

DEVELOPING A PROTOTYPE FOR SERIOUS GAMES AT PLACES OF CULTURAL SIGNIFICANCE: EVIDENCE FROM UNESCO-LISTED HERITAGE IN GREECE AND TURKEY

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Abstract: Gamification and storytelling have recently emerged as one of the innovative learning approaches that are both enjoyable and effective for visitors of all ages in cultural heritage education. Research demonstrates that games play a strong and productive role in the development of the skills and competencies required for success in education, personal and professional life. Games do offer interactive learning opportunities allowing players to link and appreciate asset values and meanings by eliciting digital learning scenarios through game elements such as points, challenges, prizes, and narrations. This approach is becoming more and more popular and can assist cultural heritage be appreciated in a more rewarding way while reaching a wider audience, especially the younger generation. Overall, gamified experiences in cultural heritage aim to embark on a dynamic and engaging journey to learn about and connect with cultural heritage and to encourage people to become more interested in the preservation of cultural heritage sites and artifacts. Still, the focus of heritage management is placed on salvation, protection, and conservation, with little attention on effective communication with the varied audiences, let alone the intentional design and delivery of activities with cognitive-emotional impact. However, if the public cannot easily connect with the multi-layered complexity of tangible and intangible heritage assets, then, history and heritage cannot establish a healthy relationship between the audiences and places of cultural significance. We argue that on the verge of the 5th Industrial Revolution, a new game generation is required to have an impact on the audience's cultural capital with an enhanced heritage-based approach that unlocks the values of cultural heritage. In this vein, we present the architecture of two serious games in Greece and Turkey funded by the ongoing research project 2021-1-RO01-KA220-VET000033109 in the UNESCO listed Medieval City of Rhodes, Greece and in Konya, Türkiye, which connect with audiences through compelling stories supported by artificial intelligence (AI). We discuss the objectives, methodology and the planning process for the serious games *Finding Light Through Rumi's Path* (LTRP) in Konya and *Grand Master Challenge* (GMC) in Rhodes, as well as future implications on the design of similar heritage services.

Keywords: Gamification, storytelling, cultural heritage, Mevlâna Celaleddin-i Rumi, Medieval City of Rhodes.

INTRODUCTION

We maintain that social cohesion takes place around the intrinsic values that culture carries with it, such as traditions, myths, legends, and they are the source of much of our behaviour. The best example we can give of the value of culture comes from Homer's *Odyssey*: upon his return to Ithaca, Ulysses presents himself to his father Laertes as the re-established king expecting paternal recognition. For Laertes, not even the scar on Ulysses' leg is enough proof. He asks his son for a testimony "beyond all reasonable doubt". That is the climax of the Homeric poem: Ulysses describes the techniques of pear tree cultivation that his father taught him as a child and the father recognizes his son only through the knowledge, he has instilled in him. It is the very essence of the father's inheritance, the "heritage" as we call it today. We need to be aware that there are differences, different readings, and prejudices, and avoid the simplification of

culture, which risks eliminating the legacy of history. It is the ability to transform every contradiction into a subject of discussion and research that will provide the inclusive materials and remove the obstacles that prevent dialogue and reduce everything to a common denominator.

Games and stories are recognized as important learning tools by modern educational theory as they increase motivation to learn.¹ The educational value of games has been demonstrated in numerous studies.² Games can increase critical thinking, support the analysis and synthesis of knowledge, reuse knowledge in new situations³ and add significant value to the instructional effectiveness of different fields. Especially in relation to cultural heritage, games have been found to be powerful learning tools. They increase the motivation of players as well as domain knowledge.⁴ Another way to create learning mechanisms is through the story (narrative) of the game, for example by using cutscenes, narration or clues to present the story more clearly and introduce facts or situations that need to be known and analysed by the player. Storytelling is also a good way to keep the player interested in discovering the outcome of the game.

LITERATURE REVIEW

The term *gamification* first appears in the digital media sector. The first known usage of gamification date back to 2008, but it wasn't until the second half of 2010 when various industry players and conferences publicized it that it became widely used.⁵ According to Deterding et al. "gamification is the use of game design elements in non-game contexts".⁶ Serious games, not counting the ancient games, exist already for some decades now. Caillois distinguishes between the concept of *paidia*, a term originating from ancient Greek (play) and *ludus*, originating from the Latin (game) as two poles of play activities. Whereas *paidia* denotes a more freeform, expressive, improvisational, even "tumultuous" recombination of behaviours and meanings, *ludus* captures playing structured by rules and competitive strife toward goals.⁷ Caillois also refers to the terms *agon* (Greek for struggle, competition) as a vindication of personal responsibility and *alea* (Latin for dice) is a negation of the will, a surrender to destiny. According to the author *agon* and *alea* imply opposite, however complementary attitudes, but they both obey the same law—the creation for the players of conditions of pure equality denied them in real life.⁸ Djaouti, Alvarez and Jessel argue that if players fail to identify the serious purpose of the game and it is a task for game designers to provide for a clear game mission.⁹

Many fields of knowledge use serious games, whereas any game is the set of rules, penalties, and awards that constitute the game structure, the composition of game mechanics to use the concepts of, and includes admissible actions and constraints of the game and heroes.¹⁰ According to Sales and Zimmerman the game play supports decision making, whereas the meaning of an action in the game lies in the relationship between the action and the outcome.¹¹ Wouters, van der Spec and Van Oostendorp have reviewed 28 studies concluding that cognitive, motor skills, communicative and affective learning outcomes do result from the game play.¹² Along the lines, Hamari et al. demonstrate that using serious games students achieve impactful learning.¹³ In 2017 analysing 48 cases Hamari and Keronen find out that games have both hedonistic and utilitarian dimensions, while players are pursuing "instrumental outcomes".¹⁴ Other scholarly research demonstrates that ongoing learning is supported in game-based environments given that the challenge of the game boosts the learners' skills, despite the fact, that there is

¹ Garris, Ahlers, Driskell 2002.

² Kebritchi, Hirumi 2008.

³ Franco, de Deus Lopes 2009.

⁴ Froschauer et al. 2012.

⁵ Deterding, Bredow, 2011a, 6.

⁶ Deterding et al. 2011b, 10.

⁷ Caillois 2001, 11-14.

⁸ Caillois, 2001, 18-19.

⁹ Dajouti, Alvarez, Jessel 2011, 5.

¹⁰ Rollings, Adams 2003; Loeb, Morris 2005.

¹¹ Salen, Zimmerman 2004, 33.

¹² Wouters, van der Spec, van Oostendorp 2009, 3-8.

¹³ Hamari et al. 2016, 176.

¹⁴ Hamari, Keronen 2017.

no "single reference model to generate a serious game pedagogy".¹⁵ Said with Stockwell, the key mechanism underlying valuations is mind-modelling.¹⁶ In all, a gamer's goal is to win. Even though it is not always the case, playing a game and having fun with it is usually the case. However, success is not always enough on its own. To enjoy a game more, players also look for immersion, depth, and being playable in many ways. In their influential research paper "Serious games design knowledge - Experiences from a decade (+) of serious games development", Engstöm and Backlund define serious games as an effort to combine the engagement and motivation from games with some sort of utility beyond mere entertainment. Following the DIN norm, the authors refer to serious games, as those that engage players, contribute to the achievement of a defined purpose other than pure entertainment, even if players are not aware of the latter. The authors conceptualize the gameplay in three ways: as a process, as an artefact and as a relationship between the game creators and the players.¹⁷ This means that the creative aspects of game development complicate the development process. The process requires the player to accomplish his mission through a series of tasks and challenges to be carried out and overcome. By examining the game mechanics, al Halabi, Tinc and Sungu¹⁸ clearly demonstrate that "a sense of belonging" is crucial to the success of a game. Along the lines McKinney et al. argue for the development of games, which promote empathy and dialogue among young people.¹⁹

RESEARCH METHODOLOGY

Both Games aim to effectively facilitate a new heritage mobility model in the UNESCO enlisted Medieval City of Rhodes and at the Mevlâna Museum in Konya by communicating heritage values to non-captive audiences in an engaging way. To understand and embrace heritage values and effectively bridge the gap between places of cultural significance and non-captive audiences, we need to reveal symbols, meanings, and values. Heritage representations to the public, are mostly developed by experts and have little affinity to the way the human mind perceives and processes information²⁰ while comprehension often relies on trait-based models.²¹ Thus, there is an urgent need to structure audience-friendly narratives considering the human ability for categorical knowledge, the limitations and interactions of working and long-term memory and their implications for learning by non-captives audiences. We also need to consider the rising desire for experiences in the heritage sector, a request of the digitally innate youth. GMC and LTRP will employ a set of game rules aligned with the human cognitive architecture to re-construct the knowledge pattern of non-captive audiences exploiting the powers of gamification and the basic tenets of the heritage management to prototype a game in the UNESCO listed Medieval City of Rhodes, Greece and at the Mevlâna Museum in Konya, Türkiye. At the same time heritage generates a spatiotemporal gap between the object and the audience, as the tangible form is not revealing the values: thus, heritage cannot speak for itself.²²

RESEARCH OBJECTIVES

Research considerations include:

- (a) How to link monument values to the game play;
- (b) how to facilitate players without prior knowledge in the predefined cultural setting (Medieval City of Rhodes and Mevlâna Museum) bridge the spatiotemporal gap;
- (c) how to embed socio-historical and cultural information in the game narratives in a compelling way;
- (d) how to create a game paradigm, where players think contextually and act in a self-directed learning modus;
- (e) how to exploit artificial intelligence to impact the cognitive-emotional aspect.

¹⁵ Natucci, Borges 2021, 863; Salazar Cardona et al. 2023, 3; Fernandez-Sánchez, Gonzales-Fernández, Acevedo-Borrega 2023, 14.

¹⁶ Stockwell 2022, 1.

¹⁷ Engstöm, Backlund 2021, 1-4.

¹⁸ al Halabi, Tinc, Sungu 2021, 172-175

¹⁹ McKinney et al. 2020.

²⁰ Papathanasiou-Zuhr et al. 2019, 21.

²¹ Rapp, Gerrig, Prentice 2001, 748; Rapp, Gerrig 2006, 62.

²² Papathanasiou-Zuhr et al. 2020, 488.

THE RESEARCH AREA

GRAND MASTER CHALLENGE (GMC): To design the GMC Game in Rhodes 16 geolocations have been evaluated as most suitable for a 180-minute game in the Medieval City out of 281 designated assets in the National Heritage Registry. A systematic historic and cultural study has concluded with the formulation of 16 statements of significance, based on UNESCO criteria.²³ The study and the statements have led to the development of 16 stories,²⁴ which build the basis of the game plot in the Medieval City.²⁵ The plot incorporates the clues, the permitted actions, and restrictions of the game, e.g., the game rules.²⁶ An AI-supported version follows, including elements of the game, such as its visuals, animation, plot, audio, and music, all of which require their own areas of expertise to be incorporated into the creation process.

Table 1. Grand Master Challenge (GMC) Stories, Monuments and Geolocations.

GAME LEVEL	GEOLOCATIONS	STORY	LATITUDE	LONGITUDE
1	SEA GATE	SAILOR OF FORTUNE (Porta Marina, 1401)	36.444023	28.22827
2	CASTELLANIA	JUSTICE (Castellania, 1507)	36.443523	28.228678
3	ADMIRALTY	ADMIRAL IN LOVE (Admiralty 1451)	36.442938	28.229885
4	OUR LADY OF THE BURGO	THE TREASURE OF THE VIRGIN (Lady of the Burgo, 1522)	36.442893	28.230802
5	ST. CATHERINE'S HOSPICE	ROOM WITH A VIEW (Hospice St. Catherine, 1467)	36.443167	28.231266
6	OLD HOSPITAL	MEDECIN SANS FRONTIERES (Old Hospital, 1356)	36.445478	28.226803
7	ARMORY OF THE KNIGHTS	MEDECIN SANS FRONTIERES (Gunpowder Magazine, 1356)	36.445478	28.226803
8	ARMORY DE MILLY	THE DRAGON SLAYER (Armory of the Knights, 1420)	36.446272	28.227865
9	LADY OF THE CASTLE	THE FLOCK (Lady of the Castle, 1309)	36.445057	28.227546
10	GREAT HOSPITAL	EYEWITNESS (The Great Hospital of the Knights, 1437)	36.444796	28.227176
11	KNIGHT STREET	TRIUMPH (Street of the Knights, 1306)	36.44505	28.224595
12	PRINCE CEM	EXPENSIVE CAPTIVE (House of Prince Cem, 1482)	36.445307	28.226127
13	GRAND MASTER PALACE	BEST SELLER BOOK (Grand Master Palace, 1482)	36.445775	28.224113
14	GATE D'AMBOISE	THE SWORD OF KING LOUIS, (Gate Amboise, 1512)	36.446002	28.222785
15	MOAT	DIGGING THE MINES (Moat 1522)	36.446796	28.222924
16	ST GEORGE BASTION	HIGH TREASON (Bastion of Auvergne, 1522)	36.443967	28.221945

Table 2. Finding Light through Rumi's Path (GTRP), Monuments and Geolocations.

GAME LEVEL	GEOLOCATIONS	STORY VALUES	LATITUDE	LONGITUDE
1	Alaaddin Keykubat Palace	In generosity and helping others, be like a river	378.722.025.971.911,00	324.918.581.814.904
2	Iplikci Mosque	In compassion and grace, be like the sun	3.787.188.707.891.580	3.249.659.867.071.340
3	Shams-i Tabrizi Mausoleum	In humility and modesty, be like the earth	3.787.385.682.811.430	3.249.747.825.351.870
4	Mevlâna Museum	In tolerance, be like the sea either appear as you are or be as you appear	3.787.088.052.733.670	3.250.496.681.119.040

²³ Unesco 2021, 77-78.

²⁴ Carr 2013, 167-176

²⁵ Dellas, Manousou-Della 2003; Μανούσου-Ντέλλα, Ντέλλας 2008, 107-114; Kollias 2001; Kollias 2005; Valkana 2012; Vann, Kagay 2015; Lutrell 1992; Lutrell 2003; Lutrell 2016.

²⁶ Papathanasiou-Zuhrt 2017.

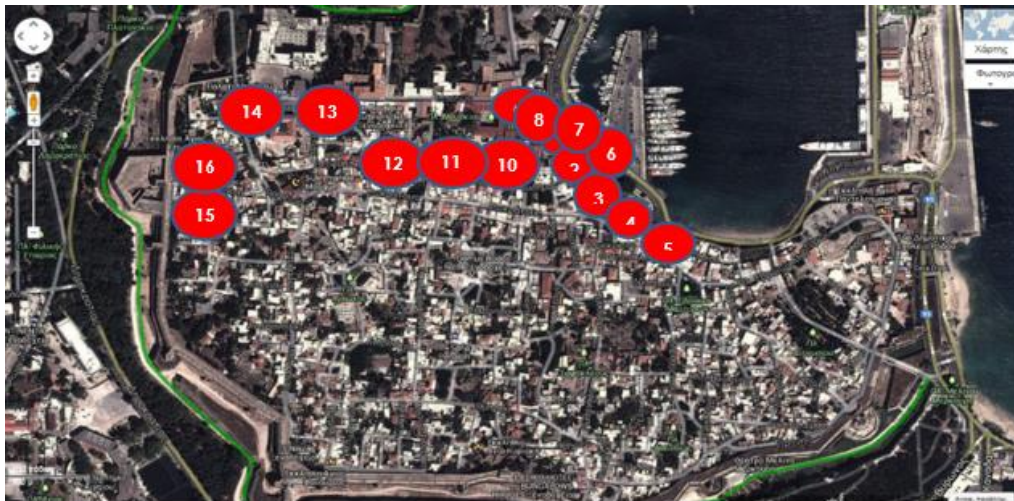


Fig. 1. Grand Master Challenge: Game Route (Source: Created by the authors using Google Maps)



Fig. 2. Locations, tasks and achievements in the game route
(Source: Created by the authors using Open Street Maps data)

FINDING LIGHT THROUGH RUMI'S PATH (LTRP): The planned game route is 1.5 km long and approximately 15 minutes walking distance. In addition to the 4 locations (a. Aladdin Keykubat Palace, b. Iplikci Mosque, c. Sems-i Tabrizi Tomb d. Mevlâna Museum), the route also includes the Historic Bedesten Bazaar, Mevlâna Bazaar, Sarraflar, Sultan Selim Mosque.

THE DESIGN PROCESS

The first consideration is to define the game mission and the objective which is defined as something that one's efforts or actions are intended to attain or accomplish. We aim at achieving a twofold objective: the explicit linked to the ludic character, the entertainment and enjoyment of the game and the implicit linked to the acquisition of increased skills, knowledge, and personal experience. The next step is the definition of the set of rules governing each gameplay, which links the players and the game play and its ultimate mission. In the case of GMC, the game mission, achievable only if 16 levels are overcome, is to start as a simple knight in the Hospitaller Order (1306-1522) and become the Grand Master in Rhodes. In the case of LTRM the mission is to overcome the egotistical self and realize the values of a caring individual. While GMC is promoting competition with other players, LTRM is promoting self-enhancement competition. Considerable efforts have been invested in defining the challenges for each game and create the different difficulty levels of the game to encourage enjoyment and motivate the player to spend more time with the game. Challenges also serve to define the rewards or the obstruction and barriers, which player need to overcome, to reach the game goals and ultimately achieve their missions. GMC is providing for 16 game levels/challenges linked to the values of the Order Island State (1306-1522), while 4 game levels/challenges linked to the Rumi philosophy are embedded in LTRP. A challenge for the overall game design is to ensure interaction within the game. Interaction refers to any action kick starting an activity, and this greatly depends on the tailored information, e.g. both the game contents and the storytelling part.

In the AI version of the game, interaction is visual, auditory, and tactile (seeing, listening, reading, typing, tapping, and clicking). Both games are supported by an AI application, specifically designed to serve as an information hub for the game plots, narratives and clues and facilitate spatial navigation through the Google Maps. Structure and contents are aligned with human cognitive architecture to facilitate the cognitive processing of information with cultural value.

Grand Master Challenge. The Game

The GMC Game is designed to start in any place in Rhodes (hotels, coffee shops, public places), via a Quick Response Code Gallery with 50 QRCS, which correspond to 50 knight stories, whereas the game language is English. It has been designed with a duration of 3 hours, which is the minimum duration to discover the Medieval City, but it does not require the completion within the set time frame and can be played at the pace of each player. By selecting a knight character, any player starts the adventure as a simple knight aiming to become the Grand Master on Rhodes. The Game follows a cultural route in the UNESCO listed City of Rhodes within the fortification. Each of the 16 game levels, changed progressively at each geolocation (monument), offers to players the opportunity to obtain other offices in the Hospitaller hierarchy, such as the Commander, Drapier Turcopolier, Prior, Hospitaller, the Grand Admiral, Chancellor, etc. Each monument is selected according to its value in the Hospitaller Island Order State: the fortification; the gates; the shipyard; the lay part (the burgo); the collachio with the inns; the Street of the Knights and the Grand Master's Palace; the Admiralty and the Hospitals; the emblem of the Knights Hospitallers; and so on.²⁷ The player familiarizes with his hero taking his place and plays the game according to the selected character, who belongs to the eight tongues (langues) governing the Hospitaller Order: France, Auvergne, Provence, Italy, Castille, Aragon, Germany and England. Players learn in this way that the Hospitaller cross (present-day Maltese cross) takes its eight angles from the eight ethnicities.²⁸ Judging by the knights' names, the player can guess the ethnicity and may select accordingly, if so. The avatar texts and the game clues reveal the conditions and restrictions towards the ultimate mission, which is the election to the office of the Grand Master of the Order. The mission is further broken down into tasks at each geolocation, where players are met with one challenge, which they meet by selecting one of the three (3) offered options. The test phase has been concluded in July and October 2022 onsite using presentation software. Each level is composed of 3 challenges, which are to be met by the players. Each option is graded with 0, 1, and 2 grades respectively, where 39 grades is the minimum requirement for the winning condition. Complementary to the digital version voting cards have been handed out to a sample of 72 players to augment the tactile interactivity of the play and identify the individual grading. The field test has concluded with an award ceremony, where rewards have been handed out to the players, each one responding to the Hospitaller office each player has achieved.

Finding Light through Rumi's Path

According to Aslan the Mevlâna Museum, the main game attraction, is both a tourist and a pilgrimage destination; despite the secular planning by the Turkish state, "visitors continue to recreate the experience of the sacred, while inhibited by the museum setting of the complex".²⁹ LTRP is a game, which aims to exploit the powers of gamification to present Rumi's life, ideas, and philosophy³⁰ to an international audience, to take players on an inner journey where they can find their true self and to increase the recognition of cultural heritage elements in the city; thus, the game language is English. LTRP exploits storytelling to feed the sense of discovery and exploration along a cultural heritage route in Konya, Türkiye; the sense of discovery aims to increase the immersion and interaction in the game. The places narrated in the game are locations that have cultural and literary relations with Rumi's life and teachings. The character of the game is Rumi as a guide. The play begins with the hero's dream. The hero tries to remember the message in his dream. He remembers the objects he sees around him/her slowly and tries to complete the game levels associated with the story of the place and reach the promise s/he hears during the game. The hero fulfils the tasks given in the light of Rumi. At each stage of the game, the hero can travel by bicycle, given that appropriate infrastructure is available in Konya. In the game, the hero tries to

²⁷ Τσιροπανλής 1995; Dellas, Manousou-Della 2003; Vann, Kagay 2015; Papathanasiou-Zuhrt 2017.

²⁸ Kollias 2001; Kollias 2005; Valakana 2012; Luttrell 2016.

²⁹ Aslan 2014, 4.

³⁰ Rahmani, Porzargar, Mansouris 2022; Samiei, Hassani, Rezaei 2022.

reach the light that illuminates the world, which is achieved by learning Rumi's universal advice and simultaneously passing levels successfully. There are two main avatars male and female, and the game progresses through one of those characters. The main purpose is to enable the individual (player/hero) to find his light under Rumi's guidance by fulfilling the given tasks/challenges. The first level is meant to crystallize the value of "helping others" through Rumi's advice *in generosity and helping others, be like a river*. The hero will be able to pass to the next level when s/he comprehends the advice *in compassion and grace, be like the sun* to gain the value of mercy. At the third level, the hero is asked to reach the value of humility through the advice, *in modesty and humility, be like the earth*. Finally, at the fourth level, which takes the most of time in the game, the hero is asked to gain the value of tolerance, through the advice, *in tolerance, be like the sea*, and *either appear as you are or be as you appear* is also processed in the fourth level. During this inner journey, the hero confronts the events in daily life by making the right decisions under the guidance of Rumi. The hero must accomplish the mission through a series of tasks and challenges to be carried out by entering the correct keyword as an answer to what kind of an individual he should be in line with the given advice of Rumi. In the rule of the play, if the hero enters the wrong keyword three times, he is kicked out of the Küstahan gate in Mevlâna Mausoleum. If the hero does not make a choice on time and exceeds the time limit, he is kept waiting at the patience stone, which symbolizes learning patience, taming the sharp sides of your ego, and striving towards doing things not just for your own sake but also for the greater good of others. The Patience Stone, one of the unique assets in Mevlâna Museum, has been curved by the dervishes for long years. If the hero wants to gain time and speed up, the April Bowl energy drink will be given as a reward at each level so that he can continue the journey faster by bicycle. The April bowl is an embroidered cup known as "Nisan Tas" that is used for collecting the April rains, which are regarded in Islam as being healing and blessed. The game is the pretext: Mevlâna's stories in cultural and historical contexts are used to educate players, share memories, explain the spiritual Sema ceremonies, and instil moral values, while ensuring that players do enjoy themselves.

Findings

Findings, obtained through the field test with 72 players in June and October 2022, demonstrate that the game play has a definite favourable impact on learning, demonstrating a clear connection between the immersion in the game and learning. The game challenges enhanced learning through the increased involvement and problem solving. Being an achiever increased engagement also in the group, which indirectly affected learning as peers have helped each other through data mining from different sources. Being engaged and involved in the game was positively evaluated by the test players. This affects a series of issues like:

GAME MECHANICS A character's interactions with its environment and responses to those interactions are numerous in both games. The winning condition is dependent on a variety of elements which leave players free room to make decisions at each challenge. At each game level players are presented with a dynamic reflection of life experiences. The hero's survival rate is modelled by using 3 options for each challenge, which the player must solve and go to the next game level. All game parts, and more particularly the written parts deconstruct working memory loads, to facilitate access to meaning and ensure that the attention span remains alert during the game play.³¹ Both games are reflecting everyday issues, particularly issues of conscience, moral and ethical issues to keep players interested in playing.³²

GAME RESOURCES: The resources that each hero has are intrinsic and extraneous for both games: intrinsic are the character's abilities, and conditions, like stamina, class, e.g., lower or higher nobility, wealth, expertise, connections and networks or having sharper senses than the average person of the time. Extraneous resources are consumables that help the character to move on, like the avatar texts, the QRC Gallery with embedded stories, the internet connection, and the AI-supported narrative. Being AI-supported, both GMC and LTRP include graphics, animation, storytelling, sound, and music, which are autonomous domains integrated in the game design.

COMPETITION: Ranking has proved to make the players feel more addicted to the area of interest. GMC invites players to be a part of the Hospitaller brethren to achieve missions. Players group up

³¹ Papathanasiou-Zuhr 2015, 305-306.

³² Dehghani et al. 2009.

corresponding to the Hospitaller hierarchy. According to the order of the knights, players invest individual offices (Prior, Grand Admiral, Grand Hospitaller, Grand Chancellor etc.), which allow them to evolve among game levels. Thus, competition is of societal nature, even if virtues are appreciated. LTRP, instead is launching an immersive and socially led competition by inviting players to be generous and help others, and exercise in humility and tolerance.

EMOTIONAL ATTACHMENT: Considerable effort has been invested across the game play locations to achieve an emotional attachment to the story told. In the opposite case, the games would have lost their values. Thus, well defined stories have been created, bearing in mind the conditions of the environment, prior knowledge of the cultural attractions and the interaction limit of a player on the play. All stories are proxy-situations from real life, despite the ‘disbelief of the reality’ during the game play. The designers’ goal is to create the bond with the story of the game, which allows players to identify with their heroes and feel as in control of the situation and exercise decision-making like in everyday life. The field test has brought the insight that by engaging the players through the tasks at each monument, has led to an immersive gameplay and emotional attachment.

METACOGNITION: While the GMC game focuses rather on realistic stories, taken mostly from historic sources and archives, the Rumi Game focuses on a dialectical discourse with the self and the principles. However, both games target those players looking for educational missions, who go after the challenge to better link them to the place upon the completion of the game. To support metacognition at each game lay location and task/challenge, both games hinge around the fact that the players strive to meet the winning condition: become Grand Master of Rhodes or follow Rumi’s light for esoteric completion. Whether it is about the adversities, the terrain, the enemies, the allies and so on, the hero/player must overcome challenges, which are linked to the knights Hospitallers, the habits and the virtues of the Order of St. John of Jerusalem, or the intrinsic values of Rumi’s philosophy, the game is of a cognitive nature: by requiring players to overcome the challenges and move to the next game level, knowledge acquisition is ensured. The game leverages connoisseurship, as selected monuments communicate their values through the game narratives, assisting the players towards problem solving and decision making.

SENSE OF PLACE: Interaction with both heroes and other players is the prerequisite for relating to the place and instil the sense of the place. Both games are designed to identify and value the of the place, not only by personally relating to the monuments included in the games, but also appreciate and respond these in a dialectical process.

AUTONOMY: The need for autonomy has proved to be a great motivation for the game play. Players demonstrated the psychological desire to make self-determined choices, during the game play and puppet-master the selected characters. Players have expressed that the games offered multiple possibilities towards autonomy leading to skills acquisition. Thus, autonomous choices have been made regarding which path to follow rather than being restricted to follow predetermined structures towards problem solving.

MASTERY: Players have faced the challenges offered by the game by efficiently completing the tasks at each monument through the acquisition of the necessary skills. At the GMC they bridged the spatio-temporal gap by a) learning the history of the Hospitallers from Jerusalem to Rhodes and Malta; b) familiarizing with Hospitaller hierarchy linked to different duties within the Order, e.g. the Prior (head of a langue), the Grand Admiral (head of the fleet), the Grand Hospitaller (head of the hospital); c) understanding the complex nature of a medieval religious order with the multi-ethnic character consisting of 8 national languages (France, Auvergne, Provence, Castille, Aragon, Italy, England, Germany); d) gaining insights among other issues, about the Crusades and the Ottoman Empire.³³ However, it was the process of skills acquisition that keeps players immersed in the tasks. For the game architecture this means that a task should be neither too easy, to avoid boredom, nor too difficult to create frustration.

ACHIEVEMENT: To do something well, show competence, act against the norm, even revolt is a desire innate in humans. The game play rules are made explicit right at the game start: players are guided and instructed how to use the rules. After the completion of each task, a didactical progression is shifting the player to the next level. New skills acquired through the learning processes embedded in the games

³³ Lutrell 2003; Papathanasiou-Zuhrt 2017.

and a psychological desire for achievement lead to the winning condition. To crown the achievements, both games provide virtual rewards for successfully mastering the challenges.

CONCLUSION

Countries closed their borders during the pandemic; quarantines significantly reduced average expenditures and the number of heritage places visitors; and about 94.7% of museums decided to close completely or partially.³⁴ Many heritage places have tried to develop creative and innovative digital solutions such as virtual tours, digital collections, interactive concerts, video games, educational courses, and conferences to re-engage with their visitors.³⁵ The most important factor affecting our understanding of today's and future heritage places is how the digitalization of cultural heritage in museums accelerated during the COVID-19 pandemic, when social mobility came to a standstill. Gamification has been instrumental in developing experiences that allow users to see and learn the stories of cultural assets and collections digitally. To maintain contact with visitors, the cities continue to move their cultural assets and collections into the virtual space with digital cultural heritage, a rapidly growing trend in tourism worldwide. Storytelling and gamification applications transform information about selected geographical locations into fully comprehensible digital artworks that complement cultural consumption and independent travel practices. This will allow visitors to personalize their experience and search for attractive services and applications, thus stimulating consumer demand. The heritage game prototypes in Rhodes and Konya enable an unlimited number of players to retrieve key media information and customize it according to their personal preferences and points of enthusiasm, transforming their personal experiences into a ludic place promotion tool. Both games refer to the inherently interesting and valuable tales that most heritage assets incorporate history, culture, and community. Through the game play, players can discover and express what is unusual and special about the places of cultural significance. Both games build an intentional, coordinated message conveyed to the audience about the heritage assets and their qualities. The additional emphasis of quality and continuity of the gamer experience distinguishes the games from other tourism services.

The development of the games has also encouraged local stakeholders to seek out, document and communicate all the special qualities of a place: archaeological, natural, cultural, historic, recreational, and scenic. This makes the game play an integrative experience: visual, educational, physical, and emotional. Both games aim at increasing cultural awareness among players: while most culture and tourism-oriented services focus on gazing to attract interest, GMC and LTRP attract the audience, through the personal experience of the story and its interpretation. Both GMC and LTRP generate an imbalance and moving from a consequent imbalance to a new, more advanced, and solid balance, they reconfigure old and new information in a new scheme, and as such they exemplify a cultural communication pattern needed in the heritage sector to reconfigure storytelling. The narration, e.g., the consolidated way of storytelling is reconditioned in a digital language specific to the AI environment, mainly aiming to help decode the symbolism behind which, the game hides reality and brings with it the emotion, and the emotion helps the players navigate within the own wealth of ideas to search for and rebuild the meaning of the heritage assets. The games are designed to increase interest and curiosity and encourage integration, which in turn supports the cognitive aspect. The latter is the precondition for the knowledge to be processed, assimilated, and placed in the above context. The awareness of having perceived and understood, strongly influences player satisfaction, strengthening the attention in all future processing, and releasing new energies for learning. Information, the raw material of a narrative structure, comes from domain specific input, but it *cannot build an experience per se*. The games on the contrary derive from a creative approach to *that* information and are articulated in an artistic language. The heritage games developed in Rhodes and Konya set an example for the role of the composite digital narrative that becomes the carrier of meaning.

³⁴ Levin 2020; UNESCO 2020.

³⁵ Çınar, Weiss 2020.

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