**Game on: Engaging Tourists through Gamification**

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**Abstract.** Gamification has gained up growing attention from researchers of multiple fields including education, health care and marketing. It is believed that gamification of tourism can contribute to a richer experience and higher level of satisfaction. This paper tries to elaborate the design progress of gamification in tourism fields. It identifies the key game design elements to meaningful gamification, and sort out the 6D principle of design framework. An application designed by Disneyland are presented as a case to show this vogue concept can benefit tourism industry. Key challenges for future study are also discussed.

**Introduction**

The last decade has seen a rapid growth of gamification. It showed great potential in increasing the user's engagement and satisfaction, and has been put in wide use in an increasing number of fields including education, business, and health care. Successful applications such as Duolingo, Four square, and Nike+ series, which motivate their users through game mechanics to engage and achieve certain goals, have gained sustained attention of researchers in different fields. Hourari and Hamari[5] state that using gamification can create gameful experiences in order to support users' overall value creation, which makes it a popular strategy in service marketing. WTM suggest "gamified" approaches will grabbing a sizable share of social media expenditure. However, academic research on gamification application in tourism context is still limited with few documentation.

The aim of this research is to explore how does gamification applied in tourism business. Therefore this paper starts with the concept of gamification, game design elements and framework. Second part discuss about how gamification works in tourism context, with case practices to explain how game design elements were set up. Finally, the paper ends up with a conclusion and possible direction in the future.

**Gamification Theory**

Deterding[4] first describe gamification as application of game design elements in non-game contexts. Wood and Reiners [17] further identified three key elements, game component, game mechanics, game dynamics, and gamification is the progress of different components and mechanics supporting the design business dynamics. To be specific, game dynamics represents the outcome of the game, such as emotion, storytelling, development. Game mechanics usually contains challenge, competitive, feedback, rewards, which motivate players to actualize wanted behaviors. Both game dynamics and mechanics were realized through game component, which can be perceived by all players[16]. Some researchers consider points, levels, budge, leader boards as the most common game components[14].

However, some extrinsic gaming elements such as points, levels and other rewards may cause de-motivate effect to the users. Marsh [9] point out point or other extra reward may reduce the reflection and contemplation of players. Moreover, Attali and Arieli-Attali [1] argued that using simple elements like points and levels as incentives do not have intrinsic value for many users, which make gamification "just a trick". Robson [12] point out that a well-designed gamification experience should have reinforcements including both extrinsic factors and intrinsic factors.
Extrinsic factors like rewards and virtual goods may motivate users short term activity, while intrinsic factors like relation, competence and autonomy will encourage behavior change of the users, whether it involves higher participation, advanced performance, or greater compliance[15].

However, gamification is not only about game elements. Almost 80% of the gamification applications fail the business objectives, mainly due to its poor design[13]. Wood and Reiners[17] described gamification as the progress of using passion and play to shapes users behaviors and drive user engagement in an activity. Werbach and Hunter[16] developed a design framework of gamification which contains 6D principle: Define business objectives, Delineate target behaviors, Describe wanted player, Devise activity cycles, Do not forget fun, Deploy the appropriate tools. Although tourist experiences are full of individual significance and can be very subjective, such design frameworks could be very instructive at the early stage of gamification in tourism industry.

Table 1. Summarizes Different Classification of Game Elements.

<table>
<thead>
<tr>
<th>Name</th>
<th>Define</th>
<th>Examples</th>
<th>Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>components</td>
<td>Basic tools of the system</td>
<td>ex intrinsic: Badges, point, collecting, reward etc.</td>
<td>Deterding, et al. [4]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>intrinsic: Message, blog, group, chat</td>
<td>McGonigal [10]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>competenc e: prize, levels, leader board</td>
<td>Jesse [7]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>autonomy: Profiles, avatars, quests</td>
<td></td>
</tr>
<tr>
<td>Mechanics</td>
<td>Define potential actions by the states of the user</td>
<td>Challenge, competition, rounds, time limit, rewards, social influence, Content unlock, achievements</td>
<td>Werbach and Hunter [16]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wood and Reiners[17]</td>
</tr>
<tr>
<td>Dynamics</td>
<td>The resulting behaviors and interactions between users that are being incentivized by the components and mechanics described</td>
<td>emotion, storytelling, development, time pressure</td>
<td>Werbach and Hunter [16]</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Wood and Reiners[17]</td>
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</table>

Gamification Application in Tourism Industry: Case of Disneyland

It is evidenced that gamification has been widely used in health industry[14], education application[3], consumer marketing[20] and tourism industry[11, 18, 21].

WTM predict gamification will play an important role in future tourism business. Huotari & Hamari[6] believed gamification have the ability to increase customers' overall value creation. Tourism experience are co-created by both service provider and tourists, to achieve extraordinary experience or peak experience, deeper engagement and multi-sensory stimulation were required. Xu[19] suggest gamified experience can bring tourist enjoyment, fun, and social connection, which leads to an immersive experience. This is especially visible in popular theme park such as Disney World.

Disneyland has always been one of the most popular destination throughout the world. However, most tourists in the theme park are suffering from the endless queue, hours of tedious waiting have blemished their experience. In 2018, Disneyland came up with a reverse AR mobile phone game named "Play Disney Parks", which allowed their tourists to turned wait time into play time with interactive surrounding environments in the theme park. According to Bluetooth beacon settings, players can activate hidden AR elements through their mobile camera for special bonus scenes. This application can introduces games to play while waiting in certain lines, music to listen to while roam the parks, location-specific trivia challenges, and even a bevy of achievements to add a competitive edge to the experience.
In "Play Disney Parks", shown in Fig. 1, four different games were designed to help tourists pass time in line. For example, the Midway Mania mini-game will unlock a physical effect near the front of the queue, which makes the players feel like they reward for making it to the front of the line. The Peter Pan’s Flight game asked players search out physical items in the line queue, answer questions with the group, and ultimately unlock a small animatronic experience in line just before boarding the ride.

The 6D principal of gamification based on Werbach and Hunter[16] were applied to create memorable experience in Disneyland.

The first step was to define business objectives. "Play Disney Parks" is all about giving those who want to play a deeper and more interactive experience while visiting the parks. All the games were not particularly hard, but they will take the tourists’ mind off the wait and keep them engaged with their travel parties. In this way, the application allows the tourist to feel a powerful and emotional connection to Disneyland in a different way.

After the business goal has been settled, designers should delineate their target behaviors. The target behaviors should be simple and clear, such as create an account, vote for someone else, or make comments on the discussion board. "Play Disney Parks" want to keep the players in certain activities while they waiting in the line. Thus, physical elements were added into the area, ranging from items hidden throughout the queues that are specifically tied to the app and lanterns that are part of the finale experience.

Before applying game mechanics, describe the players and devise activity cycles would ensure a pleasant outcome. Users are different from each other, so is their lifecycle and preference activity cycle. 2divided gamers into four kinds: achievers, explorers, socializers and killers. In such a relaxing place like Disneyland, most of the players are not excited about practicing certain profession skills to maintain their game level, or challenge their limits to achieve greater success. So the goal of the game is more about keep the players in the engagement loops, rather than promote them to the progression stairs. By creating a atmosphere that matches the environment, participants were smoothly enjoy the play time with strangers, and feel the connection with the theme park. For tourists who pursuing deeper experiences, a series of trivia challenge were included in the app throughout all of the parks, themed to different lands. Users were can try multiple times to get higher points.

![Figure 1. Play Disney Parks.](https://disneyworld.disney.go.com)

The fifth principle is do not forget the fun. Lazzaro and Keeker [8] developed four categories of fun: hard fun, easy fun, experimental fun and social fun. Designers should choose differential types
of fun depend on the gaming situation. It is evidenced that designer of the "Play Disney Parks" choose easy fun and social fun to motivate players voluntarily engaged in the game.

The sixth and last principle is deploying the appropriate tools. Choose appropriate game components and game mechanics, and then code them into the gamification system. In the case of "Play Disney Parks", the achievement system allowed users to keep track of their own score or progress. Players can earn achievements through completing games, winning trivia challenges, riding rides, and even simply walking through various places within the park, and it is encouraged to share them via social media.

**Key Challenge for the Future**

Tourism experience is co-created by both the tourists and service providers. It is believed that such experience could be enhanced by technology, which allows people feel more ownership, flow and purpose when engaging with the play tasks. Well-designed gamification applications have positive impact on communication and interaction between tourists and local community, enhancing overall tourist experience, develop sustainable tourist behavior[11]. While the majority of researchers describe a bright future for gamification, the final outcome of such system remains uncertain. Therefore, we suggest extending research outside the gamification box instead of the means only. Subjective outcomes of the gamification system such as emotional arousal or overall engagement may serve as indicators for the evaluation of gamification.

**References**


