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THE DYNAMIC NATURE OF CONTEMPORARY MUSEUM EDUCATION: AN HOLISTIC APPROACH BETWEEN HISTORIOGRAPHY, MUSEOGRAPHY, VIRTUAL REALITY AND SOCIAL INCLUSION

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Abstract: The paper attempts to explore, from a bio-cultural perspective, the impact that new technologies, particularly Virtual Reality (VR) and Augmented Reality (AR), have on museum education, with particular attention to the sphere of historiography and museography. Through an analysis of what are the new dynamics of museums related to a new way of approaching the knowledge of artifacts, as well as awareness of the culture offered by the territory, an attempt is made to trace inclusive keys to interpretation. Through mediation tools such as those offered by digital, the learner could immerse himself in culture, breaking down the structural barriers that often characterize museum contexts and allowing, therefore, a knowledge that is for everyone and everyone, in an inclusive key. In addition, the possibility of accessing digital resources, without time limits, allows the user to delve more accurately into the study of an artifact and its analysis, according to a holistic and interdisciplinary approach.

Keywords: museum education; social inclusion; virtual reality; augmented reality; museography

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EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

1. Introduction

Within the continuous evolution of the mind and considering development as a lifelong constant, there is a current academic reflection that escapes radically preformist or equally radical empirical perspectives. The classic debate on the antagonism between nature and culture, traditionally adopted as a starting point for understanding cognitive development and, consequently, the teaching-learning process with all its peculiarities, has undergone a gradual transformation (Iannaccone, 2010, p. 31). This conceptual shift has moved towards a more inclusive paradigm, characterized by the bio-cultural nature perspective (Sibilio, 2014; 2023), emphasizing the complex and dynamic interaction between biological and cultural factors in cognitive evolution.

In this context, the use of technological supports emerges as a catalyst in the continuous development of the mind. The adoption of advanced tools such as Virtual Reality (VR) and Augmented Reality (AR) in educational and museum contexts represents an expansion of learning opportunities, as these resources contribute to creating interactive environments that promote a deeper and more engaging understanding of cultural heritage (Yang et al., 2020; May et al., 2020; Okanovic et al., 2022). This assumption entails a precise correspondence between the exercise of the mind, useful for approaching the knowledge of cultural and historical-social heritage offered to the user through the mediation of new technologies, and cultural exercise, offered through greater awareness of everything that surrounds us, about heritage, often unexpressed, present in some museum contexts that, although smaller than those more widely known, somehow carry additional significant meanings, based on objects, artifacts that encapsulate them (Trunfio et al., 2022).

This premise provides the appropriate context for the present investigation, aiming to emphasize the importance of technologies that facilitate, through a physical and social context, the activation of biologically predisposed adaptive processes "in a natural form" in everyone, to promote learning processes. The conceptual transition from the traditional dichotomy between nature and culture, as a fundamental starting point for understanding cognitive development and the teaching-learning process, is in line with the contemporary analysis of museum institutions and their evolution in the adoption of emerging technologies, with particular attention to virtual reality (VR) and augmented reality (AR) in the context of museum education itself.

Through an interdisciplinary investigation that embraces key concepts such as historiography, museography (Colombi, 2017; Colombi & Sanicola, 2017; Piva, 2021), archaeology, and the conception of the museum as a custodian of replicas, intrinsic dynamism emerges in the museum, which has transformed from a container of goods into a subject of culture (Cataldo & Paraventi, 2007, p.42; Hansson & Öhman, 2022). The transformation of museum institutions in response to changing cultural and technological needs highlights adaptation to innovation through the integration of digital and interactive layers in museography, reflecting the sector's fluid approach to providing engaging experiences to visitors. In the context of contemporary museum education, the synergy between physical experience and the online presence of museums constitutes an educational continuum that extends well beyond the physical visit to exhibition halls. This didactic-pedagogical approach, developing over time, offers rich and diverse learning opportunities at every stage of the museum journey. Before the visit, museum websites play a crucial role in informing and engaging potential visitors, preparing them for the imminent experience (Caprara, Colombi & Scala, 2018). During the physical visit, the use of technologies like augmented reality

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

can further enrich the experience, providing contextual and interactive information about exhibited artifacts. However, the post-visit phase is particularly innovative, with museum websites becoming vehicles for consolidating knowledge acquired during the visit (Ibidem). Online resources, such as educational guides, interactive activities, and multimedia insights, allow users to delve into specific topics, reinforcing the connection between on-site learning material and the broader context of history and culture. In an era where technology serves as a bridge between virtual and real dimensions, the evolution of museum websites emerges as a key element in transforming the museum from a static entity into a dynamic and participative center of cultural knowledge. The synergistic use of online and physical resources not only enhances the learning experience but also makes cultural heritage more accessible and inclusive (Llamazares De Prado & Arias Gago, 2023).

Therefore, this assumption encompasses some inclusive key concepts. Firstly, the creation of conducive contexts for promoting individual autonomy in understanding the vast and relevant cultural heritage of a country reveals how they are a means of shaping personality, both culturally and civilly. Recognizing the artistic richness associated with significant historical periods in the place of residence brings awareness of the importance of living within a context, defending its peculiarities, and valuing the identity linked to that territory (Bondarevskaya, 2000).

Another aspect concerns cultural transmission and the search for the most suitable methodologies for this purpose. Before the digital era, cultural awareness, and the search for information on artistic or literary works required direct investigation of texts through the exclusive use of paper-based supports. However, this approach involved longer times and difficulties in accessing works, especially for those who could not afford travel expenses to access certain libraries or places that housed such texts. Furthermore, limited access to written text generated difficulties and demotivation in learning, especially for those with specific needs in terms of learning styles (Bortolotti & Paoletti, 2021; Di Paolo & Zollo, 2023). With the advent of digital technologies, which have represented an opportunity for universal participation, the process of cultural transmission has also changed (Mandarano, 2019). Digitalization has allowed the enhancement of a country's cultural heritage and ensured that everyone, regardless of their condition, can access and explore the heritage freely in diverse ways. This has meant a change in the way of deepening and studying, as digitalization is not limited to written text but offers a multitude of learning channels. Moreover, digitalization has overcome barriers related to travel and the difficulty of obtaining distant materials, opening new frontiers and modes of learning. Digitalization has even influenced oral narration, allowing the preservation of orally transmitted information that would otherwise have been lost. In this way, digitalization has integrated with traditional modes of teaching and learning, becoming a flexible support capable of responding to the diverse cognitive needs of all students (Campitiello, 2023).

The contribution, specifically, includes the following breakdown: a first paragraph will focus on the importance of different digital museum exhibition spaces, also on new forms of cultural mediation provided by digital technology; a second paragraph, on the other hand, will analyze the relationship between virtual reality and augmented reality in the context of digital museum education; a third paragraph will be dedicated to the design of digital museum activities followed by a fourth paragraph, whose focus will be on the inclusive aspects of digital museum education.

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

2. Between tradition and innovation: digital museography and the evolution of exhibition spaces

The Materials and Methods Museum institutions, in response to changing cultural and technological needs, have adapted to innovation by incorporating digital and interactive layers into museography. This transformation reflects the dynamic approach of the sector in providing engaging experiences to visitors. Simultaneously, museum historiography intertwines with the transformation of institutions, highlighting how historical narratives are constructed through the organization and presentation of exhibited objects (Cataldo & Paraventi, 2007; Cannella & Gay, 2018, p. 67; Paiva & Cardoso, 2023). The pressing need to satisfy the public has thus prompted museum directors, often in collaboration with experts, to turn to more participatory modes of cultural engagement. This involves promoting greater audience involvement in institutional storytelling, transforming spectators' experiences and personal knowledge into public texts (Mondada, 2013; Kidd, 2014; Noy, 2020). As revealed by the definition of a museum proposed by the International Council of Museums (ICOM, 2022), it aligns with additional adjectives such as *participatory*, with a strong interest in *democratization*, a term that appears for the first time, replacing the old *communication*.

Recent studies have adopted an interactive narrative analytical approach toward museum audiences, focusing primarily on guided tours (Burdelski, Kawashima & Yamazaki, 2014; Burdelski, 2016). All argue that public participation is facilitated through response vehicles, namely *digital mediators*. Unlike the transient nature of oral and gestural face-to-face interactions in guided tours (Fukuda & Burdelski, 2019), a media-material view of participation highlights the interactive and narrative possibilities of museum mediums, carried out in a *prompted*, *documented* (written texts), and *public* (part of the public sphere) manner.

Response *mediums* range from traditional comment books to more recent and *intelligent* digital platforms. They all share a public character that aligns with the informative nature of the exhibition itself. Finally, by offering participation, response vehicles provide more than a public canvas. Research on public media where the participation of "non-experts" is solicited highlights *communicative entitlements*, involving the rights granted to individuals to access culture, promote their opinions, and allow their educational growth through increased accessibility to museum resources (Noy, 2020). The notion of communicative entitlements clarifies that presenting one's voice in the public sphere requires more than one communication channel; it also requires a right, which must be further demonstrated publicly. This holds even in museums, where instructions and framing devices grant narrative rights to the public (Ibidem).

As stated by Noy, the new mediation, also offered in the historiographical field by new technologies, opens a new process of *affordance* (Gibson, 1979) given by the material possibility that objects present for different types of actions or, simply, by the plurality of actions that such objects allow users to perform. The idea is active and interactive, implying - as prolifically emphasized by the New Materialism paradigm - that objects and environments possess agency (Latour, 2005). Hutchby (2001), adapting concepts to communicative practices and texts, and arguing that media differ based on the affordances they possess (Cooren, 2018), highlights how, depending on

the different types of *inter*-actions they allow and/or limit, encourage or discourage - participation in *museum narration* is currently being redefined (Sitzia, 2023).

Museography, in turn, reflects on the design of exhibition spaces and the creation of an engaging experience for visitors. The design of exhibition spaces in museum contexts embracing new technologies is a nuanced dance between heritage preservation and digital innovation. The fundamental goal is to create an environment where ancient cultural artifacts organically merge with the possibilities offered by VR and AR, transforming the visit into an engaging and multisensory experience (Marto et al., 2022).

In this context, exhibition spaces are no longer mere static containers of objects but dynamic settings where history comes to life through digital interaction. The design aims to masterfully balance the *tangible presence* of artifacts with the *immersive dimension* of emerging technologies. Using VR and AR, visitors can travel through time, explore historical environments, and intuitively interact with digitized artifacts (Marini Clarelli, 2021). This fusion of past and present, material, and virtual, creates an engaging atmosphere that stimulates curiosity and active learning (Dewey, trad. 2020). Spaces thus become knowledge laboratories, where history is not only told but lived and participated in. The integration of these technologies not only enriches the exhibited cultural heritage but transforms the museum into a dynamic discovery center, where the visitor is the protagonist of an unprecedented cultural adventure. The design of exhibition spaces thus becomes an art of balancing respect for the *past* with interest in the *future*, creating a *bridge* between tradition and innovation in the museum experience (Bachiller et al., 2023).

3. Virtual Reality and Augmented Reality as a bridge between past and future in the Italian museum context

In the footsteps of art history, the emergence of virtual reality unfolds as a new artistic epic, parallel to the fervor that cinema ignited in the twentieth century. Just as in 1921 when Ricciotto Canudo outlined cinema as the "seventh art" affirming its nature as a "new means of expression" and a "writing of light" capable of synthesizing the arts of space and time, virtual reality now stands as a cutting-edge medium (Corazza, 2018, p. 114).

In this perspective, virtual reality represents an evolution, a synthesis of digital arts, capable of embracing visualization, interaction, narrative, and audio in a unified experience. Like the cinema context, virtual reality is not limited to being a mere technological exhibition but presents itself as a total art form, drawing attention to a multitude of senses (Ibidem). Just as cinema was described by Canudo as an art of all senses (Ibidem), virtual reality manifests as a sensory medium, engaging not only sight but also hearing, touch, and even user interactivity. This new artistic medium, like cinema in the past, requires the active participation of the viewer to give life to its message and initiate the process of constructing reality through an immersive experience. Just as cinema has endured and thrived through contemporary expansions, virtual reality appears as an ever-evolving phenomenon in the environmental dimension of media, simultaneously regenerating and renewing the artistic-cultural domain. Viewing in this context is not just a technological act but, above all, an artistic experience that, like cinema, promises to survive and adapt to the challenges of its time (Ibidem).

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

The need to renew the websites of Italian museums emerges clearly, outlining a context where the current online presence is still limited and, in some cases, lacking. This situation calls for a change in perspective, shifting from mere informative exposition to an interactive and engaging platform (Gata et al., 2023). An approach that integrates multimedia elements, virtual tours, and in-depth content, thus extending the educational offering beyond the physical walls of the museum (Nuzzaci, 2001). In pursuing this goal, it is crucial to consider the budget limitations that often afflict cultural institutions. In this regard, the adoption of low-cost or open-source technological solutions represents a pragmatic strategy. Collaboration with academic institutions and local developers could also provide technical support without excessively burdening the available financial resources.

Simultaneously, actively seeking sponsorships from local businesses, cultural institutions, and government entities can contribute to ensuring the economic sustainability of such renovation (Lazzeretti, 2022). The possibility of establishing collaborations with the private sector to develop and maintain the site, in exchange for visibility and recognition, represents a pragmatic and systemic approach. A key aspect of this reflection is the opportunity for museums to interact with academic institutions, establishing targeted interconnections for renovation. Collaborations with universities could offer human resources and advanced technical expertise, promoting the development of virtual spaces and environments that enrich the educational offering, integrating the virtual world with the real one synergistically (Prottas, 2022).

In this perspective, scenarios emerge where Italian museums could not only enhance their online offerings but also embark on new cultural initiatives, such as conferences and interactive workshops, engaging a broader audience and creating a virtual community of enthusiasts and learners. The overall goal is to position museums at the center of innovative cultural initiatives, actively contributing to the transmission and enhancement of cultural heritage (Cassidy et al., 2023).

4. An analysis of opportunities around the design of an interactive virtual museum

Originally, multimedia technologies were employed for the creation of museum catalogues; subsequently, their use evolved, assuming a significant role as a channel for cultural and educational communication (Cataldo &Paraventi, 2018, p. 239). The development of a research strand aimed at analyzing opportunities and creating prototypes of a virtual museum is configured, in this perspective, as a reflective response to the evolving dynamics of the museum sector (Caprara, Colombi & Scala, 2018, p. 81-83). Fundamental is the question guiding this initiative: what characteristics should be respected to ensure that the network provides tangible support, an interpretative key, and an integrable sense of the traditional museum reality?

In this context, the research hypothesis unfolds in three itineraries focused on the integration between physical museum visits and virtual experiences, anticipating, expanding, and consolidating the proposed activities. For Caprara, Colombi, Scala (2018), the first itinerary considers the virtual museum as an anticipation of a real visit (Ibidem). It aims to publish educational proposals online to prepare and anticipate museum visits, offering pre-knowledge and basic information through playful and highly accessible methods, emphasizing that play, understood as a playful activity, is connected to cognitive and socio-emotional development (Fedeli, 2018, p. 16). This approach aims not only to motivate and intrigue the audience but also to outline more

detailed user profiles, enabling the personalization of cultural offerings (Shahab et al., 2023). Digital, therefore, is considered an ally to open the museum to the contemporary world, without transforming it into a video game experience but rather facilitating its integration into the digital environment (Colombo, 2020).

The second itinerary proposes the virtual museum as an expansion of activities offered by physical visits (Ibidem). It emphasizes the possibility of hosting paths and activities not easily achievable in the physical museum context, leveraging portable and interactive technological tools; the goal is to enrich the cultural and perceptual experience of the visit, allowing users to explore virtual places, participate in games, and research exercises (Marini Clarelli, 2021). This integration aims to enhance the physical experience and extend its frequency with technologies. The third itinerary, finally, focuses on the virtual museum as the consolidation of knowledge learned during the visit (Ibidem); it explores modes and paths of short and long-term documentation, offering various opportunities for the reuse of acquired knowledge and skills. This approach aligns with the idea of a museum that continues to live in telematic relations with users, maintaining an active presence through periodic communications, contests, and thematic initiatives (Ivi, p. 83). The intention is to involve users in interesting paths and promote the sharing of cultural experiences even beyond the physical walls of the museum (Zaramanov et al., 2023).

Indeed, the approach to new technologies in museum education is expanded by considering the role of archaeology. The use of VR and AR can allow students to explore virtual archaeological sites, making history tangible through carefully crafted reconstructions. This methodology promotes experiential learning, stimulating interest and understanding of history and archaeology. However, a crucial aspect is social inclusion in museum contexts. Emerging technologies can break down barriers by offering experiences accessible to different audience segments. The adoption of technology solutions that modify the context (Cottini, 2017), addressing the special educational needs (Cottini, 2017; d'Alonzo, 2017) of visitors, can promote an inclusive museum experience. At the same time, the integration of advanced technologies not only enriches the museum experience but also opens new educational possibilities. AI-based tools, for example, can personalize learning, adapting to the specific needs of students and improving the effectiveness of educational activities (Hwang & Chien, 2022). Furthermore, the adoption of advanced technologies must be guided by a perspective of social inclusion (Sandell & Nightingale, 2012). In this perspective, the design of digital museum applications should consider cultural diversity and the needs of various communities, ensuring that technology is accessible to all. From all this, it emerges that the integration of historiography, museography, and archaeology, the consideration of the museum as a repository of copies, and the adoption of advanced technologies constitute a holistic approach to contemporary museum education. This synergy offers unique opportunities to create engaging and culturally rich museum experiences, placing museum institutions at the forefront of innovation in the transmission of historical and artistic knowledge, with particular attention to social inclusion.

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

5. Inclusion and educational innovation in the digital transformation era of museums

The computing power of current online platforms is a key element in supporting the integration of VR and AR in museum applications, which could transform the websites of Italian museums into interactive and engaging tools. This transformation is crucial to overcome the limitations of the current online presence, often restricted and lacking, opening new perspectives to enrich the cultural and educational experience of visitors. There is a need to carefully consider the integration of advanced technologies such as VR and AR within museum websites, as these modalities offer the opportunity to enhance user experience using multimedia elements.

The use of such resources allows the creation of an interactive and immersive environment, where the consumption of information and artworks becomes more engaging and accessible. The presence of multimedia elements within this context expands the possibilities for learning and exploration, promoting a dynamic dialogue between the visitor and the cultural heritage stored in museums (Cataldo, 2014, pp.128-136). For example, virtual tours and in-depth virtual reality experiences extend educational offerings beyond the physical walls of the museum, providing a richer and more engaging experience. Emerging technologies like VR and AR can break down barriers, making the museum experience accessible to diverse audiences, including Special Educational Needs (Cottini, 2017; d'Alonzo, 2017) of every visitor (Kuutti et al., 2022). The adoption of low-cost or open-source technological solutions, in collaboration with academic institutions and local developers, represents a pragmatic strategy to overcome budget limitations and ensure technical support. The active pursuit of sponsorships from local companies can contribute to the economic sustainability of the renovation, allowing museums to collaborate with the private sector for site development and maintenance. Collaboration with universities offers human resources and advanced technical expertise, fostering the development of virtual spaces and environments that enrich educational offerings (Todino et al., 2022). Moreover, the use of VR and AR enables museums to undertake new cultural initiatives, such as interactive workshops (Bell & Smith, 2020), involving a wider audience and creating a virtual community of enthusiasts and learners.

The use of VR allows students to explore virtual archaeological sites, providing experiential learning that stimulates interest and understanding of history and archaeology. The adoption of artificial intelligence can personalize learning, adapting to the specific needs of students and improving the effectiveness of educational sessions. Finally, the design of digital museum applications must consider cultural diversity and community needs, ensuring that technology is accessible to everyone (Theodoropoulos & Antoniou, 2022). The integration of historiography, museography, archaeology, and advanced technologies represents a holistic approach to contemporary museum education, offering unique opportunities to create engaging and culturally rich experiences, placing museum institutions at the forefront of innovation in the transmission of historical and artistic knowledge, with particular attention to social inclusion (Springinzeisz, 2022).

Papert's perspective (1980, 1994) on the centrality of the relationship between learning and computers is intrinsically connected to the evolution of museum institutions and their adoption of emerging technologies, such as VR and AR, in the context of contemporary museum education (Ippoliti & Casale, 2018). His hypothesis, emphasizing the effectiveness of a learning process based on the construction of

cognitive artifacts through computer simulation, organically integrates with the dynamic approach of museum institutions in providing engaging experiences to visitors. Papert conceives the computer as a construction set, a simulator of concrete objects that allows experimentation and the development of thought and knowledge. This vision aligns with the transformation of museum institutions, which, in response to changing cultural and technological needs, integrate digital and interactive layers into museography (Ippoliti, Casale, 2018, pp.118). The synergy between the physical museum experience and the online presence of museums reflects Papert's pedagogical approach, which emphasizes the importance of learning by doing, where hands-on experience is crucial for internalizing knowledge. Papert, in exploring the concept of learning by doing, stands out in using video games as environments where individual and group experiences can occur. His belief in the validity of such environments does not derive from their supposed simplicity but rather from their ability to offer active, motivated, and enthusiastic experiences, aspects that parallelly emerge in the transformation of museum institutions with the incorporation of innovative technologies (White, 2023).

In this context, Papert's perspective acts as a conceptual bridge between learning theory and the evolution of museum practices, both oriented towards a dynamic and participatory approach to cultural knowledge (Ibidem). Therefore, to indicate a possible intersection between these new technologies and paths already taken by educational research in the artistic field, it is possible to connect them to the theoretical framework of Art-Based Research, outlined by Sullivan (2010) and later applied by Zuccoli and De Nicola (2018), where the artistic and aesthetic process assumes the role of an analytical tool for investigating reality, the incorporation of virtual reality and augmented reality emerges as a paradigmatic extension susceptible to providing additional depth to the process of co-constructing knowledge. It is proposed to conceive this evolution by integrating elements belonging to the domains of VR and AR within the context of the laboratory experience, for example, linked to the development of a "historical sense" (Mencarelli, 1976, p. 495). The delicate balance between the need for knowledge and the enjoyment of cultural heritage and its preservation, even in the face of conditions of deterioration, constitutes a crucial challenge to ensure the transmission of intrinsic meaning across generations (Hansson & Öhman, 2022). This issue, connected to the previously discussed considerations regarding the evolution of museum institutions and the use of emerging technologies in contemporary museum education, highlights the importance of finding a dynamic balance between preservation and accessibility (Luigini, et al., 2018).

The potential of digital technologies, especially digital reconstructions supported by direct and indirect surveys or in-depth archival research, emerges as tools of great potential and effectiveness, especially in contexts such as archaeological excavations or the recovery of abandoned heritage (Leslie, 2023). These tools allow the reconstruction and enjoyment of material or immaterial elements, thus contributing to the preservation and hereditary transmission of meaning (Ibidem). However, the application of such technologies can vary depending on the destination of digital reconstruction, influencing the choice to prioritize the visualization or management of specific elements (Luther et al., 2023). Furthermore, the context of heritage in optimal conservation conditions, but not directly usable for various reasons, is an additional aspect to consider. The difficulty of access, the risk of altering the balance of works at risk of degradation, and the lack of funds represent significant challenges. Integrating

digital technologies in these contexts requires a weighted evaluation of constraints and opportunities to ensure the preservation and accessibility of cultural heritage for present and future generations (Bortolotti & Mastrogiuseppe, 2019; Mastrogiuseppe & Bortolotti, 2021).

6. Conclusions

In the context of contemporary museum education, the integration of emerging technologies, such as virtual reality and augmented reality, in a web application represents a further advancement in the synergy between physical experience and the online presence of museums. This evolution materializes in an educational continuum that goes beyond the mere physical visit to exhibition rooms, fully exploiting the potential of increasingly powerful web platforms and user devices. Preceding the physical visit, museum websites play a crucial role in informing and engaging potential visitors, anticipating the imminent experience (Caprara, Colombi, Scala, 2018). In this context, the application of virtual and augmented reality on a website can provide immersive and engaging previews, offering a glimpse of the exhibition's richness, and preparing the audience for the museum journey (Luigini & Panciroli, 2017). During the physical visit, the use of advanced technologies, such as AR, can further enhance the experience by providing contextual and interactive information about the exhibited artifacts. The web application could offer AR features that allow users to access additional details, further contextualizing the artifacts and stimulating interaction. The post-visit phase is particularly innovative, with the museum web application becoming a vehicle for consolidating knowledge acquired during the visit (Ibidem). Online resources, such as interactive educational guides, multimedia activities, and thematic insights, offer users the opportunity to delve into specific topics, creating a synergistic connection between on-site learning and the broader context of history and culture. In an era where technology acts as a bridge between virtual and real dimensions, the evolution of these museum web applications emerges as a key element in transforming the museum from a static entity into a dynamic and participatory center of cultural knowledge. The synergistic use of online and physical resources not only enhances the learning experience but also contributes to making cultural heritage more accessible and inclusive to an increasingly diverse audience (Cataldo, 2014). The analysis of contemporary museum education highlights the need for a holistic approach that integrates historiography, museography, and virtual reality and promotes social inclusion. The dynamism of this context requires constant adaptation to new technologies and the needs of modern society (Hadley & McDonald, 2021; Mani et al., 2023).

The synergy between history, museum presentation, and the use of new technologies, such as virtual reality, offers a unique opportunity to engage the audience more deeply and emotionally. The ability to create immersive experiences can transform the museum visit into an interactive and educational journey, stimulating curiosity and learning (Mandarano, 2019). Furthermore, the importance of social inclusion emerges as a central element of effective museum education. The diversity of perspectives and experiences contributes to enriching the museum environment, making it accessible to a broader audience (Nuzzaci, 2001). Designing educational programs that consider the diverse needs and backgrounds of visitors is crucial to promoting equal access to culture. In an era where technology advances rapidly, museums need to embrace innovation and adapt to cultural changes. Collaboration

between historians, museologists, and technology experts is essential to developing educational approaches that respond to contemporary challenges and inspire a lasting love for knowledge.

Finally, contemporary museum education, with its holistic approach, serves as a bridge between past and future, a place where history merges with technology to create engaging and inclusive educational experiences for all, embracing an inclusive perspective.

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