

Could Gamification Have Use to Sustain Cultural Heritage in Destinations and Create Memorable Tourism Experiences?

Oyunlaştırma Destinasyonlarda Kültürel Mirasın Sürdürülmesi ve Unutulmaz Turizm Deneyimleri Oluşturulması İçin Kullanılabilir mi?

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Abstract: Gamification has been defined as the adaptation of game components to non-game elements. It is also highly related to gaining knowledge, awareness, interest, motivational patterns and gaining loyal customers. Therefore, this article aims to show how gamification can be used in heritage tourism. This article has been prepared as a conceptual study. Gamification and heritage tourism are discussed in the literature review. Then, the use of gamification for heritage tourism has been clarified. According to the study, gamification should be used for a multitude of purposes for cultural heritage, such as promoting cultural heritage destinations, acquiring loyal tourists, and creating different and memorable experiences. The paper has provided recommendations on how gamification can be integrated into the processes of sustainable cultural heritage and creating unforgettable tourism experiences. It has emphasized the necessity of technological tools and digital environments for the implementation of gamification under these headings. Additionally, it has highlighted the importance of qualitative research in future studies and provided recommendations accordingly.

Keywords: Cultural Heritage, Gamification, Memorable Tourism Experiences, Sustainability.

Öz: Oyunlaştırma, oyun bileşenlerinin oyun dışı öğelere uyarlanması olarak tanımlanmıştır. Ayrıca bilgi edinme, farkındalık, ilgi, motivasyon kalıpları ve sadık müşteriler kazanma ile son derece ilgilidir. Bu nedenle, bu makale oyunlaştırmanın kültür turizminde nasıl kullanılacağını göstermeyi amaçlamaktadır. Bu makale, kavramsal bir çalışma şeklinde hazırlanmıştır. Literatür taramasında oyunlaştırma ve kültür turizmi ele alınmış, daha sonra oyunlaştırmanın kültür turizmi için kullanımına açıklık getirilmiştir. Çalışma sonucunda oyunlaştırmanın; kültürel mirasa sahip destinasyonların tanıtımı, sadık turistlerin kazanılması, farklı ve akılda kalıcı deneyimler yaratılması gibi kültürel mirasın çok sayıda amaç için kullanılabilmesi ortaya koyulmuştur. Çalışma sonucunda sürdürülebilir kültürel miras ve unutulmaz turizm deneyimi yaratma süreçlerine oyunlaştırmayı nasıl entegre edilebileceğine ilişkin öneriler sunulmuştur. Bu başlıklar altında oyunlaştırmanın uygulanması için teknolojik araçlar ve dijital ortamların gerekliliği de vurgulanmıştır. Ayrıca gelecekte yapılacak çalışmalarda ağırlıklı olarak nitel araştırmaların önemli olabileceği vurgulanarak öneriler sunulmuştur.

Anahtar Kelimeler: Kültürel Miras, Oyunlaştırma, Unutulmaz turizm deneyimi, Sürdürülebilirlik

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1. Introduction

Games are activities that people have participated in to have fun throughout history. Realizing the psychological needs of people, such as socialization and self-realization, in a fun way is possible with games. Nowadays, gamified content and applications are created to perform tedious works with fun in line with their goals and objectives.

When the literature is examined, although there are many studies on technological issues, there is no study that reveals the contribution of gamification to cultural heritage. According to the literature, it is seen that gamification can be used for cultural heritage. However, there is no conclusion regarding the relationship between gamification, experiences, and sustainability. Gamification is considered to be related to a memorable tourism experience in destinations and cultural heritage sustainability. With this in mind, research questions were created:

- Do gamified cultural heritage contents make tourist experiences memorable?
- Are the cultural heritage (tangible and intangible) elements sustainable through gamification?

According to these questions, the research aims to reveal how gamification, a new technological and psychological method, can make cultural heritage sustainable and transform the cultural heritage into an memorable experience tool.

This topic has not been studied in the literature. In this context, it is thought that the study will contribute to the literature. In addition to its contribution to the literature, it also serves as a guide for tourism service providers and destination marketing organizations. Tourism service providers and destination marketing organizations are considered to look for a new tool in the marketing and sustainability of cultural heritage destinations. Hence, this contribution of the study makes the study important. This article is based on a literature review. It aims to present an approach by examining the topics covered in the review in depth. Conceptually, gamification, tourism - gamification, cultural heritage - gamification are included. As a result of the research, it was explained how gamification could be used in the sustainability of cultural heritage and the memorable tourism experience.

2. Literature Review

2.1. Gamification

Huizinga (1950) defines gamification as a tool that activates reward systems. According to Zichermann (2010), gamification is based on 75% psychological and 25% technological foundations. Based on this, it can be said that a gamification is a tool that affects and directs people psychologically.

Yılmaz (2020: 27) has focused on the attention economy in gamification. Nowadays, the average focus time of people has decreased to eight seconds. For this reason, it is necessary to draw people's attention in eight seconds. In this context, games and gamified applications become one of the most suitable tools for the attention economy. Apart from that, it can also be associated with experience and purpose economies. The purpose economy, which proposes eliminating this problem by reconnecting humanity, which is corrupt with the economies of information and technology and belongs to the virtual world, aims to create meaning and purpose in work done (Hurst, 2014). This situation also coincides with the experience economy. Kotler et al. (2016) argue that people should experience meaningful and purposeful experiences today. In this context, gamification, which creates a habit in people by creating the underlying meaning and commitment cycle, is a powerful tool that can be considered purpose and experience economy that will be important in the future.

In order to create the most effective gamification application to achieve the desired goal, it is crucial to design the structure correctly at the beginning. Therefore, the gamification pyramid organized by Werbach and Hunter (2015) should be used. They developed the pyramid in question, inspired by the pyramid of "mechanics, dynamics and aesthetics" steps put forward by Hunicke et al. (2004). Werbach and Hunter (2015) removed the aesthetic phase from the previously created pyramid and added the step of the components instead. He emphasized that all stages (components, mechanics, and dynamics) create the experience (aesthetics). No matter how vital components are added to the poorly designed dynamic and mechanical stages, the experience that will meet the expected purpose will not be created. For this reason, the structure started with strong storytelling in which emotions and relationships are embraced should be accompanied by mechanics such as rewarding,

challenge, ranking that users can realize that they are self-fulfilling. Finally, components such as badges and avatars should be planned, and the most appropriate experience should be created.

2.2. Gamification and Tourism

Tourism is an area that highlights the collective experience creation of tourists and service providers (Vargo and Lusch, 2008). The level of tourist involvement in creating value depends on how service providers empower them. At this stage, gamification can be applied in two ways. It uses to encourage tourist participation or to improve their experience, or improve the involvement of tourism professionals in the organization. (Huotari and Hamari, 2012). The purpose of applying gamification in tourism shaped according to these uses. The first of these aims is to change tourists' and employees' behavior such as providing purchases, ensuring efficient work, and the second is to create an intrinsic motivation for tourists and employees to create value (Xu et al., 2013).

Gamification can be used by tourism organizations in sales and marketing (external application) or training, crowdsourcing, human resources, productivity development (internal application). Usage examples are examined in the table below (Xu et al., 2013):

Table-1 Examples of Gamification in Tourism

Company	Game Element
American Airlines	Progress indicator – Points - Levels
Turkish Airlines	Physical rewards - Badges
Shopkick	Virtual currency – Awards - Competitions
Check Points	Virtual currency - Awards
Starwood SPG Program	Scoring system - Badges
Marriott My Hotel	Scoring system – Levels - Virtual products
Four-square / Swarm	Badges – Leaderboard - Non-virtual offers and prizes

Source: Compiled by the author

It can be said that gamification provides some benefits in terms of tourism. These benefits are examined under four topics:

1- Promote tourist participation: According to the results of game design researches, concepts such as flow, pleasure, motivation, and involvement constitute the participation dimension of gamification (Brown and Cairns, 2004; Ermi and Mayra, 2005; Jennett et al., 2008). The pleasure of the game and the desire to continue to fulfill itself ultimately turns into game addiction. Awards, badges, points reveal different types of emotions in the players, and these emotions are calls to action that constantly involve the players in the flow of the game (Zichermann and Cunningham, 2011).

2- Develop tourist experiences: Tourism, an experience economy, provides a versatile and multi-dimensional experience presentation (Kim et al., 2012; Ritchie and Hudson, 2009). Besides, tourism experiences do not cover the basic dimensions of intrinsic motivation, social play, fun, and challenges provoked by game design and game thinking (Deterding et al., 2011).

3- Increase tourist loyalty: Loyalty programs can be achieved with quality, value, and satisfaction in tourism marketing communication (Oh, 1999; Petric, 2004). Gamification will increase loyalty by developing interaction between the tourist and the system and between other tourists (Xu et al., 2013). The most well-known gamified loyalty applications are frequent flyer programs and destination loyalty cards (Zichermann and Linder, 2010).

4- Increase tourism brand awareness: Games are used in advertising in three ways. These are game advertisements, branded games, and game sponsorship (Çeltek, 2010). Brands that want to be remembered strongly use games for branding and to advertise. For gamification, businesses can design their gamified advertisement and collaborate with an existing gamified application. Moreover, they can promote and place their posters as a sponsor of an existing application (Xu et al., 2013).

Paharia (2013: 29) gives gamification areas as measurement and motivation, recognition and rewards, loyalty, reputation, creating high-value experiences, and empowering them. According to Paharia (2013: 29), gamification is a powerful tool to measure what users want and generate motivation for this measurement. In light of this, it is also possible to create brand awareness and ensure loyalty. Strengthening the reputation and creating valuable experiences has become very important today. Kotler et al. (2016) draw attention to brand advocates today. In this context, with a habit-forming gamification cycle, brands will quickly transform consumers into their advocates. Some examples of gamification used in tourism are shown in the table below.

Table-2 Gamification Applications in Tourism

Place/Application's Name	Gamification	Goals
Batman Museum (Turkey) Physical Game	Enlarging the ancient chess to make it playable	Sustainability of cultural heritage with the introduction of the oldest chess game found in excavations within the scope of the Ilisu project
Oyun Atlası Instagram Game	Traveling through ancient cities with the red ball filter	To support the promotion and sharing of ancient cities
Mangala / Oyun Atlası Physical Game	Experiencing an ancient and traditional game anywhere	"Do you want to play a 12,000-year-old game?" with the slogan of both learning history and spreading the game.
Piri – Travel Application IOS- Android	Getting to know the destinations and attractions, earning tickets to narrated tours by collecting points	Promotion of destination and attraction centers and creating visit motivation
Howhere Application IOS- Android (Still at the proposal stage)	Instagram games Learning about tourism by collaborating with daily quests and Trivia Quizzes	With this application that can be applied to tourists by businesses, it is planned to create loyalty, increase feedback and increase the participation rate.
Presidio SF. Treasure Hunt Application IOS-Android	Earning treasures by visiting historical and cultural places with discoveries	Transferring history and sustainability of cultural heritage by enabling them to discover historical and cultural places on the map.
Ghent Case Application IOS-Android	Exploring the city's history	Promotion of historical and cultural places in the city and consolidation of knowledge with questions.
STAM Interactive Museum Application IOS-Android	To answer the questions correctly by visiting the museums on the map with the selected character	To introduce information about museums, to reinforce the information with the questions asked.

Source: Compiled by the author

2.3. Gamification and Sustainability

The tourism sector has become a significant industry worldwide, driving economic growth. Cultural heritage tourism, in particular, attracts tourists' attention by offering opportunities to explore our historical and cultural riches (Khan et al., 2020). However, this growth has brought along environmental and cultural challenges. At this point, the relationship between gamification and sustainable tourism is of great importance (Negruşa et al., 2015).

Gamification is an approach that uses game elements to encourage people to achieve specific goals or participate more actively in an activity. In the tourism sector, gamification can be effectively used to promote sustainable tourism and enhance tourists' environmental and cultural awareness. It can say that gamification provides some benefits in terms of sustainable tourism. These are examined under six headings:

- 1- *Education and Awareness:* Gamification can be used to educate tourists about sustainable tourism principles and increase their environmental and cultural sensitivity. Through mobile applications, tour guides, or interactive games, tourists can be provided with information to encourage them to exhibit more responsible behaviors (Lee, 2019).
- 2- *Local Engagement:* Gamification can facilitate the greater involvement of local communities in sustainable tourism projects. Games that encourage local participation in tourism experiences can

- support the local economy and contribute to the preservation of cultural heritage (Lee and Wong, 2018; Douglas and Brauer, 2021).
- 3- *Conservation of Natural Resources*: Gamification can motivate tourists to increase their environmental responsibility. For instance, by assigning tasks such as cleaning up natural areas or reducing water consumption, tourists can contribute to the preservation of natural resources (Negruşa et al., 2015).
 - 4- *Tourist Co-Creation of Cultural Heritage Value*: Cultural heritage preservation is an area where tourists show significant interest through gamification. Tourists can participate in local cultural events or solve puzzles at historical sites, showing respect for the past while actively contributing to its preservation (Jung and Dieck, 2017; Buhalis et al., 2022).
 - 5- *Adoption of Sustainable Practices*: Gamification, through the hook effect, can encourage tourists to adopt sustainable behaviors. Tourists can be incentivized to acquire sustainable habits by earning rewards through gamification. For example, they can be rewarded for recycling, consuming local products, or using public transportation (Negruşa et al., 2015; Douglas and Brauer, 2021).
 - 6- *Feedback and Monitoring*: Gamification can be used to track tourists' behaviors related to sustainability and provide feedback. This allows for continuous improvement of sustainable tourism practices (Huber and Hilty, 2015; Avolicino et al., 2022).

Gamification can be a powerful tool for promoting and preserving sustainability in the tourism sector. This approach has the potential to increase tourists' environmental and cultural responsibility, support local communities, contribute to the preservation of natural and cultural resources, and encourage the adoption of sustainable habits. However, gamification strategies should be carefully designed to align with local needs and conditions to effectively promote sustainable tourism.

2.4. Gamification and Cultural Heritage

Heritage tourism is an attraction for tourists. Heritage tourism is a type of tourism where buildings from the past are visited (Hafstein, 2012). With the development of heritage tourism, it is aimed to protect and promote existing historical assets. Technology is a tool used for the protection of heritage tourism assets. Especially with its informative feature, mobile applications are widely used in this regard. Nowadays, it is necessary to use games to provide information. Using gamification techniques will be possible to obtain information fun, which is boring before and inexperienced. By using gamification, holistic experiences, including knowledge acquisition, can be offered in heritage tourism regions (Ionnides et al., 2017).

The development of mobile technology applications can be a strategic tool to create an element of attraction. Among the tools that can be used, applications such as UCD, AR can be included. The purpose of these vehicles is to create attraction, provide information and create an enjoyable travel experience (Buhalis et al., 2022). Cultural heritage is a value that must be passed on from generation to generation and can be used for its transmission in a package offered in tourism destinations. Heritage tourism is a touristic tour in historical and cultural value as a tourist attraction. Heritage tourism is one way to learn and preserve the destination's heritage, which has meaning and wisdom from the past (Kempiak et al., 2017). Also, with heritage tourism, the economy of that region will develop and maintain the destination's cultural heritage (Alberti and Giusti, 2012).

Gamification is one of the learning methods applied in applications using game design elements. Gamification; It is a popular mobile application tool for various subject types such as education, health, culture, trade, tourism (Khan et al., 2020; Buhalis et al., 2022). Using gamification helps the user assimilate the information in the application. The design elements involved in gamification include scores, levels, badges, leader boards, awards and awards, progress bars, stories, feedback (Yılmaz, 2020). With these elements successfully implemented to improve user engagement, satisfaction, and task performance in different areas, their effectiveness is often mixed and differs between individuals. Gamification also provides commitment, increases competition and team spirit motivation (Patricio, 2017). In the tourism industry, gamification can use Augmented Reality (AR), Geocaching, and GPS-based applications (Skinner et al., 2018).

Gamification in tourism and culture can contribute to tourism marketing by contributing to the distribution and preservation of information about the history of ancestral war culture found in places of heritage tourism (Widarti and Emmanuel, 2020). Besides, creating educational games can be used as a virtual communication tool between players. The presence of a virtual interface can provide a different and memorable tourism experience (Bec et al., 2019). For this reason, gamification can be used as a tourism marketing method to increase visitor attraction. The existence of gamification in tourism is a new way of learning, innovative

marketing, and awareness of cultural heritage and history (Khan et al., 2020). It can develop pleasant, impressive, and fantastic tourism experiences that can lead to a high satisfaction level.

Table-3 Gamification Prototype for Tourism Applications

Gamification Elements	Application Design
Score	Obtained after the quest game is completed. Points consist of coins and stars collected by players.
Level	There are three temple locations in this application; each temple has different levels to explore the temple area.
Prize	Virtual items that can be used to help complete the game are weapons used to fight enemies. Original items given as gifts in this game are discounted tickets.
Status	Performance and progress
Avatar	There are four players to choose from in this app: Semar, Gareng, Petruk, Bagong.
Achievement	User can access if completed the quiz and mission game.

Source: Widarti and Emanuel, 2020

As a result of their study, Widarti and Emanuel (2020) have developed a prototype design used in heritage tourism. According to this design, six gamification elements are explained in the context of application design. The score element is used to evaluate the understanding of the information from the exam/question given according to the touristic region discovered. The level element is used in the general exploration of touristic places by the area. The reward item is used to reward the task when it is completed. The status item is used to view the user's progress or performance in the destination.

3. Conclusion

The concept of gamification is a concept that has started to become popular. It is associated with cultural heritage, especially for its use in tourism. However, the studies in the literature have not been addressed in the context of memorable tourism experiences and sustainability in gamification in cultural heritage. Although there is no study directly related to these issues, there are studies that can be associated. For instance, Luoh et al. (2020) emphasized that gamified food learning will create memorable experiences for people. Thus, both the sustainability of gastronomy, which is a part of the cultural heritage, will be ensured, and memorable experiences will be created for tourists. Using impressive films (Dubois and Gibbs, 2018) or stories (Gabr and Abdennadher, 2015) in gamified contents is another alternative that can be used for heritage tourism. In particular, stories such as legends, myths, and rituals are widely used in heritage tourism. If these contents are gamified in a narrated way, both sustainable cultural heritage is provided and tourist experiences become memorable (Kaya, 2020). The stories or movies in question can be created over historical buildings. Thus, it will be possible to give more information about these historical buildings. Historical stories about these buildings can become boring from time to time but it will turn into the contrary with gamification and it will be fun. Besides the fun, it contributes to sustain cultural heritage in destinations (Widarti and Emanuel 2020). At the same time, fun is also associated with hedonism, which is one of the factors of memorable tourism experiences (Kim et al., 2012). In this context, it is obvious that fun will make experiences memorable (Heger et al., 2009). In gamification applications, there are sections for sharing ideas or chatting between users. Socialization among tourists can be achieved by adding chat sections about destinations. Socialization is one of the factors that creates a memorable tourism experience, just as hedonism (fun) (Kim et al., 2012). Based on this idea, it is possible to say that create memorable tourism experiences in cultural destinations with gamification (Xu et al., 2016).

Gamification is also used in loyalty programs to make heritage tourism sustainable. The reason for this is to ensure the continuity of tourists and to create a sustainable flow (Negruşa et al., 2015). Technologies developing with digitalization can be used to create memorable experiences with gamified content. In particular, VR (Virtual Reality) and AR (Augmented Reality) are among the most important examples (Yung, 2019; Kask, 2018). 3D Representation of the Destinations is one of the other methods used (Berger et al., 2006). These tools are important for the sustainability of cultural heritage, as they not only create experiences but also transmit the culture to potential non-visiting tourists (Loureiro et al., 2020). Also, these tools can be used to prevent over

tourism and can be used in the management of destination carrying capacities (Zhang et al., 2017). It is important that stakeholders gain economic advantages in order to create sustainable destinations.

In this context, the fact that gamified content creates loyal tourists and enables tourists to be positioned as prosumers (producer-consumers) will reduce marketing costs. In addition, tourists who become brand advocates are very important to gain a competitive advantage. Moreover, preventing over tourism will provide a competitive advantage. On the other hand, adopting an omnichannel approach will provide a vital competitive advantage for the cultural destination (Yang et al., 2008). The table 4 below contains gamification tools for heritage tourism. Studies supporting the use of these tools for sustainable cultural heritage and memorable tourism experience are also given in the table:

Table-4 Gamification Tools in Heritage Tourism

Gamification Tools	Sustainability of Cultural Heritage	Memorable Tourism Experiences
Films	Dubois and Gibbs, 2018	Dubois and Gibbs, 2018
Stories	Gabr and Abdennadher, 2015	Gabr and Abdennadher, 2015
Gastronomy	Luoh et al., 2020	Luoh et al., 2020
Cultural Buildings	Widarti and Emanuel, 2020	---
Themes	---	Zhang et al., 2017; Heger et al., 2009
Fun	Xu et al., 2016	Xu et al., 2016
Loyalty Programmes	Negruşa et al., 2015	---
3D Representation of the Destinations	Berger et al., 2006	Berger et al., 2006
Virtual Reality and Augmented Reality	Yung, 2019; Kask, 2018	Loureiro et al., 2020
Socializing	---	Xu et al., 2016
Competitive Advantage	Yang et al., 2008	---
Tourism Carrying Capacity	Zhang et al., 2017	---

Source: Compiled by the author

4. Implications

According to the findings of the study, the use of gamification is crucial for sustainable cultural heritage in destinations. Using gamification for sustainable cultural heritage tourism can be an effective way to enhance tourists' environmental and cultural awareness, support local communities, and contribute to the preservation of natural and cultural resources. In this context, some recommendations for using gamification in sustainable cultural heritage tourism are given below:

- **Historical and Cultural Puzzles:** Offer games that encourage tourists to solve puzzles at historical and cultural sites. These puzzles can motivate tourists to take a greater interest in local history, art, and cultural heritage.
- **Participation Games in Cultural Events:** Organize participation games for tourists at local cultural events. Tourists can engage in traditional dances, arts and crafts workshops, or local festivals to experience cultural heritage firsthand.
- **Sustainability Tasks:** Assign tasks to tourists aimed at preserving natural resources. For instance, tasks related to forest clean-up, recycling, or water conservation can encourage tourists to make meaningful contributions.
- **Interaction Games with Locals:** Arrange games that facilitate interaction between tourists and the local community. These games enable tourists to communicate with local residents, engage in cultural exchanges, and gain a deeper understanding of local lifestyles.
- **Mobile Applications and Interactive Guides:** Provide sustainability-focused information to tourists through mobile applications or digital interactive guides. These applications can help tourists customize their tourism experiences and increase their environmental awareness.

- **Reward and Recognition System:** Establish a system that rewards tourists for sustainable behaviors. For example, you can offer special awards or recognition for tourists who engage in recycling or other sustainable practices.
- **Local Stories and Memories:** Create opportunities for tourists to share and explore local stories and memories. This allows tourists to experience cultural heritage in a more meaningful way and establish deeper connections.
- **Sustainability Reports:** Provide reports or statistics that help tourists track their contributions to sustainability. This allows tourists to see the impact of their efforts.
- **Community Collaboration:** Involve the local community in the design and implementation of gamification projects. This ensures that projects align better with local needs and cultural values.
- **Request for Feedback:** Solicit feedback from tourists about their gamification experiences and use this feedback to improve your projects.

Moreover, it has become very important to make the experiences memorable and elements of gamification, (socializing, fun, etc.) make the experiences memorable. In addition, not only the gamification elements but also the tools and outputs used make the experience memorable. For this reason, especially tourism practitioners should pay attention to gamified content. Using gamification to create an memorable tourism experience can not only provide visitors with a fun and engaging experience but also enhance environmental and cultural awareness. Some recommendations for utilizing gamification to create memorable experiences are given below:

- **Location-Based Tasks:** Provide visitors with tasks to complete using mobile applications or maps at specific tourist locations or cities. For example, you can ask them to visit a certain number of historical sites or try local dishes.
- **Rewards and Competition:** Offer visitors the opportunity to earn rewards or collect points based on the tasks they complete. Additionally, encourage friendly competition among visitors to boost participation.
- **Storytelling:** Use gamification to tell the stories behind tourist destinations or regions. Visitors can solve puzzles or complete tasks to uncover the narrative at specific points of interest.
- **Cultural Interactions:** Promote interactions between visitors and the local culture. You can offer tasks involving interactions with local people or provide experiences like participating in local arts and crafts.
- **Environmental Awareness:** Encourage visitors to take on environmental tasks to promote sustainable tourism. Tasks like trash collection, preserving natural areas, or saving water can contribute to the conservation of natural resources.
- **History and Archaeological Discoveries:** Create games that revolve around exploring historical and archaeological sites. Visitors can be motivated to solve puzzles or participate in activities at excavation sites while learning about the past.
- **Museum and Exhibition Activities:** Organize interactive games at museums or exhibitions to provide visitors with more engaging experiences. Particularly, create opportunities for fun learning experiences, especially for children.
- **Food and Culinary Experiences:** Develop games related to local cuisine and food culture. Visitors can complete tasks related to trying local flavors or improving their culinary skills.
- **Feedback and Participation Incentives:** Value the feedback you receive from visitors and use it to enhance their experiences. Involving visitors in shaping their experiences is crucial.
- **Creative Activities:** Offer creative activities such as art, photography, or local handicrafts to visitors. This allows tourists to create their own memorable souvenirs.

Academic implications on the subject are that more studies are needed on this subject. Especially qualitative research such as case studies will contribute to the literature in this direction. Comprehensive impact assessment studies can be conducted to better understand the effects of gamification on cultural heritage tourism. These studies can examine changes in tourist behaviors, the impacts on environmental and cultural sustainability, and contributions to local communities. Future research should investigate how new technologies such as mobile applications, augmented reality (AR), and virtual reality (VR) can be integrated into cultural heritage gamification and explore the effects of these technologies. Studies can also explore how different tourist groups respond to gamification methods and how they can be better targeted. Research on how big data analytics and measurement techniques can be used to monitor and improve the success of gamification projects is warranted.

Additionally, research can investigate how gamification contributes to sustainable tourism and encourages sustainable behaviors among tourists.

References

- Alberti, F. G., & Giusti, J. D. (2012). Cultural heritage, tourism and regional competitiveness: The Motor Valley cluster. *City, culture and society*, 3(4), 261-273.
- Avolicino, S., Di Gregorio, M., Romano, M., Sebillio, M., Tortora, G., & Vitiello, G. (2022). EcoGO: Combining eco-feedback and gamification to improve the sustainability of driving style. In *Proceedings of the 2022 International Conference on Advanced Visual Interfaces* (pp. 1-5).
- Bec, A., Moyle, B., Timms, K., Schaffer, V., Skavronskaya, L., & Little, C. (2019). Management of immersive heritage tourism experiences: A conceptual model. *Tourism Management*, 72, 117-120.
- Berger, H., Dittenbach, M., Merkl, D., Bogdanovych, A., Simoff, S., & Sierra, C. (2006). Playing the e-business game in 3D virtual worlds. In *Proceedings of the 18th Australia conference on Computer-Human Interaction: Design: Activities, Artefacts and Environments* (pp. 333-336).
- Brown, E. & Cairns, P. (2004). A grounded investigation of game immersion. In: CHI '04 Extended Abstracts on Human Factors in Computing Systems, Vienna, Austria: ACM.
- Buhalis, D., Lin, M. S., & Leung, D. (2022). Metaverse as a driver for customer experience and value co-creation: implications for hospitality and tourism management and marketing. *International Journal of Contemporary Hospitality Management*, 35(2), 701-716.
- Çeltek, E. (2010). Mobile advergaming in tourism marketing. *Journal of Vacation Marketing*, 267-281.
- Deterding, S., Dixon, D., Khaled, R. & Nacke, L. E. (2011). From game design elements to gamefulness: Defining "Gamification", Mindtrek 2011 Proceedings. Tampere, Finland: ACM.Press.
- Douglas, B. D., & Brauer, M. (2021). Gamification to prevent climate change: A review of games and apps for sustainability. *Current opinion in psychology*, 42, 89-94.
- Dubois, L. E., & Gibbs, C. (2018). Video game-induced tourism: a new frontier for destination marketers. *Tourism Review*.
- Ermi, L. & Mäyrä, F. (2005). Player-centred game design: Experiences in using scenario study to inform mobile game design. *The International Journal of Computer Game Research*, 5(1).
- Gabr, F. M., & Abdennadher, S. (2015). Walk Like an Egyptian: A Serious, Pervasive Mobile Game for Tourism. *International Association for Development of the Information Society*.
- Hafstein, V. T. (2012). Cultural heritage. *A companion to folklore*, 500-519.
- Heger, C., Offermans, S., & Frens, J. (2009). Waiting as part of the fun: Interactive gaming in theme park queues. *Offermans SAM, Nagtzaam HA H. Proceedings of SIDER*, 9, 52-55.
- Huber, M. Z., & Hilty, L. M. (2015). Gamification and sustainable consumption: overcoming the limitations of persuasive technologies. In *ICT innovations for sustainability* (pp. 367-385). Springer International Publishing.
- Huizinga, J. (1950). *Homo Ludens*. Boston: Beacon Press.
- Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: A formal approach to game design and game research. In *Proceedings of the AAAI Workshop on Challenges in Game AI* (Vol. 4, No. 1, p. 1722).
- Huotari, K., & Hamari, J., (2012). *Defining gamification: A service marketing perspective*. In: Proceedings of the 16th International Academic MindTrek Conference, Tampere, Finland: ACM.
- Hurst, A. (2014). *Welcome to the Purpose Economy*. *Fast Company*.
- Jennett, C., Cox, A., Cairns, P., Dhoparee, S., Epps, A., Tijs, T. & Walton, A. (2008). Measuring and defining the experience of immersion in games. *International Journal of Human-Computer Studies*, 66(9), 641-661.
- Jung, T. H., & Dieck, M. C. (2017). Augmented reality, virtual reality and 3D printing for the co-creation of value for the visitor experience at cultural heritage places. *Journal of Place Management and Development*, 10(2), 140-151.
- Kask, S. (2018). *Virtual reality in support of sustainable tourism. Experiences from Eastern Europe* (Doctoral dissertation, Eesti Maaülikool).
- Kaya, B. (2020). *Unutulmaz turizm deneyiminin hikâye anlatıcılığına etkisi* - Master's thesis, Batman Üniversitesi Sosyal Bilimler Enstitüsü.
- Kempiak, J., Hollywood, L., Bolan, P., & McMahon-Beattie, U. (2017). The heritage tourist: An understanding of the visitor experience at heritage attractions. *International Journal of Heritage Studies*, 23(4), 375-392.

- Khan, I., Melro, A., Amaro, A. C., & Oliveira, L. (2020). Systematic review on gamification and cultural heritage dissemination. *Journal of Digital Media & Interaction*, 3(8), 19-41.
- Kim, J. H., Ritchie, J. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. *Journal of Travel research*, 51(1), 12-25.
- Kotler, P., Kartajaya, H. & Setiawan, I. (2016). *Marketing 4.0: Moving from traditional to digital*. New Jersey: John Wiley & Sons.
- Lee, B. C. (2019). The effect of gamification on psychological and behavioral outcomes: Implications for cruise tourism destinations. *Sustainability*, 11(11), 3002.
- Lee, C. S., & Wong, K. S. D. (2018). Deriving a gamified learning-design framework towards sustainable community engagement and mashable innovations in Smart Cities: Preliminary findings. *International Journal of Knowledge and Systems Science (IJKSS)*, 9(1), 1-22.
- Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism context: A text-mining approach. *Tourism Management*, 77, 104028.
- Luoh, H. F., Tsaur, S. H., & Lo, P. C. (2020). Cooking for fun: The sources of fun in cooking learning tourism. *Journal of Destination Marketing & Management*, 17, 100442.
- Negruşa, A. L., Toader, V., Sofică, A., Tutunea, M. F. & Rus, R. V. (2015). Exploring gamification techniques and applications for sustainable tourism. *Sustainability*, 7(8), 11160-11189.
- Oh, H. (1999). Service quality, customer satisfaction and customer value: a holistic perspective. *International Journal of Hospitality Management*. 18. 67-82.
- Paharia, R. (2013). *Loyalty 3.0*. McGraw - Hill Publishing.
- Patricio, R. (2017). A gamified approach for engaging teams in corporate innovation and entrepreneurship. *World Journal of Science, Technology and Sustainable Development*, 14(2/3), 254-262.
- Petric, J. F. (2004). Are loyalty visitors desired visitors. *Tourism Management*. 25(4): 463-470
- Ritchie, J. R. B. & Hudson, S., (2009). Understanding and meeting the challenges of consumer/tourist experience research. *International Journal of Tourism Research*, 11(2), 111-126.
- Skinner, H., Sarpong, D., & White, G. R. (2018). Meeting the needs of the Millennials and Generation Z: gamification in tourism through geocaching. *Journal of tourism futures*, 4(1), 93-104.
- Vargo, S. L. & Lusch R. F. (2008). Service-Dominant Logic: Continuing the Evolution. *Journal of the Academy of Marketing Science* 36, 1-10
- Wach, E., & Ward, R. (2013). Learning about qualitative document analysis. Impact and Learning Team Practice Paper in Brief, Institute of Development Studies.
- Werbach, K., & Hunter, D. (2015). *The gamification toolkit: dynamics, mechanics, and components for the win*. Wharton School Press.
- Widarti, E., & Emanuel, A. W. (2020). Mobile Application Design for Heritage Tourism Uses Gamification Approach in Indonesia. *International Journal of Engineering Pedagogy*, 10(5).
- Xu, F., Tian, F., Buhalis, D., Weber, J., & Zhang, H. (2016). Tourists as mobile gamers: Gamification for tourism marketing. *Journal of Travel & Tourism Marketing*, 33(8), 1124-1142.
- Xu, F., Weber, J., & Buhalis, D. (2013). Gamification in tourism. *Information and communication technologies in tourism 2014* (pp. 525-537). Springer, Cham.
- Yılmaz, E. A. (2020). *İş'te Oyunlaştırma*. İstanbul: Ceres Yayınları.
- Yung, R., & Khoo - Lattimore, C. (2019). New realities: a systematic literature review on virtual reality and augmented reality in tourism research. *Current Issues in Tourism*, 22(17), 2056-2081.
- Zhang, Y., Li, X. R., Su, Q., & Hu, X. (2017). Exploring a theme park's tourism carrying capacity: A demand-side analysis. *Tourism Management*, 59, 564-578.
- Zichermann, G. (2010). Fun is the future: Mastering gamification. *Google Tech Talk*, 26.
- Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. " O'Reilly Media, Inc."
- Zichermann, G., & Linder, J. (2010). *Game-based marketing: inspire customer loyalty through rewards, challenges, and contests*. John Wiley & Sons.