

Design and Investigation of Key Elements in Video Games to Promote Touristic Regions

IMEN HELLALI* and WOLFGANG WÖRNDL*, Technical University of Munich, Germany

Modern video games are the new form of interactive immersive entertainment. They have evolved from a pure leisure activity into a tool used for marketing to influence user's behavior and increase their engagement and bounding with the developed application. One of the most remarkable fields, where video games are being deployed as a marketing strategy is in the field of tourism promotion. Where we can distinguish between two types of video games, ones which are solely developed to attract and assist tourist during their visit to a certain location, and the other where the virtual world withing the game is inspired by a real-life location and can as a by-product induce the urge to visit in-person the depicted area. This research analysis distinct features and play mechanics present in video games, and argues their impact on the player to promote the depicted surrounding as a by-product.

Additional Key Words and Phrases: MPC: Main Playable character, NPC: Non Playable Character

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1 INTRODUCTION

International tourism amounted to roughly 1 trillion U.S dollar for the year 2022[14]. Thus, travel and tourism became a highly competitive and big market where different technological solutions are widely explored to promote destinations around the world. Many Organizations specializing in destination marketing have launched video games for various countries including Thailand, China, Ireland, Capetown, Brazil, Japan and Regensburg in Germany[48][38]. These Games were developed to promote the landscapes and aid tourists during their town discovery[9]. Other marketing strategies attempt to increase the market size by attracting potential video-game players as tourists, with the video game global market expected to reach 242.39 Billion U.S dollar by the end of 2023[40]. This strategy is referred to as experiential marketing, where the focus of the application is to provide a video game, that is designed to deliver an emotionally engaging[43], immersive and live experience in the virtual world depicting a certain destination, which will potentially influence the decision of the players and encourage them to visit the real-life location[39]. Many popular games recreating a unique time- and location-travel experience use already popular touristic destinations as their in-game map, taking the example of the Assassin's creed series[4], PUBG, GTA and many other. Therefore research conducted on these games could not deliver a strong correlation between the desire to visit the destination and the playing of the game[37]. Another Critique pointed out, is that these games often depict fighting which makes attending to tourist needs (inner growth, connection, memorabilia) incoherent with gamers' needs (heightened emotions,

*Written by Imen Hellali under the supervision of Wolfgang Wörndl

Authors' address: Imen Hellali, hellali_imene@yahoo.fr; Wolfgang Wörndl, woerndl@in.tum.de, Technical University of Munich, Arcisstraße 21, Munich, Bavaria, Germany, 80333.

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aggression)[20][49]. These findings will be discussed and negated in the upcoming chapters as the key playing factors that stimulate both needs are explored with their motive, integrated in our prototype and investigated simultaneously. This research aims to identify the specific factors (key features, mechanics and game elements) that shape the in-game experience and explore the hypotheses of impacting the player's decisions as an experiential marketing strategy. These exploratory factors draw upon previously conducted research studies in the fields of Video games, Video Game-Induced Tourism, Experience Design, Gamification and the Lab-Course we will be briefly mentioning in the following chapter. These factors (key-elements) are then integrated in our prototype game located in the 11th century of Munich, Germany. Finally we will investigate the key-elements quantitatively by an anonymous online survey and qualitatively by in-person as well as an online open question feedback.

2 LITERATURE REVIEW

In this chapter we will review existing literature in the fields of video games, tourism, and experiential marketing. These findings will form the basis of our game-design, by directing it toward a tourist-centered-design. These findings, will be stated at the end of this chapter in a generalized form under the motivation behind them.

2.1 Gamification and User Centered Design

Gamification has been a stable solution included in every field in the recent years[30][11]. When designed and properly executed, gamification designs has proven to boost engagement and alter behavior[41]. This deduces, that using well defined design guidelines is a central part for a seamless practical experience[7].

2.2 Advergaming and Location-based games

Advergaming is the use of interactive gaming technologies for promotions [1][23][6]. The aim of Advergaming is to entertain the video-game user, to ultimately forge an emotional connection between the game, player and the promoted product[10]. As in our case, we are interested in Mobile games and Location promotion as a product. Thus, Mobile advergaming is the brand new way to reach a new pool of consumers, by focusing on deepening the connection level of the player to the game and increasing the fun factor[6]. Additionally it is an inconspicuous way to promote local shops and advertise local hot-spots by incorporating virtual tours[33]. Virtual tours can be integrated in two different manners. A straightforward manner where the goal to visit a certain location is highlighted [18], as they are part of the game where its sole purpose is to persuade on-site tourists to explore the surroundings. This approach face the challenge of balancing the integration of historical heritage and the fun-factor[27][16]. On the other hand the subtle manner, is where virtual tours are compelled via Quests. Taking the example of Assassin's Creed Odyssey Quest guides, where each, depicts part of the story and enforces traveling to a certain location[12]. Accordingly, designing Quests meticulously so they would appeal to the player but also fulfill the over goal of sightseeing, is the core element for experiential marketing games.

2.3 Experience Design and Video Games

Players develop new identities through game-play[44]. It has long been proven that the complex relationship and the deep bond between the player and the MPC, is the key game-play element which constructs this identity[31]. Therefore designing a character, to whom each player relates to, is a crucial compound of any game aiming to impact the social behavior of the user.

2.4 Lab Course: Version.0

To develop an initial understanding of tourist players' motives in accordance with a gaming experience, an initial prototype was developed. We will refer to that prototype as V.0 (Version Zero). V.0 was centered in 11th century Munich and revolves around a wanderer born from one of the remaining old Celtic tribes. They were granted immortality, sorcery and fighting skills as they are the reincarnation of the God Dagda. As a traveler, they wander into the duchy of Bavaria to explore the surroundings, help its people, experience the foundation of this newly created city and help battling the mythological creatures disturbing the peace of this town. At later stages of the lab course, a qualitative research was conducted to determine the specific game elements, which may influence a player to visit in our case Munich. These game elements include, game mechanics (Quests, Inventory, Interactions...), story-line and its progression, world design and aesthetics. According to our finding, many of the validated key-elements were integrated and implemented in our current prototype V.1 (Version One) and other points were refactored to attend to player's needs and enhance engagement and connection level.

2.5 Key elements

Based on the previously mentioned points and critiques, we selected the following key elements (motivations) based on the preference and expectation of gamers as potential tourists:

- Freedom of navigation and choice in a Virtual World[42][37].
- Discovery, Role-playing and impersonation[50][36][15][46][4][51].
- Sense of belonging in addition to escapism with a sense of control[26][17][50][36][37].
- Flow and Excitements[21][52][15][29].
- Fun factor and enjoyment[8][26][25][13][21].

In the Upcoming chapter we will discuss in more detail how each of these elements were integrated in our V.1 prototype.

3 GAME PROTOTYPE

3.1 General Game Overview

Our game-story revolves around a teenager from the last Norse tribe. Opposing the traditions they grew up in, they embark on a self-discovering journey by opening they-self to new experiences and traveling to the newly occupied lands by the Wittelsbach's dynasty. The game world maps Bavaria in the 11th century, with the main town square showcasing the early creation of the Munich city under the Wittelsbach's' Dynasty before it was completely destroyed during the 17th century. As this research will be followed by a master-thesis we will encourage you to read that paper for more details on the design of our game, story-line, game mechanics, in depth faced challenges and code specifications.

3.2 Focus of our Investigation

In our V.1, based on the previous research studies and findings mentioned in the previous chapter, we decided to integrate the following game-play elements and features:

- Open-world game[3].
- Realistic, high-resolution graphics[37].
- Detailed background story of the MPC[32].
- Highly Opinionated MPC personality following a modern teenager emotional and psychological state[37].
- Character development of the MPC[32].

- Game world based on Bavaria and Munich during the 11th century.
- Game world including real historical monuments and touristic regions[37].
- Game world including folklore and mythological creatures.
- Game world representing traditions and cultural heritage of the citizens.
- Game world progressively displaying development of main story[45][52].
- Exploration Quests to progressively discover the game world and enrich the experience[45].
- Fighting quests to introduce mythology and historical spots.
- Crafting Quests to introduce heritage and ancient way of living[32].
- Game world filled with NPC's conducting their daily activities with the possibility to interact with some of them[32][37].
- Inventory system and power-ups.

These features and design elements were integrated in the following manner, to adhere to the key-elements mentioned in chapter II.

3.2.1 Freedom of navigation and choice in a Virtual World. Our game offer a huge map following the topography of Bavaria with its rivers and mountains. The player has the freedom to roam around the landscapes and discover multiple live forms, like villages or abandoned spots. Hidden treasures were places in random various spots on the map to encourage the exploration behavior.

3.2.2 Discovery, Role-playing and impersonation. Our open-world design will get more populated With the progression of the story. New farms will be planted, towns expended and new buildings founded. The player can discover not only new locations but also see the timely progression of these locations. While impersonating the MPC, the player has the freedom to interact with selected NPC's to unlock new quests[35].

3.2.3 Sense of belonging in addition to escapism. The Playable Character has its own distinct personality, with strong opinions inspired by the basic most common profile of a modern teenager. This design was adapted so each player, even if they are past teenage years they would still relate to the character and induce memorabilia and nostalgia[24]. Along the game the Playable character will externalize (Via audio output) their view, criticize, joke about as well as show emotions related to events, encounters and places[5]. In our game we integrated real-life emotions and psychological state to a fictional character with super powers. This balance will simultaneously increase the sense of belonging with our MPC and escapism.

3.2.4 Flow and Excitement. The evolution of the story-line is structured to progressively introduce new encounters and places, following the historical timeline. Additionally Our Quests and sub-tasks are designed to become more challenging and consequently more rewarding (more loot) overtime[45][52]. With the progress of the game, mythology will be integrated connecting mythical creatures with new places to-be unlocked and discovered. Overall our game world is designed to successively become richer.

3.2.5 Fun factor and Enjoyment. As mentioned previously, our game focuses highly on the Exploratory and challenging fun. Although our player interacts with the game world through our character, with our focus on the narrative fun, our MPC will partially play the role of a companion. Additionally for a seamless experience we highly focused on optimizing our rendering time, by procedurally generating our world-map and using a multi-scene approach to asynchronously populate each map-tile[34]. Accordingly we also used various ambient and specific area sounds to avoid monotony[45].

Last but not least we used highly distinguishable aesthetics to differentiate between the multiple villages or towns inspired from real-life.

The following Figures, will display screen shots from our current version V.1, containing some of the most important touristic destinations in Munich along side our chosen aesthetics.



Fig. 1. Screen shot from our current prototype V.1 displaying the Hofgarden.



Fig. 2. Screen shot from our current prototype V.1 displaying the Residenz.

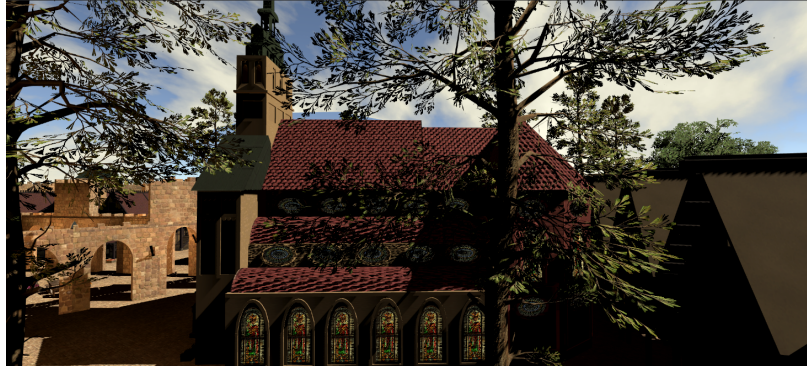


Fig. 3. Screen shot from our current prototype V.1 displaying the Alter Peter's Church.



Fig. 4. Screen shot from our current prototype V.1 displaying the Viktualenmarkt.



Fig. 5. Screen shot from our current prototype V.1 showcasing the different aesthetic from the town square and the old Norse tribe (Hometown of our MPC).



Fig. 6. Screen shot from our current prototype V.1 showcasing the different aesthetic from the town square and the old Norse tribe (Hometown of our MPC).

3.3 Faced Challenges

In this section we will name the hardest encountered challenges and briefly describe how we created tailored solutions to tackle them. Please note that more details will be discussed in our following master thesis paper.

3.3.1 Story Refactoring. Our original story in V.0 included many characters, which a player can choose from and customize their ability by choosing a preferred element, either electro, cryo, pyro or hydro. Each character had a different background story and could perform different distinguishable attacks. The characters were a reincarnation of a selected mythical Germanic and Norse gods[2], which consequently affected their abilities. This idea was refactored to adapt to modern day teenager as stated above. With the changed story line, quests and corresponding tasks were also refactored. Quests and Tasks were designed to not only follow the historical timeline[19] but to also progress the story and introduce sequentially new challenges, mythical creatures[22] and unlock new areas. Our game includes a complex scenario with various game mechanics and facets, which were all designed, set in place and implemented by the writer of this paper.

3.3.2 Asset Procuration. As the game world was set in the 11th century, many medieval assets were free to use but were customized to adapt to our world. However, all related monuments to Munich were custom created. Also, as the world map follows the topography of Bavaria, the town square, representing today's Munich in the past, was situated accordingly following the map of the 17th century when it was first recorded.

3.3.3 Population. To increase the livelihood of the game, UMA[47] package was integrated and customized to adhere to our different populations. The Characters facial features were tailored to resemble the Germanic or the Franks genetic characteristics. Appropriate clothing and hair styles were customized to signify social classes, practiced professions and ethnicity.

3.3.4 Rendering Optimization. As our virtual environment is a big open-world, our map was first created then subdivided into different terrain tiles. These terrain tiles, filled with vegetation are procedurally generated. Some of our map-tiles contain the populated towns and tribes. These regions, are also procedurally generated via asynchronous scene loading, where each scene contains different elements. This approach allows us to achieve a smooth running of the game, with our realistic looking assets. Our assets, as mentioned above consists on one hand of the architectural elements and

on the other hand of the humanoids (NPC's). All included architectural elements were subdivided then decimated repeatedly until reaching a balanced level between a low number of polygons and realistic appearance. Then detailed textures, complying with our art style, were applied on top of these simple 3d meshes to increase their graphics fidelity. The humanoids, populating the game world, had to derive from only a small set of different avatars. The latter is pre-loaded, and only during run time, different instances are generated to create variation and density.

4 METHODOLOGY

Altes Muc, our action role-playing game, described in the previous chapter, was used as the study context.

We decided to conduct a purely on-line survey for a quantitative analysis.

The on-line survey included descriptions, demo-videos and screenshots showcasing the game world, important features and how to navigate the game. This decision was made, so we can reach many participants outside of Germany with the desired target group. Our target group was not restricted to any age nor gender, but we only collected answers from habitual gamers, who were familiar with our type of game. To reach our target audience, three international streamers were contacted to broadcast in their twitch live our survey. We also used social media, like Facebook to directly contact fellow gamers and Instagram story to collect as many gamers as possible. This was possible as the person conducting the study was also an international student of the Technical University of Munich, who is deeply engaged within the gaming community.

To achieve our qualitative analysis, we asked more than twenty participants targeted questions after answering our on-line survey.

Our On-line survey was divided into eight sections.

- Introduction Section to make our goal regarding our questionnaire known while also displaying the designed Town of Munich.
- Demographic Section to determine age, gender, preferred character gender and familiarity with similar games.
- Preference Section to determine the aspects that play a role in deepening the bond between the Character and player and validate our design for the MPC.
- Game World and Environment Section to introduce the specifics of our game world design.
- Cultural and Historical Aspects Section to evaluate how much of those aspects could impact engagement and influence the decision in visiting the depicted area.
- Key Game-play Features and Mechanics to evaluate how much of those aspects could impact engagement and influence the decision in visiting the depicted area.
- UI and Graphics Section to assess our interface and basic movement controls.
- Suggestions and Feedback Section.

Our Questions were designed in a manner to precisely tackle each of the key-elements mentioned in the previous chapter. Each Question also included a clear description of our goal to clearly identify the correlation of these elements in impacting the decision to visit the visualized location.

5 QUANTITATIVE ANALYSIS

5.1 Preferences

To determine which aspects when designing an MPC play a role in the connection level with the gamer, we asked two questions. The first question assess whether the character gender affects the connection level and the second to assess

if a similarity between the MPC background story in addition to its psychological state plays a role in immersion. The following two pie charts represent the answers respectively.

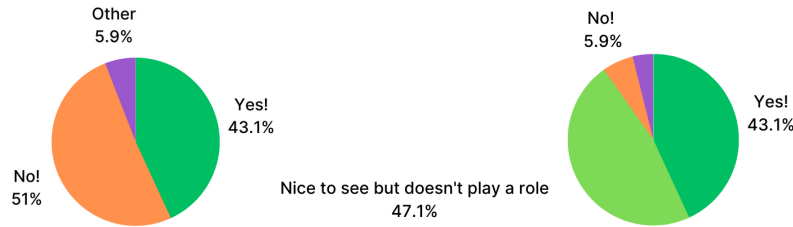


Fig. 7. Correlation between similarity of the MPC gender and the background story to the player's real life gender and experience in influencing immersion level.

As shown in 7 in the first pie chart, almost half of survey participant value the similarity of their gender identity to the MPC, whereas the remaining don't. Some of the feedback we received specified, how the character is portrayed, its nuances, implementation and surrounding settings play a bigger role than the gender. Some stated that extreme sexualization of a character may affect their connection to the character negatively. These findings may explain why the other 5.9% of participants decide to play with mythical characters and choose MPC's with different gender each time depending on the played game.

In 7, in the second pie chart, we see that, majorly, participant positively perceive a similarity between their life and the MPC background story, amounting to 90.2%. Yet from these answers, opinions were divided almost equally regarding this feature, between a must have to increase immersion and a nice to have, with no important role.

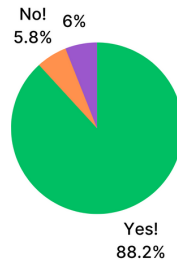


Fig. 8. Assessment of interest in playing a game depicting a real life location set in a historical timeline

In this section, we also wanted to assess if participants would be interested in playing a game depicting a real life location set in historical timeline. One detailed feedback, which is of interest to us stated:

Depends roman japanese settings have been overused. Settings that have been less explored such as Hawaii etc could be interesting (check the recent story about the canceled game of gods and monsters (same team that made ac Odyssey from Ubisoft) they wanted to explore such niche historical settings)

We can clearly deduce that a games portraying heritage would be of interest to most gamers, but it would be more interesting to explore unknown cites, stories and folklore which correlate to popular ones, taking the example of Yggdrasil and Ymir from Norse Mythology.

5.2 Game World and Environment

As stated before the game depicts historical monuments of modern day Munich. However our recreated monuments although they still exist, we stripped the modernity factor and reapplied the historical print on them. Also, the game depicts a lost heritage. Therefore, the purpose of this section was to evaluate, if the game world, which is based in a historical timeline, can still engage and encourage the player to visit the current location even though it may look somehow different.

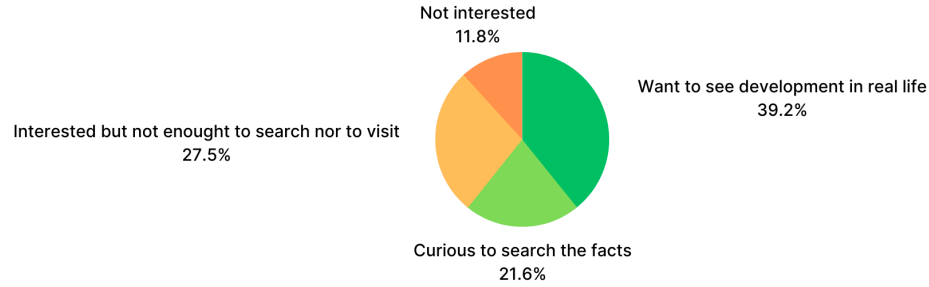


Fig. 9. Correlation of game world set in the past in peaking the interest of the player and encourage them to visit the real life location to explore its historical sites and heritage.

The pie chart⁹ represents the answers to our question regarding the interest in playing a game set in the 11th century and if it will encourage them to visit Munich in real to explore its historical sites and heritage. Generally, participants find our settings interesting with a total of 88.3%. Most of them, felt curious about the events and facts with a total of 60.8%, where their majority 39.2% want to see the development of the depicted cites from our virtual environment in the real world. However, the remaining 27.5%, although interested, their decision to either know more about the destination or visit was not influenced. Lastly, 11.8% of participants would not be interested to visit the location at all.

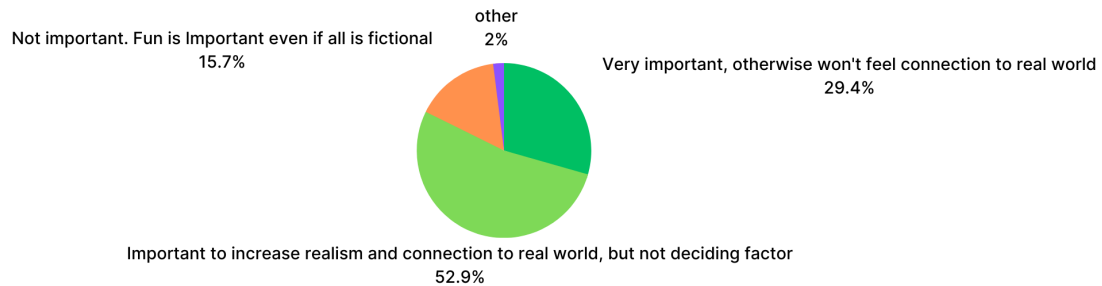


Fig. 10. Assessing the importance of an accurate representation of the historical and cultural elements of the touristic region within the game.

The pie chart¹⁰ represents the answers to our question regarding the importance of an accurate representation of historical events within the game of the real life destination. Overall, people find this feature important to increase realism and connection the the real world. Yet, it is not deemed as the deciding factor. This result could be explained by the answers of the other participants, where they believe fun is an important factor, with 15.7%, or that a general balance in the game, how well it is made and how it keeps the flow plays the major role^{[37][41][52][45]}.

5.3 Cultural and Historical Aspects

The goal of this section within the online survey is to determine the degree of which some of our selected cultural and historical aspects, found in games, could impact the decision of the player to visit the depicted location in real-life. These Cultural and historical aspects consists of: Mythology; Still existing monuments; Destroyed monuments; Religious practices and day-to-day life. Participants could select between four options as shown in the bar graph in 11.

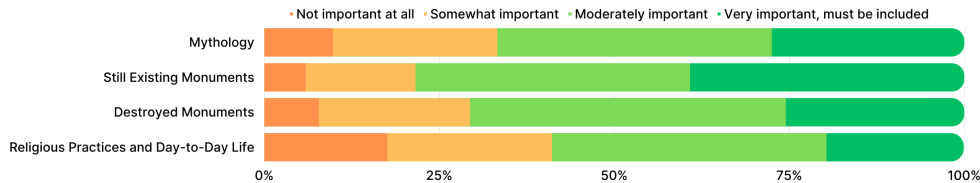


Fig. 11. Correlation of the engagement level delivered by certain cultural and historical elements and their impact on the decision to visit and interact with the scenery in real-life.

In general, all of our selected heritage related aspects are somehow important to be included in the game to instigate the curiosity to see them in real-life. As depicted in 11, although the majority consider "still existing monuments", essential and must be included in such games, all participant predominantly believe that, mythology, destroyed monuments and day-to-day life are moderately important to heighten the engagement level.

5.4 Game-play Features and Mechanics

The goal of this section within the online survey is to determine the degree of which some of our selected Game-play elements and features, common in each game, could impact the decision of the player to visit the depicted location in real-life. These elements consists of:

- Exploration Quests: To explore Historical monuments and cities[37][45][52].
- Fighting Quests: To introduce mythological creature and highlight the folklore with corresponding real life cites[36].
- Crafting Quests: To engage the player in the day-to-day life of NPC's.
- Interaction with NPC[50][46]
- Lively game world: To present the day-to-day life of NPC's[46][51].
- Character development[26][42].
- Development of the main story is being displayed in the game world where new buildings and/or new towns being found[21].
- Inventory system: To enhance abilities and buy elements.

Participants could select between four options as shown in the bar graph in 12.

In general, all game mechanics in question, were deemed to be at least moderately important to increase engagement level and thus influence decision to travel.

As depicted in 12, there is a clear preference where more than 80% of the participants believe that a lively game world with a visualized progress of the main story is a crucial element for a heightened involvement in the virtual world.

Additionally we also deduce that exploration quests and inventory systems are seen as at least moderately important by 75% of all participants. This could be due to our target group, as 90% are habitual male gamers, where the majority

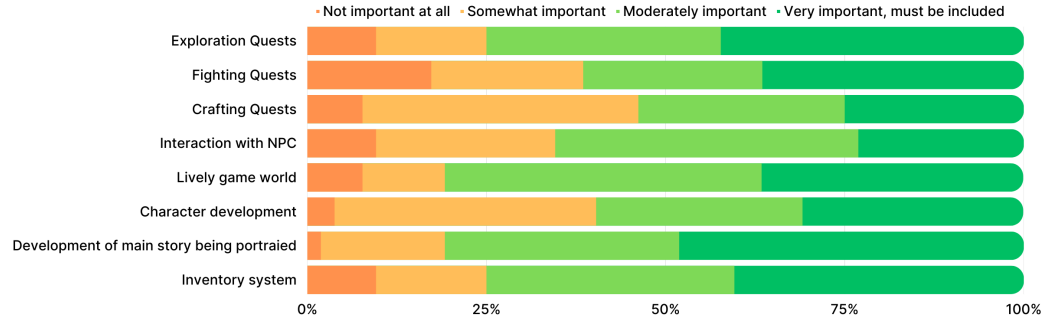


Fig. 12. Correlation of the engagement level delivered by certain game-play mechanics and their impact on the decision to visit and interact with the scenarios in real-life.

engage in both online competitive gaming and AAA Games[28][50].

In Comparison, Crafting Qests and Fighting Qests are not perceived as important aspects to elevate engrossment and make participant eager to visit the location. Accordingly, although more than 40% of participant feel that MPC development is not important to boost their engagement to the virtual world with the goal to visit the real location, we see a clear disparity to all previous findings showcasing the importance of connection level to the MPC [17][26][32][37][50]. One hypothesis is that, as our questions are targeting the correlation of this key-element to the drive for tourism, this feature, despite its importance to immersion level, is perceived as not relevant in this context. One explanation suggests that, depth of connection to the MPC cannot be reflected onto the real world and thus this experience cannot be recreated during traveling.

5.5 User Interface and Graphics

According to the feedback, we noticed that our controls and icon representations may be challenging and need to be refactored for further steps.



Fig. 13. Screen shot from our current prototype V.1 displaying the User Interface with corresponding mechanics, navigation and status buttons.

However one worth mentioning result, is the importance of high-end realistic graphics and how much of a role does

it play in increasing immersion. We could deduce from these answers that although the majority preferred seeing realistically recreated 3d models of the original monuments from our depicted region, it is still not a deciding factor.

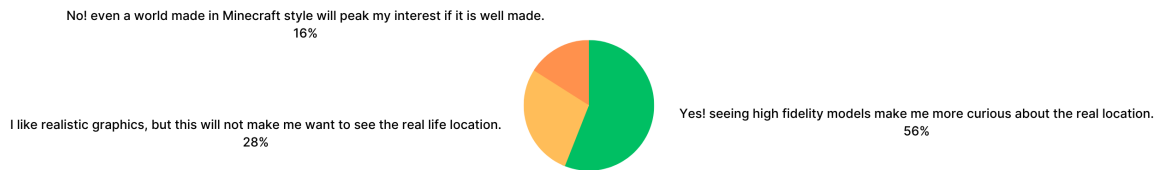


Fig. 14. Correlation of an increase in realism (high-end graphics) and the interest in seeing the recreated elements in real life.

6 QUALITATIVE ANALYSIS

6.1 Presence and immersive Engagement

Many testers believed that, a deep emotional connection forged within the game, could make them eager to visit the depicted destination. This is mainly motivated by the urge to recreate the virtual adventure in real-life and to re-experience the overall sensations during game-play. They added that, the level of emotional connection could be achieved through compelling background and world stories revolving around the regions and its people.

6.2 Cultural Connection, Authenticity and Educational Influence

Participants suggested incorporating specific historical events or eras to enhance the game's historical accuracy. They believe that focusing on significant occurrences can add authenticity to the game. They also mentioned that informative content about the region, like accurately representing the spoken language at that time, how it was pronounced and written is a key factor to increase their interest. Additionally they enjoy interacting with locals, whom reflect cultural traditions and social dynamics. According to many participants, this factor helped them feel more connected to the region's culture in similar games. They suggested working alongside historians to deliver a faithful representation of the location's heritage.

6.3 Interactive Historical Elements

Repeatedly, participants highlighted that historical accuracy should not compromise the fun-factor. To make historical elements engaging and interactive, they recommended creating quests or missions related to key historical landmarks or events.

6.4 Quality of Gaming

Each participant, mentioned each time that the quality of the game itself plays a significant role. They emphasized that, engaging narratives and captivating game-play is what draws them to the virtual world. They summarized that the game must be high quality, well crafted, offer a significant level of detail and a "Warm" feeling.

7 CONCLUSION

Overall, we can conclude that an immersive experience can pique curiosity and interest to successfully promote the depicted region. While some participants valued historical accuracy, others highlighted the importance of balancing realism with game-play enjoyment. Players mentioned that excessive accuracy might make the game less fun to play.

However, the influence of video games on the decision to travel to the depicted location varies from person to person. Several participants mentioned that they have been motivated to visit places portrayed in video games, especially when the games accurately captures the culture, and unique features of the location. Successful games like Assassin's Creed and Red Dead Redemption were cited as examples of games that have influenced players' decisions to visit certain regions. Others, however, view games as a form of entertainment, which can increase their interest but without a strong connection to travel choice, as the latter is a form of luxury, which is not easily affordable and requires external effort.

REFERENCES

- [1] Rod Afshar, Duke Banerjee, and Clifford Jones. 2004. *Advergaming Developer's Guide: Using Macromedia Flash MX 2004 and Macromedia Director MX*. Charles River Media, Inc.
- [2] Ardko. [n. d.]. *Germanische/Nordische Mythologie*. Youtube. <https://youtube.com/playlist?list=PLreUTlJayRvwaQzHK489aXHbaH89b4JaU&si=KnCjZoG8pwF6-8a3>
- [3] Catherine Beavis, Roberta Thompson, and Sandy Muspratt. 2017. A game isn't a game without interaction. *Serious Play: Literacy, learning and digital games* 23 (2017).
- [4] Tara Carrigy, Katsiaryna Naliuka, Natasa Paterson, and Mads Haahr. 2010. Design and evaluation of player experience of a location-based mobile game. In *Proceedings of the 6th Nordic conference on human-computer interaction: Extending boundaries*. 92–101.
- [5] Marcus Carter, Fraser Allison, John Downs, and Martin Gibbs. 2015. Player identity dissonance and voice interaction in games. In *Proceedings of the 2015 Annual Symposium on Computer-Human Interaction in Play*. 265–269.
- [6] Evrim Çeltek. 2010. Mobile advergaming in tourism marketing. *Journal of Vacation Marketing* 16, 4 (2010), 267–281.
- [7] Yang Chen. 2019. Exploring design guidelines of using user-centered design in gamification development: A Delphi study. *International Journal of Human-Computer Interaction* 35, 13 (2019), 1170–1181.
- [8] Chien Chou and Meng-Jung Tsai. 2007. Gender differences in Taiwan high school students' computer game playing. *Computers in human behavior* 23, 1 (2007), 812–824.
- [9] Cynthia Corrêaa and Camila Kitanoa. 2015. Gamification in tourism: Analysis of brazil quest game. In *Proceedings of ENTER*, Vol. 2015.
- [10] S Dahl, L Eagle, and C Baez. 2006. Marketing–Analysing Advergaming: Active Diversions or Actually Deception. *London: Middlesex University Business School* (2006).
- [11] Tuhina Dargan and Florian Evequoz. 2015. Designing engaging e-Government services by combining user-centered design and gamification: A use-case. In *Proceedings of the 15th European Conference on eGovernment*. 70–78.
- [12] Casey Defreitas Darik Kooistra, Aiden Strawhun and many editors. IGN. Walkthrough - Assassin's Creed Odyssey Guide. (IGN). <https://www.ign.com/wikis/assassins-creed-odyssey/Walkthrough>
- [13] Roberta Nogueira Sales De Carvalho, Lucila Ishitani, R Nogueira Sales De Carvalho, et al. 2012. Motivational factors for mobile serious games for elderly users. *Proceedings of XI SB games* (2012), 2–4.
- [14] Statista Research Department. September 06, 2023. International tourism receipts worldwide 2022. *Statista* (September 06, 2023). <https://www.statista.com/statistics/273123/total-international-tourism-receipts/#:~:text=Global%20international%20tourism%20receipts%202006%2D2022&text=Despite%20the%20sharp%20annual%20increase,trillion%20U.S.%20dollars%20in%202022>
- [15] Stephan Engl and Lennart E Nacke. 2013. Contextual influences on mobile player experience—A game user experience model. *Entertainment Computing* 4, 1 (2013), 83–91.
- [16] Laura Ermi and Frans Mäyrä. 2005. Fundamental components of the gameplay experience. *Changing Views: Worlds in Play* (2005), 37–54.
- [17] Maria Frostling-Henningsson. 2009. First-person shooter games as a way of connecting to people: "Brothers in blood". *Cyberpsychology & behavior* 12, 5 (2009), 557–562.
- [18] Andreas Georgopoulos, Georgia Kontogianni, Christos Koutsafitis, and Margarita Skamantzari. 2017. Serious games at the service of cultural heritage and tourism. In *Tourism, Culture and Heritage in a Smart Economy: Third International Conference IACuDiT, Athens 2016*. Springer, 3–17.
- [19] Big Boy Travel Guides. January 12, 2023. Munich Historical TimelineMunich Historical Timeline. (January 12, 2023). <https://www.bigboytravel.com/europe/germany/munich/history/>
- [20] Tilo Hartmann and Peter Vorderer. 2010. It's okay to shoot a character: Moral disengagement in violent video games. *Journal of communication* 60, 1 (2010), 94–119.
- [21] Yu-Chih Huang, Sheila J Backman, Kenneth F Backman, and DeWayne Moore. 2013. Exploring user acceptance of 3D virtual worlds in travel and tourism marketing. *Tourism Management* 36 (2013), 490–501.
- [22] Megan King. 22 December 2022. Myths and Legends You'll Only Hear in Germany. (22 December 2022). <https://theculturetrip.com/europe/germany/articles/7-myths-and-legends-youll-only-hear-in-germany>
- [23] Susan Kretchmer. 2003. The emergent advergaming industry: Developments, impact, and direction. In *Digital Games Industries: Developments, Impact and Direction Conference*. 19–20.

- [24] Dong Dong Li, Albert Kien Liao, and Angeline Khoo. 2013. Player–Avatar Identification in video gaming: Concept and measurement. *Computers in human behavior* 29, 1 (2013), 257–263.
- [25] Tzu-Min Lin, Sheng-Chih Chen, and Pei-Jeng Kuo. 2011. Motivations for game-playing on mobile devices—using smartphone as an example. In *Edutainment Technologies. Educational Games and Virtual Reality/Augmented Reality Applications: 6th International Conference on E-learning and Games, Edutainment 2011, Taipei, Taiwan, September 2011. Proceedings* 6. Springer, 101–105.
- [26] Yu-Ling Lin and Hong-Wen Lin. 2011. A study on the goal value for massively multiplayer online role-playing games players. *Computers in Human Behavior* 27, 6 (2011), 2153–2160.
- [27] Jeff Lopez. November 15, 2012. Whaiwhai Turns Tourism into Adventure. (November 15, 2012). <https://www.gamification.co/2011/11/28/whaiwhai-turns-tourism-into-adventure/>
- [28] Arm Ltd. September 19, 2023. What are AAA Games? (September 19, 2023). <https://www.arm.com/glossary/aaa-games#:~:text=The%20term%20%22AAA%20Games%22%20is,duet%20to%20their%20extreme%20popularity>
- [29] Kristen Lucas and John L Sherry. 2004. Sex differences in video game play: A communication-based explanation. *Communication research* 31, 5 (2004), 499–523.
- [30] Michael McClincy, Liliana G Seabol, Michelle Riffitts, Ethan Ruh, Natalie E Novak, Rachel Wasilko, Megan E Hamm, and Kevin M Bell. 2021. Perspectives on the gamification of an interactive health technology for postoperative rehabilitation of pediatric anterior cruciate ligament reconstruction: user-centered design approach. *JMIR Serious Games* 9, 3 (2021), e27195.
- [31] Oskar Milik. 2017. Persona in MMO Games: Constructing an identity through complex player/character relationships. *Persona Studies* 3, 2 (2017), 66–78.
- [32] Michela Mortara, Chiara Eva Catalano, Francesco Bellotti, Giusy Fiucci, Minica Houry-Panchetti, and Panagiotis Petridis. 2014. Learning cultural heritage by serious games. *Journal of Cultural Heritage* 15, 3 (2014), 318–325.
- [33] Michelle R Nelson. 2005. Exploring consumer response to “advergaming.”. *Online consumer psychology: Understanding and influencing consumer behavior in the virtual world* (2005), 156–182.
- [34] Mihajlo Nenad. 2018. Designing game worlds. Coherence in the design of open world games through procedural generation techniques. In *Proceedings of the 2018 annual symposium on computer-human interaction in play companion extended abstracts*. 353–363.
- [35] Harits Nur Fauzan. 2023. Emergent Gameplay and the Affordance of Features in Open-World Video Game Environments.
- [36] Bradley S Paras and Jim Bizzocchi. 2005. Game, Motivation, and Effective Learning: An Integrated Model for Educational Game Design.. In *DiGRA Conference*.
- [37] Mattia Rainoldi, Arne Van den Winckel, Joanne Yu, and Barbara Neuhofer. 2022. Video game experiential marketing in tourism: Designing for experiences. In *Information and Communication Technologies in Tourism 2022: Proceedings of the ENTER 2022 eTourism Conference, January 11–14, 2022*. Springer, 3–15.
- [38] Carlos Ramirez-Moreno and Dale Leorke. 2021. Promoting Yokosuka through videogame tourism: the shenmue sacred spot guide map. In *Games and play in the creative, smart and ecological city*. Taylor & Francis.
- [39] Raouf Ahmad Rather. 2020. Customer experience and engagement in tourism destinations: The experiential marketing perspective. *Journal of Travel & Tourism Marketing* 37, 1 (2020), 15–32.
- [40] Gtand View Research. 2021. *Video Game Market Size, Share & Trends Analysis Report By Device (Console, Mobile, Computer), By Type (Online, Offline), By Region (Asia Pacific, North America, Europe), And Segment Forecasts, 2023 - 2030*. EPDF Report GVR-4-68038-527-4.
- [41] Karen Robson, Kirk Plangger, Jan H Kietzmann, Ian McCarthy, and Leyland Pitt. 2016. Game on: Engaging customers and employees through gamification. *Business horizons* 59, 1 (2016), 29–36.
- [42] Richard M Ryan, C Scott Rigby, and Andrew Przybylski. 2006. The motivational pull of video games: A self-determination theory approach. *Motivation and emotion* 30 (2006), 344–360.
- [43] M Jawad Sajid, Qingren Cao, Li Xinchun, Manzoor Ali Brohi, and M Fahad Sajid. 2018. Video gaming a new face of inducement tourism: Main attractors for juvenile gamers. *Int J Soc Stud* 4 (2018), 52–56.
- [44] Kurt Squire. 2006. From content to context: Videogames as designed experience. *Educational researcher* 35, 8 (2006), 19–29.
- [45] Yu-Shan Su, Wei-Lun Chiang, Chin-Tarn James Lee, and Han-Chao Chang. 2016. The effect of flow experience on player loyalty in mobile game application. *Computers in Human Behavior* 63 (2016), 240–248.
- [46] Anders Tychsen, Michael Hitchens, and Thea Brolund. 2008. Motivations for play in computer role-playing games. In *Proceedings of the 2008 conference on future play: Research, play, share*. 57–64.
- [47] umasteeringgroup. [n. d.]. *UMA: Unity Multipurpose Avatar*. GitHub. <https://github.com/umasteeringgroup/UMA>
- [48] Feifei Xu, Feng Tian, Dimitrios Buhalis, and Jessika Weber. 2013. Marketing tourism via electronic games: understanding the motivation of tourist players. In *2013 5th International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES)*. IEEE, 1–8.
- [49] Feifei Xu, Feng Tian, Dimitrios Buhalis, Jessika Weber, and Hongmei Zhang. 2021. Tourists as mobile gamers: Gamification for tourism marketing. In *Future of Tourism Marketing*. Routledge, 96–114.
- [50] Nick Yee. 2006. Motivations for play in online games. *CyberPsychology & behavior* 9, 6 (2006), 772–775.
- [51] Nick Yee, Nicolas Ducheneaut, and Les Nelson. 2012. Online gaming motivations scale: development and validation. In *Proceedings of the SIGCHI conference on human factors in computing systems*. 2803–2806.
- [52] Tao Zhou. 2013. Understanding the effect of flow on user adoption of mobile games. *Personal and ubiquitous computing* 17 (2013), 741–748.