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Discovering Relation Population: The Gamification Design for Digital Placemaking in the Neighbourhood

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Abstract

This paper proposed the gamification design regarding the local characteristics of Snail Alley in Tainan, Taiwan, so that users could understand local features and take part in community affairs. Snail Oasis embraced the idea of the relation population (i.e., people who are not residents but have relations with a specific place) for inviting non-residents to contribute to the place. The research conducted semi-structured interviews to get feedback from Snail Oasis. The results showed that Snail Oasis has the potential to motivate users' extrinsic motivation in terms of raising their interests in Snail Alley and suggested a way to utilise people's intrinsic motivation when they have chances to contribute to the place. The research concluded that the integration of digital gamification helped attract visitors and highlighted the importance of cooperating with localities to come up with creative community activities and keep the communication channels with potential relation populations.

Keywords: gamification, relation population, digital placemaking, HCI

1. Introduction

The place could be created cooperatively not only by the residents and the government but in relation to the population as well. Even though Taiwan has launched "Integrated Community Development" for over 20 years, it has faced challenges in community development, such as low participation willingness and elder-dominated participation rate (Heish and Peng, 2020). Hence, Tseng stated the possibility of mobilising citizens to support specific issues from the Internet [1]. Recently, the idea related to crowdsourcing and the population has become the key issue in contributing to the place. For instance, Higashigawa Chou in Japan invited people to become shareholders with specific certificates and rights on public infrastructure, merchant discounts, etc. (Chang, 2020). In 2021, the Miaoli city office launched a project in which non-residents, whoever was interested, could take care of public streetlights [2]. Lin and Hsieh listed several ways to expand the relation population, such as raising the exhibition for local features,

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local magazines and forums, short trips, experience in local, etc (Lin & Hsieh, 2021). Those efforts and discourses showed the possibilities to expand the relation population from visitors through shareholding and the participation of local affairs.

Undergone the governmental planning project in 2018, Snail Alley in Tainan was a neighbourhood famous for its literary and cultural background. It is a mixed-used commercial and residential neighbourhood enclosed by four heavy-traffic roads with art and cultural spirits. The project in 2018 explored the historical information and extracted the term “Snail Alley” from Mr Yeh Shyr-Tao’s literature to form the neighbourhood and into success.

Nowadays, Snail Alley attracts small businesses because of its downshifting spirits. Local shop owners and residents supported the spirits and made the alley into a famous tourist destination. Residents usually voluntarily taught visitors to comply with manners such as “lower the volume”, “walk slowly to enjoy the atmosphere”, “do not litter”, etc. However, although in 2018, the local government had placed installation art in the neighbourhood, parts of the installation art were rotten due to the lack of maintenance. Based on the consensus among residents and local shop owners, it is possible to attract non-localities to visit and join in community affairs to solve the maintenance responsibility issues and further contribute to the place.



Figure 1. Residents and Shop Owners in Snail Alley Appealed to the Tourists to Maintain the Environment

To do that, the critical issue is to attract visitors to the place and elevate their interests in Snail Alley for further engagement in local community affairs, such as fixing the installation arts and cleaning up the square. Hassan suggested using gamification in civic engagement activities to motivate people to engage with ICTs (Hassan, 2016). Several cases have shown success in placemaking using gamification because gamification could elevate participants’ motivation (Olszewski, Cegiełka, Szczepankowska, & Wesolowski, 2020; Pang, Neustaedter, Moffatt, Hennessy, & Pan, 2020; Romano, Díaz, & Aedo, 2021).

Therefore, this paper attempted to provide the gamification design of Snail Oasis to motivate people to participate in local affairs in Snail Alley. Meanwhile, people could explore the cultural memories of the neighbourhood and build relations with the place. Liao suggested a way to focus on shop owners in mixed-lend-use neighbourhoods in Taiwan because their specialities could bring variety to the place (Liao, 2017). This design also referred to the studies’ advice and created communication channels with further steps by integrating gamification. The efforts of this paper contributed to the discussions in Taiwan through gamification and digital technologies to cultivate a population of people who are related.

The rest of this paper was structured as follows: Section 2 introduced gamification and related works in placemaking. In section 3, the researcher proposed the gamification design of Snail Oasis. In section 4, the results and discussions of interviews were drawn. In the last section, some conclusions were reported.

2. Gamification and Related Works

Gamification is understood as using game elements in non-game contexts for specific intentions (Deterding, Dixon, Khaled, & Nacke, 2011). Deterding distinguished severe games, gamification, playful design, and toys based on whether there are rules and whether they are used in general (Deterding et al., 2011). Previous research highlighted the importance of understanding the motives and needs of users in gamification. Intrinsic motivation relates to internal motivation triggered by interests or enjoyment, while extrinsic motivation is purely triggered because people want to get specific outcomes (Almarshedi, Wanick, Wills, & Ranchhod, 2015). SDT theories state that people have three intrinsic motivations, including competence, autonomy, and relatedness, which were well discussed in gamification fields (Deci, 2000). Chou organised the Gamification Octalysis to elicit eight facets of gamification design, which included Epic Meaning, Accomplishment, Empowerment, Ownership, Social Influence, Scarcity, Unpredictability, and Avoidance (Chou, 2015).

Gamification has been digitally applied in placemaking. De Souza e Silva et al. reviewed the history of using mobile games to turn serious spaces into playful spaces, creating ludic experiences and encouraging people to discover the place (de Souza e Silva & Hjorth, 2009). Knearem et al. (2021) used the out-of-the-box application GooseChase to deploy a scavenger hunt mobile game in an art festival to build a sense of connection to the place (Knearem, Jo, Wang, & Carroll, 2021).

In Taiwan, one of the cases was the AR real escape game called in Xiaying District, Tainan in 2019. The project educated people with board games and AR to let them know the knowledge and history of the place [3]. The other case was Xiaomin in da House in the 2021 Taipei Placemaking Festival. The project combined little web games and online exhibitions for visitors to understand the issues in placemaking in Taiwan, such as remodelling idle old buildings, investigating local culture and histories, training volunteer teams, and caring for the elderly living alone [4]. Overall, related works now are little discussed in combining online gamification and building a channel for people to participate in local community affairs.

3. The Gamification Design

3.1. Introduction

The gamification design of Snail Oasis has three gaming modules, including “exploring the snail oasis”, “cleaning up the environment”, and “maintaining order” (Figure 1). Three modules will lead to the gamification mechanism in the application called “Snail Coins” as the motivation. Users are allowed to use Snail Coins to buy virtual furniture in their house as they reside in the Snail Oasis. While users participate in local affairs, which were proposed by residents, they can get more coins as rewards. The mechanism will motivate users to explore the place and earn snail coins to unlock different furniture. Ultimately, the design could cooperate with local shop owners and attract people to visit the place and take part in local affairs. Local shop owners could provide discounts for users who pay attention and effort to the neighbourhood development and thus create the physical-virtual integration system.

3.2. Exploring the Imagined Snail Alley

The gamification design focused on the narrative and background storytelling to deliver local features. The design created a similar but imagined place, Snail Oasis, based on the physical map of Snail Alley to strengthen the downshifting atmosphere. Existing local features and people were transformed into snail characters. The storytelling set the user as a snail salaryman whose life was busy and restless but one day found attracted by the atmosphere in the village. When users join the village, they start a journey as if they became community residents. Users could explore and live in their houses, look around the map, and chat with neighbourhoods to understand more about the place. While people spoke with the NPCs, they could get information about local histories through dialogue and easy quizzes. Related information about the place was also provided during the conversation for further understanding. While users chat with NPCs, they can unlock different areas and get corresponding badges as the motivator. The badges will be displayed at the users' houses as certificates (Figure 3).

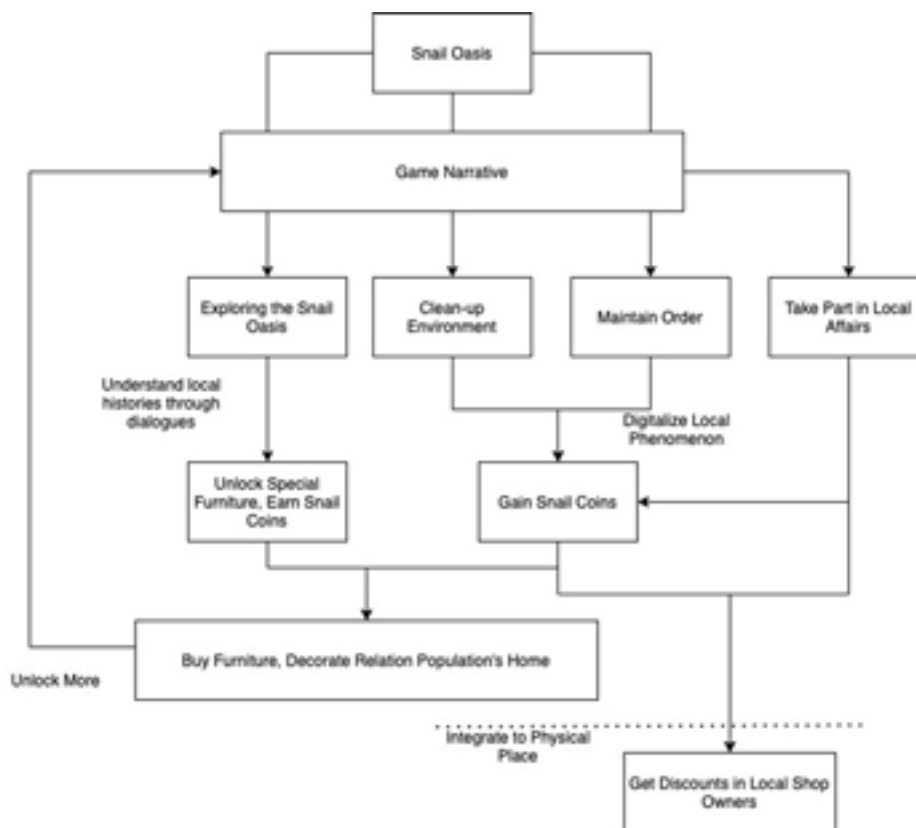


Figure 2. The architecture of Snail Oasis



Figure 3. Badges collection

3.3. Game Mechanism: Snail Coins

Snail Coins was a mechanism for users to buy furniture in their homes. When users chatted with snail villagers or joined community adoption activities, they could get Snail Coins. Users could enter their houses, check how much they have gained, and view their own homes. The personal house represented the place where users lived when they entered Snail Oasis as a newcomer. At first, there would not be too many decorations in the room, but they could see different changes as users explored various areas. Badges and furniture representing each area would be unlocked when the corresponding area exploration was accomplished. Something unique and special furniture was designed at a high price to force users to take part in local affairs to earn such an amount (Figure 4).

3.4. Digitalising Local Phenomenon: Daily Tasks

The design simulated the offline phenomenon in Snail Alley into a feature of Snail Oasis. Daily tasks included “cleaning up the environment” and “maintaining order”. In the former task, users

could find garbage randomly appearing in specific locations on the map every day and earn snail coins as a reward. In the latter task, users give a corresponding evaluation to the NPCs and get snail coins. These tasks simulated real-world phenomena and made people experience and empathise with local issues.



Figure 4. Users could put Furniture into their Room using Snail Coins

3.4. Taking Part in Community Affairs

Except for elevating local awareness of the place, the design utilised snail coins to motivate users to take part in community affairs. Shop owners who have launched local affairs will be shown up with a lightbulb icon. The user could find those NPCs and get information on how to take part in each community affair. Snail Oasis aimed to become the channel between users and shop owners. Besides, users could leave their messages in each local affair for discussion and, therefore, build a conversation channel.

Overall, Snail Oasis designed the free spirit-oriented gamification web channel to elevate local awareness and interest in Snail Alley for the potential relation population. The gamification features are organised in the table below. Each module could fit into one or two categories in Chou’s gamification analysis (Chou, 2015).

Table 1. Gamification Features in Snail Oasis

Features	Rationale	Gamification features according to Chou’s gamification framework
Imagined “Snail Oasis” based on cultural features of Snail Alley	The narrative led users to become a part of the relation population of the place to motivate them to experience lives in Snail Oasis.	Epic Meaning (narrative)
Badges and Snail Coins	Badges and snail coins reflected users’ exploration progress.	Accomplishment (badges), Ownership (snail coins)
Exploring the imagined map	Different furniture would be unlocked according to users’ exploration in each area.	Empowerment (milestones unlock)
Daily tasks	The design motivated users back to the design for participating in local affairs and snail coins.	Unpredictability (easter eggs, random rewards)
Decorating a personal room with Snail Coins	The design gave users the autonomy to decorate their rooms to a certain degree.	Ownership (collection sets)

4. Evaluation

After preparing the gamification design, this research interviewed five participants. Two of them had no knowledge about Snail Alley before using the design. The other two people knew and had been to Snail Alley before as visitors. The last one is the local shop owner who has been living in Snail Alley since 2014 and, therefore, could provide the perspective of residents. The evaluation aimed to understand users' feedback toward Snail Oasis and discussed the effects of gamification and the challenges of applying gamification design in placemaking.

4.1. Results of Gamification Design

Almost all participants gave positive feedback on the art design. They thought the art design raised their curiosity about exploring Snail Oasis. One of them said, "Because the whole interface is so cute, I want to explore whether there are other snails with different looks or snail-styled furniture." Another one highlighted, "When I first saw the interface, I wanted to explore (Snail Oasis) purely because it was so cute."

Their curiosity toward exploring Snail Oasis was an important part of raising their interest in the place through chatting with NPCs and gaining related information. Some participants stated that the information now provided was enough for the public, and it gave people a chance to browse more through external links. One of them said: "If you have time to browse those external sites, I think you will feel that you can get some information." However, one of the participants considered the story of local histories to be not enough and not interesting for him to explore. The participant suggested creating a more complete worldview behind characters to fulfil his curiosity about stories. The researcher further implied the conflict based on the context of the interview and found that people who considered Snail Oasis as a full-fledged game may feel disappointed since it did not provide solid and complete gamified experiences for them. On the contrary, people who consider Snail Oasis as a gamification webpage aimed at promoting local tourists and histories may feel the information was enough and generally have better experiences.

When it comes to collecting badges and furniture, participants were motivated by the ownership and to collect more. Even though the gamification was simple, it attracted the participants to explore Snail Oasis. One of the participants said: "I think the degree is relatively good, relatively easy to achieve a small sense of achievement. It doesn't take too much effort, and it doesn't take too much brain power." The results may also have relations to art design since some participants highlighted the cute design of furniture such as "snail fan". However, the effect of Daily Tasks, which aimed to adopt unpredictability to motivate people to return to Snail Oasis, was relatively weak. Participants felt it was unattractive, and some could not even understand how to interact.

4.2. Discussion on Integrating Digital Gamification Design with Local Activities

The research further extended participants' opinions about using gamification design in placemaking based on their experiences using Snail Oasis. This section discussed using Snail Coins and discounts in cooperation with local businesses.

Snail Coins were the mechanism that motivated people to join in community affairs to get furniture or discounts when they came to Snail Alley. The mechanism could work because of the willingness of local businesses. The possibility of this is based on community consensus in Snail Alley since, according to the local shop owner, residents and businesses who joined later will "spontaneously maintain the environment and try not to disturb each other." From the one who must raise community affairs for people to join, the local shop participant answered that she was willing to join the project. Her motivation was mainly altruistic and dedicated to the community. She also implied economic motivation because the integration of discounts and Snail Coins could bring more tourists to the place.

On the other hand, people interested in joining community affairs as non-residents also imply altruistic motivation. One of the participants described the contribution behaviour as warm-hearted. Another one highlighted that it "may be helpful to the place." The result showed the possibility of visualising the relatedness that SDT stated as one of intrinsic motivation. Participants suggested

a way to arouse people's relatedness motivation by letting them know their contribution to the place. Apart from intrinsic motivation, non-residents highlighted the form of community affairs. The researcher asked them about two forms of community affairs in which to take part. One is the physical products, and the other is the workshop or tour guide. Participants showed higher interest in workshops and tour guides but generally highlighted the importance of supporting measures for basic infrastructure and transportation. Overall, participants gave positive feedback about joining community affairs through Snail Oasis because of their motivation for relatedness and contribution.

5. Conclusion

This paper proposed the gamification design aiming to cultivate the relation population in Snail Alley by creating the virtual place of Snail Oasis. The Snail Coins obtained by users could be combined with local businesses in the future as discounts to encourage people to visit Snail Alley. Taking advantage of the unique cultural characteristics of the mixed-use housing neighbourhood, integrating an online gamification mechanism into expanding the relation population in such neighbourhoods could benefit local businesses. In addition to providing a channel for participating in local affairs, Snail Coins could be extended to physical activities for further impacts. The evaluation results showed that the gamification design Snail Oasis had outlined the possible way to integrate digital gamification design with physical placemaking strategies such as workshops. Even though the gamification design proposed in this paper can only be the channel to attract visitors and raise their interest in the place. The design aroused users' extrinsic motivation through gamification and elicited the intrinsic motivation that users have while having chances to join local community affairs. However, critical parts rely on local communities, from having consensus to raising creative local affairs to attract people. After building the interaction with users, the content of those community affairs was vital since they were keys to persuading people to invest in the place and become a potential relation population.

For future research, the researcher suggested discussing the maintenance issue among local communities and stakeholders. This research contributes to relative industries in Taiwan and abroad to discuss the application of gamification in neighbourhood placemaking.

Conflict of Interests

No potential conflict of interest was reported by the author.

Endnotes

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