# Digital culture in the virtual space

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**Abstract** In this article, the authors examine the impact of digital culture on the formation and development of the contemporary cultural environment in the virtual sphere. The authors discuss key aspects of digital culture, such as access to cultural resources, development of new forms of art and entertainment, global cultural exchange and dialogue, challenges for authorship and copyright, and expansion of cultural pluralism. The study presents a technology for implementing digital culture in the virtual space, which includes several stages. The first stage involves the interaction of digital and visual culture. The products of their mutual influence include digital technologies and visual creativity, social media and visual culture, digital advertising and marketing, digital games and virtual worlds, and the impact of digital transformation on visual practices. The next stage will be the mutual integration of modern media and postmodern culture. The products of their mutual influence include fragmentation and diversity of content, deconstruction and metanarratives, play with genres and forms, multimedia experience, and active audience participation. The last stage provides for the integration of cultural heritage and event practices. This can result in the organization of cultural events and festivals, the creation of thematic events and expositions, the use of technology to draw attention to cultural heritage, and the formation of communities and networks around cultural heritage. The authors identify the main competencies acquired by users in the virtual environment. Such competencies include digital literacy, information literacy, media literacy, communication skills, creativity, and innovation, as well as critical and problematic thinking. Overall, the article presents the modern paradigm of digital culture and its role in shaping the contemporary cultural landscape in the virtual space.

**Keywords:** visual culture, modern media, identity, cultural codes, cultural heritage, event practices

## 1. Introduction

Digital and visual cultures are two crucial areas of modern society that interact and influence each other. Digital culture covers all aspects of life that are related to digital technologies, such as computers, the Internet, mobile devices, social media, etc. This includes digital forms of communication, entertainment, education, work, etc. Digital culture defines the ways how people interact with each other and with the surrounding world, as well as the ways how they create, share, and consume information and content. On the other hand, visual culture refers to all aspects of culture related to visual elements, such as art, design, photography, cinema, animation, etc. It encompasses visual expression and perception, aesthetics, symbolism, and the history of visual art forms and communication. Digital technologies, such as computer graphics, virtual reality, image processing, and animation, have significantly changed the way we create and experience visual content. It opens up new opportunities for artists, designers, and filmmakers, as well as for the general public, to create and consume visual content (Wenjun, 2021).

Social media platforms play an essential role in the spread of visual culture. They allow users to easily share images, videos, and other visual content, creating new trends and influencing cultural preferences. Digital technologies have provided new tools for artists and designers, allowing them to create works that would not have been possible before (Tosa et al, 2023). This can range from digital art and animation to creating designs for websites, apps, and video games. In the modern world, digital technologies are widely used to create visual advertising campaigns that can easily reach the target audience via the Internet and mobile devices (Ni & Gao, 2015). In general, digital and visual culture both interact and influence each other. They shape the contemporary cultural landscape and determine the ways how people interact and perceive their surroundings. With the development of technology, digital culture is becoming more and more widespread and accessible. Today, almost everyone has access to the Internet and mobile devices, which leads to an increase in digital content volume and diversity.

Social media has become the main source of information and entertainment for many people. These platforms are filled with visual content that shapes perceptions of cultural trends, fashion, art, etc. Online advertising and marketing are becoming increasingly important for companies and brands. The visual aspects of advertising campaigns, such as graphics, video, and animation, play a key role in grabbing the audience's attention (Maaß et al., 2024). Digital technologies are influencing our cultural practices, starting from changing the way we create and consume art and media to interacting with cultural institutions such as museums and galleries. Digital culture enables the exchange of information and ideas on a global scale. This contributes to the development of a global visual culture and the creation of shared cultural models. Digital technologies are changing the way visual culture is taught and researched. Online courses, virtual museums, and archives provide new opportunities for studying and understanding visual art and culture (Singh, 2021). All of these factors emphasize the relevance and importance of studying and understanding both digital and visual cultures in contemporary society. They play a crucial role in shaping our perceptions of the world, influence our values and beliefs, and determine our cultural priorities.

Visual culture generally refers to the study and analysis of visual elements in culture, such as art, design, advertising, cinema, photography, and other forms of visual expression (Fan et al., 2021). It is an interdisciplinary field that covers various aspects of visual culture, including its history, social and cultural contexts, symbolism, aesthetics, technological innovation, and impact on society (Wang & Wang, 2021). The study of visual culture helps us to better understand how visual symbols and forms of communication influence our perception of the world, how they reflect social and cultural values, and how they are used to share ideologies and information. It is also essential to analyze how visual cultures interact with other aspects of culture, such as literature, music, and technologies (Liu et al., 2023). The study of visual culture has a wide range of applications, from analyzing historical works of art to critically reflecting on contemporary media and advertising strategies (Sang, 2022). The study of visual culture is also relevant for anyone working in the fields of art, design, advertising, cinema, and other industries where visual communication plays an important role (Batsurovska et al., 2021).

Contemporary media and postmodern culture are closely interconnected, and their interactions can be seen from different perspectives (Luo, 2017). A multiplicity of references and quotations from various cultural sources marks postmodern culture. Contemporary media such as movies, television, music, literature, and even social media actively use intertextual connections, referring to various historical, cultural, and artistic contexts (Zang, 2024). Furthermore, postmodernism seeks to deconstruct and reinterpret traditional norms and structures, which is also reflected in contemporary media. Such examples include movies and TV shows that play with genres and story expectations, as well as the use of metaphors and allegories to explore complex themes and ideas (Wang et al., 2019). Postmodernism rejects the idea of common meta-narratives and seeks to create multiple stories and interpretations. Contemporary media also often emphasize ambiguity and openness to interpretation. It allows the audience and readers to make sense of the content presented on their own (Bursten, 2020).

Modern media actively experiment with genres and forms, mixing elements of different genres and creating hybrid forms of art and entertainment (Bogachkov & Ukhan, 2023). This can be seen in the cinema, where movies combine elements of drama, comedy, fantasy, and science fiction, as well as in music, literature, and other forms of media. Modern media increasingly involve the audience in the process of content creation and distribution (Liu, 2023). Social networks, blogs, video hosting platforms, and crowdsourcing projects allow ordinary people to express their ideas, opinions, and creative concepts, contributing to cultural dialogue (Waliokar & Remedios, 2023). Thus, modern media and postmodern culture mutually influence each other, forming a diverse and multifaceted cultural landscape that reflects complex ideas, values, and world perceptions (Limano, 2023). The analysis of digital culture requires an interdisciplinary approach that combines knowledge from the fields of information technologies, sociology, cultural studies, psychology, anthropology, and other disciplines (Li & Hao, 2023). This approach helps to better understand the dynamics of modern society and cultural trends, as well as to identify the challenges and opportunities arising from the development of digital culture (Manca, 2020). Furthermore, based on the literature review, it is worth noting that the issue of digital culture in the virtual space requires further investigation.

This study aims to analyze various aspects of digital culture in the virtual space. The main goal is to identify the implementation stages of the technology of digital culture in the virtual space, the interconnections between visual and digital cultures, modern media and postmodern culture, identity, and cultural code, and the implementation of cultural heritage in the context of event practices.

Research goals:

1) To analyze the existing publications and studies on the development of digital culture in the virtual space.

2) To overview interrelationships between visual and digital cultures, modern media and postmodern culture, identity and cultural code, and the realization of cultural heritage in the context of event practices.

3) To present the technology for the implementation of digital culture in the virtual space based on the made generalization.

4) To evaluate the acquisition of digital, information, and media literacy, communication skills, creativity and innovation, and development of critical and problem-based thinking in the context of mastering digital culture in the virtual space.

## 2. Methods

The following methods and approaches were applied to conduct the research aimed at studying digital culture in the virtual space:

- *A literature review.* An analysis of scientific papers, books, and other publications on the research topic. This will help to get an overview of various aspects of implementing digital culture in the virtual space.
- *Questionnaire.* The respondents were offered questionnaires based on generally accepted scales and questions aimed at assessing the level of digital literacy, skills in using digital technologies, experience of virtual interaction, and interests in digital cultural manifestations.
- *Skills testing.* As part of the experiment, we conducted tests aimed at assessing practical skills in virtual communication, the use of digital tools, and understanding of the basic principles of digital security.
- *Observations and interviews.* Some participants were asked to participate in virtual interactive sessions. During these sessions, we observed their behavior, communication strategies, and the way they used digital tools. Afterward, we conducted interviews to collect additional information about their experiences and impressions.
- *Data analysis.* The data obtained was analyzed using statistical methods and qualitative analysis. This allowed us to identify general trends and differences between groups of respondents and the main problems and challenges in mastering digital culture in the virtual space.

## 3. Results

Within the framework of our study, we have developed a technology for the implementation of digital culture in the virtual space, which is illustrated in Figure 1.
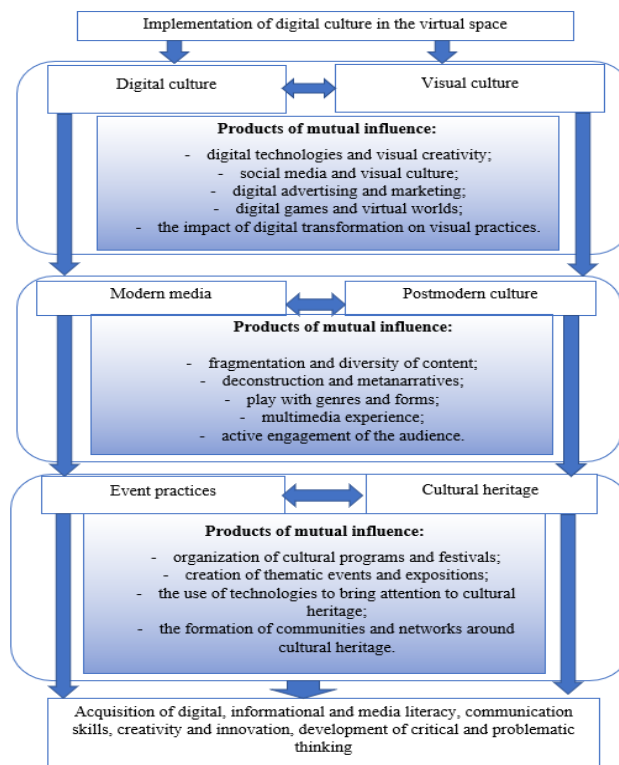


**Figure 1**  The technology for implementing digital culture in the virtual space.

The proposed technology consists of three main stages based on the interconnection of digital and visual culture, the implementation of modern media in postmodern culture, and the integration of cultural heritage into event practices.

The interconnection of digital and visual cultures is an essential aspect of modern society. Below are some key aspects of this interconnection:

− Digital technologies and visual creativity.
− Social media and visual culture.
− Digital advertising and marketing.
− Digital games and virtual worlds.
− The impact of digital transformation on visual practices.

Digital technologies, such as computer graphics, virtual reality, and augmented reality, expand the possibilities of visual creativity. Artists and designers are using these technologies to create new forms of art and design that are not possible in traditional environments. Social media plays a key role in the spread of visual culture. Social media platforms such as Instagram, Pinterest, TikTok, etc., allow users to create, share, and consume visual content in real-time. This influences trends in design, fashion, art, and other aspects of visual culture (Liu, 2022).

Digital technologies have changed the way we approach advertising and marketing. They have made visual aspects more essential to catch the attention of the audience. Companies use videos, banners, graphics, and other visual elements to promote products and services. Visual culture is essential to create immersive experiences in digital games and virtual worlds. Games and virtual worlds often use sophisticated visual effects, 3D modeling, and animation to create immersive worlds and characters.

Digital transformation is changing how people interact with visual culture, including how content is created, distributed, and consumed. This includes phenomena such as online galleries and museums, digital archives and collections, and online visual education courses and resources (Dotsenko, 2023). Digital and visual cultures are closely interconnected in the modern world. Therefore, an understanding of this connection helps us to better understand the impact of digital technologies on cultural and aesthetic aspects of our lives (Bajaj & Bhattacharjee, 2023).

Modern media and postmodern culture are closely interconnected. Their influence has a significant impact on contemporary society. There are several aspects of this connection, including:

− fragmentation and diversity of content;
− deconstruction and meta-narratives;
− play with genres and forms;
− multimedia experiences;
− active audience participation.

Contemporary media offer a huge variety of content, from movies and TV shows to blogs, podcasts, and social media. This leads to the fragmentation of cultural experiences, where everyone can choose and create content that suits their interests and preferences (Xing, 2024).

Postmodernism is marked by its desire for intertextuality and citation of various cultural and artistic sources. Contemporary media often utilize this strategy, interborrowing and adapting elements from different cultures and sources to create new works and content. Postmodernism emphasizes the deconstruction of traditional values. Modern media often play with this idea by breaking down traditional norms in stories and images, exploring alternative meta-narratives, and reinterpreting classic stories (Bondarenko et al., 2022).

Contemporary media are actively experimenting with genres and forms, ignoring traditional limitations and expectations. This is evident in various movies and television genres, interactive arts and virtual reality, and content formats on the Internet. They offer multimedia experiences combining different forms of art and communication. This may include projects that combine music, video, interactive elements, and live performances. Modern media actively involve the audience in the process of content creation and distribution. Social media, video hosting platforms, and crowdsourcing projects allow people to express their ideas and creative concepts, as well as influence cultural trends (Zhang, 2022).

Overall, media largely reflect and support post-modern ideas and values such as diversity, deconstruction, intertextuality, and active audience participation. This creates an exciting and dynamic cultural landscape that is constantly evolving and transforming in line with current trends and technological opportunities.

Cultural heritage and event practices can interact and complement each other, influencing the preservation, promotion, and understanding of cultural heritage. There are several ways how this can happen:

− by organizing cultural events and festivals;
− by creating thematic events and exhibitions;
− by using technology to draw attention to cultural heritage;
− by building communities and networks based on cultural heritage.

Event practices such as cultural festivals, exhibitions, concerts, etc., can be a platform for promoting and popularizing cultural heritage. They allow people to interact with traditional forms of art, music, dance, cooking, and other aspects of culture. As a result, they contribute to its preservation and transmission to future generations. The creation of thematic events and exhibitions means that event practices can be organized around specific aspects of cultural heritage, such as

historical events, folk traditions, cultural customs, etc. This may include the creation of thematic exhibitions, museum displays, thematic tours, and other activities aimed at learning and understanding cultural heritage (Zhang, 2023).

Modern event practices may include the use of various technologies, such as virtual reality, augmented reality, multimedia installations, etc., to create interactive and engaging presentations of cultural heritage. This can help to attract the attention of a broad audience, including those interested in new forms of entertainment and learning. Event practices can become a platform for forming communities and networks of people interested in preserving and promoting cultural heritage. These could be organizations, communities, volunteer organizations, etc., which can work together to protect and promote cultural values. In general, event practices are an essential tool for preserving and promoting cultural heritage, allowing people to interact with it in exciting and attractive ways. They strengthen cultural identity, build cultural capital, and strengthen societal cohesion (Yuan et al., 2023).

Digital culture in the virtual environment enables the development of a wide range of users' competencies. Some of the key competencies that users can acquire in this context include:

− acquisition of digital, informational, and media literacy, communication skills, creativity and innovation;
− development of critical and problematic thinking.

The users of the virtual environment acquire skills in working with digital technologies, including the ability to effectively use computers, smartphones, the Internet, software, and online platforms. Users learn to analyze, evaluate, and critically engage with information from various sources within the virtual environment. They develop the ability to filter and verify information for accuracy, as well as determine its relevance and quality. Students learn to create and summarize multimedia content in a virtual environment. They develop skills in working with graphics, sound, video, and other media formats, as well as the ability to create and distribute multimedia works. The virtual environment allows the user to participate in various communication situations, such as e-mail, chats, forums, social networks, and video conferencing. The users develop effective online communication skills, including the ability to express their thoughts and ideas, interact with others, and resolve conflicts (Byrkovych et al., 2023).

The virtual environment encourages users to think in creative ways and be innovative. They have the opportunity to create new content, projects, and ideas, as well as explore various aspects of culture and art in an interactive and multimedia way. The virtual environment helps users to develop the ability to analyze complex problems, look for alternative solutions, and make informed decisions based on available information. They learn how to respond to new challenges and situations, as well as how to adapt to changing conditions. Overall, digital culture in the virtual environment ensures the development of a wide range of users' competencies. These competencies help people to effectively participate in the modern digital society and use digital technologies in various aspects of their lives (Vytkalov et al., 2022; Bielialov et al., 2023).

The study on the level of mastering digital culture in the virtual space during the implementation of the proposed technology stages was conducted in the context of applying the technology for implementing digital culture in the virtual space (Figure 2). The optimization criteria include critical and problematic thinking, creativity and innovation, communication skills, digital, informational, and media literacy (Bock et al., 2007). The influence factors include the influence of cultural heritage and event practices, the influence of postmodern culture and modern media, and the influence of digital and visual culture.

The data analysis revealed that the interconnection of digital and visual culture most influences the level of mastery of digital culture in the virtual space. Therefore, the indicators of digital, information, and media literacy reach 95%, indicators of communication skills – 86%, indicators of creativity and innovation – 88%, and critical and problematic thinking – 76%.

Postmodern culture and modern media shape critical and problematic thinking at 86%, develop creativity and innovation at 92%, improve communication skills at 78%, and promote digital, information, and media literacy at 86%.

The impact of cultural heritage and event practices on critical and problematic thinking reaches 82%, the impact on creativity and innovation – 89%, the impact on communication skills - 91%, and the impact on digital, information, and media literacy – 61%.

The results of the experiment allowed us to make the next conclusions about the level of mastering digital culture in the virtual space. We have identified the main skills and competencies necessary for successful interaction in the digital environment. We have also found differences in the level of digital literacy between different user groups, which indicates potential problems and challenges. The factors that can influence the level of digital culture mastery, such as age, level of education, experience in using digital technologies, etc., are also identified. The study offers recommendations for improving the level of digital literacy and culture in the virtual space, including educational programs, training, online courses, and other activities. Thus, the experiment results provide valuable information about the current state and prospects for the development of digital culture in the virtual space, as well as offer practical recommendations for improving the situation in this area (Vytkalov et al., 2023).
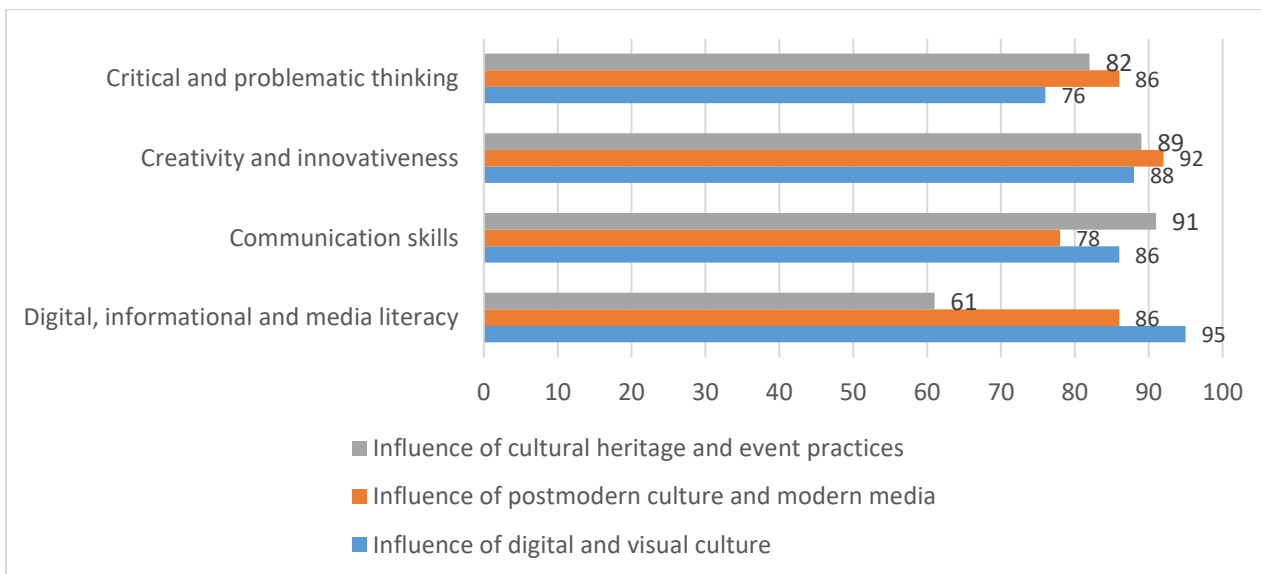
**Figure 2** The study on the level of mastering digital culture in the virtual space during the implementation of the proposed technology stages.

## 4. Discussion

The implementation of digital culture in the virtual space can bring many positive results. Digital culture in the virtual space makes cultural resources and art available to a broader audience. People can access cultural content from any part of the world and at any time. This helps to democratize access to cultural values. The virtual space allows for easy access to various cultural resources, including art, literature, music, movies, historical materials, and much more. This expands the ability of people to explore and immerse themselves in different cultural contexts. Virtual space can help to reach a broad audience, including people with disabilities or those living in remote regions. This enhances cultural dialogue and the exchange of experiences between different communities and cultures (Liu et al., 2023).

Virtual space allows for interactive and engaging forms of cultural content, such as virtual exhibitions, museums, concerts, etc. It increases the engagement of viewers and allows them to become active participants in the process of perceiving and creating cultural works. Digital culture in the virtual space stimulates the development of new forms of art and entertainment, such as digital art, virtual reality, games, and interactive multimedia projects. These forms can be innovative and experimental, opening up new opportunities for creativity and self-expression (Basumatary & Kalita, 2022). Virtual space opens up new opportunities for artists and designers to be more innovative and creative. Digital technologies allow for the creation of unique visual effects, interactive installations, virtual worlds, and other art forms that are not possible in traditional environments (Çeçen & Karaköse, 2023). Virtual space reduces geographical distances and allows people from different cultures to interact and exchange ideas and experiences. It fosters cross-cultural exchange, understanding, and respect between different cultural groups and promotes global dialogue and cooperation.

Virtual space can be a platform for preserving and documenting cultural heritage. Digital archives, virtual museums, and online collections allow the preservation of cultural values for future generations and make them available for study and research (Sang, 2022). Digital culture in the virtual space promotes global cultural integration and the exchange of ideas and experiences between different cultures and societies. This contributes to the development of intercultural understanding and tolerance. Digital technologies allow a wide range of people to create, distribute, and consume cultural content. This contributes to the democratization of cultural production and distribution, reducing the role of traditional centers of cultural production and opening up opportunities for new creative initiatives. Thus, the implementation of digital culture in the virtual space has the potential to create positive changes in the cultural sphere, expanding accessibility, engagement, and innovation in the cultural sector (Zhuk et al., 2022).

However, the implementation of digital culture in the virtual space can lead to various challenges. The development of digital culture in the virtual space raises new questions about authorship, intellectual property, and copyright. The online environment presents challenges in managing and protecting content rights, requiring new approaches and regulations (Hirt et al, 2022). Virtual space provides a platform for the expression of diverse cultural identities and voices. This contributes to the expansion of cultural pluralism and the visibility of minority cultures and groups. Altogether, the implementation of digital culture in the virtual space has the potential to change the cultural environment, expand access to cultural resources, stimulate cultural creativity as well as interaction, and raise new challenges and issues for discussion and resolution.

## 5. Conclusion

Digital culture expands our access to cultural resources. Virtual space allows people from different countries and cultures to access a wide range of cultural content. This contributes to the expansion of cultural education and mutual understanding. Digital culture in virtual space promotes the development of new forms of art and entertainment, such as digital art, virtual reality, and interactive multimedia projects. They expand opportunities for creativity and self-expression. Virtual space reduces geographical and cultural barriers, facilitating global cultural exchange and dialogue. It creates opportunities for cultural enrichment and understanding between different cultural groups.

Digital culture in virtual space raises new questions about authorship, intellectual property, and copyright. The online environment presents challenges in managing and protecting content rights, requiring new approaches and regulations. The virtual space provides a platform for the expression of diverse cultural identities and voices, contributing to the expansion of cultural pluralism and increasing the visibility of minority cultures and groups. New challenges arise with the development of digital culture in the virtual space, such as privacy issues, digital security, fake information, etc. These challenges require a careful balance between freedom of expression and the need for regulation in the digital space.

In general, digital culture in the virtual space has great potential for expanding cultural opportunities and enriching cultural experiences. However, it also poses challenges that require careful attention and discussion by the society and legislators.

## Ethical considerations

Not applicable.

## Conflict of Interest

The authors declare no conflicts of interest.

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## References

Bajaj, A., & Bhattacharjee, A. (2023). Design and development of digital humans in virtual exhibition space. *Multimedia Tools and Applications,* 1-18. https://doi.org/10.1007/s11042-023-17100-3

Basumatary, B., & Kalita, H. K. (2022). Social media forensics - a holistic review. *2022 9th International Conference on Computing for Sustainable Global Development (INDIACom)*(pp. 590-597). New Delhi, India. https://doi.org/10.23919/INDIACom54597.2022.9763129.

Batsurovska, I., Dotsenko, N., Soloviev, V., Lytvynova, S., Gorbenko, O., Kim, N., & Haleeva, A. (2021). *Technology of application of 3D models of electrical engineering in the performing laboratory work* (pp. 323-335). CTE 2021: 9th Workshop on Cloud Technologies in Education, Kryvyi Rih, Ukraine.

Bielialov, T., Kalina, I., Goi, V., (...), Shyshpanova, N., Negoda, A. (2023). Global experience of digitalization of economic processes in the context of transformation. *Journal of Law and Sustainable Development*, 11(3).

Bock, D. E., Velleman, P.F., & De Veaux, R. D. (2007). *Stats, Modeling the World.* Boston: Pearson Addison Wesley.

Bogachkov, Yu. M., & Ukhan, P. S. (2023). Immersive synthetic learning space using VR elements. *Information Technologies and Learning Tools, 94*, 2, 178-200.

Bondarenko, S., Makeieva, O., Usachenko, O., Veklych, V., Arifkhodzhaieva, T., & Lernyk, S. (2022). The legal mechanisms for information security in the context of digitalization. *Journal of Information Technology Management*, 14, 25-58. https://doi.org/10.22059/jitm.2022.88868

Bursten, J. R. S. (2020). Computer simulations. *Between Making and Knowing,* 195-206.

Byrkovych, T., Denysiuk, Z., Gaievska, L., Akimova, L., Prokopenko, L., & Akimov, O. (2023). State policy of cultural and art projects funding as a factor in the stability of state development in the conditions of globalization. *Economic Affairs (New Delhi)*, 68(1), 199-211. https://doi.org/10.46852/0424-2513.1s.2023.23

Çeçen, M., & Karaköse, M. (2023). A new approach for classification and detection of world cultural heritages with YOLOv3. *2023 International Conference on Sustaining Heritage: Innovative and Digital Approaches (ICSH)* (pp. 90-94). Sakhir, Bahrain. https://doi.org/10.1109/ICSH57060.2023.10482838.

Dotsenko, N. (2023). Interactive posters as a learning tool for practical tasks in the context of electrical engineering education. *2023 IEEE 5th International Conference on Modern Electrical and Energy System (MEES9) (p.*1-5.). Kremenchuk, Ukraine. https://doi.org/10.1109/MEES61502.2023.10402463

Fan, H., Zhou, B., & Wang, H. (2021). A probe into the high-tech equipment system of culture and tourism integration industry. *2021 International Conference on Culture-oriend Science & Technology (ICCST)* (pp. 575-579). Beijing, China. https://doi.org/10.1109/ICCST53801.2021.00125

Hirt, C., Ketzel, M., Graf, P., Holz, C., & Kunz, A. (2022). Heuristic short-term path prediction for spontaneous human locomotion in virtual open spaces. *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW*) (pp. 636-637). Christchurch, New Zealand. https://doi.org/10.1109/VRW55335.2022.00169.

Li, K., & Hao, W. (2023). Poetic expression by virtual reality technology. *Advances in Engineering Technology Research, 7*, 7. https://doi.org/10.56028/aetr.7.1.7.2023

Limano, F. (2023). New digital culture metaverse preparation digital society for virtual ecosystem. *E3S Web of Conferences* (p. 388). https://doi.org/10.1051/e3sconf/202338804057

Liu, J. (2022). A study of intercultural competence under CLIL with the assistance of E-learning – A case study of English education of Chinese Culture. *2022 3rd International Conference on Education, Knowledge and Information Management* (ICEKIM) (pp. 892-896). Harbin, China. https://doi.org/10.1109/ICEKIM55072.2022.00196

Liu, J. (2023). Virtual presence, real connections: Exploring the role of parasocial relationships in virtual idol fan community participation. *Global Media and China.* https://doi.org/10.1177/20594364231222976

Liu, L., Cheng, M., & Zhao, Y. (2023). Research on the application of VR technology in the experience of virtual movable-type printing museum. *2023 9th International Conference on Virtual Reality* (ICVR) (pp. 572-577). Xianyang, China. https://doi.org/10.1109/ICVR57957.2023.10169713

Luo, Y., Chen, J., Ren, S., Luo, L., & Chen, T. (2017). Study on deep learning political culture communication system in universities under the perspective of postmodern media. *2017 International Conference on Robots & Intelligent System* (ICRIS) (pp. 312-316). Huai An City, China. https://doi.org/10.1109/ICRIS.2017.85

Maaß, S., Wortelker, J., & Rott, A. (2024). Evaluating the regulation of social media: An empirical study of the German NetzDG and Facebook. *Telecommunications Policy,* 102719. https://doi.org/10.1016/j.telpol.2024.102719

Manca, S. (2020). Snapping, pinning, liking or texting: Investigating social media in higher education beyond Facebook. *The Internet and Higher Education, 44,* 100707. https://doi.org/10.1016/j.iheduc.2019.100707

Ni, Z., & Gao, Z. (2015). Developing digital hall of prayer for good harvest software to promote historical culture by applying virtual reality technology. *2015 International Conference on Culture and Computing (Culture Computing)* (pp. 217-218). Kyoto, Japan. https://doi.org/10.1109/Culture.and.Computing.2015.29

Sang, F., Wu, H., Liu, Z., & Fang, S. (2022). Digital twin platform design for Zhejiang rural cultural tourism based on unreal engine. *2022 International Conference on Culture-Oriented Science and Technology* (CoST) (pp. 274-278). Lanzhou, China. https://doi.org/10.1109/CoST57098.2022.00063

Singh, T. (2021). Importance of digital arts in interdisciplinary context. *2021 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunication Engineering* ( pp. 43-48). Cha-am, Thailand. https://doi.org/10.1109/ECTIDAMTNCON51128.2021.9425707

Tamai, M., Inaba, M., Hosoi, K., Thawonmas, R., Uemura, M., & Nakamura, A. (2011). Constructing situated learning platform for Japanese language and culture in 3D metaverse. *2011 Second International Conference on Culture and Computing* (pp. 189-190). Kyoto, Japan. https://doi.org/10.1109/Culture-Computing.2011.59

Tosa, N., Kawamura, H., Rokudo, M., & Nakatsu, R. (2023). Statistical analysis of preferences for art fashion. *2023 Nicograph International (NicoInt)* (pp. 89-89). Sapporo, Japan. https://doi.org/10.1109/NICOINT59725.2023.00029.

Vytkalov, S., Petrova, I., Skoryk, A., Goncharova, O., Vytkalov, V., Antipina, I. (2023). Establishment of cultural industries in ukraine: implementation of foreign practices. *International Journal of Professional Business Review*. Miami, 8(5), 01-13.

Vytkalov, S., Smyrna, L., Petrova, I., Skoryk, A., Goncharova, O. (2022). The image of the other in the cultural practices of the modernity». *Filosodiya-Philosophy Journal*, 31(Number 1), 19-29. https://doi.org/10.53656/phil2022-01-02

Waliokar, V., & Remedios, D. (2023). Adapting stage play to virtual reality comics. *Ultimart: Jurnal Komunikasi Visual, 16,* 150-160. https://doi.org/10.31937/ultimart.v16i2.3431

Wang, C., & Wang, H. (2021). On the status quo and application of online virtual art exhibition technologies. *2021 International Conference on Culture-oriented Science & Technology* (ICCST) (pp. 253-257). Beijing, China. https://doi.org/10.1109/ICCST53801.2021.00061

Wang, S., Zhong, Z., & Chen, L. (2019). The past, present, and future of media literacy education research theme: a network and cluster analysis of literature. *2019 International Joint Conference on Information, Media and Engineering* (IJCIME) (pp. 78-82). Osaka, Japan. https://doi.org/10.1109/IJCIME49369.2019.00025

Wenjun, L. (2021). Research on digital media art teaching based on virtual reality technology. *2021 International Conference on Education, Information Management and Service Science* (EIMSS) (pp. 320-323). Xi'an, China. https://doi.org/10.1109/EIMSS53851.2021.00076.

Xing, Y., Fahy, C., Feng, G., Liang, Y., Huang, H., & Shell, J. (2024). Digital storytelling in virtual reality: bridging the virtual and reality in cultural tourism at the Great Bay Area. *2024 IEEE International Conference on Artificial Intelligence and eXtended and Virtual Reality* (AIxVR) (pp. 355-359). Los Angeles, CA, USA. https://doi.org/10.1109/AIxVR59861.2024.00061

Yuan, J., Zhang, L., & Kim, C. S. (2023). Exhibition design of marine culture theme exhibition hall under interactive experience. *2023 Asia Symposium on Image Processing* (ASIP) (pp. 128-113). Tianjin, China. https://doi.org/10.1109/ASIP58895.2023.00025

Zang, Yu. (2024). Embodiment of digital art elements in traditional cultural and creative product design based on virtual reality technology. *Applied Mathematics and Nonlinear Sciences,* 9. https://doi.org/10.2478/amns-2024-0103

Zhang, J. (2023). Design of digital display platform for intangible cultural heritage on VR intelligent technology. *2023 2nd International Conference on Data Analytics, Computing and Artificial Intelligence* (ICDACAI) (pp. 451-456). Zakopane, Poland. https://doi.org/10.1109/ICDACAI59742.2023.00091

Zhang, Y. (2022). Campus culture communication system based on artificial intelligence virtual technology. *2022 IEEE 6th Advanced Information Technology, Electronic and Automation Control Conference* (IAEAC) (pp. 2047-2052). Beijing, China, 2047-2052. https://doi.org/10.1109/IAEAC54830.2022.9930044

Zhuk, I., Khaletska, A., Stepura, T., Shchepanskiy, E., Sadova, U., & Pyla, V. (2022). Public administration system in the field of finance under the influence of digitalization. *Economic Affairs (New Delhi)*, 67(3), 225-231. https://doi.org/10.46852/0424-2513.3.2022.11