



Article

Strategies for the Preservation of Cultural Heritage through Art and Education: A Comprehensive Approach and Evaluation of Effectiveness

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Abstract

In an increasingly globalized world, preserving cultural heritage is essential for maintaining cultural diversity. This study examines strategies for safeguarding cultural heritage through integrating art and education, emphasizing the significance and effectiveness of a comprehensive approach. Employing a quantitative methodology and systematic review guided by the PRISMA framework, 60 international sources were analyzed through a multi-stage screening process. The results demonstrate that combining art and education significantly enhances efforts to preserve cultural heritage. Artists play a key role in stimulating public interest and academic inquiry, while educators foster value formation and actively engage students in cultural studies. This integrated approach deepens emotional connections to heritage and broadens awareness of its importance. Nonetheless, such strategies are often hindered by financial limitations, insufficient management, and a shortage of specialized professionals. The study concludes that evaluating the effectiveness of cultural heritage preservation requires a flexible, multidimensional approach, incorporating both quantitative and qualitative measures. Overcoming these challenges is vital to achieving sustainable preservation outcomes.

Keywords: Artistic Intervention, Cultural Management, Educational Integration, National Heritage

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Introduction

The current realities of civilizational transformations, which have led to new threats to the preservation of cultural heritage, have led to increased attention to the mechanisms of cultural protection. Given the conditions of rapid globalization and scientific and technological progress, such a research problem as the protection of cultural heritage has become significantly more relevant as new challenges and threats to cultural diversity and the preservation of various types of cultural property have emerged. This, in turn, influenced the evolution of forms and methods of cultural protection activities. Thus, preserving cultural heritage is one of the most critical tasks of modern society (Arfa et al., 2022; Boboc et al., 2022). Given this fact, traditions, customs, language, historical and cultural monuments, artworks, and architectural monuments contribute to the formation of national identity and play an essential role in preserving cultural identity. This issue is critical and relevant in modern scientific thought. Modern scholars have described various mechanisms for preserving cultural heritage in cooperation with UNESCO (Daga et al., 2022; Williams et al., 2021). In addition, the importance of any initiative to preserve cultural property has been proven by scientific thought (Kichurchak, 2020; Monova-Zheleva et al., 2020). Accordingly, an important research question is identifying strategies that most effectively preserve this heritage. The study of this issue is important from a theoretical and practical perspective, as this research aims to provide insights into essential mechanisms for preserving cultural heritage through art and education.

Given the small number of studies on the complex impact of art and education, this research problem is essential to study. Education and art play the role of essential tools that have the potential not only to preserve but also to transmit cultural values to modern society. Using an integrated approach, studying the specifics of preserving cultural heritage through art involves synthesizing creative practices with various educational initiatives. The latter are usually aimed at raising public awareness and interest. The importance and relevance of this study lies in the growing threat of losing cultural heritage due to various challenges (military operations, accelerated urbanization, transformations in the value system, technological changes) requiring the development of new effective strategies for cultural preservation. At the same time, it is also important to characterize the effectiveness of the current existing mechanisms of cultural preservation. It is also essential to focus on how education and the arts interact to actively engage society in preserving historical and cultural property. Knowledge of practical approaches will ensure the preservation of cultural heritage and support its development in the modern context.

This literature review aims to identify the main aspects of the study of cultural heritage in modern scientific literature. Modern studies describe various aspects of the preservation and reproduction of cultural heritage. Andrec (2024) is devoted to preserving Ukrainian cultural heritage through the prism of the diaspora. The author mainly focuses on the activities of special research centers in the United States. Beidyk et al. (2024) described the role of the intangible cultural heritage of Ukraine through the prism of studying its scientific and practical significance. The authors also described the key prospects for developing this type of heritage. Chetverikov et al. (2024) carried out a research development of a software module to study and research various objects of historical and cultural heritage. In general, according to the results of modern scholars, the process of preserving and protecting cultural heritage is not only one of the most relevant areas of activity of countries but also serves as an important subject of research in several sciences (Harbuziuk et al., 2023; Koh & Jamal, 2024; Kurniasih et al., 2024). Contemporary scholars have also identified the importance of preserving cultural heritage and studying its forms or mechanisms in the protection system. These studies constitute an important theoretical basis for the article, as they are intended to create a theoretical and methodological framework for a general understanding of the specifics and essence of the process of cultural heritage preservation on both national and international scales. (Mendoza et al., 2023; Nindito et al., 2020; Kou, 2024). Zort et al. (2023) describe the key forms of disseminating information about cultural property, including through storytelling. Van de Kamp et al. (2014) describe the role of virtual reality in transforming and further developing art. Some forms of preserving cultural heritage using modern technologies are presented in detail in the study by Fiorineschi et al. (2020) and Georgopoulos (2018), who also provided a critical review of current digital technologies that contribute to the preservation of cultural heritage. Also noteworthy are those studies that provide a detailed analysis of the institutional framework for the preservation and protection of cultural heritage (González-Herrera et al., 2023; Liu & Pan, 2023). These foundations are essential, at least from the point of view that it is through the relevant institutions and norms that a reliable basis for the practical adaptation of the general system of measures for the preservation and reproduction of cultural heritage to individual national realities is formed (Kleftodimos et al., 2023; Moula & Kouzoukakis, 2023; Losheniuk et al., 2023). An important part of this review is the analysis of studies that focus on the peculiarities of teaching art in the modern era. In general, contemporary scholars have identified the powerful impact of digital technologies on art and its study (Brown & Duffy, 2013; Camuñas-García et al., 2024). Afanasieva (2023) conducted an important study of virtual reality's impact on future art professionals'

professional development. At the same time, Cherusheva et al. (2023) described the main innovative technologies that support and develop modern education in the EU.

Datsko (2023) outlined the main reforms concerning the higher education system. The author drew attention to the undeniable impact of digitalization trends on this process and described the role of virtual reality in maintaining students' attention and developing their motivation to learn (Devadze & Gechbaia, 2024). Panyok (2023) described current trends in the development of art in Ukraine. Sermet and Demir (2020) identified the important role of augmented and virtual reality in shaping the modern learning environment. These technologies develop not only theoretical but also practical skills. In addition, Goian et al. (2023) described innovative teaching methods used to engage and support students. Contemporary scholars have drawn attention to the importance of using modern innovative technologies in the art teaching system (Iyuan, 2023; Karas et al., 2021). However, the chosen topic requires more thorough study. The main gap is that the authors did not pay attention to the synthesizing role of art and education to preserve cultural heritage. If this issue is present, it is only in certain aspects. However, no broad study of this topic has been conducted. Accordingly, this study will try to address this gap.

This study aims to analyze the main strategies for preserving cultural heritage through art and education and assess their effectiveness in maintaining national and cultural identity. Particular attention is paid to the relationship between art and education based on effective cooperation mechanisms. Combining artistic activities with the educational process forms a comprehensive approach to work in the cultural sphere. An important aspect is the creation of a system for evaluating cultural heritage preservation strategies based on a flexible approach that considers both quantitative and qualitative indicators, as well as local cultural development. Considering these aspects allows us to better understand the main problems associated with preserving cultural heritage and ways to solve them through the interaction of art and education.

Methodology

This study adopts a quantitative research design grounded in content analysis, which systematically examines scientific literature related to the intersection of cultural heritage, art, and education. The research focuses on identifying, categorizing, and interpreting data from academic sources to reveal patterns, trends, and best practices in cultural heritage preservation. By analyzing published materials, the study aims to evaluate how educational programs, and cultural institutions interact to safeguard heritage through artistic engagement. The objectives of this study are fourfold: to investigate methods and approaches used in art education; to explore the

role of artistic practices, both traditional and contemporary, in transmitting cultural values; to assess emerging trends in educational strategies for heritage preservation; and to examine international experiences in implementing heritage-focused educational and cultural initiatives.

The sample for this study included sources from different parts of the world. There was no specific geographical range for the sources to be included. Preference was given to including scientific literature from 2020. However, the study used several older works due to their importance for the chosen topic. The sample included various research papers: scientific articles, monograph chapters, and conference proceedings. When selecting the materials, attention was paid to including papers from global peer-reviewed journals.

This study employed the PRISMA approach, enabling the collection and qualitative analysis of scientific sources (Figure 1).

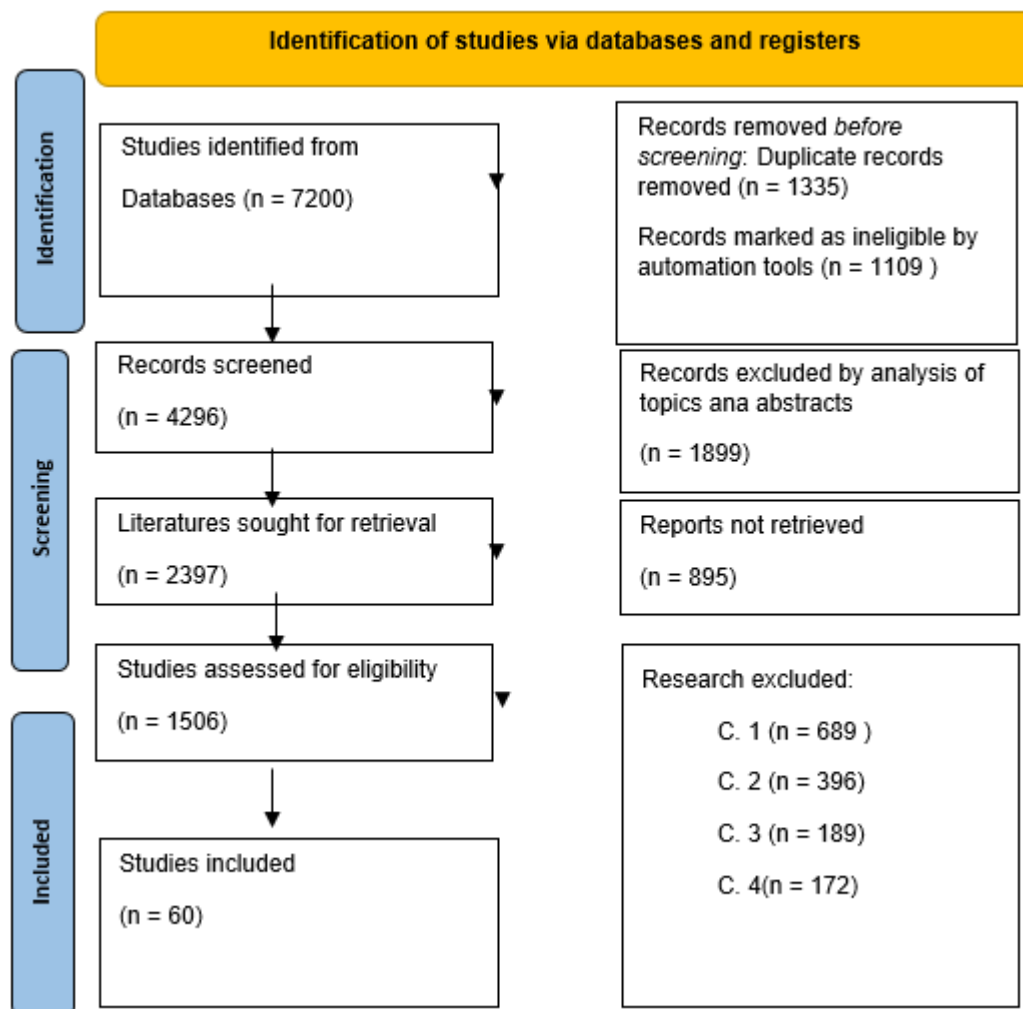


Figure 1. Data collection and screening in accordance with PRISMA

The process included several stages, starting with collecting and screening sources. Scopus and Google Scholar were selected for the collection stage, as these databases provide a vast repository of scientific articles on education and art. Keywords such as “art,” “education,” “digitalization,” “cultural heritage,” “preservation,” and “technology” were used in these databases, alongside the selection of the review article type. The search was restricted to publications from 2020 to 2024, resulting in 7,200 initial entries. After excluding 1,335 duplicates, 1,569 records were identified as ineligible by automation tools. The screening stage then assessed 4,296 items, with a critical review of titles and abstracts leading to the rejection of an additional 2,397 items that did not align with the chosen topic. A total of 1506 items were received and subjected to the next stage of screening. It involved the inclusion of literature based on the following criteria:

1. Language of writing: English. If the study had valuable practical significance, it was included if it had an English-language abstract
2. Presence of research methodology
3. Characterization of the peculiarities of education in modern conditions or determination of the role of art
4. Identification of specific mechanisms for the preservation of cultural heritage

Thus, 52 materials related to education, art, and mechanisms for preserving cultural heritage were selected for data analysis.

Excel software was used to process the selected materials for data analysis. In particular, such data as author, field (education, art, cultural heritage preservation), results, and conclusions were transferred to the relevant tables. This made it possible to demonstrate the connections between education, art, and the preservation of cultural memory. Another table was also made in which such data as the author, mechanisms of cultural heritage preservation, and the result were entered. This made it possible to identify effective cultural heritage preservation practices and find connections between education and learning. The synthesis was used to combine the results obtained. A comparative analysis of the data obtained with the results of other authors was also used, which made it possible to confirm the information obtained.

Results

The Role of Art and Education in the System of Preservation of Cultural Heritage

Developing strategies for preserving cultural heritage and developing cultural environments through the involvement of educational institutions is becoming an essential element of government work. In addition, the further preservation of cultural heritage sites is society’s responsibility, as such sites directly shape national identity

and transmit historical, folk, and cultural values to future generations. Researchers agree that an important and one of the most effective ways to achieve this task is to actively integrate art with educational processes, leading to a comprehensive approach to heritage preservation. Artistic processes and education create the necessary spaces that raise awareness of cultural heritage and allow for active interpretation of preserved objects (see Figure 2).

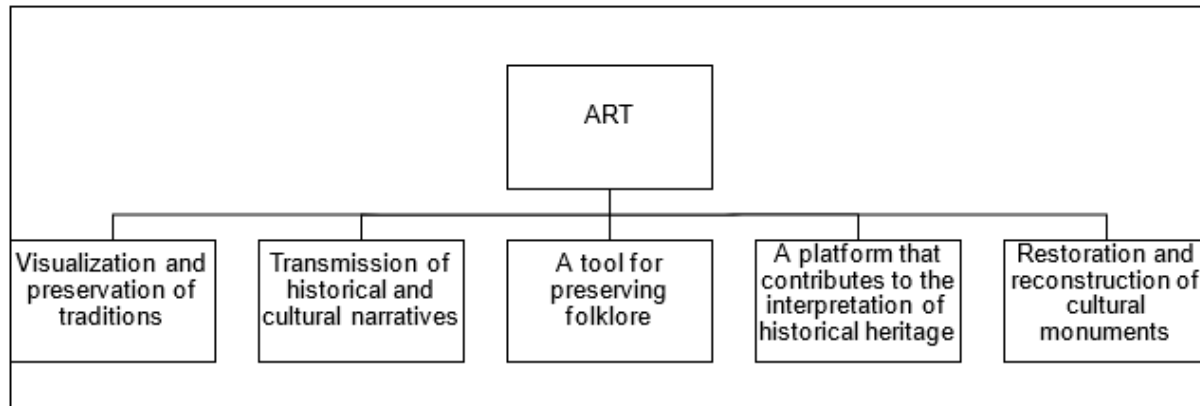


Figure 2. The role of art in the system of preservation of cultural heritage

In such a situation, as seen in Figure 2, artists have an essential tool - powerful visualization tools that facilitate public discussion about the importance of existing values and traditions and new trends in cultural development. In such circumstances, art brings the existing heritage up to date, transfers its elements to the modern context, and significantly promotes existing achievements among a broad audience. First and foremost, the use of art (including street art), art installations, sculptural research, and multimedia projects that can convey the spirit of the relevant era, convey emotions from the past, and rethink the role of existing artefacts (Piccone, 2024; Tazkiyah et al., 2024). Art also allows us to expand the boundaries of existing academic research, engaging a broad audience in discussing and understanding heritage. An important aspect worth considering is the possibility of interacting with cultural heritage through art, including working on contemporary artworks and finding inspiration or motivation from traditional crafts, folk, or contemporary cultural practices (Dias Pereira et al., 2021; Münster et al., 2024). This also includes working with historical examples of folk crafts and artistic samples of antiquity, adapting national motifs to contemporary artistic forms of fashion, and performing various interpretive actions to update knowledge about past practices (see Figure 2). In such circumstances, education is a vital tool for shaping various aspects of cultural consciousness, particularly in understanding the values of the existing heritage. Existing formal and non-formal education programs can have an appropriate cultural component, which

will help form updated public expectations for preserving existing monuments (Afanasieva, 2023). This approach can be implemented by including existing topics in the curriculum, the appropriate level of development of museum pedagogy, and the organization of interactive educational events that will promote and teach work with cultural heritage sites. Working with educational components also has the advantage of engaging younger students in a more detailed mastery of history, cultural history, theory, art history, etc. (Santos López & Torrente-Patiño, 2020). Such an approach would help form an interest in studying the relevant topics from a reasonably early age, which could develop into a relevant professional interest.

To improve the educational situation, existing cultural development institutions (art galleries, research institutes, museums) can be involved in the educational process not only as educational platforms but also as relevant stakeholders who impact the formation of autumn components in the curricula of educational institutions. In addition, cultural development institutions usually have important educational platforms that can provide interactive learning. First and foremost, we are talking about interactive exhibitions, special seminars, and workshops that allow for opportunities for practical work with preserved cultural artifacts, crafts, professional experience, etc. This approach contributes to a deeper understanding of the mechanisms of culture as a complex phenomenon in today's globalized world. The combination of artistic work and relevant training allows for an integrated approach to improve the cultural heritage preservation process further. In practice, such a combination can become a somewhat effective tool that considers the different appeals of artistic and pedagogical interaction (Pishchanska, 2024). For example, artists are well placed to create emotional connections between society and heritage, while educational processes can emphasize knowledge formation and understanding of its importance. This approach is based on interdisciplinary interaction at various levels between artists, educators, scientists, and cultural managers. An essential aspect of this approach is the use of digitalization, the application of modern technologies, including virtual reality tools, various online platforms, digital archives, etc., to promote culture for different age groups (Kleftodimos et al., 2023; Moula & Kouzoukakis, 2023). At the same time, it is also about establishing horizontal links between different social strata. In particular, the success of the cultural heritage preservation system in Anglo-Saxon countries (e.g., the United States) is based on factors of productive interaction between the private and public sectors. In the United States, there are currently more than 160 partner organizations that support government agencies in protecting cultural heritage sites, including a large number of American national parks that continue to operate thanks to well-established mechanisms of public-private partnerships.

Research and analysis of existing American practices in the sustainable preservation of cultural heritage can be a very effective model for organizing educational and artistic projects that will promote the preservation of cultural heritage (see Figure 3).



Figure 3. A model for synthesizing art and education to preserve cultural heritage

Interactive Platforms, Cultural Adaptation, and Cultural Heritage Preservation

Interactive platforms and digital resources must consider cultural differences to make learning more inclusive and promote the preservation of cultural heritage. As Kdyrova et al. (2024) noted, adapting educational materials to include relatable and understandable examples for students from different cultural backgrounds is essential. This approach enhances learner engagement while supporting the preservation and popularization of cultural heritage. Such a synthesis of education and the cultural and artistic sphere is particularly valuable in crisis periods (e.g., during conflicts and pandemics) when mobility may be restricted. For instance, history, literature, and art courses should ideally include topics and illustrations that reflect the cultural features, values, and traditions of various ethnic communities. This enables students to understand better the historical and cultural heritage of their own and other cultures, fostering a respectful attitude toward cultural heritage in a global context. Interactive platforms using VR/AR can provide access to such materials through virtual museums, digital archives, and online exhibition platforms that recreate cultural artifacts and rituals. Additionally, this approach encourages students to engage in cultural heritage preservation through interactive tools that allow them to study, understand, and appreciate cultural assets. Modern technologies, such as augmented reality, help to recreate experiences of interacting with artifacts, making cultural heritage preservation accessible to a broader audience.

At the same time, certain challenges are associated with ensuring the effectiveness of such a synthetic approach. In particular, we are talking about establishing an effective system for evaluating the selected strategies for preserving cultural heritage through the involvement of artists and educators. Obviously, this task requires separate processes based on different criteria. First of all, to take into account the effectiveness, we can resort to the analysis of existing quantitative indicators: determining the number of participants involved in attending relevant courses or educational programs, taking into account the level of attendance at organized cultural events, the total number of art projects developed and implemented. Quality indicators are equally important in a balanced assessment: different levels of audience understanding or interest and relevant indicators of cultural awareness.

However, the effectiveness of such strategies in many respects depends on the organization of long-term support, which can involve both state institutions and NGOs, legal entities, private companies, etc. Establishing cooperation at this level forms the basis for implementing large-scale projects in the future. Possible sources of funding include the use of financial resources from foreign institutions, grant support, etc. In fact, the evolution of international cooperation allows for increased visibility of organized events and the promotion of cultural heritage at the local and global levels. Raising private funds has had its impact, for example, on the European Union (Prados-Peña et al., 2023). In particular, the European Commission has been working on issues such as those of the European Parliament and the Council of Europe, which has resulted in the importance of developing urban culture. Cities were identified as the main objects for investment, ensuring high population employment. On the one hand, the emphasis in their development was on ensuring attractiveness and physical accessibility (infrastructure), but the historical and cultural heritage was proposed to be used as a basis for strategic planning of further development and regeneration of cities. This policy was aimed at using historical and cultural heritage, which has close links with the relevant infrastructure facilities and contributed to the growth of the attractiveness of living in the city for citizens, employees, business representatives, and tourists. This has led to a further evolution of citizens' sense of pride in belonging to separate urban communities, which has directly influenced the formation of appropriate levels of citizens' self-awareness. The cultural environment of cities (including restoration, repair, and renovation processes) has significantly influenced transformations in their perception and contributed to the promotion of a new quality of urban life. At the same time, cultural heritage preservation strategies have certain difficulties, which can be summarized in several universal statements (see Table 1)

Table 1. Difficulties in implementing the strategy of preserving cultural heritage through art and education

Problem	Description
Financial difficulties	One of the key problems is the lack of funding for existing projects related to the preservation of cultural heritage. Involving artists and using educational opportunities are costly processes that require investment. First of all, it is worth highlighting the high cost of restoration work, organization of the educational process, etc. In addition, cultural initiatives are not a priority in terms of state funding, so the risk of lack of funding is increasing.
Lack of coordination efforts	The use of an integrated approach requires well-established cooperation between representatives of the artistic, educational, scientific, and governmental sectors. Scientific, private, and governmental sectors. Inconsistencies and lack of approved plans lead to ineffective communication, which is not conducive to coordinated work.
Availability of specialists of the appropriate level	The process of preserving cultural heritage sites requires the services of highly qualified specialists, including those in art, archaeology, restoration, cultural history, etc. The lack of relevant professionals can reduce the quality of existing cultural heritage preservation programs.

Taking these challenges into account will help improve the planning position and develop appropriate strategies. The involvement of educators and artists in the protection of cultural heritage requires consideration of possible challenges to optimize further work and increase overall effectiveness.

Discussion

Given the purpose of this study, namely, to explore the main strategies for preserving cultural heritage through art and education and assess their effectiveness in supporting national identity, several preliminary hypotheses were confirmed. In particular, the first hypothesis assumed the existence of a direct link between art and education in the field of cultural heritage preservation. This connection should be based on the use of effective mechanisms of interaction. Accordingly, the results show that artists have a significant tool - powerful visualization tools that promote public discussion about the importance of existing values and traditions. It is also determined that art contributes to the actualization of the existing heritage and transfers its elements to the modern context, thus promoting existing achievements among a wide

audience. These results are confirmed in several scientific papers describing the relationship between art and cultural heritage. This study correlates with Pei's (2024) study, which identifies the impact of modern technology on the preservation of cultural heritage. Although this study does not explicitly characterize the importance of technology for this process, the impact of digitalization is mentioned in passing.

However, broader studies demonstrate a closer connection between artistic development, digital technologies, and cultural heritage preservation (Paulauskas et al., 2023; Sovhura et al., 2023; Wang et al., 2024; Wang et al., 2023). The next hypothesis was to prove that combining artistic work and education formulates a comprehensive approach to working with the cultural sector. Thus, the results prove the importance of the synthesis of art and education for the formation of close interaction with the cultural sector. This process combines two important aspects - creativity and learning - to realize a common goal: a deeper understanding of cultural heritage preservation. These results have been confirmed in a number of contemporary works. (Lucas-Palacios et al., 2023; Kleftodimos et al., 2023; He & Sornyai, 2023). In particular, Lucas-Palacios et al., 2023) analyzed the main concepts regarding teacher training from different Spanish universities in heritage education. This study is also supported by the findings of (Mudle & Cocciolo, 2024), who argue that due to the current proliferation of learning opportunities available in the field of digital preservation, it is important to trace the role of educational traditions for the cultural enrichment of students. This study also indicated that there is an ongoing need to provide education focusing on the essential elements of digital preservation. These opinions also correlate with the results of other scholars who have identified the role of innovative approaches based on the use of reality technologies in the training of cultural and artistic professionals (Ontiveros Llorens, 2024; Poutiainen & Krzywacki, 2023).

The results of the study are also supported by data from other works that show that the synthesis of art and education affects the active involvement of participants in the process of preserving cultural heritage through various projects, virtual exhibitions, interactive workshops, and innovative educational programs (Radomska & Ponkalo, 2023; Proskurina & Nikitina, 2023; Yurko & Riabtsev, 2024). The current scientific literature also proves that the synthesis of digital technologies in the process of cultural heritage preservation significantly expands access to cultural materials (Kosciejew, 2023; Skublewska-Paszkowska et al., 2022). In addition, these technologies also contribute to making this process more interactive. Using multimedia resources, innovative technologies, augmented reality, online museums and virtual exhibitions help combine education and art into one (Sofilkanych, 2022; Türkmen & Savasta, 2024). This, in turn, makes them more accessible to the audience. The last hypothesis

assumed that the establishment of an effective system for evaluating cultural heritage preservation strategies is based on a systematic, flexible approach. Accordingly, the results show that this flexible approach involves a balance of quantitative and qualitative indicators and local characteristics of local cultural development. However, as shown in the results, this approach may face a number of important challenges. In particular, limited access to technology is an important issue. Despite the fact that modern technologies can significantly increase the efficiency of heritage preservation, access to these technologies remains limited in many regions. Current research also highlights other challenges that should be taken into account. In particular, the challenges of cultural globalization and the difficulty of evaluating effectiveness are notable (Wang et al., 2024; Wang et al., 2023; Vläse & Lähdesmäki, 2023). It is worth noting that, in general, evaluating the effectiveness of cultural heritage preservation through arts and education is a complex process.

In addition to taking into account quantitative indicators, it is also important to consider various qualitative criteria, such as the transformation of the level of awareness or the formation of cultural consciousness. Naturally, these qualitative indicators are difficult to measure. In general, this makes it difficult to assess and determine the overall success of the strategy. The methodology proposed in the study has certain limitations associated with using the PRISMA research approach in the article. In particular, the range of dates used to filter out less relevant works was outlined. On the one hand, selected scientific works are based on other scientists' already published research results. At the same time, the use of a clear range of dates still creates the possibility that certain important publications with a still relevant vision for the development of cultural heritage preservation strategies, including through the combination of the capabilities of artists and educators, are outside the scope of research attention. Also, primarily English-language publications in peer-reviewed publications were selected for analysis, which leaves the possibility that some non-English-language articles, which are also devoted to the proposed issue, were outside the scope of research attention. However, such methodological limitations appear more as directions for further research. Thus, future research will focus on the use of multilingual relevant sources. In addition, it is also worth conducting an empirical study among museum staff, archivists, and art galleries to understand the potential of the above strategies for preserving cultural heritage.

Conclusions

It is important to involve relevant government agencies, NGOs, and private business representatives in the development of cultural heritage preservation

strategies. One of the most important ways to achieve this is to use the possibilities of integrating art and education, which will be the key to using an integrated approach to preserving cultural heritage. In such a strategy, artists can use a powerful visualization tool to raise interest in heritage and promote the achievements of the past to a wider audience. Art opens up opportunities for expanding academic research and allows for interaction with cultural heritage. Educational components are turning into key elements in the formation of value orientations. The focus on engaging the learning potential will interest young students in more active study of history, art history, cultural studies, and other disciplines, which may also affect the appreciation of cultural heritage in general. Cultural development institutions also have access to educational platforms that promote interactive learning. The application of an integrated approach will allow artists to affirm the emotional connections between cultural heritage and society in the field of society and heritage, while educational processes can emphasize the formation of knowledge and understanding of its importance. This approach is based on interdisciplinary interaction with the implementation of educational programs and cooperation between artists, educators, scientists, and managers in the field of culture and education. In this regard, the experience of the United States and the EU countries is useful, where cultural mainstreaming takes place through additional mechanisms of cooperation between the public, business, and government agencies; cultural heritage is at the heart of infrastructure planning, promotion of the cultural glory of cities, etc. At the same time, the application of cultural heritage preservation strategies requires flexibility in overcoming existing challenges: financial difficulties, lack of organized efforts, and lack of specialists of the appropriate level (lack of organizational process). Evaluating the effectiveness of strategies for preserving cultural heritage through the interaction of education and art requires flexibility in combining quantitative and qualitative indicators. Proper evaluation is possible in each specific case of implementing a cultural heritage preservation strategy that would take into account local peculiarities and the degree of involvement of artists and educators in the work.

Ethical Considerations

This study was conducted in accordance with ethical standards. Prior to data collection, informed consent was obtained from all participants, to ensure their voluntary participation. The confidentiality and anonymity of all respondents were strictly maintained throughout the research to protect their privacy and well-being.

Conflicts of Interests

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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