



Echoes of the Past: A Gamified Initiative for Audience Development of Cultural Heritage

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I INTRODUCTION

In the last decade gamification has progressively been applied in many sectors: health (Johnson et al. 2016), education (Nah et al. 2014), marketing (Noorbehbahani et al. 2019), productivity (Ferreira et al. 2017), social good (Thiel et al. 2016), and last but not least, in the field of *cultural heritage* (Champion 2016). Although more slowly than in other fields, there has been a growing awareness of the benefits of gamified applications, as well as serious games and VR/AR, in the field of cultural heritage (Cunha et al. 2018). Such initiatives have recently multiplied and diversified, with the use of gamification to promote learning (Tan and Lim 2017), make

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271

people engaged in heritage (O'Connor et al. 2020), or contribute to its valorization and sharing (Gironacci et al. 2017). Gamification has been applied to different cultural contexts and institutions, such as museums, places of interest, tourist itineraries, or intangible heritage (Bollo 2018; Paliokas and Sylaiou 2016).

However, the application of gamification to cultural heritage is still not mature (Rapp et al. 2019; Nacke and Deterding 2017). Today, it is still very much applied preferentially for a young audience, often taking edutainment forms. Game dynamics and mechanics that are used are still standardized according to the PBL triad (points, badges, leaderboards, Werbach and Hunter 2012: 69ss), while few applications are designed to create long-lasting effects and awareness dynamics in relation to cultural heritage. This is even more evident in Italy, characterized by a traditional inertia of cultural institutions in relation to digital innovation practices (Viola 2018), as well as widespread disengagement between cultural institutions and the population, and by difficult communication between the two (Solima 2018). As a result, many existing game-like experiences have focused on explicit education patterns, in-museum activities, and interactions, becoming a simple support to traditional methods, contents, and visitors.

The present contribution discusses an example of gamified initiative for cultural heritage in counter-trend to the previous ones. This application was devised to use gamification for the audience development and engagement of a state museum body, the MANN (National Archaeological Museum of Naples). Through a gamified cultural innovation plan, with a mobile video game (*Father and Son: the game*) as its first product, MANN tried to reach out to new audiences, raising awareness and establishing a form of communication appropriate to the practices of a digital generation (Viola 2018).

The case study discussed below presents a relevant set of characteristics that make it worthy of mention within the panorama of gamification initiatives for social purposes:

1. It represents a hybrid initiative, in which a gamified cultural innovation project develops a mobile video game (non-edutainment) as its first product;
2. It moves away from the typical gamification aims linked to cultural heritage, to focus on audience development, raising awareness through the development of forms of emotional communication (Kidd 2015);

3. It uses a series of less frequently applied gamification dynamics connected to narrative/storytelling, moving away from the frequent use of the PBL triad and focusing on a process of onboarding through emotional engagement.

The present contribution will discuss both the video game and the broader process of gamified innovation of the public Figure of the Museum. In the following pages we will first reconstruct the gestation of the project, defining its initial objectives and the project proposal. Then we will analyze the design dynamics underlying the game and the gamification initiative. Finally we will discuss the results obtained, starting from the quantitative data available in order to develop a reading of the phenomenon.

2 DEVELOPMENT

In 2016 the MANN, under the impetus of Paolo Giulierini's new management, published a strategic action plan for 2016–2020, devised together with Prof. Ludovico Solima (Università degli studi della Campania “Luigi Vanvitelli”). The plan briefly mentions the intention to develop a game as part of the institution's *audience development* measures, with the aim of “improving the attractiveness to the Museum's various new audiences and strengthening the link with existing ones”.¹ On that occasion, Fabio Viola—a gamification designer and a founder of TuoMuseo, and a collective working at the intersection of games, arts, and cultural heritage—was contacted for a consultancy. Through a series of exploratory meetings, TuoMuseo and the MANN discussed the possibilities and strategies to pursue an initiative of audience development with games in mind. The consultancy evolved into a collaboration for the design of a long-term gamified initiative starting with the creation of the anticipated video game.

During the first meetings, the objectives and aims of the institution were defined, so as to make it possible to identify possible directions for the initiatives. The objectives of the museum were based on the aforementioned desire to create a product aimed at audience development; furthermore, the Museum wanted to avoid forms of on-site entertainment, linked

¹ Available at https://www.museoarcheologiconapoli.it/wp-content/uploads/2016/06/%E2%80%A2MANN_piano-strategico_BASSA.pdf (last accessed 28/09/2020).

to the audience already present in the museum, having already implemented these initiatives in the previous years. In addition, during the discussion, both partners agreed to avoid forms of edutainment in particular, designed for a young audience, thus focusing on a different target and game form instead. These needs were linked to the search for new/innovative communication practices that would allow the institution to address a specific audience, which is not generally interested in or sensitive to cultural heritage and thus not reached by the museum's typical forms of institutional communication (direct advertising, initiatives, free days, collaboration with schools, etc.). These wishes had been synthesized through the maxim of communicating "by taking the museum out of the museum".

During a short series of planning meetings between MANN and TuoMuseo, a gamified conceptual framework was used to guide and map the course of action: at the time still under development by Fabio Viola. The framework was based on the model of Project Canvas, while inspired by and structured using the principles of engagement design (Viola and Idone Cassone 2017). The framework "Canvas for Cultural Innovation" is grounded on gamification concepts as a guide for the design of such initiatives: the user centrality in the cultural process, the definition of user types and motivational dynamics, development of the modes of interaction and the player's journey, and justification of the forms of rewarding during the experience. These aspects were integrated in the model together with those typical of Business Canvas, thus combining them with demographics of players (Bartle 2004; Liu and Idris 2020), motivational factors grounded in the Self-Determination Theory (Deci and Ryan 2008; Landers et al. 2015), engagement loop and Player's Journey models (Kim 2011), and types of rewarding and emotional paradigms (Viola and Idone Cassone 2017) (Fig. 1).

With this framework, the subjects were able to define the fundamental characteristics of the initiative and key features of the video game.

- The developers aimed to target an international audience of adults (18+) with autonomy of budget and movement, but tending to be untied/disengaged from the museum's tourist and cultural circuit. Additionally, a digitally competent audience with no specific experience in games was targeted. In relation to the Bartle Test, the profiles identified as reference were those of *explorers* (leveraging the

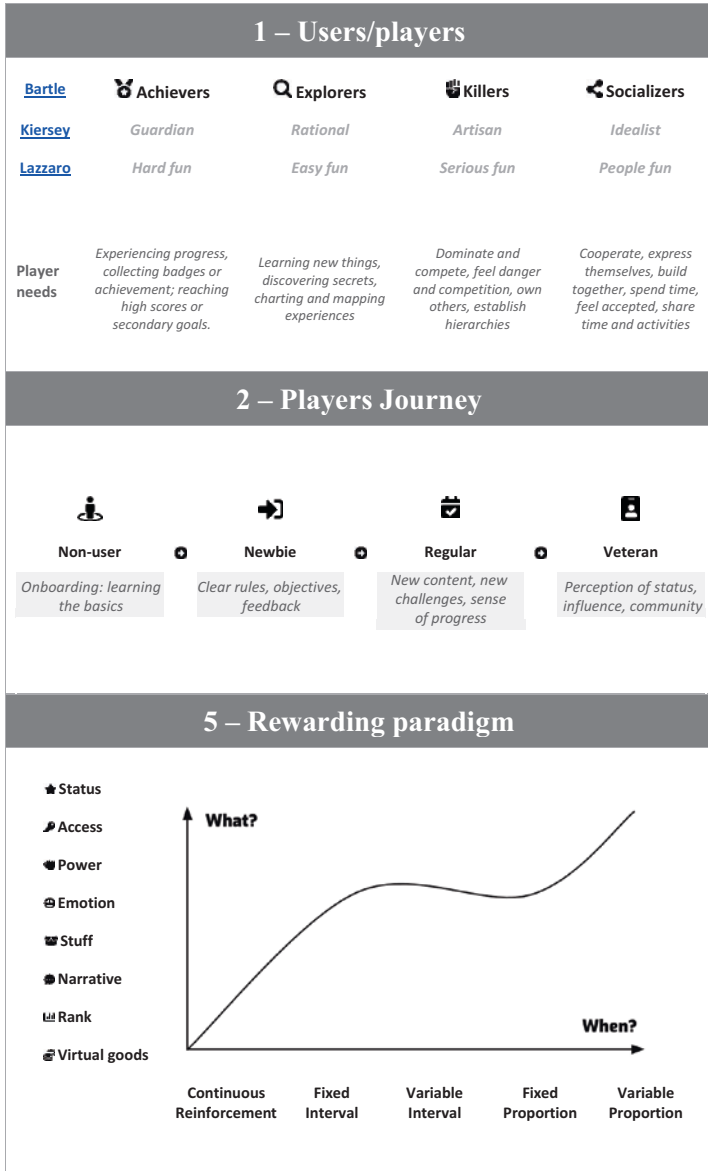


Fig. 1 The gamified Canvas for Cultural Innovation, page 2 (gamification tools)

- sense of discovery, love of novelty and exploration) and *socializers* (linked to the aspect of the sense of sharing and communicability).
- In relation to the dynamics of the interaction implemented, the game was shaped as an *onboarding* process, which in the *Player's Journey* allows a foreign/external subject to come into contact with a service/product, being representative of the cultural heritage and manifested in the Museum. The game would thus constitute a first peculiar contact between a subject and an institution, different from the direct forms of institutional communication/marketing.
 - This form of interaction was inspired by Fogg's (2009) *trigger* concept, specifically the *spark* type, that is, an interaction in which a skilled but unmotivated subject is brought to a state of sufficient motivation through interaction with the game/system. The spark was structured starting from motivational dynamics coherent with the identified types of users, and therefore, based on the development of the sense of *relatedness* and *autonomy* and structured as *experiential engagement* (Viola and Idone Cassone 2017: ch.2).

Based on these characteristics, the design elements of the project were defined, making it possible to move from the pre-production phase to the production phase (duration 8 months ca). The production phase included the following elements:

- A mobile platform for a wide audience with high digital literacy, including both casual gamers and non-gamers;
- A free and short-term game, ideally uninterrupted (45–60 min, modeled on the onboarding process);
- A graphic adventure game, which is story-based and has no challenge (exploration and discovery as main dynamics);
- A linear structure with simple decision-making process, avoiding differences in individual experience and game decision paralysis and ensuring narrative quality;
- The main theme including bonds/links between past and present and between generations (a narrative translation of the institution's function as guardian and a legacy of cultural heritage).

With these elements, the core of the *Player Experience Goals* (Fullerton 2018: 10ss) was defined, whereby a narrative would allow the player to indirectly (in undeclared way) experience the values that make the museum

important as a cultural entity and that would symbolize (through the player's adventure) the experiences and sensations related to the relationship with it. This led to the choice to use the museum as a scenario/environment of the story, rather than an object of the story itself. The core themes of the story would thus revolve around the relationship between present and past, the link between our culture and those that preceded it, and the role of the museum as a guardian and a teacher and a "father" who passes on to its children the family legacy.

On this basis, a series of videogame references were identified, which guided the development of the design document. This includes a series of interactive narrative productions, inspired by the adventures developed by TellTale Games (for the screenplay and emotional impact, while keeping in mind the budget difference), or *The End of the World* by Sean Wenham (a short minimalistic 2d adventure); *Islands of Nubla* (a mobile puzzle game created by the Thyssen-Bornemisza National Museum), or *Versailles:1685* (a video game developed by Cryo Team, set in Versailles palace and praised for the connecting historical reconstruction and playful dynamics).

3 CASE STUDY: FATHER AND SON

In March 2017, *Father and Son: the game* was published on the App store and Google play, with MANN as developer. The game was initially developed in English and Italian and was subsequently translated to French, Spanish, Russian, Chinese, Portuguese, German, Napolitano Dialect, and Japanese. The game is a two-dimensional, one-shot graphic adventure, 45–60 min in duration.

Players impersonate the son of a curator of MANN who receives a letter by the father: shortly before dying, the curator writes a letter of reconciliation to the son, in which he invites him to go to the museum to retrieve his notes and memories, as a way to understand the work that kept him away from his family. The initial prompt allows players to visit several areas of the museum, in each of which they come into contact with an archeological artifact, particularly dear to the father. Each one triggers a brief mental journey, with the player experiencing the past context in which the object was located, people the father came into contact with, and common life at the period (e.g. Pompeii in Roman times, Egypt and Bourbon Naples).

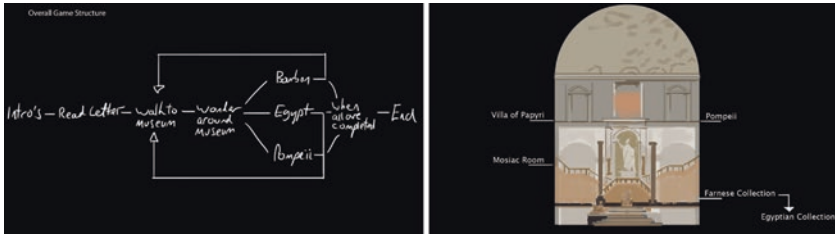


Fig. 2 The general structure of the game, and the Museum Hub

The narrative is linear, but the player can choose the order in which to visit the individual rooms, starting from the central hub at the Museum entrance. Although the game has a linear structure the player has a number of choices to make, for example, the order in which to follow the story sequences (Fig. 2). As a result, the game has several endings in the same scene: the son visits the father's tomb at the graveyard and receives one of the two versions of the final letter, which has been written by the main character and is defined based on the dialogue choices taken during the game. In one version, the son somewhat comes to terms with his father's life choices, in the other version, he still condemns the father. The variations in the ending were reduced during the design phase, in order to avoid different interpretations of the game message and possible individual variations on the theme.

Although the game was designed as a one-shot, an automatic save mechanism via checkpoint has been developed, useful in case of forced pauses in the use of the smartphone or unexpected program interruptions.

The game includes a short tutorial/introduction, which quickly describes the player's interaction mechanics at the beginning, while presenting the game settings and introducing the time shifting mechanics. The scene opens with a view of the sky of Pompeii, followed by a scene of two lovers in the Bourbon Naples, and finally a sculptor in Egypt. Each of the scenes introduces characters who will be "met" later, while the game explains the mechanics of interaction and controls. In addition, the three scenes help to create the "meditative" atmosphere of the game, in the transition from the initial night/romantic atmospheres to a daylight in the modern atmosphere that the protagonist presents (Fig. 3).

The thematic core of the game is presented in the initial scene and develops on a narrative level translated by the mechanics of temporal



Fig. 3 Tutorial, first scene

shifting (Fig. 4). Through narration and player interaction, the game presents three aspects of the main theme of the bonds between past and present, which intersect and weave in order to trigger an emotional response in the player:

1. The most evident bond exists at a diegetic level, that is, between the father and the son, the former completely involved in his work, the latter completely separated from it. The premise of the game asks the player to accompany the son into the “discovery” of the father’s legacy.
2. Another bond exists between the present and the past, which is linked to the generational discourse but extends to the relations between the civilizations that preceded us and our own. While being in present time, we can still interact with the legacy, and this link is expressed through the mechanics of temporal shifting, which connects/expands the individual father-son link to the collective past-present one.
3. Finally, there is an emotional bond between the player and the museum, developed through the game by making the player go through an experience that indirectly highlights the importance of the cultural entity as a guardian and a supporter of the cultural and personal ties. The

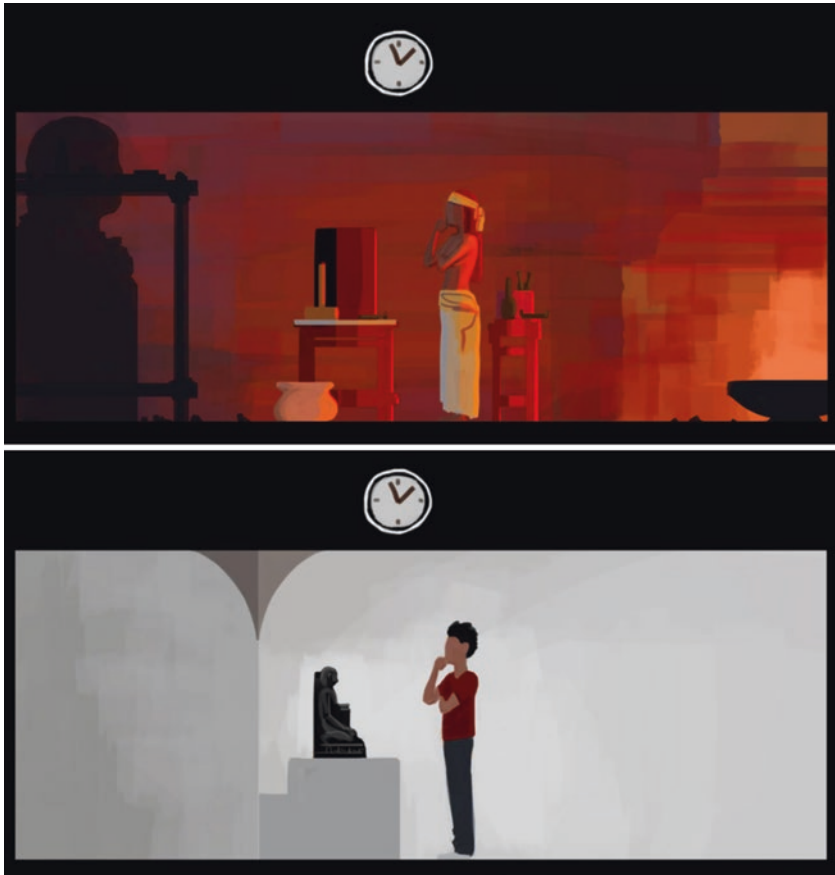


Fig. 4 Detail of the time-shift mechanics

museum simply plays the role of a “voiceless” setting, where it is possible to reactivate or rediscover the importance of the previous links.

The game triggers a process of awareness and engagement based on the experience of the game story, enabling the player to reconsider or rethink his/her relationship with cultural heritage in general and the MANN institution specifically. The game deliberately moves away from any form of “direct appeal” or explicit reference to the importance of museums, the

cultural-historical value of their collections or their educational function. In doing so, it shifts from the typical strategies of cognitive persuasion used in the institutional sphere, to a strategy of emotional experience, founded through the narrative dynamics of the game.

The core of the experience designed for the game is reinforced by the visual and sound esthetics. The graphics make use of hand-drawn scenarios, with an evanescent style and watercolor tones, deliberately without details and with the use of color for the masses of objects and persons represented. This reinforces the sense of impalpability and contributes to the provision of an “existential” atmosphere to the gaming experience. The soundtrack uses pieces on the piano and melodic orchestrates and a series of real sound effects, taken from the Museum and Naples’ surroundings, so as to help bring out the details of the city, such as the sound of voices walking around Naples, the sound of birds, voices in the gardens, or the sound of the mocha gurgling.

These elements are added to a precise rhythm and timing of the experience: in addition to the idea of a game of short duration, designed for a single session (consistent with the idea of onboarding), the rhythm of the game is deliberately slower than in similar products, looking for an experience that recalls a “meditative” rhythm. This effect has been achieved by inserting relatively long segments of movement and foreseeing moments of “defibrillation” within the game: walking sections inserted after the most important emotional moments in the story. This framing of the experience and the rhythm of the game tries to translate in video game terms the characteristics of a typical visit to the museum, ideally characterized by a meditative, calm, concentrated, and emotionally intense walk.

Lastly, the game includes two additional (optional) mechanics: the first is linked to a process of collecting a series of sketches of works of art from the museum (5), hidden along the levels, which can be identified and “drawn” by unlocking the corresponding sketch. The second element concerns the unlocking of additional content on the basis of a geo-location system. If the player is physically at the MANN during the game, he/she will be able to change the protagonist’s clothing and access an additional room in the museum. This unlocking effect is temporary and is not retained by the system the player is once outside the museum.

4 RESULTS

The initial data analysis and interpretation allow for a preliminary overview of the results of the initiatives and provides a first evaluation of the project. The initial analysis was limited by the actual data available at the time.

In particular, the game did not feature an in-game system to record and collect data from players and was limited to the in-game check-in at the museum. Thus, the team relied on an analytics external system, in addition to the simple ones provided by the mobile platforms. Additionally, the data collected by the system only cover the first two years since the release (up to April 2019). This makes it difficult to correctly measure metrics such as playtime or completion rates.

The museum did not carry out any data collection or sampling in relation to the effects of the game for its audience. Furthermore, the Museum has little information about the demographics of its visitors, making it impossible to compare between the users of the game and other visitors of the museum. This problem is representative of many Italian institutions (including the museums) that have difficulties in collecting data about their audience or measuring the impact of their initiatives (Bollo 2008).

Finally, while there is abundant literature and market data on the performance of many mobile games, the vast majority of the literature discuss games with free-to-play, *live service* gameplay (i.e. Clash of Clans, Pokémon GO, or Candy Crush Saga), which are analyzed in terms of stickyness, player retention, conversion rate, and so on. These metrics are not applicable for *Father and Son: the game* because of its “traditional” nature of story-based adventure games. This makes it difficult to provide meaningful comparisons between the available data of the game and other mobile games on the store.

With these constraints taken into account, we have compared the available data in order to set up a preliminary interpretation on the results of the game. First of all, the game has registered over 4 million installations between the two stores in 2020 (Google Play and Apple Store, with a 3:1 ratio in 2019), far exceeding the internal 300 k download target set by the team and generating a (unplanned) net positive ROI for the museum in the first year (check-ins presented below). The game also showed a long-lasting trend of downloads, with the initial year downloads amounting to more than 2 million, and two more million in the following years from 2018 to 2020.

The free nature of the title, as well as the advertising obtained on the platforms through the featured titles function—which placed the game in high visibility positions in the stores several times—certainly contributed to this figure. In addition, the game has been widely covered in numerous newspapers, blogs, and cultural heritage pages in Italy in 2017. In the same year, MANN won the ArtTribune award as innovative museum of the year, which was linked to the experimental initiatives such as *Father and Son*, further contributing to the Figure and dissemination of the title.

The internal analytics and Google data indicate that the audience was of the average age above 30 years (54%) and had medium-high education. Gender ratio between men and women players was 57% to 43% (data up to 2019). Over 93% of the audience were non-Italian, which might be linked to the use of English as the language of production and primary dissemination of the title, as well as the developers being an international team. The players come mainly from China, the USA, Russia, India, and Brazil. The Italian audience accounted for less than 7% of the players. If adjusted for the population size of each country, this proportion becomes more significant (Fig. 5).

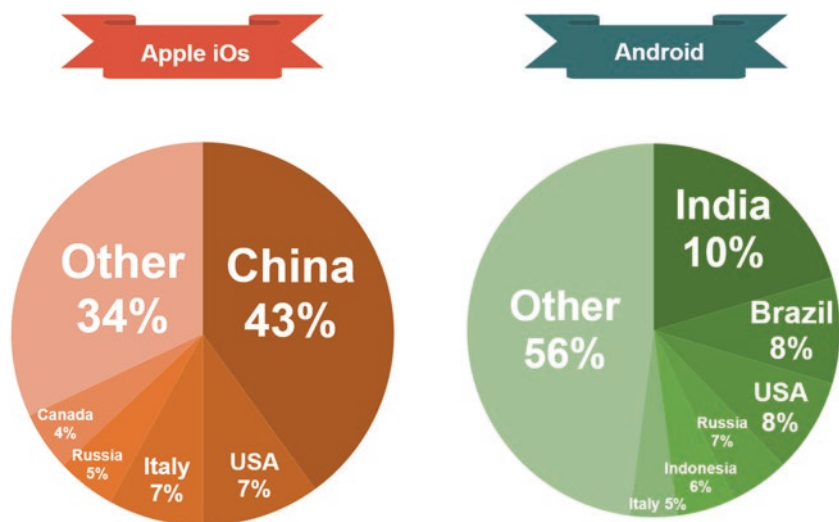


Fig. 5 Audience by nationality in 2019, per platform

The estimated accumulated player time amounts to 820,000 hours. If divided by 3.67 million players (up to 2019 at the time of the recording), it suggests an average play time of approximately 15 minutes. This rate should be read in the context of the free nature of the mobile game, whereby such games usually have a very low completion rate, in both traditional games and those with continuous/long gameplay loops. Furthermore, a highlight effect created when the game was included among the featured titles on the Apple and Google platforms, might have increased the number of downloads, but simultaneously increased the number of users who did not actually play the game and simply downloaded it.

In this context, a more representative evaluation might be the rating of the game in the two stores, which corresponds to an all-time average of 4.6 on App Store and 4.5 on Google Play Store (based on 29 September 2020). Combined with a total number of reviews of over 45,000 and the reviews of the MANN itself (over 9000 on Tripadvisor), it suggest that the game might have been effective at engaging the players and subsequently attracting more visitors to the museum.

Although we do not have a precise evaluation of the number of people who have visited the MANN following the experience of *Father and Son*: the game, an indirect link can still be derived. The first evaluation was provided by a study carried out by Lorenzo Bagnoli (2018), who ran a parallel between the MANN monthly ticket data in 2017 and the number of downloads of the game in the same period. The study shows a correlation between the release of *Father and Son* and the increase of tourists at MANN in the following months, as well as a correlation between the download peak periods of the game and the monthly peaks in tourists at the museum.

The second evaluation is based on the game's geo-unlocking mechanics, which recorded 40,000 check-ins at the Museum by players to unlock the game's bonus content. This figure takes into account only those players who have visited the museum and activated the unlock mechanics during their visits. However, this can be interpreted as the direct effect of the game, especially given the free nature of the game and its mobile distribution.

5 CONCLUSIONS

This chapter presented an example of gamified initiative for cultural heritage, which resulted in the development of a videogame for audience development for MANN. Through the gamified cultural innovation plan and the subsequent development of *Father and Son: the game*, the institution tried to reach out to the new audience, raise awareness about its role, and establish a form of communication adapted to the practice of digital natives.

As previously said, *Father and Son* represents a peculiar case study for the gamification of cultural heritage, both in relation to the initiative itself, to the final product, and to the features of the gamified elements:

- The initiative represents a hybrid mix of serious games and gamification: a gamified cultural innovation project that developed a mobile video game as its first product, distancing itself from forms of edutainment or typical gamification initiatives.
- The initiative also moved away from the typical gamification aims and practices linked to cultural heritage, to focus on audience outreach, raising awareness through the development of forms of emotional communication;
- The game has been developed through a series of less frequently used gamification dynamics and frameworks, connected to narrative/storytelling dynamics, avoiding typical mechanics such as PBL triad, and focusing on the development of an onboarding process driven by emotional triggers.

The positive reception of the game by the public and the MANN led to the collaboration with a planned set of initiatives and products related to *Father and Son* (a direct sequel, a theatrical release, a virtual re-enactment of the MANN on Minecraft). Furthermore, it led TuoMuseo to further collaborations with cultural heritage institutions, such as the MARTA (Archeological Museum of Taranto) and Teatro Regio di Parma.

With the positive initial results, further data collection and cross-analysis may contribute to an in-depth understanding of the results and reception of the initiative in the future. Similarly, direct collaboration with the museum institution, as well as proper qualitative analysis of the reviews on Google and Apple Store may improve our understanding of the effect of the affective trigger dynamics as well as long-term effects of the game.

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Fabio Viola is an award-winning digital entertainment producer. After a humanistic school background, he founded his first startup at the age of 22, developing and publishing mobile contents across Europe. After a decade spent working on international brands like *FIFA*, *The Sims*, *Harry Potter*, *The Simpsons*, and *Tetris* both as marketing and as country manager, he moved his attention to the intersection between gaming and real life. In 2016 he founded *TuoMuseo*, an international collective of artists aimed to break the boundaries between culture and interactive media. Among the last productions is *Father and Son*, the first videogame published by an archeological museum with over 4 million downloads.