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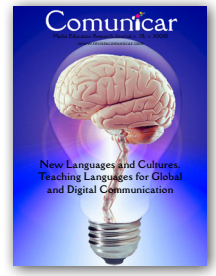

Digital Pathways for Sustainable Development of Museum Tourist Cultural as Visual Cultural Practices

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ABSTRACT
The current study aims to analyze the digital pathways that could be incorporated in the museum pedagogy, which could be useful as educational tools and practices for achieving sustainable development of the museum pedagogy as visual cultural practices in promoting cultural education in China. The researcher has chosen a research framework in which digital technologies, visual cultural practices, and cultural heritage could significantly enhance the sustainable development of museum pedagogy in China with pedagogical adaptation and cultural sustainability as primary objectives of museums in China. In addition, the investigation was qualitative in nature, where a small research sample of eight informants from among the management staff of the Chinese museums faced a semi-structured interview. According to research findings, digital technologies, visual cultural practices, cultural heritage, museum pedagogical adaptation, and cultural sustainability significantly promoted the sustainable development of the museum pedagogy in China. This study provides various theoretical and practical implications, which have been elaborated along with the research findings. However, it also has research limitations that will be advantageous for future researchers to modify their studies in the future.

KEYWORDS
Digital Technologies, Visual Cultural Practices, Cultural Sustainability, Cultural Heritage, Museum Pedagogy.

RESUMEN
El presente trabajo trata de analizar las vías digitales que podrían incorporarse a la pedagogía museística, que podrían ser útiles como herramientas y prácticas educativas para lograr un desarrollo sostenible de la pedagogía museística como prácticas culturales visuales en la promoción de la educación cultural en China. El investigador ha elegido un marco de investigación en el que las tecnologías digitales, las prácticas culturales visuales y el patrimonio cultural podrían mejorar significativamente el desarrollo sostenible de la pedagogía museística en China, con la adaptación pedagógica y la sostenibilidad cultural como objetivos primordiales de los museos en China. Además, la investigación fue de naturaleza cualitativa, en la que una pequeña muestra de investigación de ocho informantes del personal directivo de los museos chinos se enfrentó a una entrevista semiestructurada. Según los resultados de la investigación, las tecnologías digitales, las prácticas culturales visuales, el patrimonio cultural, la adaptación pedagógica de los museos y la sostenibilidad cultural promovieron significativamente el desarrollo sostenible de la pedagogía museística en China. Este trabajo aporta diversas implicaciones teóricas y prácticas, que se han elaborado junto con los resultados de la investigación. Sin embargo, también tiene limitaciones de investigación que serán ventajosas para que futuros investigadores modifiquen sus estudios en el futuro.

PALABRAS CLAVES
Tecnologías Digitales, Prácticas Culturales Visuales, Sostenibilidad Cultural, Patrimonio Cultural, Pedagogía Museística.

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1. Introduction

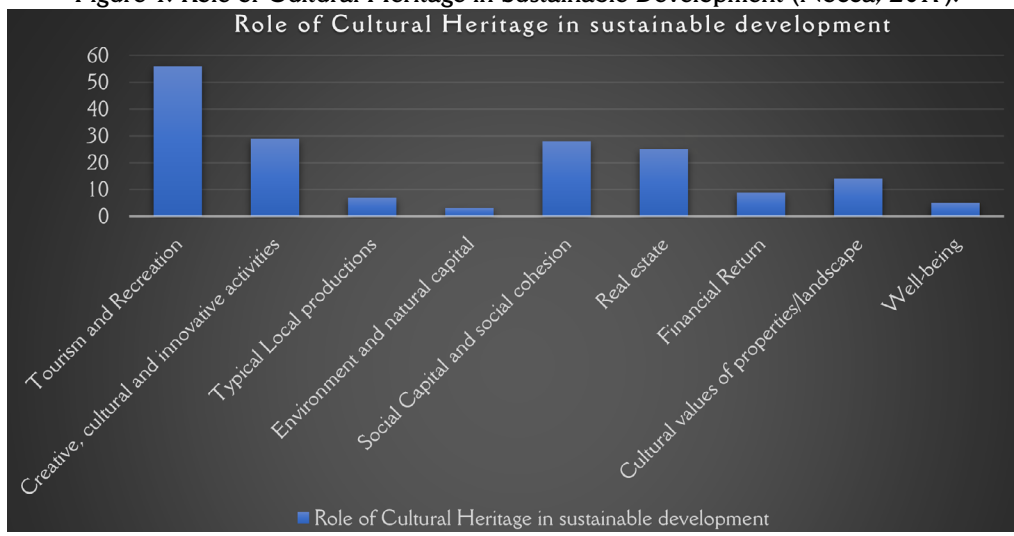
Cultural heritage of any nation is a crucial aspect that represents historical culture of a population and the evolution of the nation throughout the history with the passage of time (Ricca et al., 2020). Moreover, the tourists and travelers who visit a destination for the first time prefer to study and search for its museums in order to attain some basic education and information about its culture and civilization. Contrary to this, individuals visiting numerous unknown places and searching for relevant museums and cultural heritage demand to incorporate innovative services to have a vast exposure to cultural heritage of the country (Bruno et al., 2020). The fundamental task of museums is to preserve cultural heritage to pass on the cultural knowledge and skills to next generation.

In this modern era, the process of technology has provided miscellaneous methods to enhance the trends of the museum and pursue a sustainable development of pedagogy. These technological innovations, often termed as digital innovations, augment the interests of the visitors and also provide ways to convey information to the individuals, which is not possible to convey through traditional museum trends (Navarrete, 2019). Digital technologies such as VR and 3D printing are specifically crucial to ensure sustainable development of pedagogy in the Chinese museums. The technological exhibitions on the basis of virtual reality and 3D printing enable the world to have access to the renowned paintings and sculptures through a single click at their homes within their comfort zone (Gangi, 2021). This will not only allow a vast public to engage in the cultural exhibition of museums but also augment the sustainable revolution in the museum pedagogy.

In addition, cultural sustainability could also be advantageous in promoting sustainable development of museum pedagogy in China. Cultural sustainability was defined by the World Commission on Culture and Development as the inter and intra-generational approach to cultural resources (Järvelä, 2008). Additionally, cultural sustainability also incorporates the fact that sustainable development is based on the respect of cultural capital and the values of the society (Mpofu, 2012). Furthermore, according to the principle of cultural sustainability, it has been elaborated that the cultural heritage should be used by the present generation to such an extent that it could not affect the future generations and they could also live and understand their culture. However, the current dimension of cultural sustainability is concerned to ensure the steadiness of the primary values, which will effectively associate to the past, present, and the future (Pop et al., 2019).

The digitalization of cultural heritage is among the most appropriate solutions to preserve social values and cultural values and their efficient transformation to the public. The prime advantage of cultural digitalization for the museums is to keep the beliefs and cultural practices of the society alive and transmit them to the next generation along with the development of new values, and behaviors in the society (Härkönen et al., 2018; Janhonen-Abruquah et al., 2018). This signifies the sustainability of museum pedagogy. Cultural heritage plays a role in sustainable development of various sectors (as explained in Figure 1).

Figure 1: Role of Cultural Heritage in Sustainable Development (Nocca, 2017).



In the context of China, cultural sustainability has been found incorporated in promoting a considerable relationship between the pedagogical adaptation of museum and sustainable development of museum pedagogy in the country. The Chinese cultural heritage promotes sustainability of museum pedagogy, which is critically based on digital inclusion, and visual cultural practices. There is a dearth of studies on museum pedagogy and visual cultural practices within the context of China, which is a research gap that has been addressed to in the current investigation. This research aimed to analyze the role of digital inclusion, cultural heritage, and visual cultural practices in promoting sustainable development of museum pedagogy, where cultural sustainability and museum pedagogical adaptation play a significant role in enhancing their association. In addition, the present investigation also focuses on including digital technologies and innovative pathways in Chinese museums for ensuring the sustainable development of museum pedagogy, and to allure and educate tourists about the Chinese cultural heritage.

This research thoroughly explains the relationship between cultural heritage, digital inclusion, visual cultural practices, and sustainable development of museum pedagogy in the presence of museum pedagogical adaptation and cultural sustainability, supported by theoretical evidence in the literature review, and succeeded by the evaluation of the methodological choices, thus appropriate for analyzing the current research objectives. The undertaken study also strives to determine the influence of cultural heritage, digital inclusion, visual cultural practices, and sustainable development of museum pedagogy, which will significantly be stimulated by museum pedagogical adaptations and its association with museum pedagogy significantly moderated by the cultural sustainability.

Additionally, the research being qualitative in nature, the data was analyzed through framework-based thematic analysis. The researcher discussed the research findings in the end with a precise conclusion. The current research also identified several theoretical and practical implications along with some limitations which will straighten the way for the future researchers to conduct their studies in the future.

2. Literature Review

2.1. Museum and Visual Culture

The main difference between humans and other creatures living on earth is the ability of the humans to communicate and conceptualise (Hatch, 2018). The scientific literature and cultural studies have seen culture as a system of symbols or signs (Mamur et al., 2020). According to Shome (2019), in the present world specifically cultural anthropologists have seen culture as the system of symbols or signs. It has been a particular part of the system of a culture the visual cultural combination of research in different fields including art, anthropology, sociology, and philosophy. According to Mateescu and Ahmed (2019), everything that a person can envisage and see in a fictitious way is a component of visual culture. Visual culture is not merely the contemporary research regarding culture; however, it covers a broader range of concepts including culture, arts and digital culture (Fajardo-Hill, 2023). It depicts the values and meanings that are developed and transmitted by the image characteristics of a culture.

It is widely accepted that nowadays people are increasingly gaining experience of visual culture not only in museums or art galleries but broadly in every work of their daily life (Robb, 2020). Traditionally, people visit museums for studying any subject or any expertise. They visit the old historical building to observe it in detail for understanding or seeing any particular object in the museum (Huang et al., 2022). Though this trend has been observed to be changed in the modern world, the museums as educational tools are now one step forward from its already traditional tasks and roles. In today's world, museums are shaped by changes occurred in educational system economy and society therefore now museums are providing prisoners, handicapped people, different ethnic groups, women, senior citizens, and children with the opportunities of socialisation, learning, acculturation and even rehabilitation (Agus et al., 2021). For the modern museums educational factor is very important because it helps them in meeting their sustainable development goals (Pop et al., 2019). Today the concept of visual culture is highly prevalent in terms of museum education (Hooper-Greenhill, 2020). According to Wang (2020), a general visit of a visitor to the museum for understanding and observing the objects laid in museum may be free from thoughts; however, these very objects incorporate visual cultural practices and experiences, which can be further expanded through the senses of smelling, hearing, or touching.

2.2. Importance of Digital Technologies in Museums in China

Advancement in technology has played a critical role and acted as a catalyst for digitisation in museums

(Wang et al., 2023). In today's digital era, museums around the globe are improving their methods of representation, interpretation and management with digitalization. Thus, digital technologies in museums suggest them ways for moving towards a seamless delivery, presentation and integration of cultural heritage resources (Bratengeyer, 2019). Museums in China are rapidly adopting digital ways and highly advanced technologies through different platforms (Luo, 2023). Such as, Wang (2020) has indicated that Chinese museums are rapidly conversing from 'digital' to 'smart' museums. The digital museums in China have brought online exhibitions and on-site digital galleries into practice by integrating 3D imaging, virtual reality and other digital technologies.

In a similar vein, China has launched its project of "China's Smart Museum", which was first proposed in 2014 (Hou et al., 2022). This project comprised a unique and advanced kind of dynamic perceptual system between and for objects (such as facilities, galleries, storage areas, and artifacts) and people (such as board, museum staff, offline visitors and online visitors) with the help of advanced technologies including artificial intelligence, big data, and cloud computing (Wang, 2020). For letting the visitors appreciate the treasures of knowledge at any place and any time, Chinese museums are rapidly adopting virtual reality technologies, augmented reality technologies, 3D modelling and digitization. Similarly, advancement in technologies such as artificial intelligence, 8K video and 5G Internet have also empowered offline museums (Xiaoyang, 2022). The National Museum of China has a huge stock of artifacts of about 1.4 million, however, its staff is less than one hundred employees. This ratio indicates the use of technology in the preservation of relics and artifacts for today's visitors of museums and for the future generations as well (Roy, 2019). Similarly, in the Wuhan Provincial Museum, for instance, China and Huawei mobile phones assist museum administrators and historians breathe new life into a bronze that is 2400 years older by using virtual reality and 5G technologies (Roy, 2019).

2.3. Museum preserve Cultural Heritage

In modern world, the advancements in information and technology along with the impact of globalization has posed significant changes in the expectations of organizations and of societies, which has altered the perceptions of cultural heritage through the lens of an interactive era (Ferika & Nazli, 2018). The perception of the cultural heritage is redefined based on the commonalities occurring due to changes and the global culture. In order to understand the culture, individuals read the histories and look towards the cultural sites (Perez-Alvaro, 2022). According to Harrison et al. (2020), cultural heritage is an ongoing process and it presents itself in number of ways. It has become challenging for museums to preserve the cultural heritage after reaching along with providing the educational and performing other activities (Harrison et al., 2020).

According to Petti et al. (2020), in comprehending the cultural heritage sustainability, museums play a critical role. Past studies have witnessed significant attention given to museums preserving cultural heritage by sustaining the development and getting their functions done. In the present world, the cultural heritage is present in bulk mount which is even beyond the capacity of a museum to store and preserve. There is also a significant rise in the demand from the visitors and public to make the cultural heritage available and accessible to them. Therefore, this rising concern has pushed the museums to adopt to digital practices and web based and Internet based solutions for exhibiting their antiquities and collections to the general public (Ferika & Nazli, 2018).

In order to preserve the cultural heritage, several steps and measures have been taken by the museums' management and any other relevant bodies. For instance, museums have designed websites with mobile guard applications to help visitors explore the sites effectively (Komianos, 2022). In the view of Ferika and Nazli (2018), despite all efforts that museums have made for the preservation of the cultural heritage, in the recent years, cultural heritage has seen gradual deterioration. This is due to a number of reasons such as mass tourism, climatic changes, environmental pollution, fast urbanization, industrialisation and so on. There is now increasing concern of convictions in terms of both types of cultural heritage i.e., intangible and tangible, being subjected to this concern (Ng et al., 2023).

In this regard, many steps are being taken by authorities at national and international levels. For instance, it has been among priorities of UNESCO to protect and preserve intangible cultural heritage which is strongly influenced due to globalisation (Cosovic & Brkic, 2019). In addition, a number of projects have been developed by European Union which are relevant to virtual museums; for example, "MU.S.EU.M,

V-MUST.NET, i-MARECULTURE, ViMM (http://www.vi-mm.eu)" and many others similar to these. These programs and projects aim to develop a strong network of virtual museums which are easy to maintain, which are long-lasting, enjoyable and educational (Cosovic & Brkic, 2019).

2.4. Museum Pedagogical Adaptation

Odinokaya et al. (2020) refer to pedagogical adaptations as ever evolving and changing techniques, approaches and methods of providing instructions and teaching to sustain existing circumstances. For providing education in an effective way, it is crucial to select the best pedagogical approach and then adapt to it. Museums have gone a number of transitions and undergone a lot of changes. Now, museums are not only mere repositories of authority and artifacts but they have become "a place for somebody", as once described by the Smithsonian's Stephen E. Weil (TGC, 2023). The museums have become more visitor centric and they have also reshaped their pedagogical approaches, professionalized their education departments and also developed a number of approaches which help the visitors in attaining their attention, spurring interaction, enhancing their engagement and sparking their retention and revisit intentions (Lucchi, 2023).

Recently, TGC (2023) has conducted a research investigation through implementing experimental research design. In this experimental research, over the period of four months, classroom instructors and museum educators have worked in collaboration with an "interdisciplinary Focused Inquiry Group." The Teaching and Learning Centre supported this focus group, and it aimed to design best lesson plans, practices and tasks for the students and museum visitors. Similarly, it has also been brainstormed by scholars how they can incorporate museum educators' tools and approaches for classroom settings. According to Choi and Kim (2021), to meet the public needs, museums have changed their roles, functions and the ways they perform. According to Sharma (2021), however, the only function of museums is to collect, store and display culture, art and antiquities or other repositories, for the purpose of creating awareness of the general public.

However, in the present century this trend has been altered and now museums are incorporating digital and comprehensive strategies for providing an excellent experience to the visitors and increasing their engagement (Shehade & Stylianou-Lambert, 2020). Museums are using different pedagogical approaches for the incorporation of visual cultural practices and arts display in stylish manner (Hettinga, 2021; Lee, 2023). Therefore, in order to do so it is important for the museum management and the other relevant individual groups to select and incorporate the most appropriate pedagogical approach into the museum's routine tasks and activities (Okvuran & Karadeniz, 2022). This would commence a new journey of pedagogical adaptation of museums for the purpose of educating and enlightening the general public.

2.5. Sustainable Development of Museum Pedagogy

Sustainability is a critical rising issue it must be addressed in effective manner (Kumar et al., 2019; Nizetic et al., 2019). Due to rising awareness and concerns of people about the issue of sustainability now businesses are incorporating the sustainability strategy into their core business operations and also for developing sustainable development plans commonly known as sustainable development goals (SDGs) (Tien, Anh, & Ngoc, 2020; Tien, Hiep, et al., 2020). According to Brown (2019), museums have the potential to become primary public pedagogies for the sustainability development, therefore, they play a critical role in encouraging its visitors to play their role in the society in a sustainable and effective manner and get engaged in the issues regarding sustainability. The United Nations organization has provided guideline to museums in the year 1970 for achieving their sustainability development goals (Brown, 2019). According to Pop et al. (2019), sustainable development practices helps the museum in continuing their existence for long run in the future. Sustainability incorporate three primary factors which includes the economy, the society, and the environment (Neitzert & Petras, 2022). By considering all these three factors, museums can gain competitive advantage and achieve its sustainable development goals.

2.6. Digital Learning in Museums in the Context of Visual Culture

Several factors of visual culture practices provide a metaphoric richness which allows referring to visitors' experiences in a museum (Mason, 2020). Such experiences incorporate feelings of visitors regarding ideas and concepts about life and how they can experience their routine lives emotionally. The visual culture practices involve that dimension of cultures which provides meaning and values to the message after culture with the

help of image characteristics (Yılmaz et al., 2019). According to Paglen (2019), all cultures of the world must have a visual aspect; thus, this topic is increasingly getting the attention of significant researchers and scholars; therefore an increasing number of research studies are being conducting in this regard. In the context of visual culture practices incorporated into museums, the visual images are the component of the practices it focuses on how to see a particular object by making all the required arrangements (Serafini, 2022).

According to Robb (2020), the forms of visual cultures can be expressed through different ideas of individuals. Kelly and Kortegast (2023) observe that the point of view of an educator is critical to understand since the importance of representation of culture and arts through visual expression assists in the development and delivery of information and provides students with enriching experience. The authors further state that education is crucial in order to understand what a visual is trying to say and to interpret it is extremely important for valuing an art piece as well as creating an art piece. In this context, Kedra and Zakeviciute (2019) have stated that education is the only means for understanding the real meaning enriching in depth meaning of a particular visual culture in any region of the world. Therefore, by making the use of technological advancements and innovations provide museums with new ways of doing their activities, performing their functions, interacting with their visitors (Choi & Kim, 2021). Moreover, digital technologies and particularly visual cultural practices also alter positively in the interaction between visitors and the objects in the museum (Giannini & Bowen, 2022).

3. Methodology

3.1. Research Design

The current research study utilized a qualitative research design on the fact with the aim to determine the influence of digital technology, cultural heritage, and visual cultural practices on the sustainable development of museum pedagogy in the presence of museum pedagogical adaptation and cultural sustainability in China. A qualitative research methodology is an appropriate research method to proceed with the current research framework because it is helpful to understand the research subject and the reason behind conducting the research along with its scope. Additionally, a qualitative research design is beneficial to delve deep into the research framework and analyze the data gathered from the participants.

3.2. Recruitment and Sampling

Since the current study utilized a qualitative research design, it required the assessment of a small population to attain generalized research findings. Hence, purposive sampling was adopted as an appropriate technique (Campbell et al., 2020; Kelly, 2010). By utilizing the purposive sampling technique, the objective was to target the employees working in the Chinese museums. The sample size was restricted to eight (08) informants as the interviews with these research participants would lead to early saturation in their responses. The management staff of museums was chosen because they could provide authentic and appropriate data regarding the sustainability of the museum pedagogy in China and the factors associated with its sustainable development.

3.3. Data Collection

The current investigation within the context of the sustainable development of museum pedagogy in China required collecting the first-hand data. Hence, semi-structured interviews were conducted with all the eight informants sampled form different Chinese museums. Each interview lasted for 20 to 30 minutes and was held in English to overcome any inconvenience during the interviews regarding the language. The interviews questions dealt with the importance of cultural heritage, digital inclusion, and visual cultural practices. These interviews were conducted in a specific room of a building where only the researcher and the informants were present. This was done to ensure the confidentiality of the data thus gathered and to protect the privacy of the informants. In addition, before conducting the interviews, an invitation mail was sent to all informants to participate in this study. The mail comprised a detailed description of the purpose, scope, importance, and application of the research within the context of sustainable development of Chinese museums. Each interview was conducted face-to-face and also voice recorded by taking prior permission from each informant, in confidence and to prevent any misconduct. After the interview, the recordings were transcribed verbatim for a thematic content analysis and to mitigate the risks of biasedness within the responses.

3.4. Data Analysis

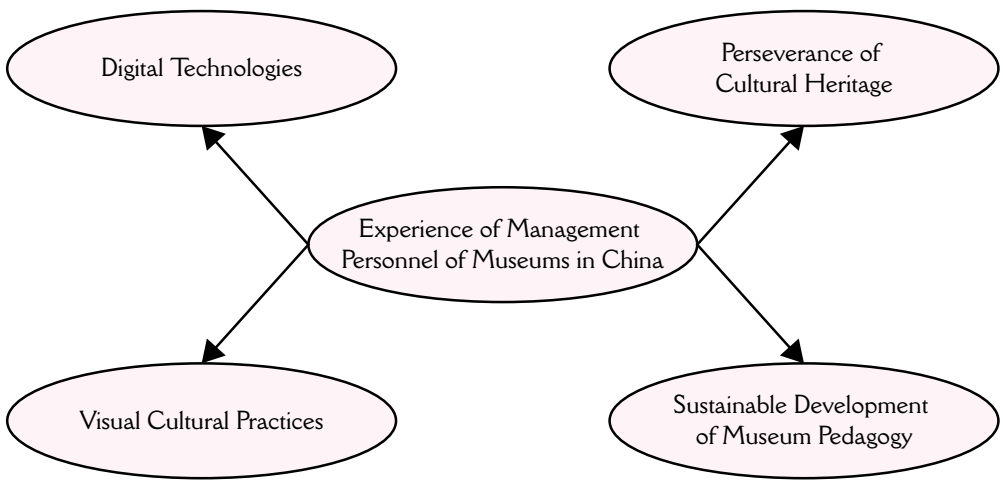
The interview transcripts of the 8 informants working as the management staff of the Chinese museums were subjected to a thematic analysis, using the triangulation process, where the data incorporated the iterative process of reading and generating the themes from the interview transcripts. The interview transcripts were manually coded during the iteration process, in order to generate themes, and formulate these themes into categories and groups until a saturated thematic map is obtained. Every effort was made to mitigate the risk of any biases in the responses during the transcription process. This ensured generalization of the insights of the researchers as well as the informants. Finally, the themes and categories were refined by the researchers to attain a consensus.

4. Results

4.1. Thematic Analysis

After conducting the interviews, the researcher prepared interview transcripts for the purpose of conducting a qualitative thematic analysis. For this purpose, the data was coded manually to identify themes. Consistent with the research objectives, four main themes that reflected the experience of the informants as museum personnel in China were generated. Figure 1 by using thematic analysis technique are presented in figure 4.1 below.

Figure 2: Themes Developed From the Interview Transcripts.



4.1.1. Theme I: Digital Technologies

A large majority of respondents of this study expressed that digital technologies were important in museums because with the help of advanced technologies visitors can engage with and explore the museum exhibits in such a way that cannot even be imagined before. These technologies provide a number of benefits to museum staff as well as visitors. As according to one informant of the study *"Digital technologies allow the users to assess the services by digital means by setting at the comfort of their homes or offices or anywhere."* All informants of the study unanimously expressed that digitisation brings advantages to the museum administration. The benefits of digital technologies include increased efficiency and productivity in the management and administration. It makes transfer of knowledge interactive through various multimedia integration, reachability and accessibility of huge collections

One of the informants stated: *"In a particular museum, the Internet enabled devices help the users in collaboration and participation, and it also encourages them to be self-sufficient so that they can have access to the required material online by using digital platforms and applications."* The informants were asked a direct question whether a museum can have an effective strategy for the integration of digital technologies or not. Five out of eight informants responded with 'yes' and stated that their museum have a

well-defined digital strategy for the digital technology's integration into the museum activities and pedagogical approaches as well. However, two of the informants reported that their museum did not have any well-defined strategy for the integration of digital technologies; though this aspect was included in the overall digital strategy and/or the core business strategy. Let's look at what was articulated about the non-presence of a well-defined strategy for the integration of digital technologies: *"museums use digital technologies but only for its operation purposes; there does not exist any specific strategy that could integrate any external factors or any sort of pedagogical adaptation, with the view to educate the public."*(Informant 7)

The Informant 4 was among those who believed that their museums practised the integration of digital technologies: *"Yes, the museum has a well-defined strategy for the integration of digital technologies which allows it to use these technologies into museum's activities, services and pedagogical adaptation. This strategy helps in managing and preserving the content and specifically the data related to the culture; so that it ensures cultural preservation as well."* Furthermore, when informants were asked about the purpose of utilisation of digital technologies, majority of them said that these technologies were included for the cultural humility, self-agency, choice, voice, peer support, mutuality and collaboration, transparency, trust and safety. As stated by Informant 3, *"The digital technologies are integrated in order to provide visitors with the sense of transparency trust and safety in addition to creation of the sense of collaboration and cultural preservation. In my point of view, when a person thinks about a particular museum or any individual relevant to it such as staff of the museum, its management, visitors and any other, the above stated principles make perfect sense to a person."*

4.1.2. Theme II: Visual Cultural Practices

The informants were explained about interactive practices regarding visual culture that are followed in museums, with the usage of technology. Informants were asked whether their museums followed those visual cultural practices. The question was also linked with the activities regarding the Chinese visual arts, most dominant of which included carving, jade, bronzes, sculptures, pottery, architecture, calligraphy, painting or any other decorative and fine form of arts which have been produced in China over the number of past centuries. Informant 2 replied: *"Different museums are incorporating these visual cultural practices in different forms; for instance, some are incorporating visual arts in the form of calligraphy while some in the form of painting."* Informant 1 expressed: *"Our museum represents Chinese arts and cultural geography by integrating visual cultural practices for providing mental tour of different places to our visitors."* However, Informant 4 stated: *"Visual cultural practices in my museum include thematic galleries to provide visitor with knowledge regarding the rich Chinese culture and art with the help of visual images which are specifically important for internalising, motivating, and persuading the visitors about themes regarding visual cultural arts."*

4.1.3. Theme III: Perseverance of Cultural Heritage

A rapid technological transformation and revolution is currently happening in museums in China. They are not just the centres of storage of artifacts, but also places to display the Chinese cultural heritage to the rest of the world; and to educate the whole world about the greatest Chinese arts. The informants were asked about their views on this transformation. Informant 7 states: *"In the contemporary world, museums are no longer considered as merely the depositors of antiquities, but they are now seen as highly interactives civic spaces, centres for education, social spaces, and cultural spaces."* This indicated that the Chinese museums play a significant role in the enrichment of the community in which they operate, and also for preservation of the culture of the region. Informant 8 adds: *"In my point of view, the museum where I work and any museum in China or any other region of the world not only spreads culture, but also helps in preservation of the cultural heritage with the help of artifacts and any other approaches in order to spread knowledge regarding culture practices and histories. Such as, in our museum visual cultural practices, and digital technologies are used for the preservation of rich Chinese culture and arts."*

It was also believed by most informants that museums help in learning about the events occurred in past and also provide knowledge where cultures come from and what are their true practices. Informant 2 stated: *"We often held cultural events and exhibitions for the preservation of our cultural heritage. By conducting these events, we helped in creating a sense of unity and community among our visitors and encouraged them to revisit so that they can explore Chinese cultural history and heritage. It is specifically important for the people of newer generations."*

4.1.4. Theme IV: Sustainable Development of Museum Pedagogy

All informants accepted the impact of technology usage and digital inclusion in museums for providing sustainable development. According to them, technology usage and digital inclusion helped in providing a sustainable learning and visiting experience to visitors. With the increasing concerns of people about sustainability in the present era, technology and digitalization is now incorporated into every occupation and thus every organization is including it into its management and practices. Informant 4 said, *"The concept of sustainability is prevailing into every area of community therefore it encourages museums to really think about their strategies and choices in terms of education and society."* Interestingly, it was a unanimous opinion of all the eight informants of Chinese museums that museums had the potential to adopt pedagogical approaches for the sustainability development. They agreed that museums can potentially become public pedagogies for sustainability development, and play a critical role in encouraging visitors and other relevant individuals (such as staff, management, and others) to play a definite role to promote issues regarding sustainability.

Informant 7 unambiguously stated: *"We focus on providing an outstanding education and learning experience to our visitors by integrating digital technologies and sustainability so that the users can enjoy the experience for long term."* Similarly, Informant 8 expressed: *"We encourage a framework for the proper incorporation of sustainability by including different factors like educational situation, number of visitors, exhibition and others for making informed decisions about sustainability and pedagogical discussion and decisions into our museum."* Thus, it was clear that the museum staff and personnel associated with museums in China were aware about sustainable development of museum pedagogy and strongly advocated for its implementation.

5. Discussion

The current research generated four themes by coding the transcriptions after conducting semi-structured interviews in a qualitative research design. The first theme was based on digital technologies; the second theme dealt with visual cultural practices, the third theme hinted at the perseverance of the cultural heritage, and the fourth theme advocated the sustainable development of museum pedagogy. These themes are discussed in the section below:

The first theme raised the issue of incorporating digital technologies in the Chinese museums to ensure their sustainable pedagogical development. A similar study has supported the use of information and communication technology training programs at the governmental level to conduct e-government services (Chohan & Hu, 2022). However, the current study focused on digital technologies such as virtual reality and 3D printing utilized in improving the sustainability of Chinese museums. The research findings revealed that digital technologies and pathways were feasible for the audience to have easy access from their homes. In addition, the interview informants also highlighted the fact that digital technologies in the Chinese museums enabled the visitors and tourists to develop a sense of trust and to perfectly sense the culture and pedagogy portrayed in museums. Consequently, Chinese museums should implement 3D printing and virtual reality to meet the consumers' needs and obtain the sustainable development of the museum pedagogy.

The second theme talked about the visual cultural practices where the informants entailed that by implementing visual cultural practices such as sculptures, potteries, architecture, and calligraphy, the museums are able to depict the Chinese culture and heritage that has been evolved from the past and museums were entrusted to carry them in the future. A similar research has elaborated that by employing visually friendly cultural articles and icons in museums, the sustainability and prosperity of the museum can be enhanced, which signifies that visually friendly icons are beneficial for promoting the sustainability of museums (Vardopoulos, 2019). The current research has ideally focused on implementing visual cultural practices in the Chinese museums to ensure their sustainable development. The informants highlighted the importance of visual cultural practices and elaborated that museums in China have portrayed the Chinese culture with the help of art and cultural geography, along with thematic galleries, which enabled visitors to educate themselves about the Chinese culture and ensures the sustainable development of museum pedagogy within the context of China.

The third theme elaborated the role of museums to preserve the cultural heritage. It was observed that the Chinese museums were more depicted as representation of antiques and artifacts rather than being centers of information and education for the people. The informants, however, believed that the Chinese museums performed both the jobs very well. The Chinese museums not only preserved the Chinese culture

and its cultural heritage but also educated people, thus playing the role of an institutional that believed in sustainable pedagogical development. This is consistent with a recent research which elaborated that the cultural heritage was the reason behind sustainable development and that that to achieve sustainable pedagogical development, Chinese museums also preserved cultural heritage (Xiao et al., 2018).

The last theme discussed the sustainable development of the museum pedagogy, which elaborates that the Chinese museums have incorporated numerous factors to enhance the sustainability of the museum pedagogy such as educational factors to achieve sustainability and making abrupt decisions regarding the sustainability of the museum pedagogy. This is also evident in a research study which has elaborated that education is quite important for achieving sustainable development goals (Molderez & Ceulemans, 2018). All the contemporary studies, including the current one, therefore have supported the fact that the Chinese museums incorporate sustainable education programs to improve the chances of sustainable pedagogical development, within the context of China.

6. Conclusions

The present study has thus suggested that cultural heritage perseverance, visual cultural practices, and digital technologies such as virtual reality and 3D printing are crucial factors which should be incorporated by the Chinese museums in order to achieve cultural sustainability and pedagogical adaptation of museums. In addition, the current research has also highlighted the importance of the Chinese museums focusing on the development of digital innovations to provide visual practices and graphics for the visitors and to educate them about the cultural heritage of the country, thus ensuring the sustainability of the pedagogy of the Chinese museums.

The current research theoretically contributes to the domain by modifying the concept of the museum pedagogy in China, highlighting the importance of cultural heritage and digital technologies in the process of the sustainable development of the Chinese museums. The objective was to educate Chinese individuals about their cultural heritage and also devise such an educational framework that could recognize museum pedagogy as a mainstream sustainable methodology. On practical grounds, the current research provides useful insights to managing staff and policymakers of Chinese museums to incorporate such practices that will open new digital pathways for sustainable development of museum pedagogy as visual cultural practices and enhance their sustainability. The findings of this study would also motivate the museum staff to make abrupt decisions and sharp choices by implementing sustainability frameworks within the museums of the country, and to adopt digital technologies and visual arts and graphics as cultural practices for the sustainability of museum pedagogy. These implications would incredibly ensure the perseverance of the Chinese cultural heritage and sustainability of the museum pedagogy. Lastly, this research would also act as a benchmark for the sustainable development of museums in other countries of the world.

The study faced a few limitations as well which prove to be a call for the future researchers to perform and modify their studies by innovating the current research framework. First, the current research utilized a qualitative research design, which was restricted to primary data collected from research informants. The absence of secondary data made it difficult to generate themes comprehensively. Future investigators could incorporate a quantitative research methodology, to collect numerical data from the respondents or a mixed method (qualitative and quantitative) study, along with inclusion of secondary data, to avoid any bias that could occur by using a single method. Second, this study had a very small sample of only 8 informants from Chinese museums, thus both the sample size and the institutional choice was very limited. Though it was an ideal technique for a qualitative research design as it helped avoiding any saturation, but at the same time, such a small sample size limited the generalizability of the research findings. In future, a larger sample could be targeted from multiple institutions for getting more generalized results. Last, but not the least, this study was based on one single country like China, which was a geographical constraint of this study. Future investigators can conduct their studies in miscellaneous countries across the globe, where there is a greater requirement of sustainable development of museum pedagogy.

References

Agus, C., Saktimulya, S. R., Dwiarso, P., Widodo, B., Rochmiyati, S., & Darmowiyono, M. (2021). Revitalization of local traditional culture for sustainable development of national character building in Indonesia. In W. Leal Filho, E. V. Krasnov, & D. V. Gaeva (Eds.), *Innovations and Traditions for Sustainable Development* (pp. 347-369). Springer. https://doi.org/10.1007/978-3-030-78825-4_21

Bratengeyer, E. (2019). The Need for Improved Learning Efficacy in a World of Digitalization. In *Innovation and Digitalization in Emerging Economies* (pp. 17-35). IAFeS – International Association for eScience. https://go.revistacomunicar.com/ODxqaU

Brown, K. (2019). Museums and Local Development: An Introduction to Museums, Sustainability and Well-being. *Museum International*, *71*(3-4), 1-13. https://doi.org/10.1080/13500775.2019.1702257

Bruno, F., Ricca, M., Lagudi, A., Kalamara, P., Manglis, A., Fourkiotou, A., Papadopoulou, D., & Veneti, A. (2020). Digital Technologies for the Sustainable Development of the Accessible Underwater Cultural Heritage Sites. *Journal of Marine Science and Engineering*, *8*(11), 955. https://doi.org/10.3390/jmse8110955

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, *25*(8), 652-661. https://doi.org/10.1177/1744987120927206

Chohan, S. R., & Hu, G. (2022). Strengthening digital inclusion through e-government: Cohesive ICT training programs to intensify digital competency. *Information Technology for Development*, *28*(1), 16-38. https://doi.org/10.1080/02681102.2020.1841713

Choi, B., & Kim, J. (2021). Changes and challenges in museum management after the COVID-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(2), 148. https://doi.org/10.3390/joitmc7020148

Cosovic, M., & Brkic, B. R. (2019). Game-based learning in museums—cultural heritage applications. *Information*, *11*(1), 22. https://doi.org/10.3390/info11010022

Fajardo-Hill, C. (2023). Radical WomenLatin American Art, 1960–1985 in Retrospect and Going Forward. *Latin American and Latinx Visual Culture*, *5*(2), 81-91. https://doi.org/10.1525/lavc.2023.5.2.81

Ferika, Ö., & Nazli, M. (2018). Sustaining cultural heritage by means of museums in an ever-changing world. *Gaziantep University Journal of Social Sciences*, *17*(1), 1-14. https://doi.org/10.21547/jss.316178

Gangi, R. (2021, April 16). *VR and 3D Printing Startups Bringing Sustainability To Museums*. IMPAKTER. https://go.revistacomunicar.com/jRAyox

Giannini, T., & Bowen, J. P. (2022). Museums and Digital Culture: From reality to digitality in the age of COVID-19. *Heritage*, *5*(1), 192-214. https://doi.org/10.3390/heritage5010011

Härkönen, E., Huhmarniemi, M., & Jokela, T. (2018). Crafting sustainability: Handcraft in contemporary art and cultural sustainability in the Finnish Lapland. *Sustainability*, *10*(6), 1907. https://doi.org/10.3390/su10061907

Harrison, R., DeSilvey, C., Holtorf, C., Macdonald, S., Bartolini, N., Breithoff, E., Fredheim, H., Lyons, A., May, S., & Morgan, J. (2020). *Heritage futures: comparative approaches to natural and cultural heritage practices*. UCL Press. https://go.revistacomunicar.com/MYWmVV

Hatch, M. J. (2018). *Organization Theory: Modern, Symbolic and Postmodern Perspectives*. Oxford University Press. https://go.revistacomunicar.com/BK5EEK

Hettinga, L. (2021). *Appearing Differently: Disability and Transgender Embodiment in Contemporary Euro-American Visual Cultures* [Doctoral Dissertation, Utrecht University]. https://doi.org/10.33540/1182

Hooper-Greenhill, E. (2020). *Museums and the Interpretation of Visual Culture*. Routledge. https://doi.org/10.4324/9781003124450

Hou, Y., Xu, L., & Chen, L. (2022). Hotspots and Cutting-Edge Visual Analysis of Digital Museum in China Using Data Mining Technology. *Computational Intelligence and Neuroscience*, *2022*, 7702098. https://doi.org/10.1155/2022/7702098

Huang, X., Chen, M., Wang, Y., Yi, J., Song, Z., & Ryan, C. (2022). Visitors' spatial-temporal behaviour and their learning experience: A comparative study. *Tourism Management Perspectives*, *42*, 100951. https://doi.org/10.1016/j.tmp.2022.100951

Janhonen-Abruquah, H., Topp, J., & Posti-Ahokas, H. (2018). Educating professionals for sustainable futures. *Sustainability*, *10*(3), 592. https://doi.org/10.3390/su10030592

Järvelä, M. (2008). Social and Cultural Sustainability. In J. Kohl (Ed.), *Dialogues on Sustainable Path for the Future: Ethics, Welfare and Responsibility* (pp. 46-65). Finland Futures Research Centre. https://go.revistacomunicar.com/W2EgYj

Kedra, J., & Zakeviciute, R. (2019). Visual literacy practices in higher education: what, why and how? *Journal of Visual Literacy*, *38*(1-2), 1-7. https://doi.org/10.1080/1051144X.2019.1580438

Kelly, B. T., & Kortegast, C. A. (2023). *Engaging Images for Research, Pedagogy, and Practice: Utilizing Visual Methods to Understand and Promote College Student Development*. Routledge. https://go.revistacomunicar.com/zqQ41B

Kelly, S. E. (2010). Qualitative Interviewing Techniques and Styles. In B. I., D. R., & d. V. R. (Eds.), *The SAGE Handbook of Qualitative Methods in Health Research* (pp. 307-326). Sage Publications. https://doi.org/10.4135/9781446268247

Komianos, V. (2022). Immersive Applications in Museums: An Analysis of the Use of XR Technologies and the Provided Functionality Based on Systematic Literature Review. *JOIV: International Journal on Informatics Visualization*, *6*(1), 60-73. https://doi.org/10.30630/joiv.6.1.708

Kumar, S., Tiwari, P., & Zymbler, M. (2019). Internet of Things is a revolutionary approach for future technology enhancement: a review. *Journal of Big Data*, *6*, 111. https://doi.org/10.1186/s40537-019-0268-2

Lee, E. J. (2023). Art as Pedagogy: A Multiple Case Study of Participatory Socially Engaged Art. *Visual Arts Research*, *49*(1), 88-106. https://doi.org/10.5406/21518009.49.1.08

Lucchi, E. (2023). Regenerative Design of Archaeological Sites: A Pedagogical Approach to Boost Environmental Sustainability and Social Engagement. *Sustainability*, *15*(4), 3783. https://doi.org/10.3390/su15043783

Luo, Z. (2023). Problems Analysis and Improvement Strategies of Domestic Digital Museums under the Background of All Media. *Media and Communication Research*, *4*(4), 1-5. https://doi.org/10.23977/mediacr.2023.040401

Mamur, N., Özsoy, V., & Karagöz, I. (2020). Digital Learning Experience in Museums: Cultural Readings in a Virtual Environment. *International Journal of Contemporary Educational Research*, *7*(2), 335-350. https://doi.org/10.33200/ijcer.799643

Mason, M. (2020). The Elements of Visitor Experience in Post-Digital Museum Design. *Design Principles and Practices: An International Journal—Annual Review*, *14*(1), 1-14. https://doi.org/10.18848/1833-1874/CGP/v14i01/1-14

Mateescu, L., & Ahmed, T. (2019). *Climate Action Visual Culture*. The University of Huddersfield. https://go.revistacomunicar.com/JB8wmD

Molderez, I., & Ceulemans, K. (2018). The power of art to foster systems thinking, one of the key competencies of education for sustainable development. *Journal of Cleaner Production*, *186*, 758-770. https://doi.org/10.1016/j.jclepro.2018.03.120

Mpofu, P. (2012). The dearth of culture in sustainable development: The impact of NGOs' agenda and conditionalities on cultural sustainability in Zimbabwe. *Journal of Sustainable Development in Africa*, *14*(4), 191-205. https://go.revistacomunicar.com/3roWQW

Navarrete, T. (2019). Digital heritage tourism: innovations in museums. *World Leisure Journal*, *61*(3), 200-214. https://doi.org/10.1080/16078055.2019.1639920

Neitzert, F., & Petras, M. (2022). Corporate social responsibility and bank risk. *Journal of Business Economics*, *92*(3), 397-428. https://doi.org/10.1007/s11573-021-01069-2

Ng, W.-K., Hsu, F.-T., Chao, C.-F., & Chen, C.-L. (2023). Sustainable Competitive Advantage of Cultural Heritage Sites: Three Destinations in East Asia. *Sustainability*, *15*(11), 8593. https://doi.org/10.3390/su15118593

Nizetic, S., Djilali, N., Papadopoulos, A., & Rodrigues, J. J. P. C. (2019). Smart technologies for promotion of energy efficiency, utilization of sustainable resources and waste management. *Journal of Cleaner Production*, *231*, 565-591. https://doi.org/10.1016/j.jclepro.2019.04.397

Nocca, F. (2017). The role of cultural heritage in sustainable development: Multidimensional indicators as decision-making tool. *Sustainability*, *9*(10), 1882. https://doi.org/10.3390/su9101882

Odinokaya, M. A., Karpovich, I. A., Mikhailova, O. J., Piyatnitsky, A. N., & Klímová, B. (2020). Interactive technology of pedagogical assistance as a means of adaptation of foreign first-year students. *IOP Conference Series: Materials Science and Engineering*, *940*(1), 012130. https://doi.org/10.1088/1757-899X/940/1/012130

Okvuran, A., & Karadeniz, C. (2022). Teacher's impact on museum education and design of new-generation school and museum collaboration in Turkey. *Museum Management and Curatorship*, *37*(1), 17-43. https://doi.org/10.1080/09647775.2021.1914138

Paglen, T. (2019). Invisible images: Your pictures are looking at you. *Architectural Design*, *89*(1), 22-27. https://doi.org/10.1002/ad.2383

Perez-Alvaro, E. (2022). Sustaining the Underwater Cultural Heritage. In *The Palgrave Handbook of Blue Heritage* (pp. 427-450). Springer. https://doi.org/10.1007/978-3-030-99347-4_22

Petti, L., Trillo, C., & Makore, B. N. (2020). Cultural heritage and sustainable development targets: a possible harmonisation? Insights from the European Perspective. *Sustainability*, *12*(3), 926. https://doi.org/10.3390/su12030926

Pop, I. L., Borza, A., Buiga, A., Ighian, D., & Toader, R. (2019). Achieving Cultural Sustainability in Museums: A Step Toward Sustainable Development. *Sustainability*, *11*(4), 970. https://doi.org/10.3390/su11040970

Ricca, M., Alexandrakis, G., Bonazza, A., Bruno, F., Davidde Petriaggi, B., Elkin, D., Lagudi, A., Nicolas, S., Novák, M., & Papatheodorou, G. (2020). A sustainable approach for the management and valorization of underwater cultural heritage: new perspectives from the TECTONIC project. *Sustainability*, *12*(12), 5000. https://doi.org/10.3390/su12125000

Robb, J. (2020). Art (pre) history: ritual, narrative and visual culture in Neolithic and Bronze Age Europe. *Journal of Archaeological Method and Theory*, *27*(3), 454-480. https://doi.org/10.1007/s10816-020-09471-w

Roy, S. (2019, September 9). *Chinese museums use technology to give visitors an immersive experience*. Tech Wire Asia. https://go.revistacomunicar.com/pM8YUP

Serafini, F. (2022). *Beyond the Visual: An Introduction to Researching Multimodal Phenomena*. Teachers College Press. https://go.revistacomunicar.com/UCUhnv

Sharma, K. (2021). Museum Collection Storage in India: A Decade in Review. *Museum International*, *73*(1-2), 144-155. https://doi.org/10.1080/13500775.2021.1956759

Shehade, M., & Stylianou-Lambert, T. (2020). Virtual reality in museums: Exploring the experiences of museum professionals. *Applied Sciences*, *10*(11), 4031. https://doi.org/10.3390/app10114031

Shome, R. (2019). Thinking culture and cultural studies—from/of the Global South. *Communication and Critical/Cultural Studies*, *16*(3), 196-218. https://doi.org/10.1080/14791420.2019.1648841

TGC. (2023). *Museum Pedagogy*. The Graduate Center. https://go.revistacomunicar.com/69ndE8

Tien, N. H., Anh, D. B. H., & Ngoc, N. M. (2020). Corporate financial performance due to sustainable development in Vietnam. *Corporate Social Responsibility and Environmental Management*, *27*(2), 694-705. https://doi.org/10.1002/csr.1836

Tien, N. H., Hiep, P. M., Dai, N. Q., Duc, N. M., & Hong, T. T. K. (2020). Green Entrepreneurship Understanding in Vietnam. *International Journal of Entrepreneurship*, *24*(2), 1-14. https://go.revistacomunicar.com/p9LaPo

Vardopoulos, I. (2019). Critical sustainable development factors in the adaptive reuse of urban industrial buildings. A fuzzy DEMATEL approach. *Sustainable Cities and Society*, *50*, 101684. https://doi.org/10.1016/j.scs.2019.101684

Wang, S. (2020). Museum as a sensory space: A discussion of communication effect of multi-senses in Taizhou Museum. *Sustainability*, *12*(7), 3061. https://doi.org/10.3390/su12073061

Wang, S., Duan, Y., Yang, X., Cao, C., & Pan, S. (2023). 'smart Museum' in China: From Technology Labs to Sustainable Knowledgescapes. *Digital Scholarship in the Humanities*, *38*(3), 1340-1358. https://doi.org/10.1093/llc/fqac097

Xiao, W., Mills, J., Guidi, G., Rodríguez-Gonzálvez, P., Barsanti, S. G., & González-Aguilera, D. (2018). Geoinformatics for the conservation and promotion of cultural heritage in support of the UN Sustainable Development Goals. *ISPRS Journal of Photogrammetry and Remote Sensing*, *142*, 389-406. https://doi.org/10.1016/j.isprsjprs.2018.01.001

Xiaoyang, L. (2022, March 5). *Traditional museums in China get innovative to woo the public*. Beijing Review. https://go.revistacomunicar.com/eqlWj1

Yılmaz, M., Yılmaz, U., & Demir Yılmaz, E. N. (2019). The Relation Between Social Learning and Visual Culture. *International Electronic Journal of Elementary Education*, *11*(4), 421-427. https://doi.org/10.26822/iejee.2019450837