

Evaluating Digital Interaction Design in WeChat Mini-Programs for Cross-Cultural Appreciation of Nanchang Porcelain Panel Paintings

Yali Xiao¹, Verly Veto Vermol^{2*}

^{1,2} Faculty of Art and Design, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia

² Institut Seni Kreatif Nusantara (INSAN), Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

¹ School of Art and Media Design, Nanchang Institute of Science and Technology, Shizishan Avenue, Honggutan District, Nanchang, Jiangxi Province, China

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ABSTRACT

The study aims to evaluate how digital interaction design within WeChat mini-programs can promote cross-cultural appreciation of Nanchang porcelain panel paintings, a distinctive form of Chinese intangible cultural heritage. It seeks to understand how interactive features enhance user engagement, cultural learning, and aesthetic appreciation while addressing preservation challenges. Adopting a qualitative research design, the study was conducted in Nanchang, China, involving 10 participants comprising foreign students. Semi-structured interviews were conducted to capture their perceptions regarding Chinese porcelain panel painting. The data were analyzed using thematic analysis to identify patterns related to digital interaction, user experience, and cultural appreciation. The findings indicate that interactive features such as visual storytelling, interactive navigation, and gamification significantly enhanced users' engagement, usability, and accessibility. Respondents emphasized that these 2D interactive elements deepened their appreciation of both the aesthetic and symbolic values of porcelain paintings. However, challenges such as technical limitations and risks of cultural oversimplification were also noted. The study contributes to cultural heritage preservation research by demonstrating the unique role of WeChat mini-programs in combining interactivity with social sharing. It offers practical implications for digital heritage education, preservation strategies, and future cross-cultural communication initiatives.

1. INTRODUCTION

The porcelain panel painting of Nanchang is a peculiar kind of traditional art-form, and the painting of this piece is not just only regarding the amount of craftwork in the sphere of the production of porcelains, but also regarding the expression. A mix of exquisite ceramics art and brushwork resulted in such works in the province of Jiangxi, and this gave them extremely useful and symbolic artworks (Lin et al., 2024). They declare an act of craft, iconography, and eternal being in the history, reestablishing values, beliefs, and aesthetic culture they pass down the generations (Guo, 2024). Being an indivisible element of Chinese intangible cultural heritage, the Nanchang porcelain panel paintings, in addition to their

^{2*} Corresponding author. E-mail address: verly@uitm.edu.my

decorative function, carry the information about the Chinese landscapes, folk myths, and philosophical texts (Butler, 2025). They are used to preserve the culture of the region and play the role of not letting traditional knowledge and skills fade in case of any contemporary modernization and globalization (Zhou et al., 2025).

The Nanchang porcelain panel paintings preservation has been largely through use of traditional preservation techniques like museum display, archives and use of artisanal training in the form of apprenticeship. (Yan, 2024). Such techniques as they are needed to keep the craft safe possess a tremendous disadvantage in the modern cultural context. (Gao, 2024). The art is able to be maintained and be exhibited in museums. Their scope and level of attraction however are minimal, particularly towards international or younger audiences who may not be conversant with the context of the culture. (Zhang et al., 2023). Documentation, being valid, is rather an inert activity and may not be able to reach the experiential and emotive side of the art itself. (Lin et al., 2024). In spite of its role in knowledge transfer, the last part of apprenticeship training is gaining more and more danger because younger generations less and less want to participate in traditional crafts, considering them unnecessary or not economically viable (Guo, 2024). This means that conventional methods of preservation, though of importance, cannot be found to be sensible enough to ensure Nanchang porcelain panel paintings remain relevant in the new world and as essential as they used to be.

Digital platforms have opened new possibilities and opportunities in relation to preservation and dissemination of intangible cultural heritage due to its nature. (Gao & Inchan, 2024). In China, WeChat mini-programs have gained particular relevance as an opportunity to provide interesting, convenient, and very accessible digital environments and it is a part of the everyday life of millions of users. (Li et al., 2025). The cultural heritage can be transferred in a new form through such sites, with additional capabilities like multimedia, interactive narrative, and share with other people thus adding to the user experience. (Wu et al., 2025). Consumers may experience cultural heritages dynamically through WeChat mini-programs unlike the traditional approach to observing artworks due to the design of the digital interaction where the visual, historical, and symbolic components of the artwork may be viewed at the user pace. (Wang et al., 2023). The break-through of the wall between generations, reaching out to the global consumer, and re-establishing the value by putting the porcelain panels pieces into the context that will be close to the ongoing cultural processes, Nanchang porcelain panel paintings is a powerful tool of overcoming the barrier between generations. (Zhao et al., 2023). Through this, digital spaces are not just libraries of the past, but also places of the present, whereby traditions can be revisited, shared, and consumed across cultures.

Regardless of the fact that the application of digital technologies in the preservation of cultural heritage undergoes increased scholarly and practical interest, the study on the role of interaction design in digital context and its impact on cross-cultural appreciation are still unexplored (Nie, 2024; Zhao et al., 2023). A significant part of the published literature has focused on the significance of digital collections, online exhibitions, or virtual visits as far as the cultural access proliferation is concerned. Nevertheless, there is comparatively little focus on the particular ways in which the features of the interaction design, including navigation schemes, interface aesthetics, interactivity, and narrative strategies directly affect the way individuals process the intangible cultural heritage (Yang et al., 2023). Of significant inquiry there has been no investigation conducted over whether or not the capabilities of the WeChat mini-programs, which is one of the potentially influential cultural and social apps in China, could shape the meanings and interaction between cross-cultural and this specialized type of art in Nanchang porcelain panel paintings (Chu et al., 2023; Yin et al., 2023). The lack of attachment leads to the necessity of researching the ties between digital design, user experience, and cultural appreciation and extending it in order to contribute to the possibility of preserving heritage in the digital era.

In order to fill this gap, the role of digital interaction design used in WeChat mini-programs to promote the cross-cultural value of Nanchang porcelain panel paintings will be investigated in this research paper. The objectives of the research are three in nature. First, the study is supposed to assess the degree of influence of certain elements of the interaction design on the level of perception, interpretation, and appreciation of porcelain panel paintings among users. Second, it tries to explore the effect of digital interaction that can contribute to the cross-cultural dialogue and disclose the work of art to the individuals who do not share its cultural background. Third, it will provide a mix of applied principles

and theoretical information on how to integrate the digital interaction design into the culture preservation initiatives. The research is informed by two big questions in line with these objectives. The former is as follows: What is the role of interaction design in WeChat mini-programs in making users feel special and experience a positive perception of Nanchang porcelain panel painting? The second is: What role do online platforms play in enhancing the cross-cultural knowledge and long-term preservation of intangible heritage using new design? The responses to these questions are supposed to serve the areas of digital heritage and cultural preservation, as well as the interaction design (academic and practical).

2. LITERATURE REVIEW

2.1 Nanchang Porcelain Panel Paintings

Nanchang porcelain panel paintings are a branch of Chinese arts in ceramic arts which have evolved in Jiangxi Province, a traditional center of mastery of porcelain craft. These works merge the art of ceramics and the expression of the conventional Chinese paint to form the unique art that emblemizes both physical and symbolic cultures (Cao & Ke, 2024). Conventionally they have also been more than just an ornament and traditionally have been regarded as repositories of regional identity, historic memory and social values (Butler, 2025). The topics of the panels traditionally are often based on real life, landscape, traditional literature, and philosophical themes, and the wider Chinese cultural aesthetics (Yan, 2024). The artisanship is not the only part that makes them beautiful but the stories that they hold, a summary of the general experience, moral teachings and community philosophies (Huangshan et al., 2025). Consequently, they are considered as cultural text which not only links communities with their past origins, they also ascertain cultural entities in the present time (Guo, 2024). The symbolic value of these paintings stretches even down to the spiritual and aesthetic value of the material, whereby porcelain is termed as pure, reliable, and elegant; painted pictures are termed to have intellectual and emotional value (Butler, 2025). However, in the contemporary times, this art form has been finding it hard to survive due to the effects of globalization, industrialization, and the change in cultural priorities, which have threatened to make the art less relevant to younger generations (Zhao et al., 2023). On one hand, traditional means of preservation such as museums and heritage displays are still significant to preserve the value of these artifacts, designating digital preservation as the means to offer a new life to those works, scholars and policymakers increasingly acknowledge the possibility of digital preservation to keep the aesthetic value of these works as well as their meaning (Davoust, 2025). The Nanchang porcelain panel paintings could be put into context in relation to a contemporary viewer with the assistance of digital reproduction, interactive storytelling, and online archives; consequently, raising awareness, appreciation and sustainability levels of the Nanchang porcelain panel paintings.

2.2 WeChat Mini-programs of Cultural Dissemination

Through the popularity, versatility, as well as its embeddedness within the daily life of digital in China, the mini-programs of WeChat have become one of the most potent ways of promoting digital culture (Wu et al., 2025). Introduced in 2017 as lightweight apps as a part of the WeChat ecosystem, mini-programs were quickly gaining a following, mainly because they are non-installed, consume little storage, and can be effortlessly integrated in the existing social network of the user (Cui et al., 2024). The necessity of mobile services that were as mobile as possible engulfed their history, and today they encompass different fields, including business, schooling, healthcare, and, above all, culture (Sun et al., 2024). In the context of the heritage, mini-programs can represent a unique chance to present ancient art forms, mix various multimedia materials like audio-visual guides and complement the interactive experience and overcome the impact of cultural barriers (Liu and Zuo, 2025). Mini-programs on WeChat, in contrast to other online preservation methods, like plain web sites, web archives, or virtual museum tours, are more immediate, social, and interactive and, therefore, are particularly helpful when it comes to reaching younger audiences and cross-cultural audiences (Xu and Chareonrook, 2025). Previous research and case studies revealed that they can be used to promote awareness of heritage, e.g., with regard to the digital promotion of Chinese calligraphy, Dunhuang murals, and traditional festivals,

mini-programs with effective gamified interaction and cultural information were utilized (GAO and Inchan, 2024). However, they were adopted so intensively that it has conducted a lot of research to examine their purposes in cultural tourism or commercial advertising, yet nothing has been done to examine their possibility to permit the long-term appreciation of certain artworks such as panel paintings created using porcelain (Lu and Qu, 2024; Wang et al., 2023). It is against this backdrop that the gap lies, which is why it is so crucial that particular research should be conducted on how the WeChat mini-programs can be created and tailored to suit intangible heritage traditions to be more noticeable, and more educative and emotionally immersive to customers.

2.3 Digital Interaction Design

The art of digital interaction design is an interdisciplinary subject that deals with purposeful, effective and entertaining user to digital system interface, and the ideas are needed to comprehend how heritage can be expressed on the digital platform. (Chen & Zahari, 2025). Interaction design is the act of designing digital visual experiences aesthetically by visual presentation, and using functionality, structure, and interaction qualities to make such experiences more social, or evoking thought and emotion. (Tang & Wang, 2024). The scholars introduce the term of interaction designing as the category due to the fact that it is impossible to identify it as navigational designing, feedback, multimedia incorporation and immersive narration; all of which also influence the way users can acquire cultural information. (Chu et al., 2023; Cui et al., 2024; Wu et al., 2025). These design decisions in relation to the intangible heritage do not only influence the information availability, but thereby mediate the volume of interpretive and emotional engagement between the users and the artifacts. (Wu et al., 2025). To illustrate, the use of the interactive storytelling and gamification would turn a passive viewer into a proactive one, a more curious, interested in the culture consumer. Similarly, the exploitation of dense multimedia, such as the sheer volume of images, video exemplifications of artistic techniques, and discursive interactive comments make viewers interpret not only the technical but also the meaning of works of art. (Cui et al., 2024). Existing studies on the field of digital museums and heritage apps confirm that interaction design has a high potential to influence perceptions of users and produce more favourable learning results, higher emotional satisfaction, and eventual cultural knowledge. (Wang et al., 2023). However, little has been done regarding the influence of the interaction design on cross-cultural appreciation of the Chinese heritage on the digitalized settings that are localized, like WeChat mini-programs. (Chao et al., 2023). It is an effective field of inquiry as it extends beyond the practicality of the digital tools and explores how cultural meanings can be enacted by design decisions and how they can transform the interpretation of heritage in the international arenas.

2.4 Significance of the cross-cultural appreciation in preservation and globalization of the traditional art

Cross-cultural appreciation is vital in preserving and globalization of traditional arts because heritage is no longer confined to the domestic but can also be utilized by various audiences. Intangible cultural heritage preservation is not only about the maintenance of traditional skills and knowledge in the societies in which these cultures prosper, but also the opportunity to make cross-cultural dialogue and comprehending (Cui et al., 2024). As argued by scholars, the growing enjoyment of cultural items as in the case of Nanching porcelain panel paintings by audiences of other cultures contributes more to their relevance and vitality resulting in an appreciation, respect, and sustainability (Xu and Chareonrook, 2025; Zhao et al., 2023). Even the traditional arts appreciation is seen to reverse their undermining in the globalized world, where the local cultures are frequently drained by the national cultural discourses (Wang et al., 2023). The traditional arts will be able to find a new dimension with the help of education, the internet, and intercultural communication and thereby be able to transform without losing the originality itself (Zhang et al., 2023). It is noteworthy that cross-cultural appreciation can be facilitated through contextualization, allowing the symbolic values of heritage to be perceived in a manner that can be felt by people all over the world and still remain familiar with the original culture (Cao and Ke, 2024). The digital solutions also remain the first chance to make such a process possible, such as WeChat mini-programs, which can be actively translated and visualized and cross-referenced to eliminate the knowledge gaps between cultures (Gao, 2024). In addition, maintaining cross-cultural appreciation is not merely an academic goal but a feasible requirement when it comes to the conservation of the intangible heritage as not only it will transform traditional arts into a localized resource,

but it will also turn it into a global cultural property (Wang et al., 2023). Not only will cross-cultural appreciation be used to save culture but also to serve the greater end in advancing cultural globalization through observing universal values of human beings in arts.

3. RESEARCH METHODOLOGY

The study utilized such a qualitative approach that is suitable in investigating composite cultural and experiential phenomena that cannot be understood with quantitative measurement. The reason behind the use of a qualitative approach was that the values and meanings of Nanchang porcelain panel painting can be understood in depth by designing the digital aspects of the interaction of the WeChat mini-programs. This methodology does not rely on any numerical generalization, instead, it is grounded on the subjective experiences, perceptions and meanings of the participants regarding their contact with the digital platform. This study would have been useful in the interpretive paradigm because cross-cultural appreciation is a sensitive practice which involves emotional sensitivity, cultural elucidation and self-encounters, which cannot be characterized through other paradigms but through qualitative inquiry.

This work was conducted in Nanchang in Jiangxi Province, which has a historic and cultural value, as well as birthplace of the porcelain panel paintings. The study was compiled in Nanchang. The setting of the film also added a certain degree of contextual authenticity and the views that are obtained were based on the realities of those who bequeath and carry the tradition, and those who are working with it in the modern context. In addition, the research site in Nanchang permitted the study to identify the contradictions between tradition and modernity since the city is a cultural hub where heritage conservation is associated with an indispensable digital and technological advancement.

The research was conducted with one sample group comprising of foreign students. The reason why this group was selected is that it represents a group of people with different cultures and minimal background knowledge on traditional Chinese art. Their inclusion offered an excellent cross-cultural insight into how digital interaction design in the mini-programs of WeChat may be used to access and enjoy Chinese cultural heritage. These participants were especially consummate in this study since their experiences can be taken to demonstrate the way cultural meaning is interpreted and its emotional processing along cultural fences.

The sampling was purposive as they identified 10 participants (Table 1). The purposive sampling was determined as the suitable sampling since this method made it possible to include the participants interested in Nanchang porcelain panel paintings and online cultural resources. To obtain the qualitative research, the 10 participants in the study are adequate since smaller, informative samples are more preferable in the process of in-depth exploration. Such diversity was enough to provide different insights, and to be analyzed in depth in terms of thematic interpretation. The data saturation was used to determine the number of participants as a result of which no new themes or reviews are obtained in the following interviews.

Table 1. Profile of Respondents

Participant ID	Gender	Age	Nationality	Education Level	Field of Study
R1	Female	22	Malaysia	Undergraduate	Arts and Designs
R2	Female	22	Malaysia	Undergraduate	Arts and Designs
R3	Male	22	France	Undergraduate	Arts and Designs
R4	Male	23	France	Undergraduate	Arts and Designs
R5	Male	25	France	Undergraduate	Arts and Designs
R6	Female	25	Malaysia	Undergraduate	Arts and Designs
R7	Male	29	United States	Postgraduate	Art and Culture (Research Mode)
R8	Male	30	Colombia	Postgraduate	Art Enthusiast
R9	Male	35	Colombia	Postgraduate	Art and Culture (Research Mode)
R10	Female	36	Australia	Postgraduate	Art Enthusiast

The semi-structured interviews that were used in the completion of data gave the investigation more freedom and depth into the views of the participants (Table 2). The use of semi-structured interviews helped the researcher to create guiding questions and at the same time, gave ample space to the participants to express their experiences and bringing about new areas of importance. This method was particularly appropriate when interacting with art amateurs and cultural professionals, as it was necessary to make sure that the audience will discuss the elemental problems of digital interaction design, cultural symbolism, and cross-cultural admiration, yet at the same time allow individual perspectives of various participants. Where possible face to face interviews were employed and where possible online interviews were employed so as to make them accessible. The sessions were approximately 25-30 minutes long and tape-recorded with the consent of the participants and transcribed to be analyzed.

Table 2. Interview Guidelines

Section	Theme / Focus Area	Example Questions
A	Background Information	1. Can you briefly describe your background with Nanchang porcelain panel paintings? 2. How familiar are you with using WeChat mini-programs?
B	Usability and Accessibility	1. How easy or difficult was it to navigate and use the WeChat mini-program related to porcelain panel paintings? 2. What features helped or hindered your experience?
C	Interactive Features and User Engagement	1. Which interactive 2D elements (e.g., clickable visuals, animations, quizzes) did you find most engaging? 2. How did these features influence your interest in exploring Chinese porcelain art?
D	Cultural Value and Aesthetic Appreciation	1. How did the WeChat mini-program help you understand the artistic or cultural meaning behind the porcelain paintings? 2. Did the digital interaction influence your emotional or aesthetic connection with the artwork?
E	Cross-Cultural Understanding	1. Do you think WeChat mini-programs can help people from different cultural backgrounds appreciate Chinese porcelain art? 2. How can such digital platforms promote cultural exchange and global appreciation?
F	Suggestions and Improvements	1. What improvements would you suggest for future WeChat mini-program designs to enhance cultural understanding? 2. Are there features you would like to add or remove?

Thematic analysis of the interview data collected was applied as a method of detecting, analyzing and interpreting the patterns of meanings among the qualitative sets of data. A six key stage model by Braun and Clarke suggested that the researcher adhered to the familiarization stage, the initial stage of the study since, after reading the transcripts numerous times, the researcher took the form of recording initial thoughts. Coding followed this followed by the process in which parts of the text were tightly knit together around the frequent ideas in the context of digital interaction design, user experience, and cultural appreciation. Also, those codes were further divided into larger themes, which included such major points of the research questions as the part of interactive characteristics in the formation of engagement, the feeling of the digital presentation of porcelain paintings and cross-cultural accessibility.

4. FINDINGS

4.1 Usability and Accessibility of WeChat Mini-Programs

The major strength found in stimulating the participants to consume Nanchang porcelain panel paintings was the accessibility and the ease of use of WeChat mini-programs. Both professionals and regular people felt that the ease of access to content with cultural information without the need to download a particular application minimized accessibility to participation. One of the students that were involved in it saw that I did not necessarily need to cope with the inconvenience of installing a new application, it was already in my WeChat, and I decided to try it out, which left me

perplexed. Similarly, one of my students majoring in art design admitted that the widespread use of WeChat in our daily life ensures the cultural heritage is visible: as soon as our art is in WeChat, we can see it every day, and it becomes less remote and more approachable than before. This convenience in the social and digital lives of users was again and again viewed as one of the keys to growing the audience base, particularly by the younger generations which may not find themselves going to museums or workshops as normal.

Besides convenience, the participants highlighted the accessibility of the convenience and use of language via mini-programs. Bilingual functions and image aids were also located as quite handy to be used by foreign users or learners who have rather low level of Chinese proficiency. One visitor to the gallery claimed that the interface was user friendly and that there would be images and icons which would guide them. "I cannot speak Chinese; however, I managed to get the message by graphics". This point was backed by experts who observed that ease of use enhances cultural mixing by lessening intimidation of strangers. These are all signs that mini-programs in WeChat are not only exposing but also more inclusive since individuals across different groups can engage with the porcelain panel paintings at a familiar level.

4.2 Interactive Features

The interactive functions designed in the mini-program of WeChat fully adhered to 2D graphic design, and the main focus was on color, lines, patterns, and theme composition, not on simulating the three-dimensional environment. The architecture was done as an imitation of the unique aesthetic features of the Nanching porcelain panel paintings in terms of their elaborate patterns, elegant lines, and soothing color palettes. It grouped them into four major categories that included: landscapes, ladies' paintings, flowers and birds as well as portraits.

Respondents noted that this two-dimensional interactive interface enabled them to interact with the art and not merely watch it in an active manner. Users were able to create their own digital canvases by choosing and positioning visual objects inspired by these theme categories using the system. This interactive experience was considered to be educative as well as creative as it provided users with the sense of involvement in the artistic process besides making them appreciate the stylistic variety and the symbolism richness of the porcelain art tradition more.

Additionally, there were also bilingual textual descriptions (Chinese and English) which described the culture and aesthetic meanings of every particular theme and color palette. To illustrate, the cobalt blue or jade green were given symbolic significance of purity, longevity as well as harmony. Meanwhile, such themes as peonies and cranes were incorporated into the Chinese cultural traditions. Respondents found, that these bilingual commentaries considerably advanced their intercultural comprehension and foreign users could relate artistic facts to their philosophical and historical roots.

Those who participated in the study made consistent comments on how the interface had been made to be very simple and easy to understand making it accessible and easy to use, particularly to people overseas who had no knowledge on the Chinese heritage interfaces. The flat format brought the aesthetics authenticity with a balance and the modern interactivity to avoid all technological distractions and emphasize the visual storytelling and cultural learning. Some of the respondents called the experience painting with culture because, as they could explore and recreate visual contents, they learnt about their symbolic meaning.

Storytelling and gamification characteristics also were mentioned as effective in keeping the attention and having a good time learning. Other participants also considered interactive cultural quizzes informative and interesting. One of the students replied that she enjoyed responding on questions related to the history of porcelain. It was as though I was being educated, only having fun. The storytelling design was also mentioned by the other respondent, who observed that the description of the way the porcelain was created and the meaning of the paintings made me more emotionally engaged, including placing me in the cultural realm of Nanchang. Such aspects of interaction led them to use the mini-programs again, and the achievements and badges as gamified were also suggested as the motivator to return and continue exploring.

The findings suggest that the interactivity allows passive observation to be an active cultural experience and enhances the engagement and appreciation of culture.

4.3 Role as Culture Value and Aesthetic Appreciation

Both groups of members noted that mini-programs provided on WeChat eased the process of the cultural value and aesthetic appreciation of the Nanchang porcelain panel paintings. The students of the art design stated that thanks to the digital presentation, they could share the symbolic meanings and cultural philosophies of the paintings with more people. One of them responded by stating that it is not only about beauty, but also about tradition and stories. A mini-program can be used to define the meaning of these terms to individuals who would have not known them. Other students affirmed that contextualization of this kind made them appreciate more the perception that one of the art fans said he has: that I had already seen porcelain but never considered it. I began to perceive the art not as decoration when I came to know what the lotus flower and the mountains were. The participants were able to identify with the heritage both emotionally and mentally because of the visual immersion and interpretive quality of the mini-programs.

Besides this, the digital medium was also said to make aesthetics more interesting in terms of image quality and inter-activity, with the ability to focus on a detail which otherwise would be disregarded in real life. One of the students had commented that the colors and brush strokes appeared bright on the screen and I would have a lot of time inspecting them on the screen, something I could not do in a museum where multiple people would be present. This was regarded by some art fans as a major strength, especially when it comes to the retention of appreciation to the craft by the less well-versed audiences. The mini-programs as one of its successors observed is a bridge. They demonstrate to the youths that it is not merely a tradition but an art and needs to be valued. The inferences made on this are that, the WeChat mini-programs do not merely keep the art alive but replicate it so as to match the new generations as well as the new cultural setting. Therefore, aesthetic not only does not lose, but it is reborn.

5. DISCUSSION

As exhibited in the paper, interaction design is among the most important factors when considering the interaction between the users and the Nanchang porcelain panel paintings using a WeChat mini-program. The 2D interactive design in which the students could explore colors, lines, and patterns within themed sections like landscapes, ladies' paintings and flowers and birds and people portraits became one of the major openings to the art. They stressed that such characteristics as the visual composition and the use of two languages (Chinese and English) made them not only see the paintings as artistic works of expression but also as the rich cultures and symbolic stories. This interactive learning process changed their passive mode of viewing into active learning about the cultures and aesthetic enjoyment of the cultures. (Wang et al., 2023). These attributes extended the duration of enjoyment by the delighted customers and enhanced repeat encounters, in a show that meaningful engagement yields extended engagement. At the same time, the aspect of accessibility was identified, because some of the participants were criticizing unclear navigation, slow loading, and having problems with their devices, and could not use them constantly. This implies that, despite the application of innovative digital solutions to create values and interest, crappy design may destroy interest easily and frustrate cultural objectives of the program. (Tang & Wang, 2024). The issue of novelty and simplicity comes down to a dilemma, then: the ease of practice is a factor that drives users towards a new digital item; though, the user would be afforded a chance to pay full attention to the discovery process. This fact is emotionally making one think of the larger connotation of the WeChat mini-programs platform in relation to other cultural distribution activities.

The use of WeChat mini-programs as a special and easily reachable platform, in comparison with traditional cultural preservation methods, e.g., museums, exhibitions, printed catalogues is a place where cultural heritage is incorporated into the daily digital realm. This is also an element that makes the mini-programs of WeChat the identity of being the opposite of a museum where you must attend and visit physically or the websites where you can do little but read the content and, at

best, do cultural quizzes to test your knowledge (GAO & Inchan, 2024). The participants alleged that working with the paintings in the digital medium was viewed as corresponding to the need of establishing the relationship to the pictures on the personal scale and that the interactivity is also applicable to the learning process and emotional attachment. Also, the social-sharing tools that are integrated into WeChat add universality to cultures by bringing in cross-cultural dialogue, unavailable with the static methodology (Cui et al., 2024). The mini-programs provided by WeChat are more interactive and engaging. They have a better appeal to younger and more technologically active users compared to digital archives and online galleries that also have equal accessibility. In this sense, the mini-programs of WeChat are not the replicas of preservation approaches, but the extension of the preservation techniques that included the cultural history covering the gap between the old and the new world (Chen, 2024). It goes without saying that with this comparative power, it is now high time to answer the question how these findings align or diverge with the available literature concerning the digital cultural heritage.

The presented results are closely interrelated with the existing sources devoted to the theme of interactive digital media and heritage protection, still, they introduce some novelty, thus, to define the unique affordances of WeChat. Previous studies of cultural preservation have revealed that in the context of interactivity, the process with the users is more interactive and that it makes people appreciate a culture as far as the interaction provokes curiosity, is multisensory, and emotional. (Xu & Chareonrook, 2025). In fact, the surveys of online collections of folk songs and calligraphy, e.g., have attested that users consider themselves as a part of them when they can access the material instead of having a distanced view of it. The paper accesses such thoughts just to show that unlike the one-time applications or websites, WeChat mini-programs make cultural participation an ecosystem that people are already used to using in their daily lives to communicate, shop, and have fun. (Cui et al., 2024). Respondents said that it was natural to go to explore culture on WeChat, because the app is already a part of our life, which also means the contextual integration. In the meantime, the research itself is also innovative in that the risks associated with cultural content being simplified to a game as discussed in the course of prior research has had minimal attention elsewhere. (Tang et al., 2023). In this regard, the current study would be able to cover the current gap in the literature by offering empirical data about the fact that cultural dissemination is most effective in the case of integrating both interactive qualities with the platform embedded in the daily routine of users, and this aspect is further elaborated with references to the use of the corresponding theoretical frameworks.

The outcomes of the study go hand in hand with user experience (UX) and cultural mediation theories that could be considered a theoretical framework in explaining the efficacy of the WeChat mini-programs used in the cultural appreciation process. In terms of UX, the principle of the intuitive and emotional design advocated by Don Norman is the right choice since it attracts the participants as the functionality of the features was not only practical but also emotionally disturbing. With respect to the interactive composition features 2D example, the design was perceived by the participants as not only useful, but also entertaining and engaging, which can be defined as an approach to affective design in which emotional resonance in the design increases user satisfaction (Chen and Zahari, 2025). The research takes a mediating theory in the cultural heritage framework, which asserts that digital platforms must be the mediators by converting the historic meanings into the modern settings. The WeChat mini-program is an example of this strategy because it fills the gap between ancient porcelain panel paintings and the interface with users by encouraging interactive 2D storytelling and visual exploration.

Using the UX theory and specifics of the cultural mediation concepts, the findings suggest that the successful implementation of the digital heritage does not rest solely on the functionality, as well as on the efficient symbolic translation of the cultural values. (Chu et al., 2023). This bi-theoretical base helps in justifying this article that digital design is not only a technical project but a cultural exercise, the one, the one that influences the attitudes and perceptions of the users and facilitates their emotional attachment to heritage. The results also indicate that the implications of this paper are not limited to the aspect of design to the preservation and transmission of cultural identity using digital media.

The study paper is also timely because digital media may be adopted as viable cultural and teaching tools to make sure that old art of Nanchang porcelain painting on the walls is not lost in the era of digitization. The findings of cultural

preservationists imply that it is necessary to merge the cultural content into interactive and user-friendly systems such as WeChat, where authenticity and innovation can be pursued. (Davoust, 2025). However, as opposed to this kind of shows, interactive storytelling and gamification imply that heritage is not only archived, but it is also lived and experienced. The article, when it comes to the description of teachers, recognizes the transformative aspect of digital interaction design in the presentation of the cultural heritage whereby the element of interactivity presents the possibility of experience-based learning: when students see the presentation on cultural artifacts it is themselves who also takes part in the interpretation of the presentation of the cultural artifact. (Cao & Ke, 2024). This is suitable to the thoughts of the students who felt that the program made the process of learning a discovery and that the interactive design had the potential in making learning enjoyable. The intercultural preservation and education combination hint at the future where the legacy is not just preserved and rejuvenated but also introduced to the formal education as well as to informal learning. Still, all these implications may be positive; it is also proved in the research that some pitfalls should be bargained.

Although it has a lot of advantages, there are also problems with the application of WeChat mini-programs in cultural preservation that cannot be denied. The respondents remarked that they had a few technical issues that sometimes interfered with their cultural experience. Among these problems, some of them noted incoherent compatibility between devices, time-intensive loading of high-resolution two-dimensional graphics, and software details that have caused problems with regular interaction. These technological constraints interfered with interactions and even diminished the amount of immersion. Moreover, as the students noted, the range of applications of WeChat is limited by the lack of global access and language barriers to this digital platform, as it is mainly a central digital platform in China (Nie, 2024). The second one is the issue of the compromise between innovation and authenticity: the interaction and the interactivity help to make the experience more interactive; nevertheless, there is also a threat that the element of entertainment will be highlighted, rather than the spirit and meaning of the porcelain panel paintings in the digital version. The respondents cautioned that in certain instances, the games only turned the art into a decoration instead of heritage and they questioned what could be done in order to ensure the cultural integrity (Yan, 2024). These constraints refer to the idea that there is the necessity of continuously developing the digital strategies, in which the preservation is not lost in the novelty. The hurdles are not regarded as barriers, rather, they are regarded as very important lessons to cultural institutions and designers to ensure they develop digital tools that would be technically and culturally conscious.

6. CONCLUSION

This paper was aimed at assessing how digital interaction design contributes to the cross-cultural appreciation of Nanchang porcelain panel paintings in WeChat mini-programs, and the results showed there is much more to learn regarding the use of digital technologies to mediate intangible cultural heritage. The respondents talked about how interactive 2D visualizations, narrative, and gamified aspects of the design contributed to good usability, accessibility, and interactions greatly. Such features enabled users to feature better and more intuitively and meaningfully on elements of cultural content, which made the whole experience of the culture more engaging and emotionally engaging. The students commented on these characteristics in that it simplified the learning of the specifics and symbolism of the aesthetics and that they enjoyed the cultural and historical context of the porcelain panel painting more. In the meantime, the paper was eager to also note the dangers of the technology complexity combined with the propensity to simplify the culture depth, and therefore approached the necessity to be very cautious to balance innovation and authenticity. The fact that such findings are present in both the user experience principles and the cultural mediation theories allows the paper to contribute to the existing research on cultural heritage preservation via digital interface, highlighting that WeChat mini-programs present a new and exclusive method of relying on the principles of interactivity and social sharing in achieving a participatory cultural learning and sharing context.

It is particularly important to note that the study also adds to the research on the topics of cross-cultural communication through proving how a local form of art of Nanchang could expand and reach wider audiences and foster cross-cultural communication as one of the ways to preserve and even de-nationalize the intangible heritage. It is also

proposed that similar studies should be conducted on other art forms of traditional items to establish whether the engagement of the digital interaction design is successful across a range of diverse cultural objects, and quantification methodology should also be suggested to confirm the outcomes on a massive scale and test any detectable impact of the learning process, satisfaction of the user, and understanding of the cultural object. More so, the exploration of websites that are not integrated with WeChat, even those that are international in character, would as well offer results of comparison with the role of different digital ecosystems in the appreciation of culture. Not only does this piece of work prove that digital interaction design is worthwhile to future and sustainability of the cultural heritage, but also provides the platform upon which one can be innovative and technology driven, which will provide survival and continuity of the traditional art in the ever-growing globalized and digitized world.

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CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests.

AUTHORS' CONTRIBUTIONS

Yali Xiao: Conceptualization, methodology, investigation, data curation, formal analysis, visualization and writing – original draft. **Verly Veto Vermol:** Conceptualization, methodology, validation, resources, writing - review and editing, supervision and project administration. All authors have read and agreed to the published version of the manuscript.

DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the preparation of this work, the author(s) used ChatGPT **5.2** in order to improve readability and grammar of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

ETHICS STATEMENT

This study was reviewed and approved by the Institutional Ethics Committee of Universiti Teknologi MARA, Approval No: REC/06/2025(PG/MR/316). All procedures involving human participants/animal subjects were in fulfilment of the ethical standards of the 1964 Helsinki Declaration. Informed consent was obtained from all participants, and data anonymity was strictly maintained throughout the study.

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