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RESEARCH ARTICLE

A study of the "Six Arts" digital experience

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ABSTRACT

The "Six Arts" is a core component of the ancient Chinese education system. With the rapid development of digital technology, this ancient educational concept has regained attention in the tourism industry. This study aims to optimize the traditional visit form of the "Six Arts" cultural exhibits in the museum through digital means, changing it to a digital immersive experience, so that the "Six Arts" culture can be fully understood by tourists and increase their interest in visiting. The study is a mixed research method of qualitative and quantitative, and the study is divided into three stages. 1. Study the ancient and modern experience methods of the "Six Arts"; 2. Check the learning purpose of various skills of the "Six Arts" and select appropriate digital means to design the experience form; 3. Design a model display, combine the experience of skills to form a solution, and distribute questionnaires to tourists visiting the "Six Arts" in Shandong Province to evaluate the feasibility. Through the study of the novel digital experience of the "Six Arts", it brings fun to the tourists and improves interactivity. And the study of digital expression can fully display cultural relics and immersive experience skills, bringing historical culture closer to tourists. The study shows that the digitization of the "Six Arts" enhances the interaction between tourists and culture, can deeply understand the "Six Arts" culture, and increase the interest of tourists to visit.

The "Six Arts" cultural exhibits currently on display are all traditional display methods of object display and text description, which cannot be digitally iterated and can only be explained using traditional electronic guides. The experience form of the "Six Arts" described in the literature is relatively boring, and tourists cannot truly understand the cultural value of the "Six Arts".

Keywords: Digitalization; Six Arts; Visitor Experience

1. Introduction

The development of museums will also face new opportunities and challenges due to the advent of the era of artificial intelligence, and "smart museums" have become a hot topic of concern in the museum community[1]. Looking at cultural confidence and combining the pace of the times, museum education and cultural communication can be more fully exerted through digital integration. Therefore, promoting the digital experience of the "Six Arts" museum is a trend required to promote cultural confidence and positive values. The "Six Arts" culture is an important part of Confucian culture and an important window to

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understand Confucian culture. In today's society, cultural inheritance and experience play an important role in enhancing cultural confidence, mainly reflected in shaping human nature and consolidating national spirit. At the same time, culture is also a productive force, which is of great significance to improvement of people's cultural quality. Therefore, this study is a typical demonstration of digital experience of museums to promote attraction of tourists.

By studying the combination of "Six Arts" cultural exhibits and digitalization, a digital experience is formed, and the most novel digital experience model and tourist experience plan are designed. A questionnaire is formed to communicate in depth with museum tourists, and data from surveys in different dimensions are used for evidence, and finally the impact on the promotion of tourists' visits is evaluated.

By studying the data and scenarios of visitor experience, we can understand the preferences, demands and visiting habits of today's tourists, thereby promoting the digital upgrade of museums and promoting the development of cultural heritage and the tourism industry.

1.1. Digital transformation of traditional Chinese cultural practices

The "Six Arts", as an important part of the traditional Chinese education system, include a variety of skills such as rituals, music, archery, imperialism, calligraphy, and mathematics, and contain rich cultural connotations. The transformation from traditional cultural heritage to digital heritage by transforming and reproducing these traditional skills through digital technology in modernized presentations makes a significant contribution to the sustainability of cultural tourism[2], enabling its dissemination to a wider audience, a trend that is reflected in various fields, where the ability to utilize digital tools is becoming a a prerequisite for success[3]. Calligraphy, a traditional skill, can be demonstrated through Virtual Reality (VR) or Augmented Reality (AR) technology, allowing visitors to practice penmanship and lettering in a digital space. In this transformation process, it is crucial to avoid simplifying or misunderstanding the traditional culture. For the digital display of calligraphy, the focus should not only be on its formal aesthetics, but also on conveying the cultural philosophy and spiritual connotations behind it. By combining digital interactive experiences and cultural background explanations, the deeper meanings of the six arts can be demonstrated, which helps visitors not only understand "how to do it" but also "why to do it" and thus gain a deeper understanding of the cultural core.

1.2. Cultural adaptation in a modernized scene

Cultural appropriateness is a central issue when translating the Six Arts into modern digital experiences. Modern digital environments emphasize interactivity and immersion, but these qualities sometimes conflict with the quiet and introspective requirements of the traditional Six Arts. Traditional rituals emphasize solemnity and order, while modern digital displays may focus more on rapid engagement and real-time feedback. How to retain the original solemn atmosphere of liturgy in a digital scene is a challenge worth exploring. By utilizing digital technologies, cultural institutions can create engaging narratives and experiences that attract visitors while maintaining the integrity of cultural practices[4]. In order to find a balance between the modern and the traditional, designers can make the rhythm and mode of digital interaction more in line with traditional cultural expressions by moderately adjusting them. In a VR scene that demonstrates etiquette, the ritualistic behavior in ancient societies can be simulated through the ritualistic interactions of virtual characters, and visitors can be given enough time to observe and think during the display process. This kind of adjustment can satisfy visitors' expectations of interaction without losing the essential features of etiquette.

1.3. Bridging cultural authenticity and modern participation strategies

Maintaining the authenticity of the cultural core in modernized displays of the Six Arts is key to the design of the displays, and Supriono et al. have shown that cultural authenticity plays a crucial role in shaping the overall tourist experience, which mediates their willingness to revisit the festival[5]. Cultural authenticity means respecting the historical origins and traditional values of the Six Arts, rather than presenting them as mere entertainment tools or visual stimuli. In order to bridge the gap between culture and modern experience, a narrative display strategy can be used, i.e., through the introduction of storytelling situations or historical backgrounds, so that the audience can feel the cultural roots of the Six Arts in the process of experiencing them. For example, when displaying the art of "archery", the allusion to ancient "archery" rituals can be introduced, and the scenes of ancient archery rituals can be digitally reproduced, so that tourists can not only experience archery techniques, but also understand the spirit of etiquette and the social rules contained therein.Uslu emphasizes that local perceptions of cultural authenticity are essential to support the development of cultural heritage tourism and highlights the importance of cultural sustainability in these interactions[6]. This narrative strategy not only enhances the interest of the experience, but also helps tourists to understand the cultural significance of the six traditional arts in a modern setting.

1.4. Meaning of participation and experiential culture

Modern participatory strategies emphasize active involvement and personalized experiences of visitors, while the traditional Six Arts often have fixed forms and inheritance methods. In modern displays, how to maintain the degree of participation while ensuring the correct interpretation of cultural connotations is a problem that must be solved in display design. "Music, one of the six arts, can be displayed through music production software or virtual instrument playing experiences, but it needs to be ensured that visitors are not only playing the instrument, but also learning about the rhythms, rhythms and cultural meanings of ancient Chinese music. This combination of strategies can be realized through real-time cultural interpretation and the provision of contextual information. When visitors experience ancient musical instruments in a virtual environment, the system can automatically play the relevant historical background, the origin story of the instrument, and explanations of playing techniques. The use of gamification in museum environments has been shown to increase visitor engagement and enjoyment, making the learning process more engaging[7,8]. In this way, tourists can gain in-depth cultural knowledge at the same time as they actively participate in the process, realizing a dual experience of participation and understanding.

1.5. Combination of experiential learning and cultural heritage

"The display of the six arts is not only for visitors to experience ancient skills, but more importantly to pass on and carry forward the spiritual value of these skills. Modern digital experience can stimulate visitors' interest through gamification and interactive tasks, but it is necessary to avoid fragmentation and superficiality of cultural elements. To ensure the integrity of the cultural heritage, tasks or objectives based on cultural values can be incorporated into the experience. By transforming a museum visit into a more dynamic and participatory experience, a sense of ownership can be fostered among visitors, encouraging them to explore and interact with the content in a meaningful way[9]. In a session showcasing the 'book', a step-by-step model of exercises could be devised, from basic strokes to the creation of complex calligraphic works, with the underlying cultural philosophy, such as the concept of the 'character as a person', explained at each session. This learning path not only gives visitors a sense of accomplishment, but also conveys cultural values in a subtle way.

1.6. Adaptive design from a cross-cultural perspective

By studying the adaptability of the Six Arts in the modern digital environment, we can provide new ideas for cross-cultural communication. Modern displays are not only for local audiences, but also for

international audiences, so how to preserve the core values of culture while making them acceptable to audiences from different cultural backgrounds is a key point that can be explored in the study. Research could incorporate feedback from visitors from different cultural backgrounds, an approach that not only enhances visitor engagement, but also supports the educational mission of museums by ensuring that the information presented is relevant and accessible to different audiences[10] by analyzing differences in the interpretation of the Six Arts in the context of globalization, and thus designing more universal displays. Analyze the differences in interpretation of the Six Arts in the context of globalization, and then design more universal display solutions.

1.7. Exploring the integration of digital humanities and cultural heritage

The research on "Six Arts" display is not only the application of technology, but also an in-depth exploration in the field of digital humanities. Future research can propose more innovative display methods in the integration of digital technology and cultural heritage. The rapid digitization of heritage items not only facilitates access, but also contributes to the sustainability of cultural heritage areas by transferring these items into virtual environments[11]. Artificial intelligence analyzes visitor behavior during the Six Arts experience and automatically adjusts displays to better match visitors' cultural understanding and learning pace. Such research can help promote the in-depth application of digital technology in the field of culture and education, and enhance the educational effect of cultural experiences.

2. Research Objectives

Through the study of the "six arts" cultural exhibits combined with digitalization to form a digital experience, design the digital space effect and visitor experience program, certified by relevant materials and research data, and assess the impact on the promotion of tourist visits.

3. Literature Review

3.1. The "Six Arts"

In ancient China, rites, music, archery, imperialism, calligraphy, and mathematics, also known as the "Six Arts," were subjects of Confucian education, programs that cultivated human character and ability. With the change of time, scholars have put forward many interpretations of the meaning of the Six Arts, with a view to reformulating the Confucian concept of education and applying the Six Arts to educational practices. In modern times, the Six Arts have also been regarded by some education scholars as the Chinese version of liberal arts education[12].The evolution of the Six Arts provides a new perspective for us to study the generation of classical Chinese academics and to re-conceptualize the excellent traditional Chinese culture. After classicization, the Six Arts became the Confucian metacode, condensed into the spirit of classical Chinese scholarship, and continued to have an impact on future generations. Through the changes and constancy of the Six Arts, we have a deeper understanding of the brilliant glory and enduring charm of Chinese classical scholarship, as well as its significance in passing on civilized traditions, strengthening cultural confidence, and reviving Chinese culture[13].

3.2. Museum digitization

Digital technology takes full advantage of the rapidly evolving suite of technologies and works in tandem with the physical space. This is critical to meeting the needs of diverse audiences as well as communicating science. This means that we have moved from delivering a single museum experience to all audiences in one way to delivering museum experiences to many audiences in many ways. It increases the

complexity of delivery, but also increases visitor satisfaction while furthering the mission of communicating science. Develop digital experiences through artificial intelligence and machine learning. While this is less obvious to visitors, it becomes an engine for us to rapidly scale and deploy personalized, data-driven experiences. This emergence provides new opportunities for museum engagement. A second paradigm shift may be experiences through virtual, augmented and mixed reality. Not all technologies will be adopted equally by mainstream audiences, not all will be effective in communicating a museum's mission, and not all will survive in the long term. It is difficult to prepare for these new ways of interacting with audiences and balance the benefits of adopting them without over-investing or adopting them prematurely[14]. Museums and Digital Culture centers on how technological advances are changing our experience of life. Reality is also virtual, and the virtual is also real. Those who study and work in museums will find this book immensely useful in their thinking about how to deal with the digital ecosystem of which we are all a part[15].

3.3. Digitalization of museums has the potential to attract visitors

The role played by the Internet in people's activities is constantly increasing. It is a pervasive component of business and its social significance has long since grown beyond being recreational. It provides a significant platform for cultural activity and has become a factor in the shaping of cultural interests. Museums have long recognized the potential that the Internet provides for reaching new audiences and are currently considering the extent to which "born digital" activity may require accommodation in the basic definition of museums and the museum profession.[16]

3.4. The use of museum information resources

New information technologies offer museum professionals new ways of bringing information about their collections directly to their audiences. These information resources are used by many different online museum visitors, from recent visitors interested in learning more about the museum's collections, to academic researchers at distant universities searching for particular objects in the museum's holdings. The wide variety of uses and users of museum information resources makes it critical for museum researchers and professionals to explore the use of museum information resources, in-house and online[17]. As more museums offer digital resources online, and as the number of online museum visitors increases to be as much as ten times the number of physical visitors, studying the use of digital museum resources becomes particularly important.

3.5.The application of digital technology in Asian museums

The application of digital technology in museum settings across Asia has seen significant advancements, particularly in enhancing visitor engagement and facilitating the dissemination of cultural heritage. Museums are increasingly adopting innovative digital tools such as augmented reality (AR), virtual reality (VR), and interactive displays to create immersive experiences that transcend traditional exhibition limitations. For instance, the "Discovering the Hall of Mental Cultivation" exhibition at the Beijing Duanmen Digital Museum exemplifies how digital heritage displays can effectively engage audiences by utilizing touch-controlled interactions and motion capture technology. This exhibition not only showcases cultural relics but also integrates artistic elements to maximize the educational impact on visitors, thereby fostering a deeper understanding of cultural heritage[18]. The integration of digital technology in museums is not limited to enhancing existing exhibitions but also extends to participatory projects that involve community engagement. The Digital Natives project illustrates how museums can leverage everyday experiences to create new forms of engagement with young audiences. By focusing on the contributions of migrant youth, the project highlights the potential of interactive programs to facilitate knowledge sharing and cultural exchange through Information and Communication Technologies (ICTs). This approach not only enriches the museum

experience but also empowers community members to actively participate in the storytelling process, thereby fostering a sense of ownership and connection to the cultural narratives being presented[19]. In Thailand, the application of digital technology in museums is exemplified by the case study of Wat Phumin, where the use of responsive web design and QR codes has been implemented to enhance visitor understanding of Lanna mural paintings. The research indicates that while the murals contain rich narratives, there was a lack of guidance for visitors to appreciate these stories fully. By employing digital tools, the museum has created a more accessible and informative experience, allowing both Thai and foreign visitors to engage with the cultural significance of the murals more effectively. This case underscores the importance of utilizing digital technology to bridge gaps in visitor comprehension and to enhance the storytelling aspect of cultural exhibits[20].The Museum of the Asian-African Conference has embraced virtual tours as a means of digital communication to disseminate information effectively. This approach not only allows for the continuation of educational outreach but also demonstrates the adaptability of museums in responding to contemporary challenges. By utilizing social media platforms and virtual tours, the museum has expanded its reach and accessibility, ensuring that cultural heritage remains available to a broader audience during times of crisis[21].The synthesis of these examples illustrates a broader trend in the museum sector across Asia, where digital technology is increasingly viewed as a vital tool for enhancing visitor experiences, fostering community engagement, and ensuring the preservation and dissemination of cultural heritage. As museums continue to innovate and adapt to the digital landscape, the potential for creating meaningful and interactive experiences will only grow, further enriching the cultural fabric of society.

3.6. Visitor satiation

These shares about the visitor experience, besides being an important source of information for visitors, affect visitors'purchasing decisions and their perception of trust and quality of the product/service[22]sharing can also create a desire for potential visitors to participate in the same experience[23].

Therefore, it is necessary to increase the possibilities of creating data to improve the tourist experience by integrating smart tourism applications of enterprises[24]. This technology-based service innovation significantly affects service value, tourist site visits and experience sharing through technology. Visiting a museum can be a multi-faceted experience involving learning and enjoyment, and can prove exciting, aesthetic or immersive[25]. However, visitors may experience physical and mental tiredness or fatigue from walking around a museum and maintaining high levels of attentiveness[26]. showed that visitors have a limited timeframe after which their interest in exhibits diminishes.[27] Refers to museum fatigue,that is "predictable decreases in visitor interest and selectivity either during entire visits, within smaller areas (such as exhibit galleries), or across a few successive exhibits"， proposed an integrationist view in which visitor factors (cognitive processing, physical fatigue) and factors in the environment (museum architecture and setting) explain museum fatigue. Yet visitors can also become satiated when exposed to a large number of stimuli over a long period of time. Unlike fatigue, satiation involves decreased attention, not as a function of tiredness, but because of repeated exposure to homogenous stimuli. Therefore, in the context of visiting museums, satiation represents a gradual decrease in visitor attention, emotion, and enjoyment to a point when the visitor is no longer interested in the museum content or visit[28,29].

4. Research Methodology

This study uses a combination of qualitative and quantitative research methods to mainly explore the promotion and impact of digital experience on tourists' visits. The study analyzes the Six Arts literature to understand and discover the detailed information and characteristics of each skill. The questionnaire can be

used to understand tourists' demand for museum digital experience and evaluate the feasibility of immersive experience.

The target audience selected Shandong Provincial Museum as the main object of the study, not only because of its geographical and cultural importance, but also because of its representativeness and advancement in displaying Confucius culture and the "Six Arts".

The research tools include observation and interviews, with the aim of understanding and studying tourists' direction and interest in digital experience visits. And analyze model design system.

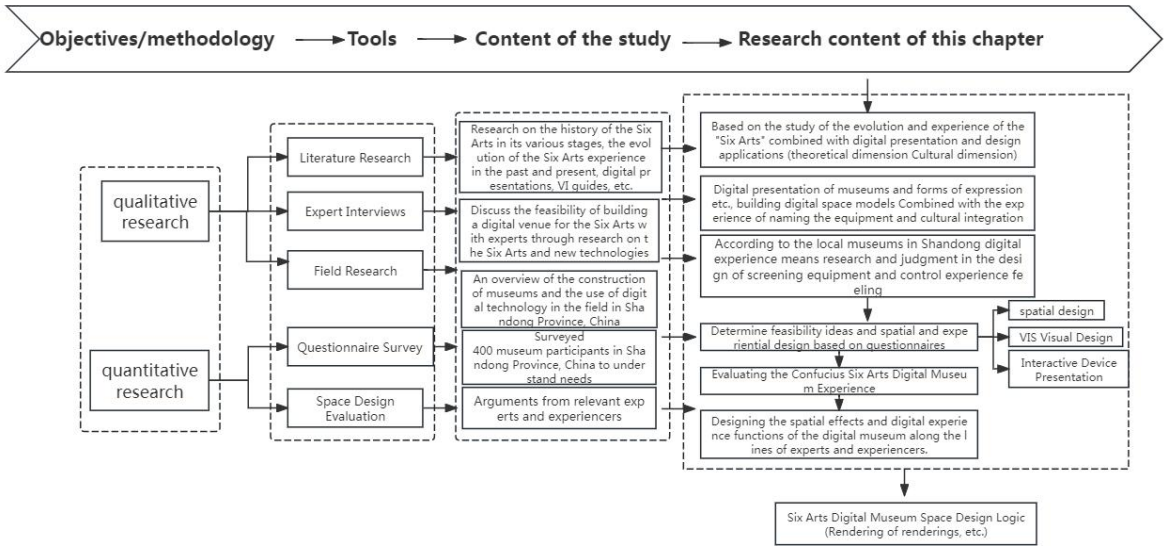


Figure 1. Methodology framework

***Source**: Author.*

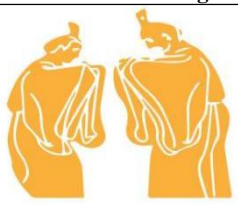
5. Research Results

The research results show that the digital experience of the "Six Arts" has enhanced the interaction between tourists and culture, enabled them to have a deep understanding of the "Six Arts" culture, increased tourists' interest in visiting, and increased the number of visitors.

5.1. Comparative study

First, through qualitative research and relevant records, it is known that Confucius' six arts refer to the six basic skills of ritual, music, archery, charioteering, calligraphy, and mathematics. In China, the education system of calligraphy and mathematics was pioneered by Confucius. The purpose of this education system is to cultivate special abilities for all-round development. "Rites" involves social etiquette and ethics, emphasizing harmonious coexistence between people; "Music" is a musical art that soothes and controls people's emotions; "shooting" means archery, which is a symbol of honesty and bravery. "Chariot" is a symbol of control and management, and "book" refers to the practice of writing and literary writing. The focus is on learning and accumulating knowledge, and "number" is related to mathematical knowledge, cultivating logical thinking and problem-solving skills. Confucius advocated the study of the six arts, which not only helps people develop skills, but it is also possible to achieve balanced development of morality, intelligence and body to achieve personal perfection and social harmony. The goal is to encourage people to be a gentleman useful to society through moral cultivation and artistic cultivation. Subsequently, the experience development of the traditional six arts and the ancient six arts is compared.

Table 1. Comparison of the ancient and modern meanings of the term "Six Arts".

No.	Name	Ancient Meaning	Contemporary Meaning
1	Etiquette	 With etiquette as the center, people are required to attach importance to rituals, etiquette and norms, so that social order is normal and orderly, and way of interpersonal communication is clear, understandable, thus maintaining social stability and cohesion.	 Through various activities and ceremonies, we promote the cultivation of personal behavioral codes and ethical norms, so that individuals can grow into outstanding talents under the values of respecting others and being humble.
2	Music	 Through music, singing and dancing, people's emotions and feelings are expressed, their inner joy, anger, sorrow, and sadness are expressed, interpersonal communication and artistic achievements are enhanced, and people's creativity and spirit of cooperation are stimulated.	 Through the performance of music and dance, we can convey beautiful emotions, shape positive personality, stimulate the inner world of individuals, etc., thus improving the overall quality of individuals.
3	Shooting	 Shooting refers to archery skills, which can directly attack the enemy and protect our soldiers. Shooting skills reflect the ancient archers' high attention and admiration for archery, and also reflect the ancient people's love and pursuit of martial arts.	 Shooting can provide individuals with good physical exercise and comprehensive quality training opportunities, while also helping to improve physical fitness, psychological quality and social skills. It also has a positive impact on self-cultivation and value cultivation in the process of personal growth.
4	Drive	 "YU" refers to the technology of driving carriages and chariots. The "YU" technique enables chariot soldiers to move quickly and increase impact force. The existence of "YU" reflects the importance that ancient Chinese people attached to carriage culture and driving technology, and embodies their complete and unique driving culture system.	 This term is used to refer to equestrian skills, which refer to the techniques and training related to horse riding and driving. Training can cultivate personal courage and self-confidence, and also has a good training significance for self-protection and coping ability. Skills can also maintain healthy physical and mental development and shape a healthy body.
5	Write	 Writing refers to calligraphy, which is one of treasures of Chinese traditional culture. It records cultural diversity through various forms of writing. They not only reflect the cultural heritage and wisdom of the ancient Chinese people, but also show unique value and charm of ancient culture	 Calligraphy is an important part of cultural education and a form of education that can promote creativity. Calligraphy is not only beautiful, but also helps to cultivate children's delicacy and grandeur, and improve their thinking and expression skills. A hobby of calligraphy is very helpful for improving personal

No.	Name	Ancient Meaning	Contemporary Meaning
		through the art form of calligraphy. Today, many people still have a special liking for calligraphy, drawing inspiration from it and improving their aesthetic and artistic cultivation.	language skills and literary abilities.
6	Math	 Math refers to ancient mathematics, among which the famous "Nine Chapters on the Mathematical Art" played a huge role in promoting the development of mathematics in ancient China. It paved the way for the development of mathematics for future generations and laid a brilliant foundation for the achievements of ancient science and technology and mathematics in my country. At the same time, its achievements are still widely recognized and referenced in the world of mathematics today.	 In modern education, mathematics education not only takes into account charm and interest, but also focuses on the structure and development of mathematical knowledge. Individuals do not need to learn abstract mathematical knowledge, but need to gradually understand the basic concepts and laws of mathematics through life experience, so as to improve their hands-on ability and thinking ability.

Source: *Author.*

According to the "Six Arts" experience methods compiled by the above researchers, find digital experience solutions that match various skills, so as to achieve multi-dimensional perception and increase the freshness and fun of each skill.

5.2. "Six Arts" digital experience presentation

Science and technology help cultural relics display, and use interactive technology in important links to attract tourists to learn more about exhibits. At present, the creation of digital archives of cultural relics in my country is still in its infancy. Digital interactive design pays more and more attention to the integration of virtual reality and artificial intelligence. I hope that people will have a deeper understanding of future art and technology exhibitions. Museum 3.0 user experience is more important, creating more creative art, constantly stimulating the vitality of museums, and making it possible in future competition. Experience-based interactive design with digitalization and intelligence as the core has become one of the outstanding needs today and one of the key issues of public concern. It will also be an important development trend and direction of cultural communication in the future. Six modern digital experiences Continuous digitization provides opportunities to learn and experience different methods. To experience Confucius' "Six Arts" based on the characteristics of the Six Arts and digital experience technology, researchers try to use the advantages of the following technologies to change the traditional way of visiting. Make learning "Six Arts" possible.

Digital technology: The Six Arts are more diverse and interactive. These learning modes can help you learn, observe and practice the Six Arts in greater depth, and webcasting technology is a possible new form of learning for enthusiasts. Calligraphy robots can draw and train. By instructing visitors to control the calligraphy robot to practice calligraphy and creativity, it helps visitors to scrutinize each line and familiarize themselves with the structure of the font. Visitors are able to have an immersive calligraphy learning experience. The Calligraphy Robot is not only able to accurately draw calligraphy works, but also allows visitors to gradually understand the basic structure and techniques of the art of calligraphy through visitor interaction. Through repeated practice and observation, visitors are able to better grasp the strength and sequence of strokes and the structural aesthetics of different fonts when writing. This experience mimics the process of transmission in traditional calligraphy teaching, allowing visitors to gain a deeper understanding and mastery of calligraphy skills in a short period of time. In addition to its educational benefits, the

Calligraphy Robot is a bridge between traditional art and modern technology. The ability of robots to replicate the subtle movements involved in calligraphy (e.g., pen turns and stroke changes) demonstrates the potential of technology to preserve cultural heritage[30]. The interactive design of the robotic calligraphy exercise helps to stimulate visitors' creativity. Through the real-time feedback provided by the robot, visitors are able to experiment with different variations of strokes and lines and gradually develop their own style. Visitors can not only imitate traditional calligraphy, but also design unique symbols or glyphs by combining their own creativity through the calligraphy robot. The application of robotic systems in calligraphy is not limited to reproduction. These systems can be used in a variety of environments, including museums and cultural centers, to provide interactive presentations that engage visitors[31]. This self-created space infuses traditional calligraphy with a modern and innovative experience.

Figure 2. Interactive digital experience.

Source: *https://m.fx361.com/news/2021/0615/8460664.html20210615, retrieved on (20.11.2023).*

5.3. VR, AR virtual reality technology

Virtual reality technology has emerged. It can be used to aid in the understanding and experience of six key themes. Providing a highly immersive experience for visitors, virtual reality technology has become a transformative tool for enhancing the museum visitor experience, providing immersive environments that engage visitors in ways not possible with traditional exhibitions. Incorporating VR into museum environments allows for the creation of virtual museums, which are defined as interactive multimedia platforms that present collections in a dynamic and engaging way, making art and culture accessible to a wider audience[32]. Virtual reality technology also allows for realistic scenarios of activities such as archery and driving. In virtual archery, visitors can not only experience the entire process of drawing, aiming, and releasing an arrow, but they can even feel the physical feedback after the arrow leaves the string. Similarly in the virtual driving simulator, visitors can operate the steering wheel, gas pedal, brakes, etc., to simulate the real driving experience through realistic scenarios and action feedback. Integrating gamification elements in virtual reality environments has been shown to promote interaction and engagement, making museum experiences more enjoyable and memorable[33]. This approach not only attracts younger visitors, but also encourages repeat visits and allows visitors to engage with interactive content with increased frequency . This highly simulated interactive environment enhances visitor engagement and learning as if they were practicing in a real scenario. A significant advantage of virtual reality technology is its ability to provide a safe training environment for visitors, especially in high-risk activities such as archery and driving. Visitors can repeatedly practice complex driving skills or archery techniques in a virtual environment without having to worry about safety risks or equipment damage in reality. This risk-free training mode not only boosts tourists' confidence, but also helps them quickly master the relevant skills through a feedback system. Virtual reality technology is not limited to simulating a single action or scene, it can provide tourists with diverse scene switching and learning content. For archery, virtual reality technology can be operated in different virtual environments, such as forests, arenas or ancient battlefields, and such diverse scenarios allow visitors

to feel a rich entertainment experience. For driving simulation, virtual reality technology can simulate a variety of different weather conditions, road conditions or traffic environments to help visitors cope with the complexities they may encounter in reality. It is especially important in learning programs, as virtual reality has been shown to increase motivation and engagement of those experiencing it[34]. This flexibility and variety of experiences allows visitors to combine learning with entertainment, greatly enhancing immersion and fun. In the virtual environment, visitors are able to get immediate feedback on their maneuvers. For archery, virtual reality technology can tell visitors the accuracy of an arrow hitting the bull's-eye or advice on correcting shooting posture through visual and tactile cues. Driving simulators can also alert visitors to changes in road conditions and driving errors through visual and audio feedback. This instant feedback mechanism can help visitors improve their skills faster, especially when practicing complex skills, which can greatly shorten the learning cycle.

Figure 3. Augmented reality experience.

Source: *http://pic.people.com.cn/n1/2022/0722/c1016-32483552-12.html, retrieved on (20.11.2023).*

5.4. High-speed network experience

Experiencing the Six Arts can be accomplished through online courses and other channels. Using high-speed networks, those with remote online experience can participate in real-time interactive courses. Visiting at regional, city and national levels, those with experience can experience exciting learning resources. Foster diverse interests and build friendships. High-speed networks offer museums the possibility of real-time online interactive courses, allowing visitors from different regions to participate in courses remotely, interacting with docents or experts in the museum. Museums are increasingly seen as active participants in continuing education, facilitating formal and non-formal education programs that use digital technology to reach a wider audience[35]. This shift not only improves the accessibility of educational content, but also enables museums to interact with learners in innovative ways Through videoconferencing, virtual classrooms, and other formats, participants can ask questions, share ideas, and even engage in hands-on activities such as online art-making and historical and cultural debates during the course, which not only enhances the liveliness and engagement of learning, but also breaks down geographic limitations and makes educational resources more universal. The integration of digital technologies with museum education promotes interactive learning environments that can overcome traditional barriers to education.Camaño and Turmo discuss how digital technologies can promote social creativity in science education, enabling students to collaborate and create knowledge in museum environments[36]. Participants can not only access the museum's digitized collections and multimedia materials online, but also take part in virtual exhibitions, international lectures, and other activities that address different cultural themes. This multi-layered learning experience helps visitors broaden their horizons and gain insights into diverse cultural contexts, thus stimulating interest in different histories and cultures. At the same time, through the social features on the learning platform, visitors can share their learning experiences with like-minded people, forming a global learning community.The high-speed network offers a wide range of online activities, such as lectures, workshops and seminars, which help visitors to explore and develop their interests. This online learning experience not only

meets visitors' needs for in-depth exploration of specific topics, but also promotes communication and cooperation among visitors through interactive activities. Art enthusiasts can learn different artistic techniques through online courses, while history buffs can experience historical scenarios in-depth by participating in virtual live-action exhibitions. This collaborative aspect is crucial as it allows learners to actively engage with the content rather than passively consume information. The use of interactive digital platforms can also enhance the aesthetic experience, as demonstrated by Jonauskaitė et al. who found that digital interaction with artworks greatly enriched the museum visitor experience[37].

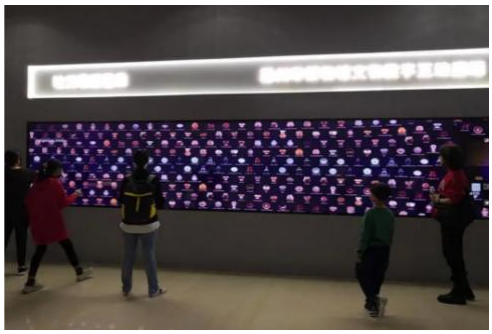


Figure 4. Application of high-speed network in the museum area.

Source: *http://www.vamplatform.com/museum.html, retrieved on (20.11.2023).*

5.5. Interactive experience platform

Interactive platforms are popular with visitors and the Six Arts can also be utilized for educational and experiential purposes, such as creating interactive simulation environments and game scores. Or scanning and scanning modes to demonstrate and showcase multi-dimensional learning, practice and communication skills. Create engaging, interactive and compelling experiential learning methods to stimulate the interest of the experiencer. Interactive platforms provide visitors with a multi-dimensional learning experience through technologies such as scanning and augmented reality AR. Visitors can access more in-depth information in real time, such as the development history of the Six Arts and audio lectures by experts. Visitors can not only see the appearance of the exhibits, but also explore their internal structure and principles through virtual modes, so as to understand the knowledge behind the exhibits more comprehensively.AR can provide background information about the artifacts, thus deepening the understanding and appreciation of cultural heritage, and they point out that AR can effectively bridge the gap between tourists and museum artifacts[38]. This multidimensional learning experience makes museums no longer limited to the "six arts", but rather to the "six arts". learning experience allows museums to go beyond displaying static exhibits and become a dynamic knowledge space that can help visitors to dig deeper into the multi-layered information of the exhibits during their visit and promote their understanding of historical, cultural and scientific knowledge.AR can also serve as a creative platform to enrich mediation practices within museums.Ossmann et al. emphasize that AR can act as a "creative playground" for visitors to interact with exhibits in innovative ways, thus bridging the gap between traditional museum experiences and modern technological engagements[39]. The platform's upper stage can provide visitors with practical and hands-on opportunities, such as through virtual experiments and interactive simulations that allow visitors to participate in the recreation of scientific phenomena or historical events. These hands-on activities not only increase visitors' engagement and interest in learning, but also allow them to develop problem-solving and hands-on skills during the experience, which is further supported by Masiero et al. who state that the introduction of 3D information through AR can significantly improve the overall visitor experience in cultural heritage applications[40], thus enhancing the educational value of museums. Interactive platforms can also serve as a

communication bridge between visitors and museums, and between visitors and tourists. Visitors can interact directly with the museum's digital platform by scanning exhibit information, leaving comments, feedback, or questions, and receiving responses from museum experts. Visitors can also share their views or insights on exhibits with each other through the platform, and even engage in real-time discussions on the platform. This kind of inclusivity is crucial as museums strive to create deeper interactions with their visitors, transforming passive spectators into active participants[41]. This personalized communication experience makes the museum less of a one-way transfer of knowledge and more of a community that fosters exchange and collaboration. Visitors are encouraged to take the initiative to express their views, creating a multidirectional mode of interaction that enhances the museum's sense of community and belonging as a cultural and educational platform.

Figure 5. Platform Game Experience.

Source: *https://gocity.com.cn/blog/details/5784620210511, Retrieved on November 20, 2023.*

5.6. Interactive holographic projection

Museums are experimenting with the creation of stand-alone film screening spaces to visually present the main content of an exhibition or the life story of an important figure. The new movie screening space created under the interactive design concept aims to break the traditional boundaries of space and time. It immerses the viewer in the scene and stimulates independent thinking and emotions. Technology enables exhibits to be presented to visitors in three dimensions by creating three-dimensional images. Holography reproduces the light field of a 3D object, allowing the audience to perceive depth and perspective as if it were a physical object. This capability is crucial for museums, as accurate presentation of artifacts is essential for educational purposes and visitor engagement[42], enhancing the visual impact and immersion of an exhibit. Visitors can not only observe the details of the holographic projections through a 360-degree view, but also interact with the holograms through natural interactions such as gestures and voice. Holographic projections in museums can recreate historical figures or displays of artifacts, and can show delicate objects that visitors cannot touch with their own hands, thus maintaining their integrity while still providing an engaging viewing experience[43]. Visitors can interact with these projections to gain more contextual information or participate in the recreation of a virtual scene; in science museums, visitors can control holographically projected 3D models through gestures, observing different angles, inner workings, or functions of an object. This kind of interaction enables visitors to participate in learning more actively, enhancing their interest and engagement. Holographic projection is able to dynamically display complex processes, such as the restoration process of historical artifacts, the operating principles of mechanical equipment, and the dynamic changes of human organs. Visitors can learn about the principles behind these complex processes in stages by interacting with the holographic projections, a method that not only helps to preserve these cultural elements, but also makes them accessible to those who may not be able to visit the museum in person[44]. With the help of holographic projection technology, museums can virtualize parts of their exhibitions and make them available to remote visitors or expand them to other exhibition spaces. Not

only can visitors interact with the holograms within the museum, but remote visitors can also use similar interactive experiences through online platforms.

Figure 6. Application of interactive images.

Source: *https://luminvision.com/interactive-gesture-software-modern-technology-latest-features/20191004, Retrieved on November 20, 2023.*

Combine digital equipment with skill experience and design a digital experience space plan, distribute questionnaires to tourists in Shandong, and analyze the impact of digital experience on visit promotion.

Render the digital model of museum space based on the description effect of "Six Arts" in the literature and digital equipment.

Figure 7. Rendering of the “Six Arts” digital space design.

Source: *Author Design.*

5.7. Questionnaire survey:

Participants were randomly selected from museum visitors to understand their needs for the Six Arts Museum space and evaluate the product design after the product design was completed. The focus of the questionnaire during the survey was to test the degree of understanding of the various indicators of the "Confucius Six Arts" digital experience on the promotion and satisfaction of visitors and the reliability of the scale. After the survey test, the "Confucius Six Arts" digital venue visitor evaluation scale was determined. The designed questionnaire consists of four parts. The first part is the basic situation of the respondents. The second part is how museum visitors understand Confucius' six arts. The third part is whether museum visitors support and are willing to jointly find ways to protect and develop culture. The fourth part is museum visitors' opinions on how the digital experience will evolve in the future and whether the trend will be adopted. The fifth part is the suggestions and opinions of museum visitor respondents on the venue design. There are a total of 16 questions. Some questions are measured by Likert scale, and each of the 16 questions is scored separately. The subjects of this survey are museum visitors, and the survey method adopts the field survey questionnaire method. The purpose is to have a more comprehensive understanding of the needs of museum visitors for the current museum service content and the current problems in museum visitor services. A random visit method was used to conduct a field survey of tourists in the surrounding areas of Shandong

Provincial Museum. 105 questionnaires were distributed online, and 103 were effectively collected, with an effective rate of 98%. SPSSAU will be used for data processing and analysis of the valid questionnaires.

To ensure the reliability of the data, the reliability and validity of the five dimensions of service quality in this questionnaire were first tested.

5.7.1. Reliability test

Reliability test is an important scale for measuring the reliability, consistency and stability of questionnaires. The test results are presented using Cronbach's alpha. Generally speaking, if the α value of Cronbach's alpha is greater than 0.8, it means that the scale reliability is very good; if it is above 0.7, it is relatively good. If it is between 0.6-0.7, the scale should be partially revised. If it is lower than 0.6, it means that it needs to be redesigned. This study will conduct reliability tests on all five dimensions and secondary indicators. The following is a reliability test of the actual perception of visitors on the service quality of museums in the questionnaire survey.

The test results are presented using Cronbach's alpha, as shown below

Table 2. Reliability test.

Cronbach's reliability analysis			
Name	**Correction Item Total Correlation (CITC)**	**Item Deleted alpha coefficient**	**Cronbach alpha coefficient**
1. Your gender	0.000	0.946	
2.Your age	0.000	0.946	
3. Your educational experience:[Single choice]	1.000	0.939	
4.Your Occupation:[Single Choice]	0.000	0.946	
5.Your monthly income:[Single choice]	0.000	0.946	
6. When visiting the Six Arts Cultural Center space, what type of information presentation did you prefer? [Multiple choice]	0.000	0.946	
7. What are the reasons for visiting the Six Arts Culture Center space? [Multiple choice]	-1.000	0.956	
8. Where did you learn about the Six Arts Culture Center space? [Single choice]	-1.000	0.984	
9. What spatial features of the Six Arts Cultural Center attracted your attention the most? [Multiple Choice]	0.000	0.946	0.945
Educational experience [Matrix question] *-The immersive experience of the Six Arts Cultural Center space has broadened my knowledge.	1.000	0.939	
"The spatial immersion experience at the Six Arts Cultural Center taught me new things.	1.000 0.939	0.939	
The spatial immersion experience at the "Six Arts" cultural center stimulated my curiosity to learn something new.	1.000	0.939	
Entertainment Experience [Matrix Scale Problem] - I found the immersive experience setup of the "Six Arts" cultural center space very interesting.	1.000	0.939	
The immersive experience in the "Six Arts" museum space is very appealing to me.	1.000 0.939	0.939	
The immersive experience of the "Six Arts" museum space relaxes me	1.000	0.939	

Cronbach's reliability analysis			
Name	**Correction Item Total Correlation (CITC)**	**Item Deleted alpha coefficient**	**Cronbach alpha coefficient**
The immersive experience program activities (exhibitions) in the "Six Arts" cultural hall space are interesting	1.000	0.939	
Aesthetic experience [matrix scale issue] - the immersive experience has an attractive appearance	1.000	0.939	
Immersive experience showroom attention to detail	1.000	0.939	
Pleased to stay at the Immersive Experience Showroom	1.000	0.939	
I felt very comfortable throughout the experience	1.000	0.939	
Tour Experience [Matrix Scale Question] - During the immersive pavilion experience, I felt different from the roles I play in my daily life	1.000	0.939	
The museum visit immersed me	1.000	0.939	
This visit made me completely forget my usual worries	1.000	0.939	
During this visit, I felt as if I was in a different time or place	1.000	0.939	
Visitor Satisfaction [Matrix Scale Question] - The actual experience of the spatial immersion experience at the Six Arts Cultural Center was consistent with my expectations.	1.000	0.939	
Enjoyed learning about the Six Arts museum space through the immersive experience	1.000	0.939	
I think the time and money I invested in the immersive experience was worthwhile	1.000	0.939	
Overall, I would rate the use of immersive experiences in the Six Arts cultural center space as positive.	1.000	0.939	
Post-visit behavioral intention [matrix scale question] - I prefer the immersive tourism experience to the traditional form of tourism.	1.000	0.939	
Want to visit the museum again in the future and experience this innovative form of tourism again	1.000	0.939	
I recommend my friends to go to the "Six Arts" cultural center space to experience this innovative form of tourism.	1.000	0.939	
Do you have any suggestions for the space of the "Six Arts" Culture Center?	1.000 0.939	1.000 0.939	
Standardized Cronbach's alpha coefficient: 0.965			

Source: *Author.*

If the α coefficient value is higher than 0.8, it means that the reliability is high; if this value is between 0.7-0.8, it means that the reliability is good; if this value is between 0.6-0.7, it means that the reliability is acceptable; if this value is less than 0.6, it means that the reliability is poor. The reliability of this scale is greater than 0.8, and the CITC values of each item are greater than 0.4, indicating that there is a good correlation between the indicators, and also indicating that the reliability level is good.

This data shows that the questions about the Confucius Six Arts Museum in this questionnaire meet the reliability of this project. For the project, the questions are very accurate and can be carried out around the questionnaire feedback.

5.7.2. Validity test

The validity is verified using KMO and Bartlett tests, and the results are shown in the table.

Validity analysis is used to study the rationality of the design of quantitative data;

First, analyze the KMO value; If this value is higher than 0.8, it means that the research data is very suitable for extracting information (which reflects the good validity from the side); if this value is between 0.7 and 0.8, it means that the research data is suitable for extracting information (which reflects the good validity from the side); if this value is between 0.6 and 0.7, it means that the research data is relatively suitable for extracting information (which reflects the general validity from the side); if this value is less than 0.6, it means that the data is not suitable for extracting information (which reflects the general validity from the side) (if there are only two questions; KMO is 0.5);

Personal characteristics

Table 3. Validity test.

KMO and Bartlett's test		
KMO value		0.699
Bartlett's test of sphericity	Approximate chi-square	321.588
	df	36
	p-value	0.000

Source: *Author.*

From the above table, we know that the KMO value is 0.699>0.6, which shows a relatively good effect on personal characteristics.

Educational experience

Table 4. Validity test.

KMO and Bartlett's test		
KMO value		0.699
Bartlett's test of sphericity	Approximate chi-square	321.588
	df	36
	p-value	0.000

Source: *Author.*

From the above table, we know that the KMO value is 0.743>0.7, which shows good results in educational experience.

Entertainment Experience

Table 5. Validity Test.

KMO and Bartlett's test		
KMO value		0.894
Bartlett's test of sphericity	Approximate chi-square	1032.852
	df	6
	p-value	0.000

Source: *Author.*

From the table above, we know that the KMO value is 0.894>0.8, which shows a good effect on entertainment experience.

Aesthetic experience

Table 6. Validity test.

KMO and Bartlett's test		
KMO value		0.798
Bartlett's test of sphericity	Approximate chi-square	11148.376
	df	6
	p-value	0.000

Source: *Author.*

From the table above, we know that the KMO value is 0.798>0.7, which shows a good effect on aesthetic experience.

Tour experience

Table 7. Validity test.

KMO and Bartlett's test		
KMO value		0.783
Bartlett's test of sphericity	Approximate chi-square	1029.718
	df	6
	p-value	0.000

Source: *Author.*

From the table above, we know that the KMO value is 0.783>0.7, which shows a good effect on the tour experience.

Tourist satisfaction

Table 8. Validity test.

KMO and Bartlett's test		
KMO value		0.711
Bartlett's test of sphericity	Approximate chi-square	4061.359
	df	6
	p-value	0.000

Source: *Author.*

From the table above, we know that the KMO value is 0.711>0.7, which shows a good effect on tourist satisfaction.

Post-tour behavioral intention

Table 9. Validity test.

KMO and Bartlett's test		
KMO value		0.742
Bartlett's test of sphericity	Approximate chi-square	619.208
	df	3

KMO and Bartlett's test		
	p-value	0.000

Source: *Author.*

From the table above, we know that the KMO value is 0.742>0.7, which shows a good effect on the behavioral intention after the tour.

(III) Weight analysis

Table 10. AHP hierarchical analysis results.

Level 1 Indicator	Weight value	Second-level indicators	Weight value
Educational experience (A)	13.67%	The immersive experience of the "Six Arts" cultural center space has broadened my knowledge (A1)	4.546 %
		The spatial immersion experience at the "Six Arts" Cultural Center has taught me new things (A2)	4.565% The spatial immersion experience at the "Six Arts" Culture Center has taught me new things (A2)
		The spatial immersion experience at the "Six Arts" Culture Center stimulated my curiosity to learn new things (A3)	4.527%
Entertainment Experience (B)	18.11% (B)	I find the immersive experience of the Six Arts cultural center space interesting (B1)	4.518% I find the immersive experience in the "Six Arts" museum space interesting (B1)
		The immersive experience of the "Six Arts" museum space is appealing to me (B2)	4.527%
		The immersive experience in the "Six Arts" museum space relaxes me (B3)	4.537%
		The immersive experience program activities (exhibitions) in the "Six Arts" Culture Center space are interesting (B4)	4.546%
Aesthetic experience (C)	18.26%	The appearance of the immersive experience hall is attractive (C1)	4.565%
		Immersive experience showroom focuses on details (C2)	4.565%
		Pleased to stay in the immersive experience showroom (C3)	4.556%
		I felt very comfortable throughout the experience (C4)	4.575%
Excursion experience (D)	18.13%	During the immersive pavilion experience, I felt different from the roles I play in my daily life (D1)	4.537%
		The museum visit immersed me (D2)	4.546%
		This visit made me completely forget my usual worries (D3)	4.518%
		During this visit, I felt as if I was in a different time or place (D4)	4.537%

Level 1 Indicator	Weight value	Second-level indicators	Weight value
Visitor Satisfaction (E)	18.18	The actual experience of the spatial immersion experience at the "Six Arts" cultural center was consistent with my expected experience (E1)	4.546%
		Enjoyed learning about the "Six Arts" museum space through the immersive experience (E2)	4.537%
		I felt the time and money I invested in the immersive experience was valuable (E3)	4.537%
		Overall, I would rate the use of immersive experiences in the Six Arts museum space as positive (E4)	4.556%
Post-visit behavioral intentions (F)	13.65	I prefer immersive tourism experience to traditional tourism (F1)	4.565%
		I would like to visit the museum again in the future and experience this innovative form of tourism again (F2)	4.546%
		We recommend our friends to experience this innovative form of tourism in the space of the "Six Arts" cultural center (F3)	4.546% of the total

Source: *Author.*

Table 10 shows the results of AHP hierarchical analysis, which divides immersive experience into six first-level items: educational experience, entertainment experience, aesthetic experience, tour experience, tourist satisfaction, and post-tour behavioral intention, and calculates the weight value of each item and its second-level items. The weight value of educational experience in the first-level items is 13.67%, among which the weight values of the spatial immersive experience of the "Six Arts" Cultural Center for broadening knowledge, learning new things, and stimulating curiosity to learn new knowledge are 4.546%, 4.565%, and 4.527%, respectively. The weight value of entertainment experience is 18.11%, among which the weight values of setting fun, attractiveness, relaxation effect, and project activities are 4.518%, 4.527%, 4.537%, and 4.546%, respectively. Aesthetic experience is the first-level item with the highest weight, accounting for 18.26%, among which the weight values of appearance attractiveness, attention to details, stay experience, and overall comfort are 4.565%, 4.565%, 4.556%, and 4.575%, respectively. The weight of the tour experience is 18.13%, and the weights of different role feelings, immersion, forgetting troubles and time travel are 4.537%, 4.546%, 4.518% and 4.537% respectively. The weight of tourist satisfaction is 18.18%, and the weights of actual experience consistent with expectations, liking to understand, time and money value and overall positive evaluation are 4.546%, 4.537%, 4.537% and 4.556% respectively. The weight of post-tour behavioral intention is 13.65%, and the weights of choosing immersive tourism, re-tour intention and recommending to friends are all 4.546%. Overall, the weights of aesthetic experience, entertainment experience, tour experience and tourist satisfaction in the immersive experience of the "Six Arts" Cultural Center are relatively high, indicating that these factors have a significant impact on the overall experience quality, while educational experience and post-tour behavioral intention also play an important role in enriching the experience content and promoting re-tour intention.

Through a series of work and related analysis, the following conclusions were drawn:

1. The researcher constructed an evaluation scale for the digital experience of the "Six Arts" theme through in-depth interviews with a number of museum staff and researchers. The reliability and validity tests of the survey have proved that the reliability and validity of the scale are good, and the Cronbach α

coefficient is higher than 0.6 in multiple tests. The questionnaire validity passed the KMO and Bartlett sphericity tests. At the same time, from the perspective of the model dimension, this study has made improvements in specific indicators and connotations, and has made better optimization from the digital experience form of the "Six Arts".

2. With the further deepening of cultural confidence and the younger tourist population, tourists' requirements for digital experience will gradually increase, and relevant personnel will carry out related services around the basic functions and positioning of the museum. In the survey, it was found that digital experience, knowledge popularization rate, and sustainable activities are important components of future digital construction, which are closely related to the changing cultural needs and educational levels of tourists.

6. Conclusions and Discussion

Through literature research, field research, and the collection and collation of information such as questionnaire surveys and project evaluation surveys in quantitative research, the research has become the basis for studying the promotion of digital experience to tourists' visits, and has clarified the design logic and direction for this study, so that more tourists can learn and experience the important meaning of Confucius culture during their visits and solve problems in life. Through data collection and evidence, it is known that strengthening digital experience can promote tourists' enthusiasm for visiting and promote tourists' motivation to learn about cultural heritage.

Through a series of work and related analysis, the following conclusions are drawn:

1. The researcher preliminarily constructed an evaluation scale for digital venues with the theme of Confucius' Six Arts through in-depth interviews with a number of museum staff and researchers. The reliability and validity tests of the pre-survey and formal survey have proved that the reliability and validity of the scale are good, and the Cronbach α coefficient is higher than 0.8 in multiple tests. The questionnaire validity passed the KMO and Bartlett sphericity tests. At the same time, from the perspective of the model dimension, this study has made improvements in specific indicators and connotations, and has made better optimizations from the presentation of Confucius' Six Arts and the experience of digital devices.

2. With the further deepening of cultural confidence and the younger generation of museum visitors, visitors' requirements for museum experience will gradually increase, and there will be changes in various dimensions such as viewing, movement, and vision. Relevant personnel provide related services around the basic functions and positioning of museums. In the survey, it was found that the museum experience, knowledge popularization rate, and sustainable operation for museums are important components of the future digital construction of museums, which are closely related to the changing cultural needs and educational levels of museum visitors.

6.1. Analysis of the pervasiveness of digital experiences

Digital technologies (e.g., virtual reality, augmented reality, interactive holographic projection, etc.) that are widely used in modern museums have been shown globally to have a significant effect on enhancing visitor immersion and engagement. Augmented reality apps have been found to enhance the entertainment value of a museum visit, resulting in a statistically significant improvement in the overall visitor experience[45]. This is consistent with research findings that suggest the use of digital technologies such as AR can facilitate experiential learning opportunities, particularly for younger audiences[46]. Therefore, the Six Arts digital experiences in this study have certain technological commonalities and generalizability, and

can provide rich visual, auditory, and interactive experiences for visitors across the globe. The interaction design of the Six Arts digital experiences in this study, such as gesture-based interaction, virtual environment navigation and immersive learning modules, is not only a vehicle for cultural content, but also a universal digital engagement strategy. The interactive nature of these technologies allows visitors to interact with the exhibits in a more meaningful way, thus creating a deeper connection with the cultural artifacts on display[47]. These interactive methods are not only suitable for Chinese visitors who have some knowledge of the Six Arts, but also appeal to international visitors who are unfamiliar with the Six Arts. Through proper design and cross-cultural adaptation, these interactive experiences can still produce positive visitor promotion effects in other regions and cultural contexts.

6.2. Supporting evidence from cross-cultural research

Research in cross-cultural psychology has shown that humans usually display similar curiosity and desire to explore when faced with new cultural experiences. Therefore, in museum digital displays, visitors from different cultural backgrounds are likely to be stimulated by interactive technologies that stimulate learning and cultural empathy. This generalized psychological mechanism provides a theoretical basis for the application of the Six Arts digital experience to other regions and international visitors. The Palace Museum in Beijing has implemented a variety of digital strategies, including online exhibitions and virtual tours, that have expanded its global reach and facilitated greater interaction with its extensive collections . The Palace Museum's efforts in this regard reflect a broader trend in the museum industry, where digital tools are increasingly seen as key to improving visitor engagement and educational outcomes[48] Other regional Chinese museums have adopted similar digital display methods, attracting large numbers of domestic and international tourists. For example, virtual tours, interactive multimedia and 3D artifact displays have generally received positive feedback in these museums. Through comparative analysis of these cases, it is possible to speculate on the feasibility and attractiveness of the "Six Arts" digital experience for other regions and international visitors.

6.3. Designing cultural adaptation strategies for international visitors

Culturally adapted strategies for international visitors could include increased multilingual support, simplified cultural contextualization, and cross-cultural interactive guides, as well as AI-powered systems that can track visitor activities and interactions in museums and provide insights to help curators design more engaging and relevant exhibitions based on specific visitor profiles[49,50]. The concept of community engagement is crucial for museums to foster a sense of belonging and cultural identity among different groups of visitors. Museums can act as catalysts for cultural adaptation by interacting with local communities and meeting their unique needs[51]. Through the implementation of these strategies, the Six Arts digital experience can be made more appealing to international visitors, ensuring a seamless cultural understanding and experience.

6.4. Possibilities for cross-cultural exchange and promotion

"As an important part of traditional Chinese culture, the digital presentation of the Six Arts is of great significance in international cultural exchange. Through the combination of digital technology and interactive experiences, the digitization of heritage items ensures that artifacts are preserved in virtual environments, thus promoting sustainability and accessibility， not only attracts domestic and international tourists, but also facilitates the dissemination and acceptance of the Six Arts on a global scale. Especially in the case of large cultural differences, digital experiences can serve as a bridge for international tourists to understand and accept the cultural connotations of the Six Arts in an immersive experience.

6.5. Dual goals of universality and cultural heritage

The study not only validates the universality of the Six Arts digital experience, but also provides a new model for the global promotion of traditional Chinese culture. This model emphasizes the organic combination of cultural heritage and modern digital technology, which enhances the cultural experience of tourists while realizing the cross-cultural dissemination and modernization of culture.

7. Suggestion

Accelerate the digitalization and intelligence construction of museums, improve the service efficiency of museum visitors, and the process of informatization and digitalization of museums has been accelerated. The supply of digital products and services of museums has become an important part of the service content of museums. Since the outbreak of the epidemic, the museum industry has responded positively to the epidemic and has responded quickly from offline to online. This is due to the rapid development of emerging technologies represented by 5G, AR, and VR in recent years, the layout of the top-level design of museums, and the continuous updating of their own development concepts, which provide strong support for the digital construction of museums. Promoting the digitization of museums is not to copy museums in the virtual world with digital technology, but to give full play to the "decentralized" characteristics of the Internet and expand the space and efficiency of museum education. Therefore, the construction of smart museums should be based on the degree of realization of utilization efficiency as an important indicator and basis for measurement.

The study of the digital experience of the Six Arts has provided an empirical and research basis for the facilitation of tourist visits, both within China and globally. Future research can continue to explore how these technologies can play a similar role in other traditional cultural programs. Research could be extended to other areas of traditional culture, such as opera, martial arts, and intangible cultural heritage, to explore how these cultural practices can be digitally displayed to enable wider dissemination and experience. Similarly, other cultural heritages across the globe, such as yoga in India and civilizations in ancient Egypt, can be modernized for display and dissemination through digital technologies.

7.1. Future evolution of digital technology

As technology continues to evolve, the future of digital technology in the form of cultural displays is likely to evolve significantly. The spread of high-speed networks and artificial intelligence is expected to enhance the quality of immersive experiences and real-time interaction, making cultural displays more realistic and personalized. Further enhancing traditional cultural displays while lowering the barrier to technology use and making it globally accessible. Possible future trends also include the rise of virtual cultural communities, where visitors can not only experience global cultural charms up close and personal through digital technologies, but also participate in discussions and cultural activities online, thus forming cross-regional cultural communities.

7.2. The role of digital technologies in bridging cultural gaps

As the younger generation grows up in the digital age, their connection to traditional culture becomes more indirect, but digital technology can serve as a bridge to reconnect them to traditional culture. Today's gamified interactive experiences or social media integration can engage young people in learning and passing on traditional culture. Digital display technologies can also facilitate cross-cultural communication and provide equal opportunities for users from different cultural backgrounds to experience culture. Future research can continue to explore how these technologies can narrow the cultural perception gap between

generations, as well as bridge the understanding gap between different cultural groups in the context of globalization, thus promoting cultural inclusiveness and diversity.

Building on this foundation, future research can further explore how digital technologies can enhance the accessibility and experience of traditional cultures globally, and delve into the role and potential of these technologies in cultural transmission and cross-cultural exchange. These studies will not only enrich the academic field's understanding of digital presentation of culture, but also bring practical application value to cultural heritage preservation, education and communication.

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Conflict of interest

The authors declare no conflict of interest.

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