

# Digital Heritage and Its Implications for Global Citizenship Education

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## *Introduction*

In an increasingly globalized world, there is a pressing need to embrace cultural diversity and adopt new ways of thinking about citizenship. In response to the recent armed conflicts and the overflow of migrants and refugees around the world, it is crucial to integrate an interdisciplinary and global perspective on citizenship. Global Citizenship Education (GCED) has various definitions and purposes. This article adopts the concept of GCED “as an appreciation for human interconnectedness, an ability to see the world as others see it, and a respect for cultural diversity” (Sherman 2019, 7–8).

GCED is a continuing research area with an increasing interest in different countries. Nevertheless, there is a need for the practical implementation of its concepts in educational institutions, because they seem to remain theoretical and abstract (El-Badawy 2017). One promising research avenue explores heritage education’s potential in promoting GCED and shaping global identities. This relatively new line of inquiry holds significant promise for global citizenship education.

Research has shown that interconnectedness and global awareness are essential elements in promoting global citizenship and other prosocial values, including valuing cultural diversity and a sense of responsibility for the betterment of the world (Reysen and Katzarska-Miller 2013). In that way, GCED is integral in enhancing learners’ appreciation and awareness of the world’s diverse cultures and their interdependence in addressing global challenges (Pacho 2020).

Media education is considered a crucial field of learning to foster active citizenship. However, the creative and critical approaches to analyzing and producing media remain poorly explored (Cortes, Martins, and Souza 2018). Accordingly, this article proposes using an educommunication approach to heritage in which students and teachers act as partners to explore new ways of transformative cultural-learning experiences.

Educommunication is a constructivist educational framework that involves participatory pedagogical strategies and learning tools to actively engage students in producing and evaluating media content and its impact on society (Azqueta et al. 2023).

Digital heritage can be a valuable tool for promoting global citizenship, bringing local and global communities together by providing creative opportunities for cultural exchange and enabling diverse interactions in a culturally specific context of digital-heritage representations. This article presents an immersive experience based on Egyptian heritage developed in a multidisciplinary graduate specialization program at the University of British Columbia Okanagan, Canada. This project exemplifies how an educommunication approach, interdisciplinary collaboration between educators and students to analyze and develop digital-heritage experiences, can promote GCED and enhance the intercultural dialogue among university students.

Overall, this article examines the current academic literature and examples of creative artwork projects to support our argument on the potential of digital heritage in enhancing citizenship education and intercultural learning. Our main aim is to provide a theoretical overview of the implications of digital heritage for enhancing global citizenship education, filling the gap in the limited literature that connects cultural heritage and global citizenship. Finally, we will explore how interdisciplinary collaboration between teachers and students to analyze and develop digital-heritage narratives can promote GCED and enhance intercultural dialogue among students.

### *1. Background and Related Work*

#### A. Cultural Heritage and Citizenship Education

This section will focus on the theoretical overview of cultural heritage and citizenship education, global trends, and discourse, focusing on Canada and Egypt. We focus on these two countries because an international fellowship is the base of this research project. Education is integral in transitioning societies to a more peaceful and sustainable future.

In 2015, Egypt and other countries in the Middle East announced their commitment to the fourth goal of the 2030 U.N. Sustainable Development Goals (SDGs) pertaining to achieving quality education and promoting citizenship-education themes, including global citizenship. Nevertheless, global citizenship education is still in its infancy, and

few empirical studies have examined its implications for the Arab world (Ahmed 2018; Pashby and Costa 2021).

On a different note, a review of citizenship education guides in Canada over the twentieth century depicts limited conceptions of how citizenship and social studies are understood and taught in formal schooling. It was found that youth still view citizenship from a limited and traditional perspective, stating that their citizenship education was mainly about voting, and they described it as boring and just a compilation of data. Hence, there is a need to find alternative ways of thinking about citizenship education (Broom 2017; Broom 2020).

The focus of academic studies in citizenship has recently shifted from political socialization to understanding the role of lived experiences and individuals' interactions in their communities in constructing their civic and social understanding. Schools and universities can benefit from incorporating cultural heritage to develop identity and a sense of belonging (Escribano-Miralles, Miralles-Martínez, and Serrano-Pastor 2020). The multicultural nature of Canadian classrooms provides interesting possibilities for incorporating GCED topics utilizing the diverse cultural heritage of students in these classrooms (Atkins 2017). In that way, heritage education can be influential in developing critical understanding and enhancing students' engagement with local and global issues.

Nonetheless, heritage is not typically viewed as a tool for citizenship training. The study of heritage, especially intangible heritage, is rarely included in curricula and focuses mainly on superficial cultural content (González-Valencia et al. 2020).

Cultural heritage is not only places. It represents the cultures and customs that bind people together (Kokko and Kyritsi 2012; Lee, Hao, and Zhou 2020). Cultural awareness is mainly based on intangible heritage elements, including language, traditions, spiritual beliefs, and societal norms (Mortara et al. 2014). Mythologies are an integral part of nearly every civilization, contributing to the memory of individuals and the construction of their identities. Awareness of the history of past civilizations is crucial for human development and the construction of cultural and social identities (Berk 2016). Hence, cultural heritage has strong conceptual connections with identity and can be an essential tool for promoting citizenship education, intercultural learning, and the construction of global identities (Lee, Hao, and Zhou 2020).

## B. Digital Heritage as an Educational Resource for Global Citizenship Education

The traditional principles of education and sharing knowledge are changing drastically due to the emergence of digital technologies that are transforming the educational environment and allowing skill development (Gifreu-Castells and Zambrano 2014). Learners are increasingly interested in using various techniques to shift from conventional teacher-centered approaches to more participatory learning methods. Thus, it is fundamental for achieving different forms of civic engagement to choose a suitable didactic approach that acknowledges young people's needs and preferences (Reed et al. 2020).

New technologies allow youth to construct new forms of civic engagement and identities. Digital heritage is “the process of making cultural heritage available to the public through the use of technologies. Any digital content that possesses cultural values, either in the form of 2D (such as text, image, and motion pictures), or 3D (such as navigational virtual environment objects) belongs to digital heritage” (Cardillo 2021, 57–58). The literature revealed that engaging and informative cultural-heritage digital experiences could enhance intercultural dialogue and a sense of global community. In the study by Luigini et al. (2019), an immersive and participatory virtual-reality (VR) serious game was used to demonstrate VR's implications for heritage education among primary-school students.

Scholars have proposed different interpretations of VR and what this technology represents. Therefore, it is challenging to find an exact definition of VR (Berti 2021). Thus, we have to acknowledge the polysemy of the term and be specific about how we define it (Bevan et al. 2019).

This article defines VR as “any 3D multimedia environment that enables participation and interaction in authentic virtual worlds” (Berti 2021, 61). VR technology can serve as a gratifying approach to enhance the enjoyment of learners who find traditional training methods unengaging and tedious. VR enables learners to participate in gaining knowledge and experience through active control of objects, which can aid in learning, knowledge retention, and transmission of concepts (Asad et al. 2021).

Virtual reconstruction of ancient historical sites is not new, and they are already being used to train and educate users. However, many of these systems are not available to the general public and have only been used for academic research studies (Anderson et al. 2009).

In recent years, the development of information and communications technologies (ICTs) has expanded access to historical virtual reconstruc-

tions to the wider society. The cultural heritage field integrates virtual environments and interactive experiences that allow the public to appreciate cultural content remotely anytime and in any space. For example, *Nefertari: Journey to Eternity* (2018) is a VR experience that uses interactive elements and storytelling to engage users in the digitally scanned tomb of Nefertari and learn about Egyptian art, history, and mythology.

Furthermore, other immersive experiences are designed specifically for mobile devices. An illustrating example is *King Tut VR*, a virtual experience created by EON Reality® that enables the user to relive the experience of the famous discovery of King Tutankhamun's tomb. In this VR experience, users embody an avatar and dig into the tomb to discover the king's treasures. They learn about them using 3D models and authentic photos from the discovery. Nonetheless, increasing access to these virtual resources in the classroom does not guarantee improved citizenship education. It is also crucial to explore the uses of ICTs in promoting global citizenship and intercultural communication (González-Valencia, Sabater, and Mata 2020).

Using digital-heritage applications in citizenship education can provide students with experiential learning opportunities in which they can imagine living in the past and figure out how to apply values and lessons from the past to the modern world (Coma, Fuentes, and Sánchez 2020). To illustrate this, one study used Ningling's heritage to foster students' understanding of their cultural identity and enhance their social interaction (Lee et al. 2020). Moreover, VR immersion can stimulate learners' inspiration and understanding by allowing free navigation across a simulated universe, idea exploration, and achieving learning goals (Asad et al. 2021).

Consequently, previous research supports our argument that virtual environments' digital affordances could assist cultural learning and facilitate intercultural dialogue among learners. The following sections identify our proposed theoretical framework, collaborative student-led instructional design, and project creation as creative methodologies for global citizenship education.

### *2. Heritage Educommunication and Collaborative Student-Led Instructional Design*

Educommunication draws its roots from constructivism and is a framework for educational theory. It proposes "using the media as a tool for active learning" (Moreno and Gifreu-Castells, 2017, 304). By combining both communication and education fields, educommunication has the

potential to contribute to formal and nonformal educational practices as a promising “field of knowledge for cultural transformation” (Oliveira et al. 2020, 3). The way new technologies are used to empower citizens, not the technology itself, is fundamental in the educommunication paradigm that combines transdisciplinary concepts and diverse citizenship practices (De Paoli 2019). The educommunication approach emphasizes the importance of using participatory strategies and ICTs to empower citizens and enhance their democratic values and critical competencies (Azqueta et al. 2023). Participatory research and student-led teaching design were proven to reshape the traditional teaching relationship and help students perceive themselves as active agents of change through the design of engaging technological solutions to address different societal challenges (Coma, Fuentes, and Sánchez 2020; Domínguez-Almansa et al. 2020; Whewell et al. 2021)

The practical dimension of educommunication can be evaluated and reconstructed based on the following criteria: “civic participation, freedom as development and critical autonomy, which are also considered goals of the educational systems in pluralistic and democratic societies” (Gozálvez-Pérez and Contreras-Pulido 2014, 129). The communicative potential of digital-media technologies can be leveraged in educational institutions to promote transformative learning, meaningful interactions, and knowledge sharing between teachers and students (Soares 2022). Specifically, working with experimental archaeology can serve as an educational agent of citizenship by developing reflexive knowledge and enhancing critical thinking (Escribano-Miralles, Miralles-Martínez, and Serrano-Pastor 2020). Using innovative and participatory teaching methodologies can develop citizen conscience and critical thinking and improve historical and social learning (Coma, Fuentes, and Sánchez 2020).

Cardillo defines student engagement with digital heritage as “(1) engagement with the learning process through participation activities – project-based, (2) experience-based or object-focused learning-experiential learning, (3) focus on the real-world context of study, and (4) engagement with the human condition or basics of human existence” (Cardillo 2012, 58). She adds that experience alone does not allow learning and acquiring knowledge. Teachers must engage students in contemplating and reflecting on their experiences. Inquiry and project-based learning encourage a student-led learning environment where students use inquiry, decision-making, and collaboration to analyze and create projects they can identify with and reflect on their personal knowledge and everyday experiences (Cardillo 2021). To achieve this, using an integrated curriculum and

## Digital Heritage and Its Implications for Global Citizenship Education

collaboration between students and teachers across subjects are integral to facilitating active learning experiences for students. Youth-adult partnerships and youth engagement were recommended approaches to shift from nation-centric multiculturalism to global citizenship in the United States and Canada (Ranco, Gilmer, and Loomis 2020). An integrated pedagogical approach allows students to build their knowledge inclusively and collectively from a global, creative, and critical perspective (Coma, Fuentes, and Sánchez 2020).

We live in a society and culture created and constantly re-created by us. Previous research indicates that citizenship is an essential element of our identities, and participation is crucial to people who consider themselves citizens of a specific country or community (El-Badawy 2017). Collaboration is also required for forming an identity, as indicated by Mackenzie (Mackenzie 1978, 14): “Those who share an interest, share an identity; the interest of each requires the collaboration of all.”

To effectively promote global citizenship and respect for cultures and traditions, it is also essential to establish a meaningful dialogue between schools, universities, local authorities, and other external educational institutions to develop effective educational and training programs (Borghini and Galletti 2020). Interdependency and connectedness are crucial to transforming policy into practice in institutions of higher education. Increased awareness among educators and researchers of the diversity of the characteristics of global citizenship is required to better align curriculum goals with institutional policies (Horey et al. 2018). Lastly, collaboration with educators is vital for the success of any national, regional, or institutional plan because they are the ones who play a pivotal role in incorporating the concepts of global citizenship, correcting misconceptions, dispelling stereotypes, and highlighting the positive aspects (Coma, Fuentes, and Sánchez 2020; Ranco, Gilmer, and Loomis 2020; Soares 2022).

Collaborative and interdisciplinary discussions and partnerships can contribute to intercultural learning through exchanging multimedia and problem-solving throughout the co-creating of knowledge. Hence, we should adopt an action-oriented intercultural approach that recognizes young people as key partners in bridging divides toward a shared future (Estepa-Giménez and Cáceres 2020; Reed et al. 2020). Consequently, using an edcommunication approach through implementing digital heritage, motivating students to actively collaborate in creating their own narratives, and involving them in reflective discussions advances the role of students from the passive role of consumers to being innovators and contributors. In the next section, we will use our project as an example of digital herit-

age and demonstrate an educommunication approach and interdisciplinary collaboration in action.

### *3. Collaborative Project Development: Xplore Ancient Luxor 3D Project*

We developed an immersive multimedia prototype project in the Immersive Design Studio course (winter semester 2023) within the CITech program<sup>1</sup> at the University of British Columbia, Canada. This project focuses on Egypt because it is the home country of the first author, who co-developed this project. The Immersive Design Studio course encouraged graduate students to choose a project connected to their background, interests, and current research. Celebrating 100 years after the discovery of King Tut's tomb in 2022, this experience aims to develop an understanding of the rich history of Egypt and generate meaningful intercultural dialogue between the students and educators who participated in this course. Analyzing existing projects about Egypt, we found that they all share common characteristics such as user-centered design, gameplay, and storytelling. However, the effects of immersive experiences on the representation of heritage are still ongoing and understudied research areas, especially with immersive high-resolution 3D screen displays.

The project focuses on Luxor city in Egypt as a world heritage site with one-third of the world's ancient monuments (Essam 2018). This digital-heritage immersive-experience prototype project, created using the Unity<sup>®</sup> game engine (2018), allows a single user to explore the Luxor temple in Egypt as a UNESCO heritage site using a Wireless Game Joystick Controller. The experience was designed for an immersive screen at the Visualization and Emerging Media Studio (VEMS) at UBC Okanagan.<sup>2</sup> Users can navigate inside this monument and learn more about ancient Egyptian history and mythology through videos, info spots, and virtual tours. During the ideation phase, we had initial ideas for navigating the virtual space: Nile cruises or hot air balloons, which are popular for providing an aerial/sea view of the city and its monuments. However,

<sup>1</sup> NSERC CREATE in Immersive Technologies (CITech) program at the University of British Columbia, Canada, aims to train a multidisciplinary cohort of graduate students to develop skills and collaborative research on the use of immersive technologies in various real-world applications <https://citech.ubc.ca/>.

<sup>2</sup> The Visualization and Emerging Media Studio (VEMS) at UBC Okanagan is dedicated to exploring, developing and researching immersive media and emerging technologies. VEMS features Canada's highest-resolution, 3D, VR-ready video wall <https://vems.ok.ubc.ca/>.



## Digital Heritage and Its Implications for Global Citizenship Education

while testing, we noticed that controlling a boat or a balloon could block the user's view, so we decided to use the first-person view to encourage free-form exploration and enhance the user's sense of agency.

This project illustrates an example of collaborative instructional design between students, teaching assistants, and instructors in a university setting. Because of the course's interdisciplinary nature, the course instructor, teaching assistant, VEMS specialists, and other students gave constructive feedback and assisted with the technical aspects of the project development. Indeed, the media, game development platforms, and mobile devices are increasingly becoming more affordable and accessible, and students can create their own virtual experiences with minimal coding and technical expertise required. Game-ready 3D models from Sketchfab<sup>®</sup> and CGTrader<sup>®</sup>, music, assets, textures from the Unity<sup>®</sup> asset store, and AI-generated audio from Genny by LOVO<sup>®</sup> offered the opportunity to create an engaging experience by capturing atmospheric city scenes with historically related info spots and points of interest (POIs). Most of these 3D models and assets were free under the Creative Commons license, and few were bought with the support of the CITech program.

The experience starts with an introductory video introducing ancient Luxor City, welcoming the user, and explaining how to navigate between multiple POIs to learn more about ancient Egyptian history and mythology. The experience also offers a virtual tour to explore the current site through a 360-degree, high-quality image. Research has shown that when students work with a visual model or image, relaying additional information using sound or narrative is much better than displaying it as text. Text competes with the graphics for the student's attentional resources, while sound does not, being an entirely separate sensory channel (Jacobson and Holden 2005). That is why AI narration was used in these info spots, providing key descriptions about the creator of the temple, the gods, and symbols in Egyptian mythology, as well as a video about the ceremonial customs and festivals that used to be performed in that temple.

This class project presented an opportunity for self-awareness, interest discovery, and meaningful intercultural dialogue with other students in the course: tackling the tension between national and global identity and stressing the similarities, not differences. Developing this immersive experience has deepened our understanding of the impact of heritage on identity and the significance of intangible heritage in assigning meaning and emotion to places based on the group discussions during the ideation and production phases. This project and similar ones focusing on heritage could encourage educators and students to create informative and playful

experiences to enhance multicultural learning and diversity in classrooms, exploring the possibilities of immersive experiences in communicating cultural heritage and promoting global citizenship.

#### *4. Limitations and Future Work*

This prototype is a student class project based on author Ahmed's previous knowledge, personal interpretation, and lived experience, which she wanted to share with her instructor and colleagues. The course's time constraints prevented gathering student feedback after completing the prototype. Student self-reflection and focus-group discussions would have enriched our understanding of the effectiveness of the edcommunication approach and interdisciplinary collaborations in university creative learning spaces. Instead, this article focuses on the design process and theoretical underpinnings of a 3D research-creation project developed for a large immersive display.

Our project is an early prototype that can be improved and redesigned based on future feedback from other teachers and students. We also propose exploring the potential of gamified experiences by combining storytelling and gameplay, providing a quiz for knowledge assessment, and a treasure hunt element to explore different mythology and connections between civilizations through reflections to enhance interconnectedness and global awareness.

Research indicates a need to understand how audiences perceive and interact with digital storytelling forms and to identify the best practices for presenting stories in VR (Bevan et al. 2019). Further, few empirical studies investigate the relationship between immersive and interactive heritage experiences and global citizenship education. Interdisciplinary collaboration and community engagement with museums, universities, and schools are also central to exploring whether collaborative instructional design and implementation of creative projects can improve student engagement in citizenship education and enhance the learning experience. More research is needed to investigate the effectiveness of the implementation of creative projects in citizenship education and to provide a close reading of the available experiences to determine their adherence to the learning goals of different student levels and curricula. Finally, if any creative project claims to have some educational benefit for a particular subject, teaching guides should be provided to support student learning and teachers to structure lessons and test knowledge.

### *5. Conclusion*

Digital-media technologies provide endless possibilities for disseminating and preserving cultural heritage. This opens new avenues to creative representations and building meaningful dialogue on our collective global heritage. The literature stresses the need for more studies and collaborative multidisciplinary projects in citizenship training through heritage, expanding our view of global citizenship beyond political participation. Collaboration and interdisciplinarity enhance innovation and creativity and increase the likelihood of the proposed solutions' effectiveness. This article seeks to advance research on global citizenship education by investigating the implications of digital heritage for promoting global citizenship and intercultural learning. Moreover, this article proposes using an edcommunication approach to heritage in which students and teachers collaborate to create interactive multimedia experiences to increase engagement and skill development in citizenship education.

Technological advances have contributed to the development of global citizenship from being an abstract concept to a tangible reality (Del Carmen and Bartolome 2018). This paper attempted to provide an overview of literature and examples of existing artwork to demonstrate the state of the art on the different applications of immersive technologies and their perceived experiential, cultural learning affordances. Many research studies focus on using virtual reality as an experiential learning tool in STEM subjects and for corporate training and improving performance skills. However, the impact of using immersive technologies for cultural and heritage edcommunication to promote global citizenship is still an understudied research area. Hence, more research creation projects and user studies are needed to explore the role of digital-heritage experiences in enhancing intercultural learning and promoting global citizenship. Finally, global citizenship is something we should all strive for, and we believe digital heritage can be an integral element in achieving that.

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## Digital Heritage and Its Implications for Global Citizenship Education

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## Digital Heritage and Its Implications for Global Citizenship Education

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