



## Gamification Practices in Museums

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### Abstract

Museums as cultural institutions serve a large number of audiences. To communicate effectively with their visitors and attract new audiences, museums have to develop new methods and tools. The competition from other alternative leisure time activities makes it increasingly harder for museums to attract visitors. "Gamification" is an effective method for museums to interact with their visitors. Gamification tools have already been implemented successfully in education, health, self-improvement, and other areas. There are various studies on the utilization of gamification in marketing, business, and communication as well. Yet studies on the gamification of museum experiences are scant. The purpose of this study is to close this gap, identify possible gamification methods in museums, and explore the impact of gamification on the visitor experience. In order to do so, interviews were conducted with eight museum professionals. Results indicate that gamification is an engaging tool for a meaningful museum experience for visitors. In addition to the benefits of gamification, some difficulties and challenges were also explored.

### Keywords

Museum, Gamification, Motivation, Visitor Experience, Museum-Visitor Interaction

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## Introduction

Museums work hard to attract visitors and keep their attention while informing them about their collections. One of the major discussion issues in museum studies is the visitor experience and learning in the museum (Vom Lehn & Heath, 2003). Visitors can have a very dynamic experience in museums while they interact with other visitors, the artifacts, and their environment. According to Pine and Gilmore (1998), such experiences can be examined under four main dimensions. These are: experiences related to education, which are about teaching people new things; experiences related to entertainment, which are about having good time; aesthetic experiences, which are art- and beauty-related experiences; and escape experiences, which are experiences that take people away from their daily worries (Cetin, 2020). Museums that offer one or more of these types of experiences can better satisfy and create loyal visitors. Moreover, these different experiences are shared with others and remembered for a long time.

Gamification in museum settings has the potential to offer all four dimensions of experience. Museums that use gamification as a tool to create positive, unique, and memorable experiences are preferred not only among competing museums but also among other leisure activities (Pine & Gilmore, 1998). Gamification is acknowledged as an important way to create experiences, but gamification in museums is overlooked in the literature. Therefore, the aim of this paper is to identify the components of gamification in museums, as well as the processes and challenges of gamification, and explore its impact on visitor experience. A qualitative approach was adopted and museum experts were interviewed on their perceptions of gamification. The conceptual framework of the study is detailed in the next section.

## Literature Review

Games are seen as tools to provide social interaction and have been a part of all cultures throughout history. With each game's own rules and goals, games reveal emotions such as excitement, ambition, friendship, and empathy, which motivate people while they play. These emotions can also be felt through gamification methods, which can bring a different perspective to people's behaviors and habits (Rodriguez, 2006; Walker & Froes, 2011; Deterding et al., 2011).

Gamification was first used in the 1890's as a method in the marketing industry for improving the sales of products and services (Christians, 2018). The term *gamification* was first used in academic literature in 2010, and scholarly publications have increased since then. Research on gamification is mainly focused on social interaction, experience, education, and motivation (Hamari, Koivisto & Sarsa, 2014).

It should be noted that gamification itself is not a product but a process, and the output of gamification is the game. In short, gamification is the process of

changing an already existing activity using game elements, so that people can be attracted and motivated (Landers, Auer, Collmus & Armstrong, 2018). Werbach (2013) defines gamification as the use of game design techniques in business or non-game environments, such as a human resources management. Redesigning the daily routines and tasks of business life in a more gamified and interactive way will make employees more effective and efficient, and will also increase their motivation by creating a fun environment. Werbach (2014) focuses more on user experience and sees gamification as a process, arguing that game design elements should be carefully selected, combined, and applied to non-game environments (Simpson & Jenkins, 2015; Sailer et al., 2017). Marczewski also defines gamification as activities aiming to influence behavior by increasing motivation and commitment in people (Marczewski, 2013).

Deterding et al. (2011) state gamification as the use of game elements and game design methods in non-game areas, and they focus on the building blocks of gamification. According to them, three concepts stand out in gamification (Deterding et al., 2011; Sailer et al., 2017). These are the game elements (i), which contain tools, such as cooperation, competition, strategy, and so on, that make up the game and help the players adapt to the game. Game design (ii) is the phase in which the game starts as an idea and becomes the game for the user. This includes many phases, such as idea generation, idea maturation, scriptwriting, character design, setting up the player journey, setting up the reward system, determining the rules of the game, leveling the challenges, designing the visuals, designing the sound, deciding on the music or composing the music, prototyping, and testing. Gamification aims to integrate game elements into processes and environments such as work projects, education, health, personal development, parenting, and so on, which would not traditionally be considered games. This non-game environment (iii) is the third concept studied under gamification (Gamification Guide, 2019).

Gamification improves both intrinsic and extrinsic motivations. According to Ryan and Deci (2000), motivation is very important for the performance of an activity. If a person finds an activity very interesting and has fun, and if he is very enthusiastic and energetic, this is due to intrinsic motivation. On the other hand, if the cause for a behavior is external (such as environmental pressure, punishment, praise, reward, etc.), the reason for this behavior is extrinsic motivation. Therefore, just as they have different values, people also have different motivation styles (Ryan & Deci, 2000). For example, in 2009 the Volkswagen Company developed “The Fun Theory.” They designed the “The World’s Deepest Bin” project to draw attention to environmental awareness. The Project included entertainment elements and was designed to both positively affect people’s behavior and to attract attention. With sensory sound effects placed in the bin, the feeling of falling into a very deep valley was created when a

piece of garbage was thrown into the bin. People who threw their garbage in it were also curious to look into the bin to understand the source of the sound. The other project was “The Piano Stairs,” built next to the elevators at metro stations. The stairs were designed to play piano notes on each step. This project, which increased the use of stairs by 66%, was fun for people and motivated them to stay fit. In another, similar application, a slide was built next to the subway stairs so that people in a hurry could use the slide to both go down faster and have fun (Bohyun, 2015). Gamification practices that can be adapted to daily life also show the teaching aspect of gamification while entertaining the audience.

Museums can also tell the stories of their collections to their visitors through gamification applications designed for their target audiences. But studies about gamification practices and their effects in the context of museums are scant. First of all, museums should know their audience well and design gamification applications to increase the motivation of their target visitors. And these applications should be designed in a way that will contribute to people’s learning while they have fun, to create positive behavioral changes (Bohyun, 2015). In traditional museums, visitors generally experience and learn about the artifacts by reading and by watching their environment in a passive way. In this case, visitors become passive participants. Active participation, on the other hand, is defined as the interaction of visitors with the environment both physically and mentally (Robson et al., 2014). Social interaction is another important element that affects the experience in museums. It is a great advantage for museums that visitors can interact with each other, and it is extremely important that they learn new information from the collections exhibited in the places they visit. Gamification is one of the approaches that will help increase this interaction among visitors and collections (Ciolfi & McLoughlin, 2012).

In addition, different gamified applications also support the learning process by offering fun. Gamification is also emphasized in order to increase young audiences’ interest in and interaction with museums (Squire & Jenkins, 2003). Teenagers usually do not prefer to spend their free time in museums. Entertainment is very important to attract this growing audience to museums. For example, The Victoria and Albert Museum in England created an application for university students in collaboration with teachers and designers. Teenagers enjoyed participating in the game because it was a fun activity. In the application, they followed the directions uploaded to mobile digital devices. For example, students were asked to laugh out loud and watch other visitors’ reactions. They were also asked to guess what comments were made by other visitors about a piece, secretly take photographs of visitors’ ankles in front of a Tudor-era bed, and write messages to other visitors. Additionally, in front of a section where plates were displayed, students were requested to play a video of someone breaking the plates and watch the reaction of other visitors. Teachers and curators

observed that such unusual practices in a museum, which actually is a place students find quite boring, make them feel good. At the same time, students learned a lot of new information with this application. By enabling the students to see objects that would not normally attract their attention, this gamification activity helped them observe these objects from a different angle and question their thoughts and perceptions of a museum (Walker & Froes, 2011).

Therefore, the entertainment element of gamification also makes processes perceived as boring (both at work and in other areas of life) more enjoyable for the participants and enhances creativity (Simpson & Jenkins, 2015).

### **Method**

This study aims to investigate gamification practices in museums so that museums can become interesting places for visitors to have a meaningful museum experience. For this purpose, interviews were conducted with museum professionals. In these interviews, the main research questions were identifying the benefits of gamification practices in museums, the difficulties encountered in these practices, and the characteristics of successful game design in museums. Five years of experience was set as a recruitment criterion for the participants in order to collect in-depth answers. The concept of gamification was reviewed in the literature and four open-ended questions were prepared as follows:

1. What are the tools and applications you offer your visitors to have an effective experience in your museum?
2. What do you think are the benefits of gamification practices in museums?
3. What are the difficulties encountered in gamification practices in museums?
4. What is the ideal game set-up in museums?

Initially, interviews were conducted with respondents from the two most-visited museums in Istanbul (Topkapı and Dolmabahçe Palaces). With the guidance of these professionals, the contact information of professionals in other museums was collected by applying snowball sampling. An appointment request was sent to these museum professionals via e-mail and meetings were arranged. The interviews took place at a convenient time and location based on respondents' schedules.

The interviews were electronically recorded and transcribed into written text. Each interview took approximately 45 minutes and a total 37 pages of transcribed data were analyzed. Some museums, on the other hand, stated that they found it appropriate to answer questions in writing instead of through face-to-face interviews

due to Covid-19 pandemic restrictions. The requests were accommodated and respondents were allowed to send their answers via e-mail by recording their voice. The age range of the museum professionals was 32-55, and their university education was in different disciplines, including art history, history, archeology, philosophy, philology, and economics. The experience of the professionals was between 5 and 30 years. Therefore, experienced museum professionals from different disciplines were recruited, which also enhanced the representativeness of the sample. Table 1 displays information about the respondents, their experience, and education. Respondents were also given pseudonyms (R1 to R8) to protect their anonymity.

**Table 1**  
*Museum Professional Respondents*

<b>Museum Professionals</b>	<b>Experience Year</b>	<b>Education</b>	<b>Workplace</b>
R1	10	Art History	Meşher Art Gallery
R2	5	Philosophy	Yapı Kredi Culture and Art
R3	6	History	Istanbul Research Institute
R4	11	Economy/Culture Management	ANAMED (Research Center For Anatolian Civilizations)
R5	13	Art History	Troia Museum
R6	15	Philology	Dolmabahce Palace
R7	25	Art History	National Palaces Painting Museum
R8	30	History	Museum of Palace Collections

Adopting a qualitative enquiry, the study used semi-structured interviews as the main data collection tool. Respondents were asked about their experiences and the gamification practices applied in their organizations, the impact of such practices on effective museum experience, the additional benefits of these applications, the challenges they encountered in adopting gamification tools, and the characteristics of games they created. The transcriptions were content analyzed. Keywords were highlighted and coded under different categories, such as determination of exhibition content, target audience, transmission of information, and visitor engagement. Additionally the benefits and difficulties of information transmission were also explored. Initially this open-coding process was conducted by each researcher individually. Authors then came together to discuss their findings and emerging categories. A consensus was sought for each theme to improve the reliability of the findings. These are discussed in the next section.

### **Findings**

Based on the content analyses, the gamification process in museums starts with understanding the target audience of the museum well and determining the content of the exhibitions. Museum professionals stated that museums differ primarily based on their exhibition contents. According to museum professional R1, museums are

divided in two: there are spaces where valuable works are exhibited and their stories are told (i), and where more academic subjects with conceptual, abstract messages are exhibited (ii). The target audiences of these museums are also different from each other. While art-oriented exhibitions target a wider audience, for the exhibitions with conceptual and abstract messages, their target audience is more limited. The transfer of the information about the collections to the target audience should be done with the appropriate tools. The important thing at this stage is that the tools to be used in information transfer are understandable by the target audience. The information should be transferred in a simple, short, and gamified way. This process is displayed in figure 1.



*Figure 1.* Gamification Process

According to museum professional R2, if information boards are used, these should be as simple and understandable as possible. Depending on the content of the exhibition, it has been stated that the explanations are sometimes supported by maps or diagrams/charts as well as audio/video works, such as interviews of experts, collages, and short narratives. In some of their exhibitions, visitors were also provided with information via touch screens. Again, according to the content of the exhibitions, museum professional R3 stated that when architectural and graphic design applications are used, these applications are designed to provide an effective and a fun experience to their visitors.

Likewise, museum professional R4 stated that when academic content is targeted, not only research documents but also digital content such as photographs and videos are used in order to make it understandable for everyone.

Museum professional R2 noted that in guided museum tours for adults and students, the narratives are supported by particularly interesting stories and anecdotes. R2 also stated that they provide spaces to universities to give some of their courses in their museums. In addition, children's activities and programs are prepared according to all ages, interests, and capacities. For example, it was stated that depending on the content of the exhibition, booklets are printed with picture/motif completions, where the names of the works are matched with their locations. Painting spaces are also prepared. Again, for school groups, R7 stated that they give students the opportunity to paint and also play treasure hunt games in the museum. In this case, students are provided with an interactive visit to have fun and learn at the same time. These interactive experiences make the visitors active participants in the museum.

R6 has the opinion that the Sultanate Boats (reconstructed boats used by the Ottoman imperial family), which carry visitors from one side of the Bosphorus to the other, provide an enjoyable and unforgettable experience. R6 also stated that the concerts given by the Janissary Band on certain days at the entrance of the museum provide an impressive experience to visitors.

R8 stated that since the museum was a palace kitchen in the past, university gastronomy department teachers and students, in particular, had a more effective museum visit by applying drama studies.

In line with the definitions of gamification in the literature, the museum professionals stated that when gamification tools are applied to non-game environments, it is observed that people are more participative in activities they would otherwise find boring. In terms of the benefits and challenges of gamification, as long as practices allow the visitor to have a meaningful visit and fun in the museum, they are considered beneficial by all museum professionals who participated in the study.

R4 stated that as a museum visitor, she felt more involved in an event with gamified applications. Likewise, in the exhibitions they prepared, she stated that when a touch screen or a search button is used in their exhibitions, they usually generate more attention from the visitors.

R5 said that many definitions of museums have been put forward from the 19<sup>th</sup> century to the present, and that people have referred to museums as prisons (i.e., Eskihsar Prison). R5 said that they came up with this prison analogy because museums can be places where ancient artifacts are exhibited in a showcase in a static and solid form, at a distance from the visitor. It is emphasized that the Eskihsar Prison perception is based on the lack of communication in the classic museum, where the objects are “imprisoned” with little interaction.

According to R5, gamification is providing an opportunity to communicate directly with visitors, establishing an emotional bond between the museum and the visitor, enabling visitors to become museum’s followers. In addition, R5 stated that while the artifacts, especially archaeological artifacts, are kept at a distance from visitors due to their fragility, the process of transferring information to the visitors is carried out through new communication techniques and gamification. R5 stated that they had the chance to communicate effectively, especially with children, at the museum. Thanks to gamification, the information to be conveyed and the messages to be given can reach their target quickly and in a planned manner, and in this way, children, especially, become more open to perception with curiosity.

When it comes to the challenges of gamification in museums, more difficulties are encountered in digital gamification than in non-digital games. R5 stated that due to

excessive use, digital devices can break down quickly. For this reason, which was also stated by R1, a technical team should always be ready. This situation both increases the costs in terms of maintenance expenses and can cause financial problems as the applications need to be renewed. Digital tool also become obsolete within a few years. In addition, senior visitors are a generation away from digital devices. Therefore, they may find some of the applications complicated to use. Hence, the design of such applications should be as clear and easy as possible to use.

On the other hand, non-digital gamification often does not appeal to young people, who spend most of their time in digital applications. For this reason, particularly the “Z” generation easily gets bored with traditional games and thinks that the museum does not appeal to them. Additionally, R5 stated that there are big difficulties in reaching teenagers and establishing communication with them based on their experiences.

Although gamification applications provide an enjoyable experience for visitors, these applications can sometimes overshadow the original work, exhibition, and message. R4 mentioned that for this reason, the dose of gamification needs to be adjusted carefully. The game should be prevented from becoming the main product of museums and should always be related to the museum’s mission and contents of the exhibitions. In addition, the content of gamification should be appropriate and understandable for all age groups. The expert staff in each museum should investigate the needs of the target audiences and follow the innovations in the field of gamification.

One of the points stated by R1 and R4 is the need to measure the effectiveness of gamification applications on visitors. In addition, understanding the impact of gamification on museum experiences will facilitate the spread of such practices. Hence, visitor exit surveys gain importance.

Museum professionals were also asked for their opinions about the applications they have not developed yet, but have planned for the future. Accordingly to R3, 2D applications can be counted among the more effective gamification applications than can digital versions. In addition, R5 said that education workshops, drama, theater performances, and mobile museum studies are among the future plans of their museum with regards to gamification applications. In addition, there is the idea of bringing children together with the museum in schools with mobile museum applications.

### **Discussion and Conclusion**

According to the museum professionals, museums that interact with their visitors using appropriate gamification methods attract more visitors and are considered more

successful than classic museums that do not communicate with their visitors and do not create any interaction between the exhibited works and their visitors.

Marczewski (2013) mentioned that gamification aims to affect behaviors by increasing motivation and commitment in people with game like thinking, game metaphors, and game elements. So museums can provide an enjoyable experience by offering an active participation opportunity to their visitors and can increase their motivation with gamification applications. These experiences are important for museums to create loyal visitors who recommend them to others, contributing to the development of both visitors and museums. Gamification applications particularly facilitate communication with children, so that children can learn information conveyed by the museums easily, while having fun. These gamified applications also increase memorability. Therefore, gamification practices can secure children as permanent museum visitors of the future and will be able to contribute to the cultural development of society, which is the main mission for any museum.

Although respondents mentioned that the new generation is harder to reach, museum professionals acknowledge gamification as one of the solutions. Literature supports the idea that there is a game suitable for every person (Cetin, 2020). Studies and examples show that games as tools of providing social interaction throughout history provide people with a sense of freedom, which increases creativity. Hence the pessimistic approach to reaching young people can be overcome by designing games based on the young generation's profile and interests. Moreover, research and practice show that there are some games in museums designed for young people that do effectively create engagement and interest from younger generations. Meanwhile studies have also shown that visitors' biggest motivation (80%) for going to a museum is to have fun (Lui & Idris, 2018). In the past century, despite an increasing number of alternative leisure activities, museums have made great efforts to stay attractive for their visitors. Both in virtual and physical environments, museums are focused on entertaining their visitors in addition to their mission of conveying information and education. Therefore, the quality of interaction between the museum and the visitor is the major discussion.

Museums are no longer static; as dynamic spaces, they adapt new practices, especially in terms of visitor-centered approaches. Gamification is one of the practices that provide a fun time and an effective experience in museums for visitors. Museums that can communicate effectively with their visitors and offer them a comfortable ambiance where they can interact with their environment, and allow them both to have fun and learn, provide a meaningful museum experience.

To conclude, gamification can be used in museums to enhance the visitor experience. However, the contents of the games should match the mission of the museums, their

exhibitions, and the needs and profiles of their target visitor groups. Gamification methods to be used in museums should be designed in a way that is appropriate for all age groups and that motivates their visitors, in order to give them emotional and mental experiences. There are also challenges of gamification in museums, such as the cost of introducing and maintaining gamification applications and tools. The use of digital devices can also be difficult to understand. That's why these devices should be clear and understandable for all age groups. In addition, digital devices can easily break down and this can cause extra costs. However, as acknowledged by the museum professionals, the benefits of gamification in museums outweigh its difficulties, and gamification can meet the expectations of visitors in museums.

Museums that want to communicate effectively with their visitors can design gamification applications using the findings obtained as a result of the research. The findings offered in this qualitative study can be used to collect quantitative data in future studies on gamification applications in museums, and measure their effects on visitor behavior using a questionnaire. Market segmentation analyses can also be utilized and scales can be developed in different areas of gamification in museums.

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