

Develop a Prototype of a Bangkok Floating Market Attraction Simulation Game Using Gamification

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Abstract

Background. The emerging trend of gamification and its potential to enrich experiential growth and promotional efforts in the tourism industry. Gamification, an emerging field of study, symbolizes a rising trend with various uses in tourism, intending to foster motivation and induce behavioral changes. *Objective.* design prototypes with gamification concepts *Methods.* the qualitative research method includes In-depth interviews with the key informant all total 14 people. The purposive sampling was uses in the research study. *Result.* These aspects capture of the design prototypes with gamification concepts which consisting of (1) Expectations (2) The game prototypes can provide valuable insights into their behavior (3) Usability issues (4) Identify usability challenges (5) Decision-making strategies. Those elements involved in user interaction with the game prototypes of "The Bangkok Travel Floating Market" gamification. *Conclusion.* Designing to be contemporary and aligned with the behaviors and preferences of the target audience can captivate players by offering rewards and creating challenges, as well as fostering social interaction within the gaming community. It can also stimulate cultural awareness to promote inspiration for cultural tourism in the significant Bangkok floating market attraction.

Keywords: Gamification, Prototypes, Tourism.

Introduction

The tourism potential of Thailand is vast and diverse, offering a rich tapestry of cultural, natural, and historical attractions. Thailand's vibrant cities, such as Bangkok with its bustling markets, ornate temples, and vibrant nightlife, attract millions of visitors each year. The country's stunning beaches, like those in Phuket, Krabi, and Koh Samui, are renowned worldwide for their pristine sands and crystal-clear waters, making them popular destinations for sun-seekers and water sports enthusiasts (Pipatpong, 2022). Moreover, Thailand boasts lush jungles and national parks, such as Khao Sok and Doi Inthanon, where visitors can experience wildlife encounters, trekking adventures, and breathtaking scenery. The country's cultural heritage, exemplified by ancient ruins like those in Ayutthaya and Sukhothai, as well as traditional festivals and rituals, offers insight into Thailand's rich history and traditions (Siriporn & Youcheng, 2009)

Thailand's tourism industry also benefits from its reputation as a gastronomic paradise, with its flavorful and diverse cuisine attracting food enthusiasts from around the globe. Additionally, Thailand's reputation for hospitality and affordability further enhances its appeal to tourists seeking memorable experiences. Tourism is a major driver of Thailand's economy, contributing significantly to its GDP. In recent years, tourism has accounted for around 15-20% of Thailand's GDP (Chancharat, 2011). Overall, the tourism economy in Thailand remains a vital pillar of the country's economic development, driving growth,

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employment, and prosperity while showcasing Thailand's rich cultural heritage and natural beauty to the world.

According to that, promoting tourism using games on digital media has become an emerging trend in recent years, leveraging the widespread popularity of gaming and the ubiquity of digital platforms (Nurrahmania & Grahita, 2021). In addition, digital games are being used to offer virtual tours and immersive experiences of tourist destinations. These experiences allow users to explore landmarks, cultural sites, and natural wonders in a gamified environment, providing a taste of what the destination has to offer and enticing travelers to visit in person (Argyriou., et al, 2020). Moreover, another digital media was used for promoting tourism is Location-Based Games: Location-based games, such as augmented reality games or geocaching apps, encourage users to explore real-world locations while completing challenges or collecting virtual rewards. These games promote tourism by incentivizing travelers to visit specific destinations and engage in local activities (Lacka, 2020). Furthermore, many tourism boards, destination marketers, and travel companies are increasingly incorporating gamification elements into their marketing campaigns (Alčaković, 2017). This includes interactive games, challenges, and quests that engage users and encourage them to explore destinations virtually while promoting tourism experiences and attractions.

The concept of gamification, initially introduced in 2008 and gaining prominence in 2010, has seen a resurgence, largely influenced by factors such as the widespread adoption of smartphones, tablets, and the availability of more affordable technology (Nelson, 2012). As a relatively new term, its definition remains fluid. Gamification is often defined as "the use of game design elements, characteristic of games, in non-game contexts" (Werbach et al., 2012). In simpler terms, it refers to the integration of game mechanics into processes, programs, and platforms that traditionally do not incorporate such elements. However, definitions have evolved over time. Gartner, for instance, redefines gamification as "the use of game mechanics and experience design to digitally engage and motivate people to achieve their goals" (Dale, 2014). This definition emphasizes digital engagement and motivation, limiting interaction to digital devices rather than interpersonal interactions. Some critics, like Marczewski, Herger, and Rackwitz (2014), have argued against such limitations, suggesting that engagement should not be restricted solely to digital contexts (Burke, 2014). Despite these variations, most definitions of gamification emphasize several key factors; firstly, there are distinctions between games and gamification. While games primarily aim to provide pure fun and entertainment, gamification extends beyond mere entertainment. It involves the utilization of game mechanics (such as points, levels, badges, etc.) and dynamics (such as rewards, status, competition, etc.) to encourage engagement in non-game contexts, such as advertising or loyalty programs. Secondly, Gamification can help to customer engagement: Almost all definition has suggested gamification as an effective tool for engagement (Landers, 2014). As a result, Gamification is gaining more attention from player, and the marketer consider using gamification for marketing purposes.

The utilization of gaming as a pioneering concept has been adopted by forward-thinking segments within the tourism industry, serving both as a promotional strategy and a means to enhance visitor involvement (Kingsuwankul. Et al, 2019). The trend of gamification and its capacity for enhancing experiential development and marketing within the tourism sector (Abou-Shouk & Soliman, 2021). Gamification, a novel area of interest, represents a forthcoming trend with diverse applications in tourism, aiming to stimulate motivation and alter behavior (Abou-Shouk & Soliman, 2021). Discussions on gamification in tourism have revolved around integrating game design elements and adopting a game-centric mindset, which can effectively be implemented within tourism contexts. Consequently, gamification has been leveraged to impact consumer engagement, foster customer loyalty, enhance brand awareness, and enrich user experiences in tourism destinations (Jang & Hsieh, 2021). This innovative approach to gamification is already being implemented within the tourism industry (Xu., et al, 2013). According to that, the gamification can be useful tool for success of online advertising activities (Serdar., et al, 2015).

According to that, this research paper aims to develop a prototype of a "Bangkok floating market attraction simulation game using Gamification". The researcher acknowledges that, Bangkok is a diverse province. Historical art and cultural attractions Have cultural characteristics that can develop into cultural tourist attractions, including the history of the community. Environmental characteristics include natural and community culture, local intellectual heritage, and the community's geographical location. The floating

market in Bangkok is the unique destination for the culture tourism. The significant floating market in Bangkok consisting of Taling Chan Water Market and Khlong Lat Mayom Water Market. Bueng Phraya Floating Market, Wat Phrayasuren Floating Market, Wat Saphan Floating Market, Kwanriam Floating Market, Khlong Wat Taling Chan Floating Market, and Khlong Bang Luang Floating Market. This research paper will investigate satisfaction with game prototypes to introduce game design prototypes and gamification for promotion cultural tourism in Bangkok's important floating market, based on the background of local art and culture.

Research Method

Participants

"The Bangkok Travel Floating Market attraction simulation game using Gamification " was designed the prototypes with the gamification concepts with the qualitative research method includes In-depth interviews with cultures and attractions in seven major floating markets in Bangkok. This was obtained from a key informant all total 14 people. The purposive sampling was uses in the research study. The key informant was selected with the follow criteria:

	Key Informants	Criteria	Year of experiences	Number
1	The expert in cultural arts	Expertise in Thai arts, as well as expertise in Thai culture	3	4
2	The stakeholders involved in managing the tourist attractions of the floating market in Bangkok	To be a manager of a floating market in Bangkok	3	7
3	The community philosopher	Individuals who are the custodians of indigenous knowledge and utilize it for the benefit can aptly guide, transmit, and bridge the values of the past with the present	3	3
		Total		14

Measure

The structure interview questions was used in this research. The questions asking the opinion for designing the prototypes with gamification with the key informants.

Procedures

The researchers invited the key informants to test "The Bangkok Travel Floating Market attraction simulation game using Gamification" the game prototypes in a controlled environment and collecting their feedback through structured questionnaires or open-ended prompts. Prototype testing helps identify usability issues, assess the effectiveness of gamification elements, and measure satisfaction with the overall gaming experience.

In-depth Interviews was used with the semi-structured or structured interviews with key informants to gather insights into their preferences, expectations, and satisfaction with the game prototypes. These interviews allow researchers to explore participants' experiences in depth and capture nuanced feedback.

The researchers observe key informants as they interact with the game prototypes can provide valuable insights into their behavior, preferences, and usability issues. Researchers can observe how participants navigate the prototypes, identify usability challenges, and assess their engagement levels.

The researchers asked the key informants to verbalize their thoughts and reactions as they interact with the game prototypes can provide valuable insights into their cognitive processes, decision-making strategies, and emotional responses. Think-aloud protocols help researchers understand how participants perceive and interpret the prototypes.

Analysis

The data was analyzed, the qualitative data collected from interviews, observations and prototype testing sessions to identify recurring themes, patterns, and insights. Content analysis allows researchers to derive meaningful conclusions, highlight key findings, and generate actionable recommendations for improving the game prototypes.

Results and Discussion

The key informant was discussing and express their opinion in the in-depth interview phase. The key discussed under "The Bangkok Travel Floating Market attraction simulation game using Gamification", which is the prototypes with the gamification concepts. The 10 questions asking into 2 area, which were, design prototypes with gamification concepts and the satisfaction of game prototypes. Moreover, these two areas were prioritizing the importance in the sequence as follow:

Table 1. The Design Concept of the Gamification Prototypes

Design prototypes with gamification prototypes	The game concept
1. Expectations	<u>Mastery and Purpose</u> <ul style="list-style-type: none"> - Playing with the ability to develop - Playing with a goal or clear purpose
2. Provide valuable insights into behavior	<u>Socializers, Collaborators or Relatedness</u> <ul style="list-style-type: none"> - Having relationships with various characters in the game - Being part of a team, is happy and enjoys doing team activities - Relationships between players Having a community to play
3. Usability issues	<u>Engagement levels</u> <ul style="list-style-type: none"> - Levels of playing - The results from completing missions are attractive - In-game development of the character or level up
4. Identify usability challenges	<u>Reward</u> <ul style="list-style-type: none"> - Become part of the community in the game or play in a team to expect more rewards. - Participate in missions or contests where rewards are important.
5. Decision-making strategies	<u>Autonomy</u> <ul style="list-style-type: none"> - Freedom in the game about what to play and how. - Able to think creatively about playing games in a variety of ways - Customize your own character in the game.

The key informant stated that, the most significant in "The Bangkok Travel Floating Market attraction simulation game using Gamification" in the area of the design prototypes with gamification concepts could be arranged in the following order: expectations, the game prototypes can provide valuable insights into user behavior, usability issues, identify usability challenges and decision-making strategies. Furthermore, the

area of the game concept could be arranged in the following order: preferences, satisfaction with the game prototypes, assess their engagement levels, cognitive processes and emotional responses.

The main theme, subtheme and the key word were used to express the key informant opinion. Moreover, the commonality in theme and subtheme was showed in the table below:

Table 2. The Main Theme, Subtheme and the Key Word Were Used to Express the Key Informant Opinion

Number	Main Theme and Subtheme	Key Word	Commonality in Theme & Subtheme	Key Informants Code
Design prototypes with gamification prototypes				
1	Expectations	<ul style="list-style-type: none"> - Interactive elements -Enjoyable and entertaining -Ability to develop - Goal or clear purpose 	<p><i>“I think, the expectations regarding the gamification design prototypes of The Bangkok Travel Floating Market are centered around engaging users with interactive elements and ensuring that the experience is enjoyable and entertaining”</i></p> <p><i>“The prototypes will effectively engage users by offering interactive features that allow them to actively participate in exploring the floating market. This could include interactive maps, clickable points of interest, and immersive storytelling elements that captivate users' attention and encourage them to delve deeper into the experience”</i></p> <p><i>“The prototypes to provide enjoyable and entertaining gameplay experiences that capture the essence of visiting a bustling floating market in Bangkok. This could involve gamified challenges, mini-games, and rewards systems that make navigating the market feel like an exciting adventure”</i></p> <p><i>“Interactive elements provide enjoyable and entertaining gameplay experiences at The</i></p>	5,8,10,11

Number	Main Theme and Subtheme	Key Word	Commonality in Theme & Subtheme	Key Informants Code
			<i>Bangkok Travel Floating Market</i>	
2	The game prototypes can provide valuable insights into their behavior	<ul style="list-style-type: none"> - Personalized experiences - Social interaction - Game characters - Relationships -Community 	<p><i>“These prototypes will offer personalized experiences tailored to individual preferences, allowing users to customize their journey through the floating market based on their interests and preferences. This could include options for selecting preferred activities, routes, or points of interest, ensuring that each user’s experience feels unique and tailored to their needs”</i></p> <p><i>“I believe that the gamification design prototypes of The Bangkok Travel Floating Market have the potential to provide valuable insights into user behavior by offering personalized experiences and fostering social interaction among users. These features will not only enhance the overall user experience but also contribute to a deeper understanding of user preferences and behaviors within the context of the floating market environment”</i></p>	1,12
3	Usability issues	<ul style="list-style-type: none"> - Ease of Use - Missions - Challenge - Development 	<p><i>“I believe that, usability issues can greatly impact the overall effectiveness and enjoyment of the prototypes. Therefore, it’s crucial that the prototypes are designed with simplicity and intuitiveness in mind, ensuring that users can navigate through the experience effortlessly”</i></p>	4,7,11

Number	Main Theme and Subtheme	Key Word	Commonality in Theme & Subtheme	Key Informants Code
			<p><i>“The prototypes will prioritize accessibility, ensuring that users of all skill levels and technological backgrounds can easily engage with the experience. This may involve features such as adjustable settings, compatibility with different devices, and support for multiple languages”</i></p> <p><i>“The prototypes to have clear and user-friendly interfaces, with intuitive navigation systems that guide users seamlessly through the different elements of the floating market experience.”</i></p>	
4	Identify usability challenges	rewards or incentives	<p><i>“While identifying usability challenges is important, I believe that incorporating rewards or incentives can help mitigate some of these challenges and enhance user engagement. Users are more likely to overlook minor usability issues if they feel rewarded or incentivized for their participation”</i></p> <p><i>“It’s essential to identify and address usability challenges in the gamification design prototypes of The Bangkok Travel Floating Market, I believe that integrating rewards or incentives can play a valuable role in mitigating these challenges and enhancing the overall user experience”</i></p>	3,6
5	Decision-making strategies	<ul style="list-style-type: none"> - Attention experiences - Customize - Creatively 	<i>“I anticipate that the prototypes will offer immersive experiences that transport users to the vibrant and bustling</i>	9,14

Number	Main Theme and Subtheme	Key Word	Commonality in Theme & Subtheme	Key Informants Code
			<p><i>environment of the floating market. Through interactive storytelling, realistic simulations, and rich multimedia content, users should feel fully immersed in the sights, sounds, and culture of the market, enhancing their overall engagement and enjoyment”</i></p> <p><i>“I expect the prototypes to incorporate educational elements that provide users with valuable insights into the history, culture, and traditions of the floating market and its surrounding areas. This could include informative narratives, guided tours, and interactive experiences that encourage users to explore and learn about different aspects of the market, such as local cuisine, artisanal crafts, and traditional practices”</i></p>	

Discussion

The tourism economy in Thailand remains a vital pillar of the country's economic development, driving growth, employment, and prosperity while showcasing Thailand's rich cultural heritage and natural beauty to the world. The trend of promoting tourism using games on digital media is driven by the desire to engage modern audiences in innovative and interactive ways, inspire travel aspirations, and showcase the unique experiences and attractions that destinations have to offer. As technology continues to evolve and gaming culture becomes increasingly mainstream, it can be expected to see continued growth and innovation in this space.

It cannot be denied that, the users have high expectations that the prototypes will engage them and capture their interest by offering interactive elements (Kohler., et al, 2011) that facilitate exploration and interaction within the floating market. They desire immersive experiences that transport them to the vibrant atmosphere of the market, where they can enjoy entertaining gameplay experiences filled with challenges and surprises (Freitag. et al, 2020) Anticipation is high for rewards or incentives within the gamified prototypes, motivating users to engage further (Kolpondinos & Glinz, 2017). Moreover, users express a keen interest in exploring different aspects of the market, supported by personalized experiences tailored to their preferences (Tondello & Nacke, 2020). Additionally, users desire opportunities for social interaction, enabling them to interact with other users and share experiences (Christou. Et al, 2013). Furthermore, the learning is also valued, with expectations for educational or informative elements that

provide insights into the market's culture and history (Konstantinov., et al, 2018). Finally, users expect user-friendly interfaces and intuitive navigation to enhance their overall experience (Rodrigues, et al, 2016).

Designing Gamification is a marketing tool to attract the interest of gaming enthusiasts by combining tourism with Gamification, which is gaining popularity due to its ability to provide fun experiences for players. Therefore, when designing prototypes with gamification concepts, it is necessary to consider user. Due to the user have high expectations that the prototypes will engage them and capture their interest (Jean., et al, 1999) by offering interactive elements that facilitate exploration and interaction within the floating market. They desire immersive experiences that transport them to the vibrant atmosphere of the market, where they can enjoy entertaining gameplay experiences filled with challenges and surprises (Bopp., et al, 2018). Anticipation is high for rewards or incentives within the gamified prototypes, motivating users to engage further.

Furthermore, it was found that, the most significant point which the gamification must be concern is the cognitive processes, which it can be gather valuable insights into how users engage with and experience the game prototypes, helping to assess their satisfaction and effectiveness in facilitating cognitive engagement and learning (Olsen., et al, 2011). It can be said that, understanding how users make decisions within the game prototypes, such as which paths to take, which vendors to interact with, and which activities to participate in, requires assessing users' ability to solve challenges and puzzles presented within the game prototypes, such as navigating through the market or completing quests. Additionally, examining users' memory recall of information and details encountered within the game prototypes (Santos., et al, 2013), such as landmarks, vendor locations, and historical facts, is essential for observing users' attentional focus and engagement with different elements of the game prototypes, such as interactive features, storyline progression, and visual stimuli. Moreover, the exploring how users acquire new knowledge and skills through interaction with the game prototypes (Rankin., et al, 2008), such as cultural insights, language acquisition, and gameplay mechanics, while evaluating users' ability to adapt to changing situations and environments within the game prototypes, such as unexpected events, new challenges, and alternative strategies, aids in identifying the strategies and approaches users employ to overcome obstacles and achieve goals within the game prototypes, such as trial and error, logical reasoning, and creative thinking.

Conclusions

These aspects capture of the design prototypes with gamification concepts which consisting of (1) Expectations (2) The game prototypes can provide valuable insights into their behavior (3) Usability issues (4) Identify usability challenges (5) Decision-making strategies. Those elements involved in user interaction with the game prototypes of "The Bangkok Travel Floating Market" gamification. By understanding how users make decisions, solve problems, recall information, allocate attention, learn new knowledge and skills, and adapt to changing situations within the game prototypes, researchers can gain valuable insights into user engagement, satisfaction, and overall experience. These aspects provide a comprehensive understanding of how users interact with and experience the gamified prototypes, enabling researchers to identify strengths, weaknesses, and areas for improvement in the design and implementation of gamification strategies for tourism purposes.

Declaration of Competing Interest

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

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Ethical Approval Statement

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