



Digital Revolution and Classical Art: The Role of Digital Technology is Influencing the Reinterpretation of the Ancient Dunhuang Murals in China

Yutong Zhang*

¹ School of Plastic Arts, Dankook University, Suji-gu, Yongin-si, Gyeonggi-do, 16890, Korea

* Corresponding Author: m17862955762@163.com

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ABSTRACT

The digital revolution has emerged as a transformative force in fundamentally reimagining and reshaping the interpretation of classical art in innovative ways. Adopting an exploratory observational method, the study is situated at the intersection between digital technology and modern ways of engagement with cultural heritage. This paper examines the profound impact of digital renaissance is shaping the reinterpretation of ancient murals at the Dunhuang heritage site in China. The case study revealed that digital environments have significantly shaped the narrative tapestry of classical art and facilitated its transmission to digital natives through innovative modes of digital preservation and promotion. Moreover, it discovered that in the wake of intensive representation of classical art in social media environments, the technical affordances have ushered into captivating visual storytelling offering immersive experiences for users and allowing them to reinterpret the ancient relics and the associated socio-cultural aesthetics. The hybrid digital environments have facilitated a cross-cultural synthesis of ancient art interpretations and the virtual representations are rekindling user connections with heritage through shared cultural narrativity in the digital era.

Keywords: Digital Revolution, Dunhuang Murals, Classical Art, Art interpretation, Digital preservation

INTRODUCTION

The advancing social media environments have a multifaceted influence on virtual discourse around art forms, including classical murals. Classic murals continue to remain relevant in popular discourse due to their inherent relationship with socio-cultural identities and heritage. Social media have influenced public perceptions of classical art and culture and persistent online interactions of these subjects have shaped the aesthetic experience among users who interact with the content of artworks (Vlachou & Panagopoulos, 2022). The advancing digital environments while reshaping cultural imaginations globally are facilitating significant spaces for reinterpretations and pushing contemporary cultural debates on classical art. Social media has emerged as cultural platforms facilitating unprecedented space for interactions and discussions on classic art including murals.

The existing democratized art discourse around these classic murals, besides offering global access for people to consume this art, is facilitating interactions on diverse user perspectives about them. Most importantly, the consequent online interactions and interpretations of user-generated content are redefining the artistic significance and reshaping traditional narratives around these classic murals. On these platforms, the dissemination of mural representations influenced by domineering visual cultures substantially influences their perceptions and attitudes among people. This research study takes the case of Chinese Dunhuang cave murals and aims to analyze their socio-cultural interpretations in hybrid digital environments and how social media narratives are shaping their modern interpretations. The Dunhuang heritage contains the treasure troves of ancient Chinese cultures and cultural heritage. The murals found at Dunhuang Mogao Caves represent a magnificent tapestry of China's rich cultural history and religious diversity. For centuries, the Mogao cave murals have fascinated researchers, archaeologists and travelers. Dunhuang mural depictions represent the dynamic exchange of socio-religious cultures and beliefs and their confluence through the Silk Road. The techno-cultural convergence with the Dunhuang murals represents a transformative Digital Renaissance involving sophisticated reconstruction, preservation, and reinterpretation of a rich cultural heritage. In highly

digitalized environments, the boundaries of space and time are diminishing for the individuals who are availing unbridled access to classical art murals more closely and remotely.

The digital preservation and promotion of the classic murals at the Dunhuang Mogao Caves are introducing rich heritage to gen-Z and facilitating a conducive environment which furnishes the narrative tapestry of the creative relics. The study adopts an exploratory approach to understanding the classic mural interpretations in the contemporary digital media landscape by adopting an observation method, investigating secondary sources including existing literature, the public sphere and social media debates. The research enquiry set here attempts to study the impact of the digital revolution on classical Chinese murals and how that is influencing the contemporary debates and reinterpretation of these cultural artefacts. This study centers on the argument that the digital renaissance within Dunhuang heritage, besides art preservation, has ushered into offering a profound reinterpretation and improved perceptions with the visitors and people in general. Through the exploration of critical debates, it will identify the reinterpretations and user narratives and their influence on the contemporary connotations of these classic murals. This exploratory study would be a potential contribution towards guiding further empirical research on understanding the relationship between art and social media representation. This study explores the integration of digital technology with Mogao cave murals and its implications in shaping their interpretations in the narratives found in contemporary pop cultures, especially social media discourse. The insights gleaned from this study are poised to understand the intersection of classic art and modernity. The study aims to explore the synergy between digitalization, classic murals and contemporary discourse on social media platforms and how such popular culture narratives are shaping modern interpretations and appreciation of Dunhuang heritage. Such digital interventions have opened up the murals for wider public interaction and interpretations in the social media world. Social media platforms are emerging as significant avenues for highlighting and recognizing the artistic splendor of the cultural heritage at Dunhuang. The awe-inspiring beauty and distinctive richness of the murals are being reinterpreted through vibrant storytelling features of the social media platforms. This paper also focuses on social media narratives about the Dunhuang murals as a significant implication of digital intervention which are substantially amplifying and magnifying their socio-cultural glory. Such social media representations of the Dunhuang murals are resonating with the visual representations of these mural depictions and resounding their impact on contemporary culture.

LITERATURE REVIEW

Scholars have expressed keen interest in understanding the practical and theoretical implications of community engagement and involvement with heritage and cultural artefacts (Stuedahl, 2011). Prior to the involvement of digital tools in classical art preservation, the damage, and alterations over the centuries have had a substantial impact on limiting audience engagement with art and restricting their capabilities to reinterpret cultural artefacts (Muñoz Pandiella et al., 2022). The fragmentation of the artworks due to relocation and their detachment for the original setting and virtual reconstructions and representations have a profound effect on decontextualizing artworks and trigger sufficient reinterpretations on social media platforms (Muñoz Pandiella et al., 2022).

The advancing technologies like immersive virtual reality not only enable people to visually explore and experience the aesthetics and details of classical art but such technologies have ushered into an era of sustainable art preservation for future generations (Soto-Martin et al, 2020). Unlike, non-captive engagement with heritage in a physical context, digital platforms are fostering virtual communities and shaping interpretations and engagements with cultural heritage among virtual communities (Affleck & Kvan, 2008). In their study on the discursive interpretation of cultural heritage, Affleck & Kvan (2008) concluded that these virtual communities on platforms are significant in developing and communicating user experiences, perceptions, and a sense of place for sharing them.

From art academies and heritage institutions, these technologies are being significantly adopted to educate a wide range of audiences about ancient cultures and historical artefacts (Deggim et al., 2017) which also involves incorporating entertaining and interactive elements in virtual environments for better user experience and immense possibilities (Liarokapis et al., 2017). The incorporation of virtual reality and augmented reality are being substantially used for classical heritage representations, restoring their glory and even reconstructing the fading details (Rodríguez-González et al., 2017). The digitalization of artworks involves interpretation of art design based on dramatic and balanced art display and appreciation, and enhancement of aesthetic creation (Li, 2022). Maniou (2021) studied the previous work on understanding the socio-cultural implications of the impact of digital technologies on creating narratives on cultural heritage in social media platforms and news content. The study found four different alternative narratives and meanings which emerged from the analysis of social media posts; “notions of national pride and national achievements, policies of distraction, political and scientific conflicts and policies of personal and professional self-promotion” (Maniou, 2021, p. 10). The use of digital media technologies in reinvigorating cultural heritage is leading to the emergence of virtual or digital heritage and gaining attraction among people (Kalay et al., 2007). This New Heritage phenomenon has broadened the scope of heritage studies and engaged interdisciplinary fields in socio-political and economic relations in heritage interpretation (Kalay et al., 2007). The digital preservation of heritage artefacts and their virtual reconstruction like in the case of Dunhuang have facilitated deeper reinterpretations and improved perceptions among visitors towards them (Muñoz Pandiella et al., 2022).

Recent decades have witnessed increased use of digital technological innovations like virtual reconstructions, advanced digital imagining and 3D modelling for hyper-realistic projection of classical artworks. These innovative practices have redefined immersive practices in the realm of art exhibitions. The adoption of advanced VR technological for 3D measurements and digital reconstruction of cultural artefacts are becoming increasingly popular in heritage preservation enabling precise digitization. In the advancing VR and AR environments viewers experience immersive explorations which cultivate greater appreciation and

accessibility among the art lovers (Ćosović and Maksimović, 2022). In recent times disruptive ICTs have been deployed to establish a blockchain technological architecture for the preservation of cultural heritage (Trček, 2022).

The use of 3D measurements and digital reconstruction in the domain of cultural heritage has become increasingly important in recent years due to technological advancements and greater accessibility to technologies that produce satisfactory results (Ćosović and Maksimović, 2022). Similarly, the advanced remote sensing and mapping technology 3D LiDAR is emerging as an innovation in the preservation of cultural heritage. The sensory technology in LiDAR uses the reflection of light to furnish the high-resolution 3D point clouds of the object (Marchello et al., 2023). Digital modelling technologies like Heritage building information modelling (HBIM) are integrated into the conservation of architectural heritage by archaeologists and researchers. As an emerging innovation in the realm of art conservation, HBIM has ushered into a new paradigm where heritage buildings are communicated and shared with the viewers in the form of digital design models. Moreover, the HBIM have been significantly used in the development of visual programming language for the establishment of AR and VR environments for interactivity and immersion (Banfi, 2021). The Dumbarton Oaks affiliated with Harvard University is a reputed center for heritage research which hosts a rich collection of ten thousand images of Syrian monuments and facilitated an AI-based digital infrastructure for wider and immersive accessibility of the heritage (Karterouli et al., 2021).

Since the advent of social media platforms, institutions associated with art preservation have been recognizing their role in engaging communities and allowing people to participate in critical and constructive discussions on heritage art (Dicker, 2010). Especially how social media platforms are facilitating deliberative spaces or constraining people's agency of interpretation of history and heritage besides creating community networks in the context of common heritage (Stuedahl, 2011). Social media platforms have emerged as potential spaces for democratized interactions on shared cultural heritage among the social groups who were previously excluded (Kelpšienė, et al., 2023). Prominent social media platforms like Twitter, Facebook, Instagram and YouTube have emerged as significant sites for the "construction and negotiation of the historical past in consequential social, political and cultural contexts" (Kelpšienė, et al., 2023, p. 3138).

In the context of hybrid social media environments, virtual communities are significantly contributing to reinterpretations of heritage and they are potentially facilitating the avenues for citizen's engagement in deliberating and reconstructing the past (Affleck & Kvan, 2008). Besides this, curatorial and art organizations are significantly leveraging social networking sites in their marketing strategies and effectively assessing social media interactions and narratives in redefining newer techniques in heritage engagements (Cui et al., 2023). Heritage interpretations significantly involve collective cultural memory and community discourse and the "social media tools also show a greater impact on the two aspects of the sustainability of heritage conservation: the people-centred approach and cultural expression" (Liang et al., 2021, p.14). While understanding the profound effect of digital technology on art, Jevtić & Tomc (2018) pointed out that digital art while reviving classical art often opens up spaces for celebrating it and preserving it from irrelevance. The old cultural artefacts not only find new spaces but also become available for a wider audience in a more expressive manner. This revival of artistic expressions in interactive formats liberates people's imagination and interpretation of heritage in uncharted territory (Jevtić & Tomc, 2018). However, some scholars have raised concerns about the digital reinterpretation of classical arts as practices which either misrepresent or appropriate the artforms. These misrepresentations have been mostly identified with digital versions of artforms taking the original context and artist's intent away from the artworks (Opitz, 2022). Moreover, digital reinterpretations of classical artforms finds its critique in appropriation of art which may result in loss of authenticity and the cultural context historically associated with classical artforms and cultural heritage (Jevtić & Tomc, 2018; Mix, 2015). These implications fall in the larger debate of the appropriation of arts and culture in digital spheres.

The literature review on the subject suggest that in contemporary digital realm, the digital infrastructure in fostering reinterpretation and appreciation of ancient cultural heritage. Such digital facilities are enabling curators and museums to enhance art accessibility and nurture virtual communities for the sustainability of broader heritage engagement and conservation.

Dunhuang Murals- The Case

This study employs a Case study approach to delve into the intersection of classical art and digital technology and in this direction undertakes the in-depth exploration of Chinese Dunhuang cave murals to understand their sociocultural interpretations in hybrid digital environments and how social media narratives are shaping their modern interpretations. The intervention in this case Dunhuang Cave Murals is aimed at gaining rich insights into understanding the fusion of traditional artistry and modern digital techniques. The in-depth exploration of Dunhuang Cave Murals will also include a substantial examination of the Digital Dunhuang project to explicate the preservation efforts and reinterpretation of classical art in digital environments.

Dunhuang Murals-background

Dunhuang murals have been glorified as the "gems of Chinese traditional art" and their depictions have been significantly associated with the socio-cultural richness of Chinese art (Yang et al., 2014). The Mogao cave system at Dunhuang is situated at an oasis between the Gobi Desert and the Taklamakan Desert on the historical Silk Route (Merekina & Panova, 2022). The Mogao Caves also titled Caves of the Thousand Buddhas at Dunhuang is a system of 500 caves dug out many centuries ago by Buddhist monks and houses around 50,000 square meters of unique murals which showcase the fusion of Eastern and Western culture (Zhang, 2017). The Mogao Grottoes Mural System at Dunhuang Heritage has been recognized as the "art gallery of the world" (Li et al., 2013). The Dunhuang heritage has often been associated with the ancient Chinese influence on socio-political and economic prosperity in Asia. In 2019, the President of the People's Republic of China, Xi Jinping visited Mogao Grottoes in the city of Dunhuang and stated that "Dunhuang culture shows the Chinese nation's confidence in its culture" (Xinhua, 2019). He further added that "Only a self-confident civilization can absorb and draw on the achievements of other civilizations while maintaining its own characteristics" (Xinhua, 2019). For archaeologists, Mogao grottoes is the biggest museum of fine artists in

the world and they have divided the murals in several categories based on the characteristics, art form and theme. These are Buddha Figures (gods and spirits), Jingbian Paintings (abstract Buddha sutra), Legendary Mural (Chinese legends), Almsgiving (believers and those who serve at Buddha grottoes), Decorative Painting, Story Painting (Chinaculture.org, n.d.).

Historically, in the period of Sui (581–618) and Tang (618–907) dynasties Dunhuang culture represents the intercultural communication between ancient China and the diverse foreign cultures from around the world and emerged as a significant hub of commerce through Silk Road (Tantcheva-Burdge et al., 2023). The civilization at Dunhuang was characterized by the blend of north, central, and south Silk routes and focal point of intense socio-economic transactions (Tantcheva-Burdge et al., 2023). The murals found in the caves of Dunhuang not only represent traditional Chinese art but also significantly contain heritage status of high artistic level and historical value in contemporary history. Chen & Li (2021) stated that Dunhuang Murals are an inclusive treasure house of arts and significant conduits of Chinese traditional culture across generations. The invaluable murals at Dunhuang manifest the crystallization of the collective cultural acumen and these art styles have gradually incorporated into contemporary art forms and have been influential in significant popular culture trends (Chen & Li, 2021).

Scholars like Yang et al. (2014) while pointing out the distinctive characteristics of Dunhuang art argued that the murals represent the mix of Eastern and Western culture with significant influence from Western art styles and Central Plains regions. In fact, the mural representations show a transition and difference in art aesthetics across different eras of dynasties ruling the region (Yang et al., 2014). The most unique features in Dunhuang murals are their distinctive reference to “foreigners”, and rich composition details for 3D impression and subtle elements of visual storytelling (Zhang, 2017). The murals contain foreign characteristics which are rare in classical Chinese art forms like some of them depicting half-naked human visuals (Zhang, 2017). The meticulous use of rich colors in Dunhuang murals depicts different historical stages with distinct aesthetic values associated with different dynasties in the region (Chen & Li, 2021). The Dunhuang murals at Mogao Caves predominantly portray Buddhist religious beliefs and Jataka narratives which have significantly influenced the contemporary art forms and literature on Buddhist doctrine (Tang et al., 2014).

Merekina & Panova (2022) stated that the Mogao Grottoes Mural itself constitutes a subject of study, the “Dunhuangology” whose research and analysis are administered by the prestigious Dunhuang Academy. Chen & Li (2021) who studied Dunhuang Murals found self-discipline as a basic tenet in the depictions and argued that besides extraordinary creativity the representations in the murals are significantly inclusive. In the development of contemporary Chinese art, the infinite richness and unique artistic styles in Dunhuang murals played a significant role in the emergence of new artistic cultures and ideologies (Chen & Li, 2021). From ancient dance performances based on mural portrayals to digital movies showcasing visual narratives, Dunhuang murals at Mogao grottoes have found significant depictions for immersive experiences for the audience in popular culture. In effort to recreate the illustrious glory of Dunhuang culture, an immersive drama “*Ancient Sound of Dunhuang*” was presented in the form of musical and dance scenes based on murals of the Mogao Caves (China Daily, n.d.).

CONCEPTUAL FRAMEWORK

The theoretical framework identified for the study involves the classical theory of Social Construction of Reality (Berger & Luckmann, 2023) which will be significant in understanding how online interactions and discussion construct user knowledge and perceptions about the murals at the Dunhuang site. The theory suggests that the sociocultural understanding of the world is contracted through the social process and in this study, it can be extended to the interpretations and narratives of art in modern societies. Here it can be argued that the modern reinterpretations and perceptions about Dunhuang murals are shaped by the social interactions in the context of digitalization and social media platforms. It can be argued that perceptions and interpretations are influenced by how they are disseminated in the context of digital technology. In the realm of online visual cultures around these murals, the study draws from visual culture theory (Giannini & Bowen, 2019). which will help in investigating the online visual representations of these murals. The theory signifies the centrality of visual elements in communicating meanings and shaping cultural interpretations. Here it can be maintained that visual elements and distinctive art styles are crucial in the digitalization of Dunhuang murals and significant in shaping modern interpretations and social media discourse.

In the parlance of social media, it can be argued that social media interactions of Dunhuang murals are becoming imperative in amplifying the significance and aesthetic of art to a wider global audience. Which means growing recognition and appreciation. Moreover, hybrid and intensifying social media interactions on these classical murals have ushered into substantial cultural commentary. These social media interactions encourage users to recreate and reinterpret the mural representations with the help of interactive and creative features of digital technology.

Research objectives:

RO1: To examine the impact of digital preservation and restorations of Dunhuang murals

RO2: To understand the social media interpretations and representations of Dunhuang murals

Digital Dunhuang and contemporary interpretation of the classical Murals

The Dunhuang Mogao Grottoes in North-West China Gansu province as a cultural heritage site comprises large grotto temples depicting paintings, sculptures, and murals created between the 4th to 14th centuries AD spanning a period of ten medieval Chinese dynasties. This cultural treasure besides depicting the glorious Ancient Chinese civilization exhibits cross-cultural and interregional communications and relations between several civilizations in the context of the ancient iconic Silk Route. The Digital Dunhuang project started in 2016 as an initiative to create a resource database for the preservation and promotion of cultural artefacts in the Dunhuang culture. This primarily involved producing high-definition images and virtual

tours of 30 Dunhuang caves in order to preserve and promote cultural relics (Ziyu, 2019). The Dunhuang Academy collaborated with Chinese Tech giant Tencent to undertake the digital development of the cultural artefacts available at Dunhuang which included the integration of data, 3D data, panoramic tours and high-definition images. The digital development programme at the Dunhuang site involved the use of precision digital cameras to reproduce segments of large-sized murals and then use computer software to restore them (Chen & Fan, 2016). Zhao & Li (2023) stated that Dunhuang culture essentially carries the “spirit of the Silk Road” and modern digitalization efforts while pushing this agenda forward will be substantial in disseminating the contemporary interpretations, important for mutual benefit or cultural, and regional stability and tolerance or diversity and plurality in the region. Prior to the Digital Dunhuang project, scholars and scientists have made significant efforts to substantially preserve and restore the socio-cultural heritage at the Dunhuang site. In 1999, Pan (1999) created the Dunhuang Cave Virtual Rebuilding and Navigation System, the Color Interactive Mural Restoration System and the system for Dunhuang Style Patterns. Similarly, Lutz et al. (1999) developed a virtual system enabling visitors to explore cave no 428 using a virtual flashlight.

The project of digital preservation of cultural relics in the Mogao Caves in Dunhuang plays a crucial role in cultural awareness about the heritage and shaping contemporary interpretations of artefacts, especially the paintings and murals found at the site. The digital development of the Dunhuang murals with the use of advanced visual technology has shaped the modern practices of preserving heritage art for contemporary visualization and consumption (Gao, 2021). Zhang (2022) argued that the digitalization of Dunhuang cultural relics has overwhelming effects of cultural connotations and the socio-cultural derivatives from these representations have a profound impact on consolidating shared cultural values among Chinese people. The reinterpretation of Dunhuang culture through digital efforts will open up a new chapter in the contemporary understanding of the culture, society and times (Zhang, 2022). He further argued that the cultural relics including precious murals at the Dunhuang site represent the socio-cultural knowledge passing across the Chinese generation and a renewed approach towards highlighting these cultures in the finest detail would be phenomenal in disseminating such rich cultural knowledge to current generations. While pointing to the Dunhuang relic preservation, the General Secretary of Dunhuang Academy Xi stated that Dunhuang culture represents confidence and cooperation of civilization in the past (Zhao & Li, 2023).

In order to preserve and restore lost caves at Dunhuang, 3D modelling technology aided by sensor technology, the ancient relics found have been restored under the Dunhuang Digital project. Some of them have been lost during foreign invasion, floods and other natural calamities. For example, the cave no 17 at the Mogao grottoes of Dunhuang which was discovered in the year 1900 hosted 60000 ancient relics and only 40000 cultural relics have survived over the period of time. Advanced digital technologies including 3D scanning were first employed to generate digital replicas of the cave environments. This scanning technique uses photogrammetry, the use of laser beams in the creation of spatial geometry of the ancient environment leading to the clarity and precision during reconstruction of sculptors. Dunhuang digitalization efforts undertook three-dimensional modeling of twenty material relics producing high definition replicas of the caves. The technologies used 1:1 mm accuracy in modelling the reconstruction of color sculptures in the grottoes and the cave environment.

Figure 1: The digital replica of Cave 17 at Dunhuang using 3D modelling technology

There has been substantial use of laser scanner and structural light technology in the 3D reconstruction of murals found in Dunhuang Caves and have facilitated physicality to the abstract heritage art depicted on the cave walls. The use of high-resolution camera technology was deployed to collect cultural relics in 258 caves involving the collection of 300 dpi have led to the digital reconstruction of 45 colored 3D sculptors replicating ancient murals of Mogao grottoes at Dunhuang (Yu et al., 2022). The data collected by the laser scanners and ultra HD cameras have facilitated the e-Dunhuang database, a collection of high-resolution visuals and panoramic views of thirty cave environments. The project also involved the use of advanced visual technology like 3-dimensional sphere screen, holographic projection for immersive heritage exhibition experience of the visitors and online viewers. Particularly the use of holographic technology in the exhibition of Dunhuang artworks to furnish life-like 3D imagery of the artworks offering interactive and immersive user engagements. These technological projections not only enhance the artwork representation in virtual environments including IMAX screens but also foster spaces of cultural appreciation. The use of advanced visual and reconstruction technology in the Dunhuang project has ushered into an era where the technology is facilitating spaces of visual replication and realization of ancient cultural heritage. These significant developments in reproduction of ancient heritage art have led to increased public attention and heritage awareness among the digital natives. The digitalization of Dunhuang heritage has not only enhanced the preservation and accessibility of heritage but also facilitated potential spaces for research and inspiration within contemporary art and culture.

The Digitalization of murals and painting at the Dunhuang caves have offered a significant window to the Chinese cultural heritage as people get to absorb the visual depictions compatible with their sensory capabilities. Zhao & Li (2023) argued that the digital reproduction and visual enhancement of Dunhuang art improved people's sense of experience besides promoting their taste of consumption of art and culture. The preservation of Dunhuang art through the integration of digital technology in the context of globalization also requires public awareness and cultural sensitivity towards this art heritage (Zhao & Li, 2023). In 2023, Dunhuang Academy in collaboration with the tech firm Tencent launched an interactive digital platform running a virtual duplication of the Dunhuang murals inscribed at Mogao Grottoes which has already declared a UNESCO World Heritage site (China Daily, 2023). The interactive platforms were developed to provide high-definition and immersive visualization of the Dunhuang murals for the visitors. The interactive platform offered a 'role-play' and 'time travel' experience for visitors to have an immersive virtual tour of ancient Dunhuang dynasties and also interact with virtual historical figures of Dunhuang culture (China Daily, 2023).

Figure 2: Dunhuang Cave no. 159 through VR Museum

This interactive platform driven by advanced gaming technologies facilitated a democratized view of Dunhuang murals as it facilitated the visiting people to immerse in the heritage and interpret the artefacts and their socio-cultural context from their

own perspectives. Prior to the launch of the digital platform, the research and logistical preparation included the examination of Dunhuang literature, music, and architecture (China Daily, 2023). According to the Dunhuang Academy, the interactive digital platform will be available in several languages like English, Japanese, and Korean.

The digitalization of Dunhuang art includes the creation of cultural products that signify and celebrate cultural heritage and allow people to visualise and experience the times through immersive storytelling. In 2022, the Dunhuang Academy released “Jia Yao” the first digital ambassador of Dunhuang culture. The virtual cartoon mascot, Jia Yao adores lively facial expressions, hosts live streaming sessions and can guide people from home to navigate and understand the glorious Dunhuang culture. Jia Yao depicts the half-bird, half-woman creature found in the murals on the walls of Dunhuang caves (China Daily, 2023). The virtual mascot has inbuilt AI programming and motion capture technology which entertains people who experience a lifelike guide to have an immersive experience through the mural and sculptures in the Dunhuang caves (Ji Yuqiao, 2022). In 2023, the Dunhuang Virtual mascot, Jia Yao was showcased performing ancient Dunhuang dance with Chinese dancer Hua Xiao at a gala of the 2023 Spring Festival (Global Times, 2023).

Figure 3: Jia Yao, Dunhuang virtual figure (source: Global Times, China Daily)

The secretary of the CPC Committee of Dunhuang Academy, Zhao Shengliang in 2023 stated that we can further leverage digital technology to create virtual and animated content representing the aesthetics of rich Dunhuang cultural heritage. He further pointed out that “We also make cultural and creative products explaining Dunhuang culture in popular and easily understandable language, as well as develop products that showcase Dunhuang art and distinctive features” (China Daily, 2023).

There is also a growing trend among young artists who are using their skill and craft to recreate the Dunhuang murals at Mogao Grottoes and these people are gaining recognition through social media platforms. Qin Yueyu, a young Chinese artist recreated a vibrant mural of The Samantabhadra Story pertaining to the classic Tang Dynasty (618-907) at Dunhuang (Kang & Yuche, 2022). Her mural replications soon went viral on her Sina Weibo social media making it to the trending topics in China and helping her attract more than 10,000 followers. In her own interpretation, Qin Yueyu called these murals representatives of the ethnic lifestyle of ancient people and the extent of creative social and cultural imaginations and intelligence they possessed (Kang & Yuche, 2022).

Figure 4: Qin Yueyu’s work recreating the ancient Dunhuang art

The trend of digital preservation of the Dunhuang murals has significantly shaped public attitudes towards Dunhuang culture as it is allowing increased access for people to visualize the murals and aesthetics. Such efforts are leading to their increased popularity among young people.

The representations through Dunhuang e-tour: The WeChat mini-Programme

During the COVID-19 outbreak, the Chinese administration suspended closing the Dunhuang Heritage Site for visitors and tourists as a pandemic control measure. In order to cater for the needs and interests of visitors and tourists to Dunhuang, the Dunhuang Research Institute in collaboration with the technology giant Tencent launched the Dunhuang E-Tour through social WeChat Mini-Programme to provide interactive virtual tours to the heritage (Jin & Liu, 2022). The initiatives attracted substantial online tourists as the WeChat Programme facilitated a dynamic and interactive representation of religious murals and heritage structures at the Dunhuang site (Jin & Liu, 2022).

The digital representation of Dunhuang murals through the Dunhuang E-Tour enriched the cultural imagery of the art. It restored the classical sanctity of the site from the impression of a ‘lost past’ in Chinese public discourse (Song, 2023). The perceptions about the digital media representation of Dunhuang murals significantly reflect on China’s cultural policy and the associated ‘cultural’ confidence it draws from the classical cultural heritage (Song, 2023). Later, Tencent and Dunhuang Research Institute initiated an Acoustic Animation framework to contextualize the ancient Buddhist murals at Dunhuang. This digital framework on WeChat offered an immersive experience of touring Dunhuang and learning about life depicted in the ancient murals. Song (2023) in his study on the Dunhuang E-Tour found that the social media interactive app WeChat significantly catered to the religious tourist motivations and facilitated cultural recreation and mental relaxation for them, virtually. His findings reveal that the user interactions on the platform substantially reversed the public discourse on Dunhuang’s loss and strengthened the sense of shared cultural heritage associated with Dunhuang classical art. Hu (2018) evaluated the user experience of the E-Dunhuang Cultural Heritage Digital Library and concluded that public perception of Dunhuang art as a reflection of the rich Chinese cultural legacy and the beauty of heritage emerged as the most dominant themes.

Similarly, in 2020, the “Dunhuang Animated Series”¹ was released and it featured on the WeChat app. This initiative allowed users to not only watch the animated series on Dunhuang murals but also enabled them to participate in the dubbing of the visual content.

Figure 5: Screenshot of Dunhuang E-tour (source: google.com)

The Dunhuang Research Academy with the support from Tencent while restoring the digital versions of several Dunhuang murals revitalized their cultural aesthetic by cinematic techniques of storytelling, scripting and plot setting. It significantly included the effective use of cultural elements from contemporary culture and entertainment to make them relevant and compatible with present times. The revitalization process of Dunhuang heritage in digital environments specifically involved the redefinition of cave murals into a popular format animating them in high quality using contemporary vocabularies and sounds (Yang & Li, 2022). In contemporary digital reinterpretations of Dunhuang murals, the characters depicted by the Tang dynasty were played as girl bands while the ones representing Buddhist goddesses were recharacterized as interactive animated heroes in

¹ <https://www.imdb.com/title/tt13593424/>

mobile games (Yang & Li, 2022). It can be concluded that the Dunhuang e-tour as a virtual journey allows users to revisit the cultural and historical richness of Dunhuang and navigate through the times and stories depicted in the murals. This immersive facility makes substantial use of digital technologies to provide users with a glimpse into the art and history of Dunhuang culture.

Social media interpretations and representations of Dunhuang Murals

Cave murals being a historical gem continue to be a subject of fascination and interpretation on social media platforms. The precious collection of ancient Buddhist art and the artistic expression involved including devotion and dance continues to be reflected in Chinese popular culture. Most importantly, the performativity in Dunhuang murals has been vibrantly manifested through contemporary ethnic and cultural expression in China. The performativity in Dunhuang dance as represented in the murals continues to be reinterpreted in the popular culture to illustrate stories, aesthetics and mural themes using the medium of dance. Since the Dunhuang caves house vibrant expressions of music and arts, such fine art forms have inspired contemporary dance and music in China (Yang, 2017). The intensifying social media involvement in cultural representations witnessed a growing interest and reinterpretations of ancient Dunhuang heritage, especially mural depictions at Mogao Caves. Social media representations of Dunhuang murals are predominantly characterized by the performativity of Dunhuang murals through dance. The mural representations in social media discourse offer a captivating replication of classical Chinese art which significantly involves classical elements of heavenly dance, flying fairies, fairytales and distinctive colourful slit attires. Such visual depictions have been fundamentally associated with the mythological, aesthetic and devotional dimensions of Chinese ancient culture. These representations of classical elements in Dunhuang murals have been provided below:

Flying Apsaras

The Flying *Apsaras* (Feitian) is a dominant symbolic element of the mural dances in Mogao Grottoes at Dunhuang. The colorful *Apsaras* are characterized by classical Chinese artistic features and the murals illustrate details about their artifacts including dressing and the musical instruments of the era. The social media popular representations of Dunhuang murals predominantly reflect on these Flying Celestial Maidens and are often depicted as attractive and classical dancers. Such interpretations of these flying *Apsaras* are mainly represented through the replication of visually spectacular and symbolic performances of modern dancers. In the social media representations, the representations of attire and costumes of the Flying *Apsaras* are long flowing colorful with feathers and detailed ornaments. To create surreal effects and classical imaginations, social media representations reflect the celestial nature of *Apsaras*. Such distinctive features in modern interpretations of Dunhuang dance on social media platforms include aerial movements through the use of harnesses and wires. These modern interpretations of these depictions' murals involve persistent use of symbolism in relation to manifestations of beauty, spirituality and purity attributed to ancient Chinese Buddhist traditions of enrichment and devotion.

Figure 6: Example of Dunhuang Mural dances on Twitter

Figure 7: Example of Dunhuang Mural dances on YouTube

Such modern interpretations of Flying *Apsaras* in Dunhuang murals mainly draw from ancient art and symbolism and users use digital techniques and platform features to recreate the effect of aerial movements depicted in the performances

Heavenly dance

The mural depictions of Dunhuang as interpreted as "Heavenly dance" in traditional narratives are used as motifs in the social media representations of Dunhuang dance. These representations are manifested in the visually striking content showcasing graceful dance by beautiful celestial and divine beings. The visual interpretations of the 'heavenly dance' in Dunhuang murals on social media platforms often reflect grace and elegance. Such elegance depicted in the murals is represented through the intricate hand gestures in social media representations conveying meaning, emotions and stories to the viewers.

Figure 8: Dunhuang dance on YouTube reel

Figure 9: Instagram user performing Dunhuang dance

The modern interpretation through visual representations of Dunhuang murals often shows the desert landscape replicating the context of the Gobi Desert in Dunhuang. Such modern depictions of Dunhuang dance complement the cultural richness by replicating the desert landscape. Such replications in the content are meant to trigger a sensory journey to the harmonious splendour of the ancient silk route.

Figure 10, Figure 11: Recreation of Dunhuang dancing flying Apsaras in YouTube reel

Several dance depictions in Dunhuang murals feature pairs of dancers and reflections of such representations on social media witness a blend of dance, music and acrobatics. Modern artists on digital platforms performers acrobatic dance by incorporating choreography and elements from the dance depictions in these ancient murals. Such performances involve meticulous replication of movements, body posture, and attire depicted in the murals.

Inspired by the Dunhuang Mural Dance, two young dancers from China recreate the 'heavenly dance' depicted in Mogao grottoes by presenting a blend of their acrobatics skills and Dunhuang-inspired dance. The choreography and dance movements imitate *Apsaras* depicted in Dunhuang murals which transcend space and time.

Figure 12: Acrobatic Dunhuang dance performed in YouTube reels

Some social media performers recreate the Dunhuang aerial dance by blending it with modern cultures of dance and Yoga Aerobatics. A female performer named "Lisa Dunhuang Dancer" inspired by Dunhuang mural dance and choreography, replicates the same in her yoga and fitness aerobatic dance content.

Figure 13: Dancer Lisa performing Acrobatic Dunhuang dance on YouTube

Figure 14: Dancer Lisa performing Dunhuang Acrobatics on Instagram reels

Artistic Expression of Buddhism- Buddhist influence

The Dunhuang murals being an incredible collection of Buddhist art represent Buddha's teachings, Buddhist deities and historical heavenly beings. Such artistic expression has been significantly depicted in the form of stories and contemporary Dunhuang dancers continue to express these stories and messages of Buddhist teaching in the form of distinctive choreography. This is also because the Mogao grottos were primarily carved for Buddhist worship and meditation. The social media interpretation of Dunhuang murals predominantly involves Buddhist references and themes in the form of visual depictions of devotion, spirituality and the teachings of purity associated with Buddhism. Such social media depictions of Dunhuang murals mainly draw from the Buddhist heritage value maintained in the traditional narratives on Mogao grottos. The social media visual posts on Dunhuang murals showcase the iconographic diversity represented in the murals in the form of several significant Buddhist traditions including visuals of Esoteric Buddhism as found in the murals. The content on these platforms involves common people replicating the aura of Buddha and the religious significance the Dunhuang site holds. Such social media content significantly involves animated visual storytelling illustrating the stories and teachings of Buddha including compelling and high-definition scenes on meditation and philosophy. Short clips based on the artistic elements of the Dunhuang murals often involve the character of Buddha played by social media artists including the music manifesting purity and spirituality associated with him. Such social media content reflects the content creator's intention to showcase the intricate details and Buddhist significance of ancient Chinese culture.

Figure 15: Representations of Dunhuang Buddhist symbolism depicted in social media performances

The costume style and attire features depicted in Dunhuang murals in the above YouTube shorts reflect Buddhist monk aesthetics. The visual replication of Dunhuang stylistic motifs in such content vividly represents the cultural and historical significance of Buddhist symbolism in ancient Chinese cultural artefacts.

Storytelling

The Dunhuang heritage fundamentally manifests the vibrant story-telling conveying the stories and socio-cultural expression and expression along the ancient Silk Route in the region. The social media interpretation of Dunhuang murals reflects the innate elements of storytelling which characterize the artistic treasure of the heritage. The visual narratives on the Dunhuang mural on social media are often found in the form of storytelling through animated content. Such online content often narrates the stories of Buddha's Life and Buddhist Jataka Tales. Such ancient stories mostly contain themes on birth, sermons and enlightenment in Buddha's life. The visual storytelling as an important characteristic of Dunhuang murals involves esoteric narratives on intricate practices like deity yoga, meditation, and the exploration of celestial domains. The realistic and naturalistic portrayals in storytelling are reflected in the vibrant facial expressions and use of cultural elements. Social media narratives and stories on Dunhuang often involve Jataka tales of Buddhist traditions.

Figure 16: The mural depiction of the Syama Jataka tale at Dunhuang (source: google.com)

A mural in cave 302 of Dunhuang depicts a continuous narrative painting of the Syama jataka tale which narrates the Buddha's previous incarnations as Syama. The social media visual storytelling of the famous Syama Jataka tale is based on the themes of compassion, harmony, family and righteousness. In the YouTube video below, the story is narrated as a podcast (#WhyWeLoveDunhuang #podcast) using animated visual elements to illustrate the events and characters involved in the story. The voice-over while narrating the story interprets the lessons and message reflected in this Jataka tale.

Figure 17: The mural depiction of the Syama Jataka tale in a YouTube podcast

Visual recreation and interpretation of the classical dance drama "Flower Rains Along the Silk Road" depicted in Dunhuang murals, on YouTube. The quoted text below are the details provided in the video below.

Figure 18: Classical dance drama "Flower Rains Along the Silk Road" depicted in Dunhuang

"On the Silk Road, business travelers from various countries came in an endless stream. Suddenly a strong wind blew, and the old painter Shen Bi Zhang and his daughter Yingniang rescued the Persian businessman Inus who had passed out in the desert. But on the way, Yingniang was kidnapped by robbers. A few years later, in the Dunhuang market, the magic brush Zhang found his daughter, but Yingniang had become a kabuki performer in the troupe. Inus redeems Yingniang's life, and father and daughter are reunited. In the Mogao Grottoes, the magic brush Zhang painted his representative work - Rebounding Pipa Music Lotte based on his daughter's dancing posture. The mayor in charge of trade attempts to seize Yingniang, so Yingniang and Inus take refuge in Persia. Yingniang and the Persians lived together day and night, teaching each other skills. Inus was ordered to lead a caravan to envoy Tang, and Yingniang also returned to the motherland. The city's Cao instigated a troupe to intercept and rob the caravan. The magic pen Zhang lit the beacon fire alarm and saved the caravan, but he sacrificed his life" (YouTube²)

The story is interpreted as enduring values of family, love, courage and art. Besides espousing cultural exchange, the story is visually represented through the profound recreation of art and creativity depicted in the murals.

CONCLUSION

² <https://www.youtube.com/watch?v=LCBYobM->

The advancing digital environments have ushered into a transformative age for classical art, facilitating its space to transcend the walls of heritage sites and reach a wider audience, globally. The research inquiries set under this study aimed to explore the impact of the digital revolution on classical Chinese murals and how these online representations and reinterpretations are letting them find new life in the digital realm. This significantly included an exploration into understanding how the visual discourse of Chinese Dunhuang cave murals on social media platforms is reshaping their cultural imaginations through recreation and replications. Drawing from the exploratory study of Dunhuang murals as a case, the study found that the integration of digital technology in preserving Mogao cave murals has significant implications in shaping their interpretations in today's digital narratives and interactions within social media discourse. From the discussion around this case, two major conclusions can be made in the context of the digital revolution and classical art.

Firstly, the study revealed that digital preservation and promotion of classical art are significantly transmitting ancient cultural heritage to the digital natives in the current era and facilitating a conducive environment for the narrative tapestry of the ancient heritage. The modern interpretations and representations of classical art in the digital realm are primarily influencing public attitudes toward these cultural relics and are mainly associated with cultural appreciation, artistic creativity and cultural exchange. This is mainly because such digital interventions in redefining classical art and the aesthetics associated with it are offering new possibilities for people to interpret and interact with art (Guo et al., 2022; Li, 2020). The digital promotion of classical art is leading to the creation of refined cultural products which are allowing new generations to celebrate their cultural heritage and letting them visualize ancient cultures through immersive storytelling techniques. The democratization of art itself is one of the significant implications of the digitalization as it enables cultural art relics to break geographical boundaries and allow people across the globe to engage and appreciate cultural heritage irrespective of its location and origin. The knowledge construction and perceptions about classical art in digital cultures derive from online interactions and discussions. These implications signify how interpretations around these cultural relics are constructed by their emerging interactive digital representations.

Secondly, the social media representations of classical art are a major implication of art replication in digital environments. The technical affordances and virtual networking are having a profound impact on contemporary cultural interpretations of classical art heritage. The modern interpretation by social media users often presents visual narratives to share these creative relics for audience consumption (Zhao et al., 2022). The captivating visual storytelling of classical art offers experiences for immersive experiences for users to visualise the times and associated socio-cultural aesthetics. Being dynamic spaces for art interpretation these platforms offer virtual canvas for users to navigate through themes of symbolism and spirituality associated with these art forms. Social media platforms like Facebook, TikTok, Instagram and YouTube are allowing users to resonate on their spiritual quest by enabling them to share their personal reflections and connotations emerging from their socio-cultural beliefs. In dominating the visual cultures of these platforms, users predominantly represent these ancient arts by communicating the underlying symbolism to convey deeper aesthetics and meaning.

One of the significant implications of social media representation of classical art is that it has ushered in a cross-cultural synthesis of ancient art interpretations. This social media discourse on heritage art has led to emerging narratives which foster cultural fusion by identifying ancient connections between distinctive cultural and religious traditions. In a networked stage of social media, these online interactions on classical art facilitate universal and inclusive explorations of these symbolic representations. These global interactions in collective spaces of platforms lead to more liberal and diverse connotations by users who seek to decipher and share the cultural meaning embedded in these classical arts. These platforms are enabling social media influencers and thought leaders to shape public discourse on classical art. They are utilizing these platforms for curating the content around the spiritual and symbolic connotations of ancient heritage for a wider audience. Social media content involves significant use of cultural elements from popular culture like music and entertainment to make them relevant and compatible for present times. While digital platforms have led to reimaginings and recontextualization in classical art interpretations, they are also posing some critical challenges of cultural appropriations, misrepresentations and generalization of these artworks (Hidajat, 2022; Nasution & Ghani, 2019). In the digital realm, these challenges are influencing the expression of spirituality and contextual aesthetics associated with classical art and there is a need to explore these challenges and develop a framework for balancing the digital accessibility of ancient art to minimize such issues. The emerging innovations in the field of digitalization of cultural heritage influence the viewer's perspective on the past. In this direction, an impact assessment within the audience can be a significant contribution to exploring the social interaction which emerges in digital environments. It can also explore how digital projects like Dunhuang are opening spaces for interactive learning experiences and how they are cultivating deeper cultural understandings among researchers, academicians and visitors. Moreover, research exploration towards understanding the cross-cultural influences of the digital preservation and reinterpretation of classical arts will delve into understanding the influence of these practices in inspiring artistic trends and heritage conversations globally.

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