THE DYNAMICS

OF VISITOR EXPERIENCE AND RECIPROCAL COMMUNICATION IN MUSEUMS

LA DINÁMICA DE LA EXPERIENCIA DEL VISITANTE Y LA COMUNICACIÓN RECÍPROCA EN LOS MUSEOS

Mammad Aliyev[1][*]
E-mail: memmedaliyev@ndu.edu.az
ORCID: https://orcid.org/0009-0004-4738-1258
Novruzova Narmin[1]
E-mail: nerminnovruzova@ndu.edu.az
ORCID: https://orcid.org/0000-0003-4738-5254
Zenfira Seyidova[1]
E-mail: zenfiraseyidova@ndu.edu.az
ORCID: https://orcid.org/0009-0005-0135-5035
[1] Nakhchivan State University. Azerbaijan.
* Corresponding author

ABSTRACT

This study addresses the evolving role of museums by examining how visitor experience and interaction can be enhanced through data-driven and interactive design approaches. Museums have transitioned from static repositories of objects to dynamic centers that leverage big data technologies to analyze visitor movements and interactions, thereby optimizing exhibition layouts and improving overall visitor satisfaction. Despite the growing interest in interactive experiences, there remains a lack of comprehensive analyses identifying specific gaps in the literature concerning the transmission of information via spatial design and digital elucidation methods. The primary objective of this research is to explore how all information presented in museums and public exhibitions is conveyed to visitors through interactive design and spatial experience. To this end, the study reviews existing implementations of big data analytics, mobile applications, augmented and virtual reality (AR/VR), and multisensory elements to investigate their transformative effects on audience engagement and learning. It was found that visitor experience is shaped by a multifaceted interplay of factors, including spatial design, technological innovations, multisensory elements, gamification, and social interaction. Moreover, augmented reality and virtual reality environments enable immersive storytelling and democratize access for individuals with mobility challenges. These insights underscore the need for museums to adopt inclusive, visitor-centered management strategies that integrate ICT tools to create personalized and accessible experiences. The study concludes by identifying research gaps related to longitudinal impacts of interactive methodologies and ethical considerations in data collection, suggesting future directions for both theoretical and practical advancements in museology.

Keywords: Museum experience, Visitor satisfaction, Interactive exhibition, Virtual Museum, Digital transformation.

RESUMEN

Este estudio aborda la evolución del papel de los museos examinando cómo mejorar la experiencia e interacción de los visitantes mediante enfoques de diseño interactivo y basado en datos. Los museos han pasado de ser repositorios estáticos de objetos a centros dinámicos que aprovechan las tecnologías de big data para analizar los movimientos e interacciones de los visitantes, optimizando así la distribución de las exposiciones y mejorando su satisfacción general. A pesar del creciente interés en las experiencias interactivas, aún faltan análisis exhaustivos que identifiquen lagunas específicas en la literatura sobre la transmisión de información mediante el diseño espacial y los métodos de

elucidación digital. El objetivo principal de esta investigación es explorar cómo se transmite a los visitantes toda la información presentada en museos y exposiciones públicas a través del diseño interactivo y la experiencia espacial. Para ello, el estudio revisa las implementaciones existentes de análisis de big data, aplicaciones móviles, realidad aumentada y virtual (RA/RV) y elementos multisensoriales para investigar sus efectos transformadores en la participación y el aprendizaje del público. Se descubrió que la experiencia del visitante se ve influenciada por una interacción multifacética de factores, como el diseño espacial, las innovaciones tecnológicas, los elementos multisensoriales, la gamificación y la interacción social. Además, los entornos de realidad aumentada y realidad virtual facilitan la narración inmersiva y democratizan el acceso para personas con movilidad reducida. Estos hallazgos subrayan la necesidad de que los museos adopten estrategias de gestión inclusivas y centradas en el visitante que integren las TIC para crear experiencias personalizadas y accesibles. El estudio concluye identificando lagunas en la investigación relacionadas con el impacto longitudinal de las metodologías interactivas y las consideraciones éticas en la recopilación de datos, sugiriendo futuras direcciones para los avances teóricos y prácticos en museología.

Palabras clave: Experiencia en el museo, Satisfacción del visitante, Exposición interactiva, Museo virtual, Transformación digital.

INTRODUCTION

The dynamics of the visitor experience and reciprocal communication in museums constitute a constantly evolving field of study, where various disciplines—such as museology, communication, learning psychology, spatial design, information technologies, and cultural sociology—converge to understand how individuals interact with objects, content, and exhibition spaces. The main premise of this analysis is that the success of a museum does not lie solely in the quality of its collections or the rigor of its content, but, above all, in the way visitors perceive, process, and provide feedback on the museum experience. Consequently, it is essential to carefully analyze both the theoretical concepts underlying the construction of the "visitor experience" and the specific mechanisms of "reciprocal communication" implemented to generate a meaningful dialogue between the museum institution and its public.

To lay the groundwork for this reflection, it is useful to begin with a clear characterization of the central concepts. The "visitor experience" is understood as the set of sensory, emotional, cognitive, and social perceptions that an individual accumulates during their visit to a museum (Falk & Dierking, 2016). It is not only about the information received from the display cases or labels; it involves the way in which the exhibition space—its architecture, lighting, suggested routes—induces curiosity, creates expectations, and fosters moments of wonder or reflection. At the same time, "reciprocal communication" refers to the idea that the museum is not a mere one-way transmitter of knowledge, but an actor that listens, responds, and adapts based on the needs, interests, and opinions of its visitors (Parry, 2007). When we talk about reciprocity in communication, we emphasize that the visitor is not a passive recipient, but an active interlocutor who co-creates meaning with the institution.

Historically, museums were conceived as spaces for collecting and displaying objects, where the visitor assumed a purely contemplative role. This conception, strongly positivist in nature, placed the curator or specialist as the exclusive repository of knowledge, with minimal public intervention beyond mere observation. However, since the final decades of the 20th century, it has become evident that this epistemological rigidity was increasingly insufficient to meet the challenges of contemporary society: cultural globalization, diverse audiences, the omnipresence of digital technologies, and the emergence of new social demands—such as inclusion, sustainability, and cultural justice—required more flexible museum models centered on the visitor experience (Hein, 1998; Hooper-Greenhill, 2000).

This transition from the "museum as a cabinet of curiosities" to the "interactive museum" entailed a profound revision of roles: the curator ceased to be merely an organizer of objects and became a mediator between the work and the public; the educator went from giving keynote lectures to designing spaces for dialogue; museum designers integrated the notion of flow and narrative into the exhibition journey. Likewise, new professional profiles emerged: digital communication specialists, experience designers, cultural mediators, and data analysis experts. Similarly, the visitor, traditionally conceived as an individual who walked silently past the display cases, is now conceived as an active agent, with diverse interests and, often, an interest in sharing their experience on social media or participating in workshops, interactive activities, or discussion forums (Simon, 2010).

This paradigmatic shift has direct implications for the way museums plan their exhibitions, design their spaces, and evaluate their impact. The key lies in accept that the visitor experience is constructed on multiple levels:

1. **Sensory and spatial level:** The layout of rooms, architecture, lighting, color, materials, and sounds shape an environment that influences the public's mood and cognitive disposition (Classen, 2007). In turn, the inclusion of multisensory elements—such as ambient sounds, tactile replicas, or fragrances associated with

specific historical contexts—enhances immersion and the memorability of learning.

2. **Cognitive and pedagogical level:** Beyond factual information, today's museums strive to include mediation strategies that promote critical thinking, active inquiry, and reflection (Anderson, 1999; Hein, 1998).

3. **Emotional and affective level:** The emotional connection resulting from interacting with an object, a story, or an installation can make the difference between a forgettable visit and one that lingers in the memory (Pye, 2007; Zahavi, 2022).

4. **Social and co-creation level:** While the individual experience remains relevant, the social component of a museum visit is increasingly recognized. The opportunity to share impressions with family, friends, teachers, or colleagues amplifies the meaning of what is observed (Paris, 1997; Piscitelli & Anderson, 2001).

5. **Technological and data-mediated level:** The use of mobile applications, QR codes, touchscreens, augmented reality (AR), virtual reality (VR), and personalized recommendation systems has made it possible to adapt museum content to the particular interests of each visitor (Simon, 2010; Wyman et al., 2011).

6. **Inclusive and accessibility level:** A truly visitor-oriented museum must address the needs of diverse audiences, for example: people with visual or hearing disabilities, visitors with reduced mobility, speakers of different languages, and diverse cultural groups (Sandell, 2002; Smithsonian Institution, 2013).

Naturally, these levels do not operate in isolation, but rather in reciprocal interaction. An attractive spatial design without pedagogical mediation can be aesthetically pleasing but lack conceptual depth; conversely, an excess of data without generating spaces for reflection and emotion can saturate and overwhelm visitors. The challenge, therefore, is to coherently articulate each dimension to generate a holistic and meaningful experience. Based on this, the objective of this research is to analyze the dynamics of the visitor experience and reciprocal communication in museums.

DEVELOPMENT

Some important concepts

One of the key elements determining the success of museums, and arguably the most important, is the visitor experience. A positive visitor experience not only ensures repeat visits to the museum but also aids in reaching a broader audience for the dissemination of cultural heritage (Kramer, 2001, p. 74).

There are several key aspects that emphasize the visitor experience in museums (Sacco et al., 2012, p. 26):

Teaching and Learning.

Emotional and Personal Connection.

Accessibility and Inclusion.

Use of Technology.

Comfort and Services in Museums.

Community and Participation.

In contemporary times, active museum planning further enhances the visitor experience. Through interactive communication, participants engage in dialogue and are drawn into the process of gamification. Participants can make independent decisions through individual analysis and evaluation. Individuals not only learn to acquire information but also how to utilize it. For instance, organizing discussions that encourage examining an artwork from different perspectives in an art museum supports the development of critical thinking (Zahavi, 2022, p. 112). Virtual reality experiences, working with replicas, experiments, and group work support activity-based learning.

These concepts are often used in the context of education, museum exhibition techniques, and pedagogical approaches. Here is the description of the most important elements to improve the visitor experience:

Interactive Communication

This concept refers to the active interaction between the student and the teacher, the visitor and the museum, or the participants of the teaching process and the organization of the exhibition. This approach promotes collaboration, inquiry, and shared knowledge creation. In museums and education, it is important for participants to ask questions, exchange ideas, and engage in the process rather than passively receiving information (Mayer, 2014, p. 46).

In this regard, visitors are actively encouraged to engage by posing questions, sharing their perspectives, and critically reflecting on the content they encounter. Exhibitions that integrate interactive communication methods—such as touchscreen interfaces, facilitated discussions, or augmented reality—tend to foster deeper, more enduring impressions. According to Falk & Dierking (2016), when visitors perceive a personal connection to the experience, they are more inclined to retain the information they acquire and are more likely to revisit the museum.

Critical Thinking

Critical thinking is the process by which an individual questions information, analyzes it, evaluates it from different perspectives, and makes independent decisions. In museums, education, and research, teaching individuals how to use the information they receive is more valuable than simply transmitting information. For instance, organizing discussions that encourage viewing exhibited artifacts in a historical museum from various perspectives supports critical thinking (Anderson, 1999). For example, exhibitions that present contrasting historical perspectives or ethically complex topics encourage visitors to engage

in reflection, debate, and the exploration of diverse viewpoints. This not only enhances comprehension but also fosters democratic participation in cultural discussions. As Dewey (1933) emphasized, reflective thinking is fundamental to genuine learning.

Activity-based Learning

Activity-based learning involves educational approaches where learning occurs through active, hands-on experiences. In the museum setting, this can encompass interactive exhibits, workshops, reenactments, and problem-solving activities. This approach is particularly effective in engaging younger audiences and catering to various learning styles (Hein, 1998, p. 55).

Museums utilizing this model often provide spaces where visitors can experiment, create, and discover through physical involvement. For instance, children's museums typically offer tactile exhibits and building stations, while science museums may include interactive experiments and simulations. These forms of participation help visitors build personal connections with content, enhancing both retention and enjoyment.

Information Sources

Museums serve as trusted sources of knowledge, drawing upon archives, academic research, curatorial expertise, and collaborations with scholars. The accuracy and reliability of this information are crucial, as they form the foundation for educational and interpretive content (Hooper-Greenhill, 2000, p. 37).

Information in museums is conveyed through labels, guided tours, audio-visual materials, catalogs, and, increasingly, digital platforms. It is essential for museums to ensure that the information they provide is current, inclusive, and accessible to diverse audiences. As new technologies evolve, museums are broadening the types and formats of information they offer, delivering more personalized and interactive experiences (Tallon & Walker, 2008).

Interactive Methods

Interactive methods refer to educational techniques that actively engage participants in the learning process. In the context of museums, these methods aim to transform passive observation into an engaging, sensory, and cognitive experience. Techniques include touchscreens, virtual tours, augmented reality, interactive games, and collaborative learning stations (Parry, 2007).

These methods enhance learning by stimulating curiosity, fostering exploration, and encouraging active discovery. According to Bitgood (2016), interactive exhibits significantly increase the amount of time visitors spend with content and improve information retention. Additionally, they offer opportunities for social interaction, reflection, and emotional engagement.

Big Data and Visitor Analytics

The integration of big data analytics in museums enables institutions to monitor, assess, and enhance visitor behavior and experiences. Using technologies like RFID, mobile tracking, heat maps, and interactive applications, museums can gather real-time data on visitor flow, time spent in specific areas, and engagement levels (Wyman et al., 2011).

This data is invaluable for exhibit design, content personalization, and operational planning. For example, if certain exhibits consistently attract more attention, curators can analyze the reasons behind this and apply similar strategies to other exhibits. As Simon (2010) highlights, data-driven design not only enhances efficiency but also promotes inclusivity and relevance, enabling museums to better address the needs of their audiences.

Multisensory Experience

Museums offer experiences that go beyond visual information, incorporating other senses such as sound, touch, smell, and even taste. This multisensory approach facilitates deeper learning and helps make the time spent in the museum more memorable for visitors (Classen, 2007).

For instance, auditory landscapes integrated with historical reconstructions, tactile replicas of sculptures, or olfactory elements such as the scent of spices in cultural displays contribute to a more immersive and memorable engagement with the exhibit content. As Pye (2007) suggests, multisensory approaches are particularly effective in accommodating diverse learning preferences and enhancing accessibility for individuals with disabilities. Such strategies transform museums into more dynamic and inclusive environments for cultural engagement.

Accessibility and Inclusive Design

Accessibility in museums encompasses the development of environments and content that are usable and inviting to all individuals, irrespective of physical ability, age, or linguistic background. Guided by inclusive design principles, museums strive to ensure that exhibitions, information systems, and educational initiatives effectively address the needs of a diverse audience (Sandell, 2002).

Accessibility measures may include features such as ramps, tactile guides, audio descriptions, sign language videos, Braille labels, and multilingual signage. Additionally, digital innovations—such as mobile applications with adaptive interfaces and augmented reality support—further extend access to diverse audiences (Smithsonian Institution, 2013). As noted by Lord & Lord (2009), museums that embrace inclusivity are not only more equitable but also contribute to social sustainability and represent forward-thinking institutional models.

Family-friendly Experiences

Family-oriented Museum experiences are curated to engage audiences across age groups, with a particular emphasis on children and their caregivers. These experiences integrate educational content with elements of entertainment through interactive exhibits, narrative sessions, creative workshops, exploratory zones, and play-based learning environments (Piscitelli & Anderson, 2001).

Museums that prioritize family-friendly programming play a vital role in cultivating lifelong cultural engagement from an early age. As Paris (1997) suggests, when children encounter museums as enjoyable and inclusive environments, they are more likely to develop intellectual curiosity and sustained positive attitudes toward learning. Furthermore, family visits encourage intergenerational dialogue and strengthen social bonds, positioning museums not only as educational institutions but also as emotionally resonant and socially cohesive spaces.

Digital Technologies and Gamification

The integration of digital technologies has profoundly transformed the educational functions of museums. Tools such as multimedia guides, QR codes, immersive simulations, and social media platforms enhance the accessibility, personalization, and interactivity of museum content (Parry, 2007). Among these innovations, gamification—the application of game mechanics such as points, rewards, challenges, and narrative structures—has emerged as a particularly effective strategy for increasing visitor engagement and promoting deeper learning outcomes (Huotari & Hamari, 2012).

Gamified museum applications often structure the visitor experience as a quest, encouraging exploration, problem-solving, and achievement recognition. This approach transforms the traditional passive museum visit into an active, participatory process. As Roppola (2012) notes, such engagement not only fosters deeper exploration but also enhances emotional involvement and cognitive retention. By integrating play into educational contexts, gamification contributes significantly to the development of meaningful and memorable learning experiences.

The Future of Museums with AR & VR

Augmented Reality (AR) and Virtual Reality (VR) represent some of the most transformative technologies influencing contemporary museum interpretation. AR enhances the physical museum environment by superimposing digital information onto real-world objects, enabling users to view historical reconstructions, examine artwork in greater detail, or access contextual data through their personal devices. In contrast, VR offers fully immersive experiences, transporting visitors into digitally reconstructed environments such as ancient cities, ceremonial rituals, or long-lost architectural structures (Economou, 2015). These technologies not only enrich visitor engagement but also broaden the scope and depth of interpretive possibilities.

These technologies open up new avenues for storytelling, accessibility, and inclusive learning within museum contexts. For instance, a VR experience could enable individuals with mobility challenges to explore otherwise inaccessible archaeological sites. As Giaccardi (2012) emphasizes, immersive technologies not only elevate the visitor experience but also democratize cultural access, providing personalized journeys through historical and cultural knowledge.

Some notes about the historical evolution and theoretical views on the visitor experience in museums

Museums were originally conceived as "cabinets of curiosities" in the 16th and 17th centuries, spaces where private collectors displayed a variety of natural and artistic objects under a logic of wonder and exoticism. This notion evolved during the 18th and 19th centuries, when academies and scientific societies institutionalized collections for educational purposes, although the primary focus remained scholarship and the consolidation of national identities through heritage. During the 19th century, the great European museums were conceived as temples of knowledge, where objects spoke of the historical greatness and economic or political power of the nation; the visitor, for their part, played a passive role as a reverent spectator before the sublime and the beautiful (Hooper-Greenhill, 2000).

Beginning in the late 19th and early 20th centuries, with the growing concern for public education, museums oriented toward social pedagogy emerged, especially in countries with an Anglo-Saxon tradition. In the United States, institutions introduced school programs and educational activities for students, giving rise to the first conceptions of "museum education." In this context, visitors began to be seen not only as recipients of historical objects, but as potential learners. However, until well into the 20th century, educational mediation remained subordinate to the display of collections, without displacing the structure of curatorial authority (Hein, 1998).

Beginning in the second half of the 20th century, critical museology (Hooper-Greenhill, 2000) challenged the neutral and objectifiable assumption that characterized traditional museums. Influenced by postcolonial, feminist, and cultural studies theories, scholars questioned the canonical selection of objects, the exclusion of subordinate voices, and the lack of reflexivity in interpretation. At the same time, a constructivist approach to learning, inspired by Piaget, Vygotsky, and Dewey, took hold. This approach argued that knowledge is not passively transmitted but actively constructed in the interaction between the subject and the environment. Thus, the museum experience began to be conceived as a process of meaning-making

in which visitors mediated information based on their prior mental schemas and particular interests (Anderson, 1999; Dewey, 1933).

Falk & Dierking (2016) proposed the "The Interactive Experience Model" or "Three Worlds of the Museum" model to explain the visitor experience: 1) the personal world, where visitors contribute their interests, previous experiences, motivations, and emotions; 2) the social world, where they interact with companions (family, friends, classmates) and museum staff; and 3) the physical world, comprised of architecture, exhibition design, the objects themselves, and the environmental conditions of the space. According to this approach, the experience is built at the intersection of these three worlds, and understanding the relationship between them is essential for designing effective exhibitions.

Later, with the emergence of the Internet and social media, the concept of "Museum 2.0" (Simon, 2010) emerged, proposing a museum open to dialogue with its audience, capable of generating collaborative content and establishing virtual communities of practice. Through blogs, social media, and interactive platforms, visitors transformed from passive users of the museum's website to content generators (comments, reviews, photographs). Participatory museology, in this sense, redefined authority and knowledge as collective constructions and proposed that the museum should function as a space for co-creating stories, where visitors contribute testimonies, narratives, and alternative points of view that inform the interpretation of the collections (Giaccardi, 2012).

Then, in an attempt to optimize the visitor experience, the idea of designing "Memorable Museum Experiences" (MMEs) emerged. These experiences adopt the language of experiential marketing to create content and spaces that resonate emotionally with the public. From this perspective, the museum's "emotional brands," the "spark moments" that generate wonder or emotion, and the "experiential narrative" that guides visitors on a journey with a beginning, middle, and end, are studied. Although criticized for its possible commercialization of the museum function, this approach has promoted the incorporation of storytelling, the subtle theatricalization of spaces and the creation of thematic tours that appeal to empathy and a sense of wonder (Pye, 2007; Roppola, 2012).

Today, the visitor experience is analyzed not only through museology, but also in interaction with cognitive psychology, visual anthropology, urban sociology, and experience engineering. For example, environmental psychology studies how the perception of architecture or furniture arrangement influences emotional state and attention span. Visual anthropology, for its part, provides ethnographic methodologies to understand visitors' nonverbal behavior and their visiting rituals. Urban sociology analyzes the museum as part of the dynamics of the city, its role in urban regeneration, and as an element of social cohesion. Together, these disciplines enrich the analysis of the experience and propose tools for its evaluation (Classen, 2007; Tallon & Walker, 2008).

Thus, contemporary museums are progressively adopting visitor-centered management approaches. Modern museums prioritize the needs and interests of visitors, transforming these institutions into spaces for social interaction, education, and emotional engagement, rather than merely serving as repositories of objects. A fundamental principle of visitor-centered management is the design of personalized experiences. This involves curating content and presentation formats tailored to various age groups, interests, and levels of knowledge. For example, children may engage with play-based exhibits, young adults may interact with digital technologies, and older visitors may find value in detailed historical and artistic content. Additionally, visitor-driven exhibition planning has become increasingly popular. In this approach, visitors are encouraged to provide feedback on exhibition design, contribute ideas through interactive stations, or even participate in selecting certain display items. This participatory process enhances the museum-public relationship, fostering a sense of emotional connection and co-ownership among visitors.

To gain a deeper understanding of visitor behavior, museums increasingly utilize sensor technologies, Wi-Fi tracking, mobile applications, and direct observation. These tools offer valuable insights into dwell time, exhibit preferences, and movement patterns within the museum space. Such data empowers curators to optimize exhibit layouts, manage visitor flow more effectively, and strategically position information panels to enhance the overall experience. Research indicates that challenges such as difficult navigation, content overload, and monotonous presentation can significantly detract from visitor satisfaction. Consequently, visitor data analysis must consider not only logistical aspects but also emotional and cognitive responses. Factors such as emotional engagement, visitor comfort, and the memorability of the experience play a crucial role in fostering long-term retention and ensuring the overall success of museums.

It is also recognized that emotional engagement is a key component of the visitor experience in museums. Research suggests a significant correlation between memory retention and emotional impact. An emotional response to a particular exhibit or display contributes to the lasting memory of the experience. Therefore, museums should be regarded not only as spaces for the transmission of information but also as environments that evoke emotional resonance and establish personal connections. For example, visual and audio effects used in exhibitions focused on historical genocides, cultural traumas, or heroism, as well as presentations based on personal

narratives, enhance visitors' sense of empathy. This, in turn, highlights the museum's social responsibility and educational function.

Additionally, museum visits are typically not individual experiences but rather social ones, occurring with friends, family members, or school groups. These social interactions add value to the visiting process. Discussions among group members, exchange of ideas during observations, and mutual engagement create a collective learning atmosphere. To support such social learning in museums, group-oriented activities, interactive games, surveys, and competitions are organized. Additionally, 'open question zones,' 'family corners,' and multi-generational viewing routes designed for family visits enhance social connectivity and enrich the overall visit.

The integration of technology into museums has not only altered presentation methods but also transformed visitor behavior. Nowadays, many museums utilize smart guide applications, personalized navigation based on individual interests, multimedia content accessed through QR codes, and interactive touchscreens. This makes the visitor's interaction with the exhibit more personalized, guided, and engaging. The role of technology extends beyond innovation, also influencing the management and direction of acquired data. For instance, AI-based systems can analyze a visitor's behavior within the museum and offer tailored content and directions accordingly. This represents a significant advancement in terms of both user convenience and educational value.

Besides, historically museums functioned as institutions that predominantly represented the dominant culture's perspective—curating and interpreting objects through a limited and often exclusionary lens. However, in the modern era, museums are increasingly adopting approaches rooted in inclusion, diversity, and social justice. This shift redefines museums not merely as preservers of the past, but as pluralistic spaces that elevate a wide range of voices, experiences, and perspectives. Inclusive museums aim to enhance the representation and participation of historically underrepresented groups, including ethnic minorities, individuals with disabilities, LGBTQ+ communities, and economically marginalized populations. This is achieved through accessible infrastructure (e.g., ramps, lifts, Braille labels, audio guides), multilingual resources, and exhibitions that reflect cultural diversity. Importantly, inclusion goes beyond physical accessibility; it also encompasses ideological and curatorial inclusiveness. For instance, rather than presenting a singular narrative on controversial subjects, museums are encouraged to integrate diverse perspectives, foster public dialogue, and collaborate with marginalized communities in content creation.

Finally, museums must also operate as self-reflective and adaptive institutions. This involves actively gathering visitor feedback, engaging with a wide range of stakeholders, and consistently updating exhibitions and programs. By doing so, museums can evolve into safe, inclusive, and impactful spaces for cultural engagement that resonate with all members of society.

Critical perspective and final reflections

The commitment to a museology based on the visitor experience and reciprocal communication is, without a doubt, a significant step toward the democratization of cultural heritage and the construction of more inclusive, educational, and socially engaged spaces. However, several aspects that define the limits of this paradigm deserve critical reflection:

1. **The tension between authenticity and simulation:** When the experience is embodied in virtual reality environments, multisensory installations, and dramatized narratives, there is a risk of replacing the authentic object with its digital representation. This substitution can impoverish the understanding of the objects' material, artisanal, and historical value. Therefore, museology must ask itself: to what extent does technology enrich the experience without diluting the aura of the original?

2. **The role of silence and contemplation:** In the desire to generate constant interactivity, there is a risk of devaluing silence and reflective contemplation. Some theorists argue that museums should also offer spaces for silent introspection where visitors can simply observe, without digital intermediaries, and force an intimate connection with the object. Preserving these spaces of "qualitative silence" constitutes a challenge in exhibition design.

3. **Intangible costs of the playful experience:** Gamification and reward dynamics can distort visitors' intrinsic motivation, shifting interest in the content toward the pursuit of rewards. When the experience is translated into "winning points," deep reflection can be sacrificed in favor of immediate gratification. A critical museology must be aware of these implications and design mechanisms that reinforce intrinsic motivation—curiosity, empathy, desire to learn—beyond external incentives.

4. **The precariousness of institutional memory:** In contexts where museums face funding constraints, the adoption of innovative strategies can prove short-lived. When technology is not supported by a long-term cultural policy, institutional memory becomes fragmented: valuable initiatives disappear, the intangible legacy of community participation is lost, and public trust weakens. It is essential that state and municipal cultural policies consider participatory museology as a strategic pillar, with budgets and regulatory frameworks that guarantee continuity.

5. **Museology as a Political Practice:** Finally, it is essential to recognize the political nature of museology. When deciding which narratives to privilege, which

voices to legitimize, and which themes to address, museums position themselves on the ideological spectrum. A museology committed to social equity implies adopting critical approaches that challenge hegemonic representations, dismantle stereotypes, and amplify silenced stories. This entails assuming responsibility for potential clashes with powers that be or economic interests, which requires institutional courage and the support of democratic cultural policies.

CONCLUSIONS

Historically, museums were primarily defined as repositories of artifacts, serving as static institutions focused on the preservation and display of cultural and historical objects. These institutions often viewed themselves as authoritative sources of knowledge, with little to no interaction with their visitors beyond the presentation of exhibits. However, in recent decades, museums have undergone a profound transformation, evolving into dynamic learning environments that prioritize visitor experience, engagement, and inclusivity. This shift reflects a broader rethinking of the role of museums in society, where the focus has moved from the passive exhibition of objects to fostering active engagement, dialogue, and reflection. Modern museums are now seen not just as places of passive observation but as interactive spaces where visitors are encouraged to explore, learn, and connect with both the exhibits and each other. This transformation is part of a broader change in museology, moving from an emphasis on preservation and exhibition to a more inclusive, participatory model centered on interaction, education, and interpretation. Thus, museums today embrace a more diverse array of educational approaches and technological innovations to create personalized, accessible, and meaningful experiences for all visitors.

On the other hand, the visitor experience is shaped by a complex interplay of factors: spatial design, technological integration, emotional connection, multisensory elements, and accessibility. By adopting interactive communication methods, encouraging critical thinking, and embracing activity-based learning, museums not only enhance the educational value of their exhibitions but also foster deeper personal and social connections. This holistic approach ensures that visitors engage with exhibits on multiple levels, creating lasting impressions and enriching their cultural understanding. Furthermore, digital tools such as augmented reality (AR), virtual reality (VR), and gamification strategies have broadened the methods through which visitors engage with museum content. The integration of big data analytics and multisensory design approaches enables museums to customize their exhibits based on the specific needs and behaviors of diverse audiences. These innovations not only enhance the visitor experience but also ensure that museums continue to fulfill their educational missions while adapting to the evolving social and technological landscape.

In conclusion, enhancing the visitor experience through interactivity is no longer optional; it has become essential. Museums must continue to develop inclusive, engaging, and technologically innovative strategies to ensure their ongoing relevance and vitality as institutions at the heart of cultural life.

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