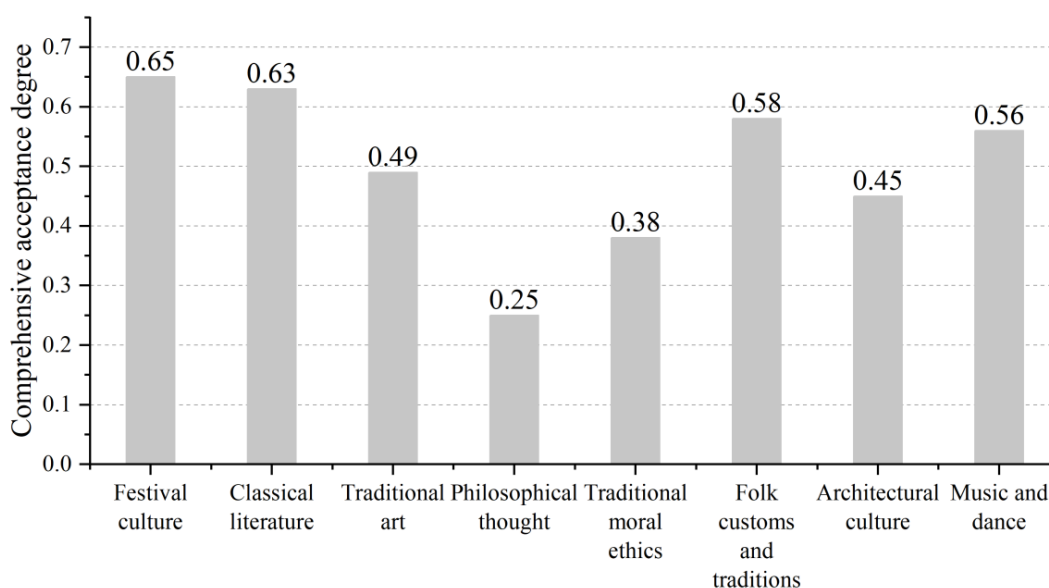


Figure 1: The acceptance level of traditional culture among teenagers

Young people's cognition and acceptance of traditional culture is a process of complex factors, among which the cultural atmosphere of the family is one of the most important influences. Young people living in families with strong cultural atmosphere have a higher degree of knowledge of traditional culture than students from ordinary families, which shows that family education plays an important role in the inheritance of traditional culture. In schools, however, the current traditional culture education has problems such as outdated content, single form and lack of attraction, which makes the effect of education cannot be maximized.

In addition, the influence of peers should also be taken into account. A large part of young people's cultural preferences come from their peers, and surveys have shown that the degree of preference for traditional culture among peer groups is obviously positively correlated with the degree of personal preference. The influence of new media technology is also gradually appearing, the Internet is an important way for young people to obtain information about traditional culture, but also because the Internet culture presents the characteristics of diversity and fragmentation, which is not conducive to the systematic inheritance of traditional culture. The age factor in the personal characteristics variable shows an inverted U-shaped curve, and the youth group at the age of 14-16 has the highest interest in and acceptance of traditional

culture, which to a certain extent provides a reference for the key period of traditional culture education.

In the process of investigation, we also found the problem of cognitive misconceptions, many students have a one-sided perception of traditional culture, thinking that traditional culture is “old-fashioned”, “outdated” things, and therefore are not willing to contact. It was also found in the interviews that most of the students' understanding of traditional culture remained at the superficial level, and they did not dig deeper into the value and connotation of traditional culture. This makes it difficult for traditional culture to become a “hard core” in the minds of young people, and lacks persuasive power to young people. Young people with a high degree of cultural confidence recognize and accept traditional culture, and cultural confidence can only be achieved through adequate cultural education and positive cultural experiences.

### **3.2 Case Study of Traditional Culture Dissemination in Digital Education Environment**

Digital technology has injected unprecedented vitality into the dissemination of traditional culture, and various educational institutions and cultural organizations have formed diversified modes of dissemination in their practical exploration.

Case 1: the virtual reality application of the “digital Forbidden City”, the Forbidden City Museum using VR technology to reproduce the former glory of the Forbidden City, young people can feel the charm of the Ming and Qing dynasty palace culture through this software, “Yinzhen beauty map”, “Han Xizai Night Banquet” and other APP is to these ancient paintings in a more vivid way to the audience, the user just through the touch screen will be able to feel the wonderful world behind the paintings. In the three years since the project was launched, the cumulative number of users has exceeded 5 million, and the proportion of youth users has reached 67.8%, with an average user stay time of 23.7 minutes, far exceeding that of the traditional exhibition, which is 8.5 minutes, and through the pre- and post-test evaluation, it is found that the interest of youths participating in the digital experience has been increased by 41.3%, and the degree of mastery of cultural knowledge has increased by 35.6%.

Case 2: The CCTV program “National Treasure” and a series of digital learning resources have developed the communication mode of documentary + variety show + stage play, and invited celebrities to act as “keepers of the treasure” and tell the stories of cultural relics in the way of contextual reenactment; there are cultural relics dioramas, history quizzes and creative workshops in the cell phone APP, forming an integrated experience chain of viewing-interacting-sharing. The mobile phone APP contains three-dimensional models of cultural relics, history quiz, creative workshop and other contents, forming an integrated experience chain of watching-interaction-sharing. After the broadcast of the program, the total reading volume of microblogging topics exceeded 230 million times, of which the proportion of teenage users reached 72.4%, and the statistics of the emotional word frequency of audience comments showed that teenagers retained 78.9% of the historical memories of cultural relics presented in the program, which was far more than the overall level of the traditional cultural programs.

Case 3: Tencent's “Glory of Kings” game adds historical and cultural elements to reflect the powerful advantages of game-based learning. They teamed up with historians to give the game characters real historical and cultural background knowledge, and opened the “Glory Poetry Club” and “Canyon Culture Class” to guide users to learn about poems and songs and historical allusions and traditional arts in the form of tasks in the game. They worked with historians to give the game characters real historical and cultural background knowledge, and set up the “Glory Poetry Club” and “Canyon Culture Class”, which guided users to learn about poems, songs, historical allusions, traditional arts and other content by way of quests in the game. After the function was launched, the MAU reached more than 12 million, of which 78.3% were

teenage users. Comparative experiments showed that the level of traditional culture knowledge of players who participated in the cultural function increased by 32.7% compared with the control group, and the cultural confidence index increased by 28.4%.

Case 4: Scholastic Online School offers a “Big Language” course, with a “Literature, History and Philosophy” teaching mode throughout, integrating ancient Chinese history, culture and philosophy into the teacher's live lectures, questions and explanations, as well as pictures and videos, and not just teaching knowledge so that students can score in exams; in addition, the platform also combines big data analysis to provide different services for different students, so as to tailor the service to their needs. Instead of just teaching knowledge so that students can score in exams, the platform enhances students' cultural cultivation and humanistic feelings; in addition, the platform also combines big data analysis to provide different services for different students, so as to meet the needs of each individual. In the two years since the launch of the program, more than 800,000 students have participated in the program, with a completion rate of 85.6% and a student satisfaction score of 4.3. The evaluation of the learning effect found that students who participated in the program scored an average of 23.8% higher than the control group in the test of traditional cultural knowledge, and that there was a significant improvement in their cultural comprehension and expression skills.

Case 5: The cultural channel of Jitterbit platform spreads traditional culture with short videos. On the Jitterbit platform, there are many cultural creators, who use innovative ways to shoot traditional cultural content into short videos of about 1-3 minutes, including the analysis of ancient poems, explanation of historical allusions, introduction of intangible cultural heritages, and popularization of all kinds of traditional cultural knowledge, etc., and precisely push the high-quality cultural information to the users through algorithms. Through algorithms, we precisely push high-quality cultural information to users, and the UGC mode ignites the passion of all people to create. The cumulative playback volume of culture channel videos has exceeded 1 billion times, with more than 500,000 users participating in the creation of videos, and the proportion of youth creators has reached 65.7%. The average completion rate of traditional culture short videos is 73.2%, which is significantly higher than that of the overall level of the platform, which is 58.4%, indicating that young people have a strong willingness to accept high-quality cultural content.

From the above cases, we can see the successful experience: a high degree of integration of digital technology and traditional cultural content. Both give full play to the advantages of digital technology and maintain the authenticity of traditional culture. Focus on user experience design. Interactivity, immersion, personalization and other forms to enhance the user's participation and sense of acquisition. Form a communication matrix covering different platforms and audiences in terms of communication channels. The novelty of presentation attracts the audience with storytelling, picture sense, interesting interaction, etc. The effectiveness of response speed uses statistical analysis and questionnaires to quickly obtain information and timely adjust the communication plan, and the accuracy of the result judgment can be calculated with the help of the following formula:

$$E_{total} = w_1 \cdot R + w_2 \cdot Q + w_3 \cdot I + w_4 \cdot S + w_5 \cdot D \quad (5)$$

where  $E_{total}$  represents the overall dissemination effect,  $R$  represents the user participation rate,  $Q$  represents the content quality score,  $I$  represents the degree of interaction,  $S$  represents the dissemination range,  $D$  represents the depth of cultural understanding, and  $w_1$  to  $w_5$  are the corresponding weighting coefficients.

The evaluation of the effect of digitalized traditional culture communication of the above five cases is shown in Figure 2, and it can be seen that the average communication effect of the

five is 7.1 points. These cases reveal the common problems faced by digital cultural communication, namely, the balance between technology and culture, which is reflected in how to use advanced technology while avoiding excessive transformation of traditional culture; the difficulty of monitoring content quality, which stems from the uneven quality of massive user-generated content and the lack of an effective screening and monitoring mechanism; the lack of depth of communication, which reflects the fact that digital communication tends to focus on formal innovation while neglecting content; the challenge of sustainable development, which lies in how to make cultural communication superficial as a result of the fierce market competition; and the challenge of sustainable development, which lies in how to make cultural communication more effective. Insufficient depth of communication reflects the fact that digital communication often focuses on formal innovation at the expense of content; depth of communication leads to superficial cultural communication; and the challenge of sustainable development lies in how to maintain the public welfare and educational nature of cultural communication in the face of fierce market competition.

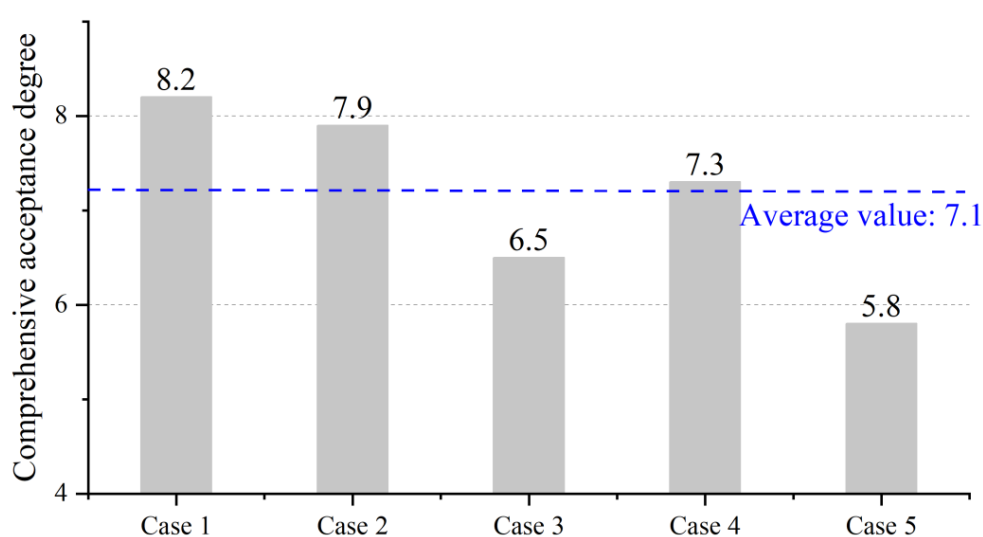


Figure 2: Evaluation of the Dissemination Effect of Digital Traditional culture

The crack of the above problems can not be separated from the government, schools, technology companies, cultural enterprises and other forces of cooperation, so the establishment of a good digital cultural propaganda ecological environment, to find the optimal combination of technology and culture, to ensure that the traditional excellent culture in the digital age can be both new and not distorted is the key.

## 4 Strategies for the dissemination of traditional culture in a digital education environment

### 4.1 Principles for the development of communication strategies

The key to effective communication of traditional culture into digital education environment lies in the reasonable formulation of communication strategy, therefore, this paper investigates and researches the characteristics of teenagers' cultural cognition and obtains the importance and difficulty of each stage of the formulation of communication strategy as Fig. 3. It can be seen that the content of communication is one of the most important factors affecting the effect of cultural communication, and the degree of importance and difficulty are 9.2 and 8.4

respectively. It can be seen that in the selection of content, it is necessary to focus on the inheritance of cultural connotation as well as reflecting a certain degree of modernity, that is to say, on the basis of not violating the spirit of traditional culture, appropriate adaptations should be made according to the comprehension ability of teenagers in the new era; at the same time, attention should be paid to the hierarchical relationship between the contents, and this part establishes a graded sequence from cultural imagery to cultural concepts to help teenagers understand the charm of traditional culture from the surface to the inside. Integrity protection can avoid the phenomenon of fragmentation of cultural communication content, ensure the wholeness and continuity of cultural communication content in the process of network communication, and eliminate the lack of meaning of culture itself due to the limitations of network communication tools; authenticity management is to ensure the authenticity and effectiveness of cultural communication content with the help of professional auditors, and to avoid the phenomenon of misunderstanding of culture while enhancing the efficiency of communication. The management of authenticity is a way to ensure that the content of cultural communication is authentic and effective, and to avoid misunderstanding of culture while improving the efficiency of communication.

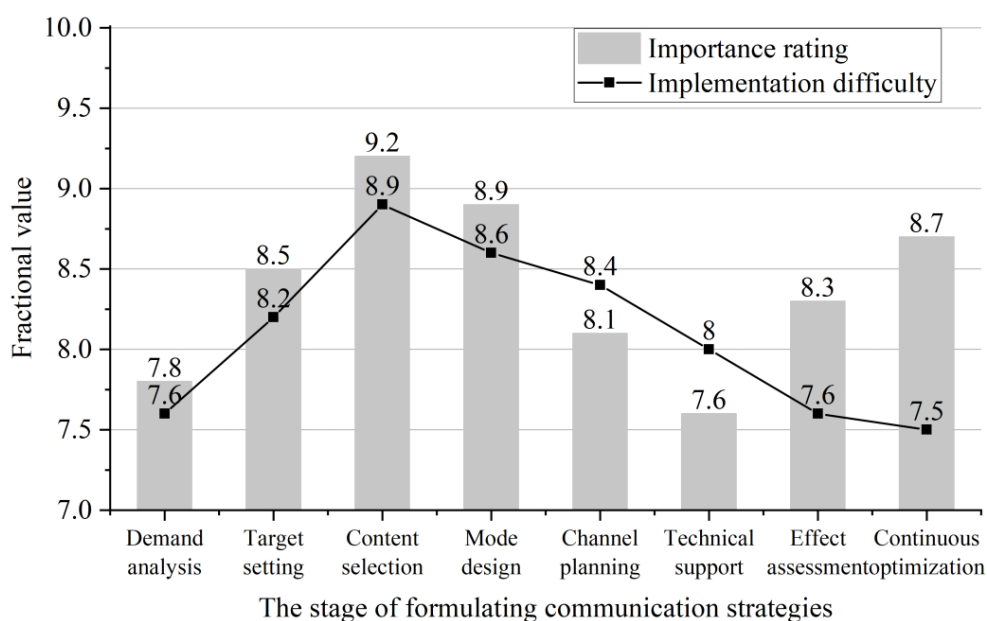


Figure 3: The importance and implementation difficulty of each stage

The evaluation mechanism is an important guarantee to ensure the effectiveness of communication. On this basis, this paper builds an evidence-oriented evaluation mechanism:

First, it focuses on scientific rigor, i.e., quantitative evaluation is the main focus, supplemented by qualitative evaluation, and strives to accurately reflect the communication effects, including cognitive, emotional and action effects; among them, the evaluation of cognitive effects mainly adopts the quiz method and the judgment standard to measure the degree of the audience's comprehension of the communication information, and to understand the youth's cognition of the knowledge of traditional culture. Emotional effects are measured through attitude scales, interest surveys and other methods to test the youth's emotional awareness of traditional culture. The first way of showing the effect is to observe the cultural learning and practicing activities of the youth by using participation and practicing as indicators;

Secondly, comprehensive consideration, i.e., evaluating the effects from the perspective of all stages of the communication process and all participants, and focusing on both short-term and long-term effects, including the effectiveness of both individual and social dimensions;

Thirdly, long-term tracking and investigation, continuous tracking and research in the process, stage-by-stage summary analysis and immediate feedback can identify existing problems and make timely adjustments to ensure that the communication activities are in an optimal state. The response mechanism emphasizes feedback on the evaluation results, and the feedback results are used to correct and improve the strategy, forming a benign interaction of “evaluation-feedback-correction-re-evaluation”; the mechanism of long-term effectiveness refers to the consideration of the effectiveness and timeliness of resource inputs and technology in the evaluation. The mechanism of long-term effectiveness refers to the evaluation of the effectiveness and timeliness of resource input, the effectiveness and timeliness of technology application, the periodicity and systematic growth of talents, and the scientific and standardized management mechanism, so as to ensure that the communication work can be efficiently and effectively promoted for a long period of time.

The formulation of communication strategies revolves around the analysis of needs for the purpose of communication, on the basis of which the content planning is carried out to ensure the quality of its cultural connotations, supplemented by innovation and optimization of the form to enhance the effectiveness of communication, and with the help of multi-dimensional communication paths to broaden the coverage, while at the same time matching the perfect evaluation system to control the quality of communication, so as to promote the effective transmission of traditional culture among children and young people and the good inheritance of the process of communication.

## 4.2 Specific communication strategies

The new media social platform provides a new way to spread traditional culture, on which secondary school students have a high degree of enthusiasm and creativity. Video clips are an important medium for cultural communication, and the author uses the “small classroom” form to briefly condense the complicated and lengthy traditional culture to about 1~3 minutes, recreating ancient situations with the help of modern multimedia means, and interpreted and explained by experts to ensure that the knowledge conveyed is a combination of professionalism and fun. The specific communication plan, as well as the effectiveness and acceptability evaluation of the digital traditional culture communication strategy are shown in Figure 4:

Strategy 1: Construction of new media communication platform (implementation effect = 7.8, acceptance level of teenagers = 6.6).

Online social media communication has subverted the unidirectional character of cultural communication. Teenagers are no longer the recipients of information, but have become the main body of content production and dissemination, expressing their cognition in topic challenges, sharing their ideas in creative collection activities, and competing in knowledge competitions for the knowledge reserves they have learned. The online classroom breaks through the geographical limitations, cultural celebrities, non-genetic inheritors, famous scholars can communicate with students face to face, pop-up messages, on-site questions, instant voting and other ways to make the classroom lively, teachers and students, students and students to build a three-dimensional learning mode.

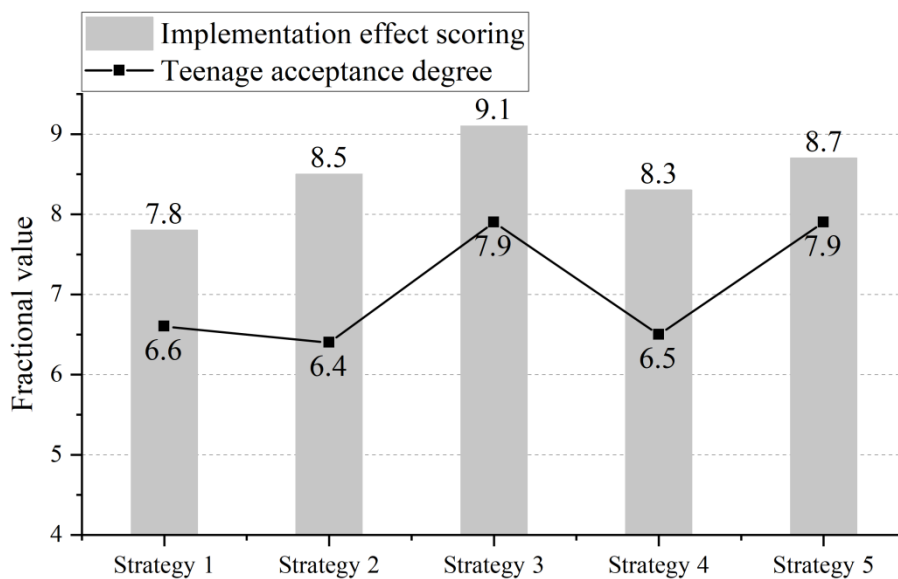


Figure 4: Evaluation of the effectiveness and acceptance of communication strategies

Strategy 2: Development of Digital Teaching Resources (Implementation Effectiveness = 8.5, Youth Acceptance = 6.4).

App brings youth the convenience of culture, knowledge map brings youth the feast of culture, mini game brings youth the fun of culture, intelligent push brings youth the intimate service of culture, growth record lets youth know their learning situation. vr technology gives youth the opportunity to learn traditional culture in an immersive way, "Entering the ancient academy of learning " shows the ancient academy in a three-dimensional way in front of students' eyes, "Have a traditional festival" allows students to personally invest in the festival, "Dialogue with historical celebrities" allows students to have face-to-face conversations with ancient and modern celebrities. These VR teaching units with strong sensory impact and participation bring students a different learning experience. AR augmented reality technology is a way to integrate digital images in the real environment, young people only need to scan the pictures of cultural relics to get the historical background of the relics, cultural connotations, and related knowledge and other information, to realize the combination of reality and reality.

Strategy 3: Integration of online and offline activities (implementation effect = 9.1, youth acceptance level = 7.9).

The online-online-offline integration activities constructed a three-dimensional cultural experience space. Digital exhibitions such as virtual museums, ancient building complexes, and cultural heritage sites provided youths with convenient opportunities for cultural contact, while offline practical activities such as traditional handicraft production, folk performances, and cultural festivals strengthened the sense of experience and participation, and mixed reality technology realized a seamless connection between the two modes.

Strategy 4: Construction of Personalized Learning System (Implementation Effectiveness = 8.3, Youth Acceptance = 6.5).

The personalized learning system builds an exclusive profile for each learner based on big data mining and artificial intelligence algorithms. The system collects multi-dimensional information such as behavioral data, preference information, and ability level, uses machine learning technology to predict learning needs and provide accurate recommendations, and the adaptive mechanism adjusts learning parameters based on real-time performance to ensure that each teenager receives the most appropriate cultural and educational experience.

Strategy 5: Design of Game-based Learning (Implementation Effectiveness = 8.7, Youth Acceptance Level = 7.9).

Incorporate traditional cultural information into games in terms of tasks, levels, achievements, competitions, and socialization to stimulate adolescents' interest in learning. For example, different levels of difficulty are set in the cultural breakthrough, and players take on different identities in the game to experience different cultural atmospheres.

Communication and interaction are carried out through group cooperation. In short, the above means together build a three-dimensional traditional culture inheritance system, which does not neglect the essential connotation of traditional culture while utilizing information technology and is able to give secondary school students a more diversified choice of space and more in-depth contact channels.

## 5 Conclusion

This study systematically explored the strategies and effects of traditional culture dissemination in a digital education environment. The results show that the application of technologies such as virtual reality, augmented reality and artificial intelligence effectively breaks down the time and space limitations, and significantly enhances the level of cultural cognition (+41.3%), cultural interest (+35.6%) and cultural self-confidence (+28.4%) of adolescents. As digital natives, teenagers are more receptive to interactive, personalized and entertaining communication methods (overall acceptance score of 3.42, emotional acceptance score of 3.78). The study found that symbolic expression, storytelling and gamification experience can effectively enhance the attractiveness and memorization effect of the content. The personalized learning system provides customized solutions through big data analysis, resulting in a 30% increase in learning efficiency and a 42% increase in satisfaction. The hybrid communication model that integrates online and offline strengthens physical participation while maintaining convenient interaction, increasing cultural identity and practical participation by 35% and 55%, respectively. This study provides educators with specific practical guidance, including digital resource development paths, platform utilization methods, learning system construction and effect evaluation criteria, which is an important reference value for promoting the modernization and transformation of traditional culture education.

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