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GAMIFICATION FOR COMMUNITY-BASED HERITAGE WORK – A CASE STUDY FROM ROMANIA

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Abstract

In this article, the authors discuss the role of gamification in promoting information about cultural heritage, which contributes to a better interpretation and presentation of cultural sites. The study is part of a broader approach within a European project. Various practices for applying the gamification method are discussed based on case studies that allow for a critical analysis of how heritage assets are presented and their impact on the general public. Thus, in the case of Romania, the article's authors discuss how the cultural heritage of Rasinari is given through the Questo Game and the Climate Heritage Game project. The study closes with a series of conclusions regarding the Accessibility, Inclusion, and Creativity of gamification techniques in promoting cultural heritage. It also offers recommendations for ensuring a scientific interpretation and understanding of cultural heritage when applying gamification methods.

Keywords: Gamification, Community Heritage, Romania

Introduction

Cultural heritage has been and remains a distinctive element for each community. In the context of the European Year of Heritage marked in 2018, which had as its slogan "Our heritage: where the past meets the future", the economic potential of cultural heritage and the need for a sustainable approach for better protection, research, interpretation and promotion were noted and recognised at European level[1].

Several documents in the last decades have been adopted at the European and International levels regarding utilising digital technology to enhance access to cultural heritage. Thus, in 2003, UNESCO adopted the *Charter on the Preservation of Digital Heritage*, which, in its first article, mentions the fact that „The digital heritage consists of unique resources of human knowledge and expression. It embraces cultural, educational, scientific, and administrative resources, as well as technical, legal, medical, and other information created digitally or converted into digital form from existing analogue resources. Where resources are "born digital", there is no other format but the digital object..." (Article 1). At the same time, the UNESCO Charter establishes that „The purpose of preserving the digital heritage is to ensure that it remains accessible to the public. Accordingly, access

[1] https://culture.ec.europa.eu/cultural-heritage/eu-policy-for-cultural-heritage/european-year-of-cultural-heritage-2018 (accessed 19.06.2024).

to digital heritage materials, especially those in the public domain, should be free of unreasonable restrictions. At the same time, sensitive and personal information should be protected from intrusion." (Article 2). To this end, the Charter urges its international community to:

a. urge hardware and software developers, creators, publishers, producers and distributors of digital materials, as well as other private sector partners, to cooperate with national libraries, archives, museums and other public heritage organisations in preserving the digital heritage;
b. develop training and research and share experience and knowledge among the institutions and professional associations concerned;
c. encourage universities and other research organisations, both public and private, to ensure the preservation of research data.[2]

Several acts have been adopted at the European Union level that regulate digital resources, which can be found in EU policies and funding programs for cultural heritage. Thus, the European Union encourages "Research and Innovation to nurture smart and technologically advanced solutions to help Europe protect and promote its cultural heritage. Among other solutions, it can give digital access to physically inaccessible sites and preserve priceless artifacts." Through research actions under Horizon 2020 dedicated to cultural heritage, several actions were established:

- development of cost-effective technologies to "increase resilience and sustainable reconstruction of historic areas to cope with climate change and hazard events" and to reconstruct damaged historic areas after disasters, respecting their historic value;
- "Inclusive and sustainable growth through cultural and creative industries and the arts". The aim of this research is to provide scientific evidence for designing a more coherent European industrial policy;
- "Digitisation, Digital Single Market and European culture: new challenges for creativity, intellectual property rights and copyright". The aim of this research is to assess the impact of digitization on access to European cultural goods and services;
- "Innovative approaches to urban and regional development through cultural tourism": the aim of this action is to improve available data and understanding of cultural tourism in Europe;
- "The societal value of culture and the impact of cultural policies in Europe": the aim of this action is to provide new methodologies and statistical data on the societal value of culture.
- "Collaborative approaches to cultural heritage for social cohesion": the aim of this action is to foster cultural diversity and social cohesion in the cultural heritage sector;
- "Social Platform on endangered cultural heritage and on illicit trafficking of cultural goods[3].

[2] https://www.unesco.org/en/legal-affairs/charter-preservation-digital-heritage (accessed 19.06.2024).

[3] https://culture.ec.europa.eu/cultural-heritage/cultural-heritage-in-eu-policies/research-and-innovation (accessed 19.06.2024).

For over seven decades, the Council of Europe has been concerned with strengthening the efforts of member states to protect cultural heritage, having adopted several conventions, resolutions, recommendations and guidelines recognising the right of everyone to benefit from cultural heritage and to contribute to its enrichment. The Framework Convention on the Value of Cultural Heritage for Society (2005) recognises "individual and collective responsibility towards cultural heritage". At the same time, the Faro Convention emphasises the need to use digital technology to ensure access to cultural heritage and the benefits which derive from it:

a. encouraging initiatives which promote the quality of contents and endeavour to secure diversity of languages and cultures in the information society;
b. supporting internationally compatible standards for the study, conservation, enhancement and security of cultural heritage, whilst combating illicit trafficking in cultural property;
c. seeking to resolve obstacles to access to information relating to cultural heritage, particularly for educational purposes, whilst protecting intellectual property rights;
d. recognising that the creation of digital contents related to the heritage should not prejudice the conservation of the existing heritage[4].

The Council of Europe has also adopted a series of recommendations, among which we highlight those on the Internet of Citizens (CM/Rec(2016)2, Big Data for Culture, Literacy and Democracy (CM/Rec(2017)8, the Internet as an emancipatory force (CM/Rec(2018)10, etc. The respective recommendations urge the member states of the Council of Europe to develop strategies, policies, and legal and institutional frameworks to preserve the digital heritage of cultural, scientific or other lasting value and assist cultural entities in archiving data of public interest.

Digital media have recently become widely applied in education, and digital games have stood out for their motivation for learning, active involvement of teachers and students, reward systems, and collaborative teaching[5]. Cultural heritage and education are linked to research, protection, promotion, and adequate heritage valorisation. Education is provided from childhood to adulthood and throughout life, and principles must be applied in the training and education of citizens to enrich their knowledge about heritage and to develop a more responsible and tolerant attitude towards cultural heritage regardless of its origins. Gamification, which in most cases is considered "the use of game design elements in non-game context", has recently become an attractive element in educational environments[6].

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[4] https://www.coe.int/en/web/culture-and-heritage/faro-convention (accessed 19.06.2024).

[5] Otto Korbinian, Corinna Krohn, Barbara Sabitzer, „Immersion into the World of Gaming: An Approach of Introducing Gamification in an Educational Context", In Proceedings of the 12th International Conference on Computer Supported Education (CSEDU 2020), volume 2, (2020): 245-252, DOI: 10.5220/0009343402450252 (accessed 10.06.2024).

[6] S. Deterding, R. Khaled, L. Nacke, D. Dixon, D., „Gamification: Toward a definition", CHI 2011 Gamification Workshop Proceedings, (Vancouver, 2011): 12-15.

Demographic problems significantly affect contemporary societies; low-density areas suffer the most and risk losing their cultural heritage. In this context, a consortium formed by seven universities from Portugal, Bulgaria, Romania, Czech Republic, Slovakia, Italy and Türkiye developed the project "A gamification model for community-based heritage work" implemented within the framework of the Erasmus+ program during 2023-2026[7]. As such, the pertinence of a project, A gamification model for community-based heritage work" that seeks to actively work on shifting the paradigm, is greater than ever. Although local solutions and perspectives are at the forefront, this shift can only meaningfully happen when purposefully fostered in a network of European institutions and communities working towards it - which this project aims to do. The project has the following objectives:

1. To foster community and civic engagement and democratic participation in the sphere of cultural heritage in low-density territories,
2. To create an operable framework and provide tools regarding gamification strategies and techniques for community-based/led heritage work,
3. To foster partnerships and mutual practice-oriented learning between local communities, academics, and university students,
4. To disseminate the benefits of gamification and community-based approaches in heritage.

One of the Project's Working Packages is dedicated to Best Practices. The main goal of this WP is to identify and analyse best practices regarding the use of gamification in community-based cultural heritage work (identification, safeguarding, dissemination, etc.). For this purpose, each project partner identified and presented two best gamification practices in community-based heritage work[8]. In our project, we consider best practices to be the knowledge of which gamification tools are applied to cultural heritage work to achieve desired results, create sustainable effects, and engage the target community. Identifying best practices involves judgment and requires prior analysis using two types of criteria: impact and gamification. Thus, the Romanian team selected and analysed two case studies that capitalise on and promote Romanian cultural heritage – Rasinari, Questo Game and the Climate Heritage Game project.

Research Methodology

From a methodological point of view, the project implementation team developed several tools, the first of which was the Guide to Identifying Best

[7] Polytechnic Institute of Tomar (Portugal), D. A. Tsenov Academy of Economics (Bulgaria), Valahia University of Targoviste (Romania), University of South Bohemia České Budějovice (Czech Republic), University of Trnava (Slovakia), University of Camerino (Italy), Adana Science and Technology University (Türkiye). Project No. 2023-1-PT01-KA220-HED-000154261.

[8] Silviu Miloiu, Marusya Smokova, Sergiu Musteață (eds) *A Gamification Model for Community-based Heritage Works: Selected Best Practices*, Târgoviște: Editura Cetatea de Scaun, 2024.

Practices for Gamification in Cultural Heritage[9]. All partners used the file 'Best Practice Identification Criteria.xlsx' to archive all identified projects, evaluate them, assess inter-rater reliability, calculate final scores, and rank the projects in descending order. The top two projects were defined as 'best practice' for each country. These identified best practices from the seven countries were used to prepare a synthesis report. Each partner was responsible for collecting information on community-based gamification in cultural heritage projects implemented in their countries. All collected data were archived and coded as follows: Country Code-xxx, where xxx was the project ID number (e.g., RO-001, RO-002 for Romania). Coded projects were assigned to raters for evaluation. Each project was assigned to two independent raters to minimise subjectivity and rater bias. Raters evaluated the projects independently, entering their codes and ratings in the 'Gamification Criteria' (GC) and 'Impact Criteria' (IC) sheets. Rater codes followed the format Ryy, where yy was the rater's ID number. Raters used a 6-point scale (5 = very high, 4 = high, 3 = neither high nor low, 2 = low, 1 = very low, 0 = not applicable).

The projects, rated by the raters, were collected in the 'Ratings' sheet and sorted by the rater's code. Ratings for each project from both raters were copied from the 'Ratings' sheet and pasted into the 'Inter-Rater Assessment' sheet to assess reliability (using Paste Special-Transpose). If the agreement coefficient (cell G24) was ≥ 80%, it was highlighted in green, indicating reliable ratings. If the ratings were inconsistent, a third rater was assigned to review the criteria and evaluate the project. Once an agreement threshold of at least 80% was achieved (cell T24 highlighted in green), the final project score was calculated as the average of the raters' scores.

All evaluated projects were described in the 'Characterisation' sheet and sorted in descending order by their final project scores. The top two projects with the highest scores were titled 'Best Practice' for each country. Typology included tangible, intangible, and natural heritage. UNESCO defines material heritage as the physical manifestations of human creativity and expression valued for cultural, historical, aesthetic, scientific, or spiritual significance. This includes tangible objects, structures, sites, and landscapes that humans have created, modified, or used over time and hold cultural significance for communities, societies, or humanity[10]. As defined by UNESCO's Convention for the Safeguarding of the Intangible Cultural Heritage, Intangible heritage comprises the practices, representations, expressions, knowledge, skills, and cultural spaces that communities, groups, and individuals recognise as part of their cultural heritage. Examples include traditions,

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[9] Marusya Smokova, Célio Gonçalo Marques, João TomazSimões, Lígia Mateus, Silviu Miloiu, Sergiu Musteață, Evelina Parashkevova, *A Guide to Identifying Best Practices for Gamification in Cultural Heritage*, Svishtov: Academic Publishing House „Tsenov", 2024.

[10] UNESCO, *Convention Concerning the Protection of the World Cultural and Natural Heritage: Adopted by the General Conference at Its Seventeenth Session* (Paris: UNESCO, 16 November 1972), 2.

oral history, rituals, performing arts, social practices, traditional craftsmanship, and knowledge systems passed down through generations[11]. Natural heritage refers to natural features, geological and physiographical formations, delineated areas that constitute the habitat of threatened species of animals and plants, and natural sites valued for their scientific, conservation, or natural beauty. This includes privately and publicly protected natural areas, zoos, aquaria, botanical gardens, natural habitats, marine ecosystems, sanctuaries, and reservoirs[12].

The assessment's classification of heritage utilised was divided into three categories: local, national, and international. Local assets are those whose preservation and enhancement bear primary cultural significance for a particular community, reflecting the local context's unique heritage and values. National assets are characterised by their substantial cultural importance at the national level, representing shared heritage and historical identity across the country. International assets are those recognised for their global value and are integrated into UNESCO's lists, acknowledging their universal significance and contribution to the world's cultural and natural heritage.

Technologies and tools refer to the underlying frameworks and methodologies of the game or experience, including Virtual Reality, Augmented Reality, Artificial Intelligence, analogue supports, geolocation, and interactive tools. Equipment pertains to mobile phones, computers, tablets, wearables, and paper. The assessment encompassed several components. Community involvement requires more than mere consultation; it necessitates active participation from local non-governmental stakeholders in decision-making, including associations, groups, entrepreneurs, and individuals. Descriptions examined the practices in detail, including their location and timing. The gamification process description covered meaning, design, rules, elements, mechanics, and dynamics.

The Romanian team selected two gamification initiatives as good practices for this analysis: the Questo game focused on the village of Rasinari and the Climate Heritage Game project.

Case study 1: Rasinari[13]

The first is a village in Transylvania that impressively upholds its local, regional, and national heritage and boosts its identity. It is notably the birthplace of the renowned philosopher Emil Cioran, whose house is preserved intact and attracts visitors worldwide, adding international value to the village's cultural significance. The town is also the birthplace of a former prime minister and nationalist poet, attracting many visitors across Romania. A local museum narrates the village's rich history. Attested in 1204, it is considered the oldest in Transylvania and

[11] UNESCO, *Basic Texts of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage* (Paris: UNESCO, 2022), 5-6.

[12] *Convention Concerning the Protection of the World Cultural and Natural Heritage …*, 2.

[13] https://questoapp.com/experiences/ra-inari-walking-tours/deschide-portile-spre-legende-rasinarene (last check 10.08.2024).

boasts impressive ethnofolkloric value, showcasing the traditions and tales of the Sibiu region (Mărginimea Sibiului). The village is also a significant gateway to numerous mountain trails that lead tourists to the Cindrel Mountains, with its highest peak reaching 2,244 meters[14].

The Questo game is focused on the Art, History, Culture, and Stories of the historic village of Rasinari. Its main objectives are to educate players about the historical and cultural significance of various memorial houses, historical churches, and art pieces; to raise awareness about the value of intangible heritage, such as traditional stories and folk traditions, and their role in preserving cultural identity. The game encourages players to engage in activities that simulate preserving and conserving historical sites and artefacts and highlight the importance of safeguarding intangible cultural heritage through in-game missions and storytelling. Ileana Carmen Damean, the game creator posted on Questo, is a mathematics and computer science teacher at Barcianu School in Rasinari. She co-leads the GreenIMPACT "Cocoșul de Munte" club in Rasinari, Sibiu. Established in January 2018 with support from the Răşinari Town Hall and the „Noi Orizonturi" Foundation, the club operates within a secondary school. The club's mission has been to promote local heritage in an ecotourism area. The game is for iOS + Android App, Web, YouTube, and Storytelling mobile devices. The game guides participants on a 1.8 km tour, which takes under two hours to complete.

Regarding gamification criteria, the game excelled in Purpose and Meaning, Challenge and Competence, Completeness and Mastery, and Scarcity. However, it was considered a bad practice in Change and Disruption. Among the impact criteria, the game scored exceptionally well in Effectiveness, Accessibility, Inclusion, and Enhancement of Local Culture, with other areas ranging from average to very good. The interrater agreement was notably high at 90%.

Photo 1: Panoramic view of Rasinari (credit photo by Silviu Miloiu)

[14] Raluca Iliuț, „Răşinari, trasee ale etno şi ecoturismului," *Cibinium* II (2006-2008): 145-155.

Case study 2: It is a game to value our past and protect our future[15]

The second case is about local cultural heritage and how it is affected by climate change and was developed within the Erasmus+ Project[16]. This is an educational game for secondary-level students aged 13 to 18, which helps them discover their local cultural heritage and how it is affected by climate change. It engages them through the free Climate Heritage Game by collecting information, taking pictures and posing challenging questions about local monuments. The game encourages students to learn about their local heritage through short videos and interesting, fun questions. Ultimately, the game offers the opportunity to test acquired knowledge in challenging quizzes. So, in one way, the game includes some local study cases; in another, it encourages students from various locations to learn about these places. At the same time, the game can be expanded by creating content and sharing the wonders of other historical locations. Thus, students in various localities are encouraged to contribute to protecting endangered monuments by raising awareness.

The game's objectives are to promote the value of European cultural heritage, train teachers to create a digital game for educational purposes, raise awareness about the climate crisis, and Connect students to their communities and local history. In this sense, the game has several tools:

1. **Build your game**, which involves enriching the classroom experience by participating in the Climate Heritage Game with your students;
2. **Personalize your teaching methods** and learn how to import local monuments into the Climate Heritage Game;
3. **Access and play the game** by exploring cultural sites in your region or other regions uploaded by different European schools;
4. **Game development for teachers** involves creating a digital educational game through open-source platforms.

The project also included the development of a training course for teachers and trainers so interested people could develop their digital skills and learn how to create simple online games to diversify teaching methods. In this regard, a guide was developed that includes several essential components: Creating digital games, creating digital content, and solving safety and problems. The guide's authors encourage teachers and trainers to self-learn using specific resources, examples, practical exercises, case studies, interesting game ideas, and the development of questionnaires and self-assessment tests of the knowledge obtained. Thus, this guide trains interested individuals on how to apply gamification methods in the teaching process. This guide trains interested persons on how to apply gamification methods in the teaching process. This demonstrates that "Gamification is a

[15] https://climateheritage.eu/ (last check 10.08.2024).

[16] International Project no. 2020-1-FR01-KA204-080543 was implemented by a consortium which involved six partners from Bulgaria, France, Greece, Portugal, Spain, and Romania.

powerful tool that can revolutionise the way we teach and learn" and that it brings game technology to the classroom to make learning more attractive and efficient[17].

To help teachers, three lesson plans for geology, history and chemistry were also developed, as well as other examples of school subjects in which game content can be included, which aim to provide specific instructions to teachers on how to incorporate the Game in their subjects in the context of learning[18].

The Climate Heritage Game was developed for computers and mobile devices with Internet access to the webpage https://learninglibrary.eu, which is an e-learning platform that hosts this Game. Finally, the project authors developed five missions within the Climate Heritage Game, each based on a different European country - Portugal, Spain, Bulgaria, Greece and France. Each mission consists of three parts (three different sites), which involve three distinct degrees of difficulty each. The goal of the game is for each participant to progress and gradually solve these missions to save Europe's heritage from climate change[19].

The first level of each mission and each site is called "Acquiring awareness and knowledge about Cultural Heritage in the chosen locality", which aims to bring the player closer to the local cultural, historical or ecological heritage. In the second part, "Acquiring Awareness and Knowledge about Climate Change", the player must answer questions about climate change in general and specific situations in the region. The third part, "Climate Resilient Paths: Adaptation, Mitigation and Sustainable Development", aims to find solutions to climate change and contribute to sustainable development, thus bringing new ideas for protecting the heritage in each region.

The game is intended to challenge participants to enter a mission, starting with brief information about each place they will work on, accompanied by text, images or a short video. Then, players will find a test containing several questions about the site presented to understand its importance, value and current problems it faces. After the information stage, the player will move on to other activities involving gap-filling exercises, test videos, images, or open-ended questions. Students will be able to play the game multiple times or do independent missions on each of the monuments/sites until they acquire the necessary skills[20].

Regarding gamification criteria, the game is recognised as a best practice in Immersion and Scarcity, and it scored very well in eight other criteria. In terms of impact, the game ranged from very good to excellent, with particular praise from rates for Accessibility, Inclusion, and Creativity. This project is considered successful for several reasons: it successfully explains the importance of gamification in education, it developed a training guide for teachers and

[17] Training Course on How to Develop a Digital Game for Educational Purposes, https://climate-heritage.eu/wp-content/uploads/2023/05/How-to-develop-a-digital-game-for-Educational-Purposes.pdf (accessed 10.08.2024).

[18] "Lesson plans", IO2 The Climate Heritage Game, 2023,

[19] https://learninglibrary.eu/course/view.php?id=14 (accessed 10.08.2024).

[20] Ibidem.

trainers in the field of gamification design and explains how to apply these educational products in schools, it offers some examples of teaching plans and interactive games based on cultural and natural heritage sites and assets from various European countries. At the same time, the project offers the possibility of multiplying knowledge by creating educational games. However, it would be much more successful if the missions (the developed games) included examples from all the states participating in the project. We expected to find case studies from Romania with a vibrant and diverse cultural and natural heritage.

Photo 2: One of the interface pictures of the Climate Heritage Game, which represents the Biertan (Birthälm) fortification church from Romania (source: https://climateheritage.eu/)

Conclusions

The selected case studies provide valuable insights into the effectiveness and areas for improvement in gamified cultural heritage projects. Although the approach and presentation are different, both are intended to promote knowledge about the cultural heritage of certain places. The case of the Questo game Rasinari is an individual creation on a platform open to anyone interested in the cultural exploitation of the places visited. Some games have fees, which are primarily modest, respectively accessible to the general public.

The second case emphasises the educational aspect of the role of teachers in using gamification in teaching various subjects. But, to develop projects using gamification techniques, those interested must start with complex documentation to understand the value and particularities of cultural heritage, historical continuity and the specifics of local communities. The comparative analysis reveals a diverse landscape of strengths and weaknesses in gamified cultural heritage projects. While most games excel in providing meaningful and rewarding experiences, enhancing innovation, leveraging scarcity, and better integrating local cultural

elements could significantly improve their overall effectiveness and impact. Therefore, when developing and using gamification techniques based on cultural heritage, the following criteria and particularities must be taken into account:

1. *Importance of Purpose and Meaning*. Future projects should focus on creating content that resonates deeply with players' sense of purpose and cultural identity.
2. *Value of Ownership and Rewards*. Incorporate reward systems that recognise and incentivise player achievements to boost engagement and satisfaction.
3. *Need for Innovation and Creativity*. Encourage innovative game design that allows player creativity and introduces disruptive elements to keep the game exciting and novel.
4. *Utilizing Scarcity and Loss Avoidance*. Design game elements that leverage scarcity and potential loss to drive engagement and make accomplishments more rewarding.
5. *Enhancement of Local Culture*. Ensure that games are deeply rooted in and promote local cultural heritage, making them more relevant and enriching for players.
6. *Accessibility and Inclusion*. Design games with features that accommodate diverse player needs, ensuring broad accessibility and inclusivity.
7. *Effective Use of Feedback and Unpredictability*. Incorporate robust feedback mechanisms and unpredictable elements to keep players engaged and responsive to the game.
8. *High Impact Through Effectiveness and Innovation*. Prioritise effectiveness and innovation in game design to achieve a substantial and lasting impact on cultural heritage engagement.
9. *Community Involvement*. Engage local communities in the project's development and implementation phases to ensure it meets local needs and fosters a sense of ownership.

Promoting knowledge about heritage involves individual and collective approaches, private and/or public initiatives, etc. However, the role of museums in promoting cultural heritage is indisputable because most cultural assets are concentrated within these institutions, and their mission is to present and inform the public. This includes applying IT methods to ensure the complete and correct presentation of information. In this regard, another example of good practice and adequate presentation of a site is the National Railway Museum of Entroncamento, located in Medio Tejo (Portugal), where the gamification model was applied to promote tourism and valorise railway heritage[21]. Therefore, it is necessary to draw

[21] E. Lopes, B. Sousa, J. Simões, C.G. Marques, C. Rego, „Museums and Education: Gamification Applied to the Enhancement of Railway Heritage", A. Abreu, J.V. Carvalho, A. Mesquita, A. Sousa Pinto, M. Mendonça Teixeira, (eds) *Perspectives and Trends in Education and Technology*. ICITED 2024. Lecture Notes in Networks and Systems, vol. 859, (Springer, Cham, 2025): 65-74. https://doi.org/10.1007/978-3-031-78155-1_7

attention to and encourage museums and educational institutions to promote cultural and natural heritage actively.

By summarising the above, we believe that future gamified cultural heritage projects can be designed to engage better, educate, and resonate with communities and players, ensuring they are fun, culturally enriching, and impactful. Integrating these perspectives will lead to more successful and meaningful gamification initiatives in the cultural heritage sector.

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