VI Міжнародна науково-практична конференція
«АКТУАЛЬНІ ПРОБЛЕМИ СУЧАСНОГО ДИЗАЙНУ»
Київ, КНУТД, 25 квітня 2024 р.

УДК 7.012: 069.02:7

SEMIOTIC APPROACH TO DIGITAL ART APPLICATIONS ON ONLINE MUSEUMS DESIGN

ZHAO Jingjie[1,2], YEZHOVA Olha [1]
[1]Kyiv National University of Technologies and Design, Kyiv, Ukraine
[2]Shaanxi University of Science & Technology, Xi'an, People`s Republic of China
jingjiezhao@163.com, yezhova.ov@knutd.edu.ua

The integration of digital art into online museums design is explored, focusing on improving visitors' perception of the exhibit through digital technologies such as virtual reality, augmented reality, and mixed reality. The paper uses a semiotic approach and theoretical analysis of examples from the virtual gallery of Google Arts & Culture and Digital Dunhuan. It is found that the use of digital art contributes to the creation of an environment that improves the visitor's interaction with the exposition, the visitor's perception of relevant narratives. It highlights the importance of narrative design and user-centric approaches, highlighting the potential of digital technologies to enhance museum accessibility.
Keywords: digital art, exhibition design, semiotics, online museum.

INTRODUCTION

The digital revolution is transforming the cultural and museum landscape, leveraging Information and Communication Technologies to breathe new life into heritage preservation and sharing. This paradigm shift transcends traditional limitations, introducing online museums with immersive technologies like VR, AR, and interactive archives [1]. These advancements foster a deeper, more immediate connection between audiences and cultural artifacts, enhancing visitor engagement, and equitable access. However, challenges such as the digital divide, cybersecurity, and the need for ongoing technological updates persist. This paper delves into how digital art is revolutionizing online museums design while reshaping interactions with cultural heritage. Drawing from literature and case studies, it offers insights into the evolution of digital museums design in the digital age.

PURPOSE

This research aims to examine the integration of digital art and technologies within online museum exhibitions to discern how such integration can enhance the quality and depth of visitor experiences. It seeks to investigate the ways in which digital innovations such as virtual reality, augmented reality, and mixed reality can be leveraged to transform museum practices, making them more interactive, immersive, and inclusive design.

RESULTS AND DISCUSSION

The research illuminates the transformative potential and challenges of digital art applications in online museums, emphasizing the delicate balance between accessibility, authenticity, engagement, educational outcomes, and

VI Міжнародна науково-практична конференція
«АКТУАЛЬНІ ПРОБЛЕМИ СУЧАСНОГО ДИЗАЙНУ»
Київ, КНУТД, 25 квітня 2024 р.

_____

sustainability. Digital initiatives like Google Arts & Culture's Pocket Gallery (Fig.1) and Digital Dunhuang (Fig.2) exemplify the pivotal role of technology in democratizing access to cultural heritage, while also underscoring the importance of strategic digital integration that respects curatorship traditions.
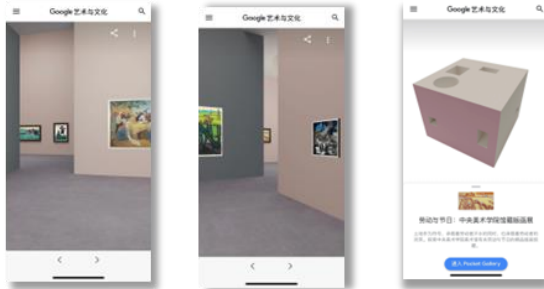

Fig.1. Google Arts & Culture's Pocket Gallery, China, 2024 [2]

Fig.2. Digital Dunhuang Online Museum, China, 2024 [3]

Google Arts & Culture's Pocket Gallery is a notable example, offering a 3D virtual art gallery through augmented reality that makes cultural exhibitions accessible globally, transcending traditional geographical limitations. This initiative demonstrates the potential of digital platforms to broaden museum reach and revolutionize curatorial practices by allowing for personalized, immersive viewing experiences through desktop and mobile web browsers. The project emphasizes the importance of overcoming the digital divide, showcasing how technology can facilitate universal access to cultural resources, especially in marginalized regions. Digital Dunhuang, on the other hand, leverages high-resolution digital scans and virtual reality to preserve and present ancient cultural artifacts, extending their accessibility to a global audience. This approach not only safeguards fragile murals but also enriches the cultural experience with interactive elements, allowing users to explore the intricate details of Dunhuang's murals and caves in immersive formats. Such digital engagement brings forth discussions on the authenticity of cultural experiences in the digital age, highlighting the need for nuanced exploration of how technology intersects with traditional cultural heritage.

The analysis of these case studies reveals common design features across digital museum initiatives: interactive and immersive technology applications,

VI Міжнародна науково-практична конференція
«АКТУАЛЬНІ ПРОБЛЕМИ СУЧАСНОГО ДИЗАЙНУ»
Київ, КНУТД, 25 квітня 2024 р.

strategic use of high-resolution imaging and virtual reality for enhanced visitor engagement, and the integration of digital platforms to ensure accessibility and inclusivity. These elements are crucial for expanding museum reach and fostering a deeper understanding and appreciation of cultural artifacts [4].

However, the findings also highlight the challenges faced by museums in the digital age, including the digital divide, sustainability concerns, and the ongoing need for technological updates. Initiatives like the Pocket Gallery and Digital Dunhuang offer insights into addressing these challenges, showcasing innovative approaches to leveraging technology for cultural preservation and accessibility.

CONCLUSIONS

The research underscores the need for museums to adopt comprehensive strategies that balance digital innovation with traditional curatorship. By embracing digital technologies, museums can enhance educational outcomes, engage wider audiences, and ensure the preservation and dynamic presentation of cultural heritage. Future research should focus on developing sustainable models for digital content provision and exploring the balance between digital and physical museum experiences, aiming to further enrich the cultural landscape in the digital age.

REFERENCES

1. Zhao J, Yezhova O. Impact of digital art on design of online museum: user-centered design, narrative design, and integration of technology. *Art and Design*. 2023. №3. P. 92-100. DOI:10.30857/2617-0272.2023.3.8.

2. Pocket Gallery. China, 2024. URL: http://www.artspy.cn/activity/view/12765.

3. Digital Dunhuang Online Museum. China, 2024. URL: https://www.e-dunhuang.com/.

4. Mantzou P., Bitsikas X., Floros A. Enriching Cultural Heritage through the Integration of Art and Digital Technologies. *Social Sciences*. 2023. Vol. 12. №11. P. 594. DOI:10.3390/socsci12110594.

ЧЖАО Ц., ЄЖОВА О.
СЕМІОТИЧНИЙ ПІДХІД ДО ЗАСТОСУВАННЯ ЦИФРОВОГО МИСТЕЦТВА В ДИЗАЙНІ ОНЛАЙН-МУЗЕЇВ

Досліджена інтеграція цифрового мистецтва у дизайн онлайн-музеїв, зосереджуючись на покращенні сприйняття експозиції відвідувачами за допомогою цифрових технологій, таких як віртуальна реальність, доповнена реальність та змішана реальність. В роботі використано семіотичний підхід та теоретичний аналіз прикладів віртуальної галереї Google Arts & Culture та Цифрового Дуньхуаня. Виявлено, що застосування цифрового мистецтва сприяє створенню середовища, яке покращує взаємодію відвідувача з експозицією, сприйняття відвідувачем відповідних наративів. Воно підкреслює важливість наративного дизайну та орієнтованих на користувача підходів, висвітлюючи потенціал цифрових технологій для покращення доступності музеїв.

Ключові слова: цифрове мистецтво, дизайн виставки, семіотика, онлайн-музей.