Museum Education: The Learning Power of Museums

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Abstract

Education is seldom limited to the classroom, as learning experiences have the potential to happen at any moment. Many educational systems around the world adopt this philosophy and often utilize museum education to provide children hands-on experience. Museums allow students to not only grow in terms of their knowledge, but the exposure to different situations and ideas can cultivate them as individuals as well. The importance of museum education for students lies in the fact that it helps to enrich learning in various fields, gain experiences in a new environment, and provide a unique setting for educators to teach a wide range of topics. Museums have generally updated their practices to implement a range of programs geared toward specific audiences, exhibits that encourage sensory interaction, inclusion of social and cultural context, and group learning sessions, among others. Because of the continuous developments in modern technology and the enthusiasm deriving from the advent of the era of digitalization, the traditional model of museums, is currently leaving room for new technological improvements. In the particular case of museums, information and communication technologies (ICTs) effectively led people to interpret culture in an entirely original and challenging way, by enhancing the communication between the structure of the institution, the exposed artifacts, and its diversified public.

Keywords: *museums, education, learning, experience, ICTs*

1. Introduction

A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing (ICOM, 2022). Museum education involves using a museum's resources and collections to facilitate learning for diverse audiences. It includes activities like workshops and

interactive exhibits that promote active, inquirybased learning. Focused on accessibility and inclusivity, museum education aims to engage visitors, enhance their understanding, and foster a deeper appreciation for cultural or scientific content to foster active citizenship and lifelong learning in a nonformal learning context. Museum education uses collections and exhibits to engage audiences through hands-on, inquiry-based learning (Todino and Campitiello, 2025). Museums provide people with knowledge and resources to create real change across a host of areas; the wellbeing of a community and the engagement and connectedness of its members can be directly influenced by the programs offered at museums. They also offer a richness to student education that traditional classroom methods simply cannot provide; while classroom teachers are certainly able to provide rigorous, well-rounded curriculum and lay the foundational framework for essential skills, museums allow for deeper context and foster the application of such knowledge and skills. Museums, with their real artifacts and immersive exhibitions provide a uniquely positive environment to foster learning, which can both complement and build upon classroom work, notes a study by The Museum Group (Munley, 2012). Learning in museums incorporates several pedagogical methods that have been shown to improve student learning and social development as they gain cross-curricular skills such as critical thinking, problem solving, peer collaboration, and historical and cultural empathy, among others. These informal learning experiences are based on constructivist and sociocultural learning theories, as they create opportunities for active, authentic, and inquiry-based learning (Munley, 2012).

2. Museum Philosophies

In an analysis of museum missions, Zeller (1989) defines three major philosophies of museums: the educational museum, the aesthetic museum, and the social museum (as cited in Hein, 2006). The educational museum is an institution of ideas for public education that focuses on systematic classification and presentation of specimens for visitors. Benjamin Ives Gilman, an art historian, argued for the museum as an aesthetic institution, describing them as temple for the contemplation of beauty. Finally, the social museum was the legacy of John Cotton Dana, an American librarian and museum director. His work was dedicated to improving accessibility of museum programs for the broader community, as well as to capture the social and political context of the era (Hein, 2006). While each operates as its unique philosophy, these all build upon one another, making museums some of the most complex and well-rounded institutions for the public.

Educational Pedagogy

While museums certainly serve aesthetic and social purposes, the educational philosophy is the most comprehensive concerning modern museums, as even the aesthetic and social benefits are necessarily educative. Most individuals' first learning experiences are in informal spaces, such as museums, making their contribution to visitors' sense of identity and their educational trajectory indispensable (Crowley & Jacobs, 2011; Crowley et al., 2014). Learning can be seen in every intricate interaction with museums, as visitors navigate through the space, decide how to connect with each exhibit, and make sense of what they are experiencing (Crowley et al., 2014). Modern museums incorporate the latest pedagogical frameworks as they champion authentic, active, and inquiry-based models.

Authentic Learning

Museums are sites of authentic learning, as they offer real-world and actively engaging opportunities guided by professionals, classroom teachers and the students themselves. As such, the criteria for an authentic learning experience, as defined by Herrington and Herrington (2007), neatly coincides with museum program offerings, vindicating their use as legitimate educational tools. Authentic learning experiences effectively improve student performance across a host of measures, including contextualization and analysis of source material, peer collaboration and deliberation, tolerance and empathy, and personal motivation. The primary goal of authentic learning is to contextualize information in terms of real-world experiences and applicability, while traditional methods of lecturing and textbook work often lack richness and present information in an abstract and decontextualized way.

Active Learning

This pedagogical method promotes activity-based learning and typically implies a student-centered approach, meaning it is the students who influence the content, activities, and pace of learning (Michael, 2006). This expansive model aims to keep students both mentally and physically active during the learning process, although it does not necessarily look like any one thing; examples may include posing thoughtprovoking questions to guide students throughout an exhibit, group work in which students navigate and exchange ideas about a collection together, performing historical or scientific inquiry using primary sources and state-of-the-art technology, or roleplaying the lived experience of others. Active learning is a critical pedagogical method, as students who learn though this approach have higher cognitive functioning, greater improvement in learning over time, and more positive attitudes toward learning overall (Allard et al., 1994). Inquiry-Driven Learning Museum educators are specifically trained in inquiry-driven methods that seek to improve student's problem solving and critical literacy skills as they make observations and draw conclusions, investigate source material and engage in frequent self-assessment and reflection. Review of this process in art museums showed steady improvement in students' observation, association, and interpretation skills, and found inquiry to be the best pedagogical method for developing critical thinking skills (Hubard, 2011).

Object-Based Learning

The opportunity for object-based learning is what distinguishes museums from other educational settings most, as they provide hands-on opportunities for students to actually perform scientific experiments in laboratory settings, observe genuine historical artistic artifacts, and use state-of-the-art tools and equipment. These programs do not consist of merely passively absorbing knowledge, but they require students to literally transform into biologists, environmental scientists, astronauts, archaeologists, historians, artists, and policymakers. To effectively impart real-world knowledge on students, experts advocate for learning to take place outside of the school setting in a meaningful environment that reflects the way knowledge will ultimately be used (Herrington & Oliver, 2000). Museums are excellent settings for object-based learning with the resources they are able to provide that many schools simply cannot (due to geography, funding, etc.). Work on object-based learning in museums by Graham (2008) showed that engaging with objects sparked deeper curiosity about the object and broader topic, as visitors felt in control of their own learning experience and could follow their own interests. Object-

based learning was also shown to improve upon a range of skills, such as investigation and reasoning as visitors were guided by their own real choice, language and communication as visitors asked more questions and engaged in more discussion about subjects they had learned about through objects, and recall, as visitors remembered more detailed information about topics presented with objects (Graham, 2008). To remain relevant in the Information Age, museums use technology in several ways. For those who wish to explore individually, guided audio and video commentary that provides deeper context than wall labels are often readily available from a smartphone or tablet device. Science museums often have sophisticated machinery, such as microscopes and data logging systems. Interactive exhibits that allow visitors to manipulate and play with objects are becoming popular, and often provide multimedia engagement. Bridging the digital divide is necessary for creating a more equitable education system, as a majority of those left behind are students of color and low socioeconomic status. Access to technology in the learning environment prepares students to develop skills in research, creative problem-solving, and digital literacy that are necessary to be savvy in an increasingly technologyinvested society (Othman, 2011).

Collaborative Learning

Museums promote close collaboration between students and their peers and teachers, drawing directly from sociocultural theories that posit learning as a social activity requiring civil discourse and interaction (Rule, 2006). Novice learners are able to look toward more experienced learners to model activity-based methods, which contradicts the traditional didactic role of classroom teachers and instead supports a more constructivist, "learn by doing" approach. While active, authentic learning experiences are necessarily more student-centered, educators are still supporting learning via appropriate scaffolding methods when necessary, which may only occur at the metacognitive level (Herrington and Herrington, 2007). According to Michael (2006), a multitude of research has been done showing that individuals learn more when they learn with others than when they learn alone; when participants share ideas with one another, they are able to ask and answer questions, clarifying and expanding their knowledge on a particular issue. The value of communicating with others during the learning process is directly observable in museums, as visitors on average tend to spend triple the amount of time at exhibits that invite conversation and interaction than those that do not (Rand, 2010). Programs that use open-ended discussion and collaboration are reported by students to be their favorite and most memorable museum experiences (Munley, 2012).

Critical Multiculturalism

Without collaboration, there is no opportunity to share multiple perspectives; exposure to already-accepted perspectives does not fulfill progressive, democratic learning models and instead promotes a limited worldview. Engaging with others of diverse backgrounds teaches students critical skills such as cooperation, creativity, respectful deliberation, empathy, and tolerance, and helps them to understand and appreciate others' lived experience in historical and social contexts. Historical empathy is a skill, rather than an emotion, that is developed through repeated exposure and effort to understand diverse cultural literature, arts, and artifacts; it helps the learner to contextualize circumstances, actions, and perspectives of those who are different from them (Yilmaz, 2007). The United Nations Convention on the Rights of Children promulgates the need for children to have free and full access to cultural life from birth, and museums are ideal for this task of making children cultural citizens (Mai & Gibson, 2011; Munley, 2012). Museums are experts at translating complex social issues such as democracy, class struggle, emotional regulation, and historical empathy into narratives that are appropriate for children and intergenerational audiences (Bedford, 2010). Yilmaz (2007) explains direct methods to practicing empathy, which include access to authentic historical sources, engaging in critical examination of those sources, values, goals, and feelings that historical agents had, and live the thoughts of past individuals through the heuristic of contextualization,". Based on these criteria, museums are often the only accessible sites for many people to authentically practice historical empathy when classrooms fall short; "historic sites are increasingly called upon to help remedy the persistent reproach that many teachers lack both content knowledge in history and enthusiasm for the subject," according to Baron (2012). Multicultural models acknowledge diverse histories, perspectives, and experiences, with special attention to minority groups and/or historically oppressed groups for the purpose of creating a more diverse, equitable, and tolerant society (LaBelle & Ward, 1994).

3. The Role of Museum Education in the 21st Century

Museums have updated their practices to implement more constructivist and sociocultural pedagogies. Museums function as learning environments that are motivating, support deep investigation and learning, encourage the growth of out of school learning identities, provide communities of practice for learning and can result in considerable engagement throughout a learner's life (Crowley, 2014) and these outcomes cannot be achieved in a single museum visit, rather they must be cultivated through sustained engagement over time and place (Crowley et al., 2014).

Moreover, museums offer unique opportunities for hands-on learning and interactive experiences. They provide tangible resources, exhibits, and displays that bring subjects to life, making education more engaging and memorable. Through immersive environments and interactive exhibits, educational museums create an environment that encourages exploration, critical thinking, and active participation (Hein, 2005). Moreover, educational museums serve as repositories of knowledge and cultural heritage. They collect, preserve, and display artifacts, artworks, and historical documents that reflect different aspects of human civilization. By showcasing tangible and intangible heritage, educational museums enable learners to connect with history, art, science, and other subjects in a meaningful and tangible way. They also serve as centers for research and innovation, which facilitate scholarly inquiry, support academic studies, and contribute to the advancement of knowledge in various disciplines. Researchers, scholars, and students can access museum collections, archives, and resources to conduct research, develop new theories, and gain insights into different fields of study (Hein, 2005). As a result, museums foster interdisciplinary learning. They provide opportunities for students to explore connections between different subjects and understand the interconnectedness of knowledge. By integrating multiple disciplines, such as history, science, art, and technology, educational museums promote a holistic and well-rounded educational experience.

Additionally, nowadays, museums offer educational programs and workshops that cater to learners of all ages. These programs provide interactive and dynamic learning experiences outside of

the traditional classroom setting. Students can participate in guided tours, workshops, and educational activities that complement their academic curriculum and expand their knowledge and skills. However, it is important to ensure accessibility and inclusivity in educational museums. Efforts should be made to provide equitable access to educational museum experiences for diverse populations, including students from marginalized communities and individuals with disabilities (Hein, 2005). By addressing barriers and implementing inclusive practices, educational museums can reach a wider audience and contribute to a more inclusive and equitable education system. In conclusion, museums play a vital role in the development of education by providing interactive and immersive learning experiences, preserving cultural heritage, facilitating research and innovation, promoting interdisciplinary learning, and offering educational programs. By leveraging the unique resources and exhibits of educational museums, educators can enhance the learning journey of students, foster a love for learning, and inspire a lifelong pursuit of knowledge (Hein, 2005).

4. Modern Museum Era and the Digital Age

Museums have evolved tremendously in their purpose and audiences since ancient Greece; "museums sporting object centered and self-enclosed approaches until the 19th century have headed towards human centered and outward looking approaches since the [1960's]," explains Günay (2012). This transformation, especially in recent decades, results from museums' embrace of the latest educational and social theories, including those of John Dewey, Jean Piaget, and Lev Vygotsky. As new fields of research were discovered in the 20th and 21st centuries, more museums dedicated to niche subcategories were built, and many of these have expanded out of major metropolitan areas for rural access as well. Most modern museums are designed explicitly for educational purposes, as they offer tailored educational and cultural programs that are linked to their particular state and local curricula and meet the needs of their unique community (Crowley et al., 2014).

Twenty-first century museums have paved the way toward bridging the digital divide, offering an array of cutting-edge, technologically immersive programs. This increased in response to the Covid-19 Pandemic, as museum coordinators rushed to create virtual tours and exhibits in order to maintain accessibility and mitigate educational and cultural disengagement. As technology continues to advance, it is safe to assume that museums, too, will only become more technologically invested (Chaliakopoulos, 2020). In response to increasing pressure to demonstrate that they serve a broader public, and not only an educated and cultured elite, modern museums have put in the work to acknowledge and amend their imperialist and elitist histories, and many are forthcoming with the public on their tainted pasts (Crowley et al. 2014; Chaliakopoulos, 2020). Museums have become more than houses of artifacts—they are "spaces of care" that represent social and political resistance. They are therefore the most equitable and inclusive they have ever been, as they are continuously improving public access and uplifting those from underserved communities, with disabilities, and other systemically oppressed minorities. Surpassing even the "golden era", there has never been a better, more accessible, or more critical, time for schools and communities to immerse themselves fully with museum programs.

By integrating digital tools and interactive technologies, museum education enhances learning through immersive and distance-based experiences and thereby, revolutionizes its role completely (Koellinger, 2008) and promotes active engagement, critical thinking, and meaning-making, transforming traditional teaching methods. Museums serve as inclusive spaces where knowledge—embodied in artifacts and digital mediators—supports cognitive, emotional, and social development, fostering deeper connections with culture and history.

5. Conclusion

By connecting cultural heritage with modern pedagogical practices, museums can play a vital role in fostering cultural awareness and expression. This competence entails understanding the interaction of local, national, and global cultures, the heritage they embody, and how individuals express and interpret ideas, emotions, and identities through various forms of art and culture. Through thoughtful design and dynamic educational practices, museums embody the EU's vision of cultural awareness and expression as a core life competence. Museums, far from being static repositories, are dynamic institutions capable of shaping cultural consciousness. The integration of participatory activities, multisensory engagement, and diverse narrative perspectives transforms museums into platforms for critical dialogue and creative expression. By fostering inclusive access to cultural knowledge, encouraging diverse learning styles, and promoting creative engagement, museums contribute directly to the advancement of equitable education, museum education aligns with the principles outlined in the United Nations'2030 Agenda for Sustainable Development. Their role in providing dynamic and interactive learning environments aligns with the goal of lifelong learning, offering opportunities for individuals of all ages, backgrounds and abilities to engage with culture and heritage in meaningful ways.

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