FUSION OF OLD AND NEW, CREATIVITY IN EDUCATIONAL AND HISTORICAL WAY: BOARD GAME WITH SERVICESCAPE CONCEPT IN TAIPEI TECH UNIVERSITY TOWN.

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Abstract

The quality of life is a feeling of well-being, fulfilment, or satisfaction on the part of residents or visitors to that place. “Smart Cities” is the answer and a response to these challenges. Four major districts of the study areas are: Taipei Tech University, Huashan Park, Guanghua Area, and JianGuo Beer Factory. There are observations within the study area to reveal significant information about people’s preferences. Service design can influence the user’s behaviour and also can improve the quality of the public space. This study will focus on observing user behaviour towards implementing a board game in Taipei Tech University corners, as a public space that helps give travel guide and introduction to other historical districts. The board game is being developed with augmented reality, RFID and mobile app: the “good life” mobile game app information and maps will be on the mobile screen, and when the players walked around the real area, directions will be projected to interact with people on the floor. The proposed prototype will be a user-friendly based application that helps to understand and navigate easily and also create user-oriented, innovative concept for Smart City.

Keywords: Service design, Early design phases, Human behaviour in design, Smart City, Board Game

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1 INTRODUCTION

The competitions between cities are basically based on the concept of quality of life. This is because quality of life shows on lifestyle of citizens and their health condition, natural and built environment situation and lastly, based on economic stability, which ends up with how safe to live within the community. The quality of life is a feeling of well-being, fulfilment, or satisfaction on the part of residents or visitors to that place (Andrews, 2001). Defining the image of a city is basically influenced by the quality of life of citizen and vice versa. In the book The Image of the City, Kevin Lynch posited that users understand their surroundings according to five elements, i.e. paths, edges, districts, nodes, landmarks (Lynch, 1960). The satisfactory of the citizens help to gain an image of city. Hence, a strong city image can have a positive impact to those people who wants to visit the city. "Smart Cities" is the answer and a response to these challenges. Smart cities can dramatically improve their citizens' quality of life, encourage business to invest, and create a sustainable urban environment (Vasseur and Dunkels, 2010). In the terms of smart city development, the nodes are hubs, sensors that are tagged semantically as things from physical objects (Lombardi et al., 2012).

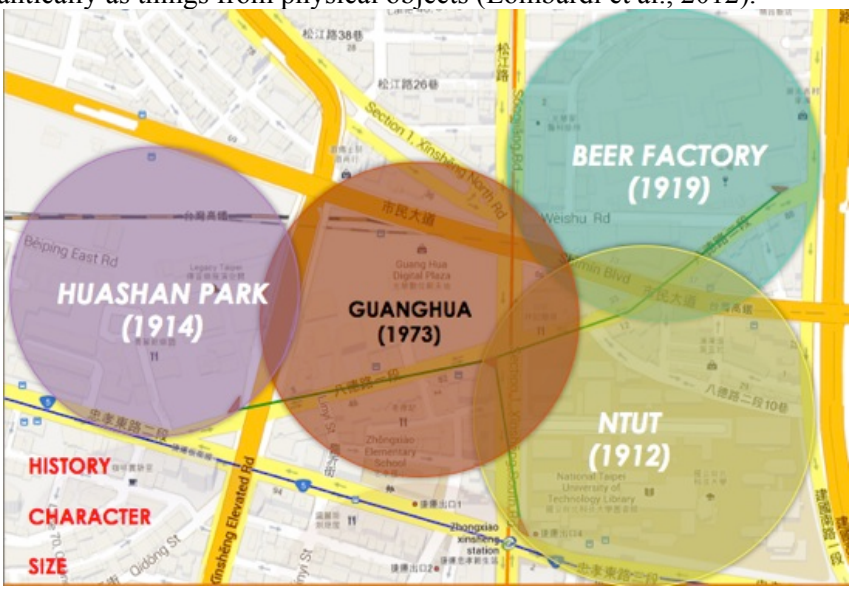

Figure 1. Four major districts

In this study, the main purpose is to reconfigure the servicescape of the four major districts of the study areas (figure 1): Taipei Tech University (National Taiwan University of Technology, NTUT), Huashan Park, Guanghua Area (Taipei's Akihabara and Guanghua 3C Mall), and JianGuo Beer Factory. It aims to create more innovative and creative board game concept for smart city travel. There are adequate observations within the study area to reveal significant information about people's spatial preferences, which are essential considerations in public service for the elements of a city.

The research started from city image, service design, smart city, and how these all can be integrated to provide a better servicescape in a board game. The case study area, Taipei Tech University Town, is based on the 5 differentiating elements of a city and how elements relate to each other. Observation framework is a methodology to break down user experience within the case study area. Later, the acquired findings gave understanding to user's overall public space experience. Service design in its application can influence the user's behaviour and also can improve the quality of the public space. In line with that, this study aims to investigate further about what can be improved from public services in terms of implementing service design (Felix, 2011).

This study will focus on observing user behaviour towards implementing a board game in TaipeiTech's corners, along Zhongxiao Xinsheng, as a public space that helps give travel guide and introduction to other historical districts. In order to support strategies in design practice, deep understanding of the complex dynamics of design contexts and systems are the basic requirements . It will also focus on how user interacts within the study areas. The purpose of this study is to provide the solution concept with service design in front of Taipei Tech University Town.

2 LITERATURE REVIEW

Every citizen of a city has individual experiences and memories that associate to its city and helps to give the city an image. Christopher Alexander states that the best cities and their public spaces are those naturally created by their citizens (Alexander, 1979). Natural cities are better than artificial ones, owing to their flexible and overlapping activities, as well as growth trends based on citizen needs and their practical experiences (Alexander, 1979). Hence, the people and their daily activities shape the city.

The smart city concept originated from that of the 'information city', and that evolved to an idea of an ICT-centered smart city. Lee et al. (2012) defined the concept of the smart city has six main dimensions: a smart economy, smart mobility, a smart environment, smart people, smart living, and smart governance. Kroes (2012) had defined how "Smart" a city is. "Smart" means making better use of data, from many sources, whether from sensors, social networks, statistics and others. Second, it means empowering people: whether as citizens, patients or consumers. Third, it means removing barriers between sectors- like energy, transport, ICT, water and waste management, and healthcare. And finally, being smart means having agreed and transparent standard.

Moritz (2005) defined services as intangible, can't be either stored or owned, and not separable from consumption. Along with consumption, there will be services applied on it. The services provider's task is not finished until the customer's need is fulfilled (Chesbrough, 2010). User satisfaction is the main consideration to reach the final purpose of providing service and customers often desire to have their needs fulfilled not only initially but over a series of interactions with their provider, it is why service design is important to deliver user satisfaction, creates user experiences. Service design is defined as the activity of planning and organizing people, infrastructure, communication and material components of a service in order to improve its quality and the interaction between service provider and customers. One of the main concepts in service design is interaction. The servicescape or environmental image of the service is the result of a two-way process between the observer and his physical surroundings. Environments can help to create a pattern and place identity in which users can easily recognize and make sense of the environment (Viña, 2009).

Therefore, service design is not just designed for beautiful outfit but can make the user satisfied through observation the user imagination and the users experiences with involved various field of expertise in the design process.

3 METHODOLOGY

3.1 Direct Observation

Observing users' activity and their behaviour, including their emotions in the target areas, hat will be the basic foundation to analyse user experiences. The main issues and severe user problem found in the observation will become the key for researcher to purpose the solution for the user. User journey while using the public space, user behaviour as a respond for service provided is the main consideration for the improvement of public service in terms of service design.

The five human factors is a method for supporting observation in the field, prompting researcher to look for physical, cognitive, social, cultural and emotional elements present in the situation to understand how the environment affect people's overall experience. Understanding five factors of a person in a structured way and thinking about these factors together will give us a deeper understanding of the experience of that person (Kumar, 2013).

Table 1. Five Human Factor Criteria

Five Human Factor Criteria	How do user engaged with that criteria
Physical	How do people experience their physical interaction with service facility? What do they do, open, carry and touch all facility?
Cognitive	How does user associate meanings to environment they interact with? What are the various interactions that require people to think?
Social	How do people behave, formally and informally interact among others?
Cultural	How do MRT user experience shared habits?
Emotional	How do people experience their feelings while interact in target area? What in the environment is triggering user emotion and feeling? Are people sad, aggravated, bothered, frustrated or happy?

This study made an observation plan based on the five human factor criteria as shown in Table 1. These factors (physical, cognitive, social, cultural and emotional) shares in common are the power to affect people's behaviour in, and experience of the public realm. The study of the emotional relationship between people and the material environment, especially in the observations of users, bring crucial notions to increase design capacity to give existence of positive feelings to a more responsible society. Therefore, understanding how and why things evoke emotions is crucial to understand society and imperative to design the environment (Damazio et al., 2009).

The observation of user experience is analysed and what kind of behaviour of user shows for the proposed way-finding system concept in the case study, how this concept gives new experience and service for user. The result of the observation is analysed to determine what most interesting for user. The observation used photograph, video, notes, diagrams, and sketches to record the user experience.

3.2 Districts

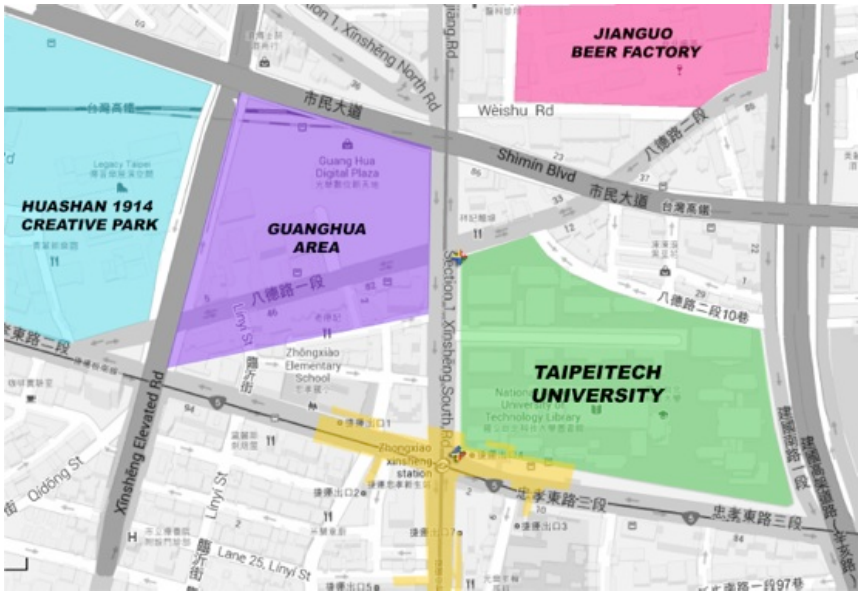

Figure 3. Four major districts

The Taipei Tech University Town (TTUT) is composed with Taipei Tech University, Huashan Creative Park, JianGuo Beer Factory, Guanghua 3C mall and newly built Taipei Akihabara (Guanghua Market) (figure 3). It is an area with cultural history, mixed land use, abundant urban components and thriving functions that need to be rethinking and regenerated. The first one and the major district is the Taipei Tech University itself, which was established in 1912 and is a prestigious university with glorious history. The second one is the HuaShan 1914 Creative Park, which was built in 1914 and used to be Taiwan's largest wine producers throughout the 1920's. The other minor districts of the University Town are Jianguo Beer Factory and Guanghua 3C Mall together with the Taipei Akihabara. Jianguo Beer Factory was built around 1919. The factory had received awards from various international beer tasting competitions that proves its world-class quality of liquor. Taipei Akihabara,

also known as Guanghua Market, is known more for gadgets and technology and you can find six-story 3C mall, on the lower ground of it, the exhibition and showcases of computers and on the upper floors are there, everything will be there for computer geeks need. These four districts clearly show the collaboration of history and modernization. Huashan Creative Park and Jianguo Beer Factory both show culture and history. Guanghua market proves the technology advancement in Taiwan. What's nice about the Huashan Creative Park is that it still promotes culture but tries to showcases some modernization thru exhibitions. Moreover, Taipei Tech University though underwent several name changes, stills tries to maintain the Japanese culture thru preserving buildings that was influenced by Japanese colonial.

3.3 Case Study

The connection between the "city nodes" has their big opportunity of improvement, as they are the starting and ending points of user journey. The study also suggests turning the "city edges" into an appealing urban environment and more user-oriented for easy finding ways from one site to another. Then the service design for urban public spaces is reviewed for integration analysis of the intertwining and interacting of these concepts between these two historical sites. This allows users to easily learn paths, to describe and remember routes and locations.

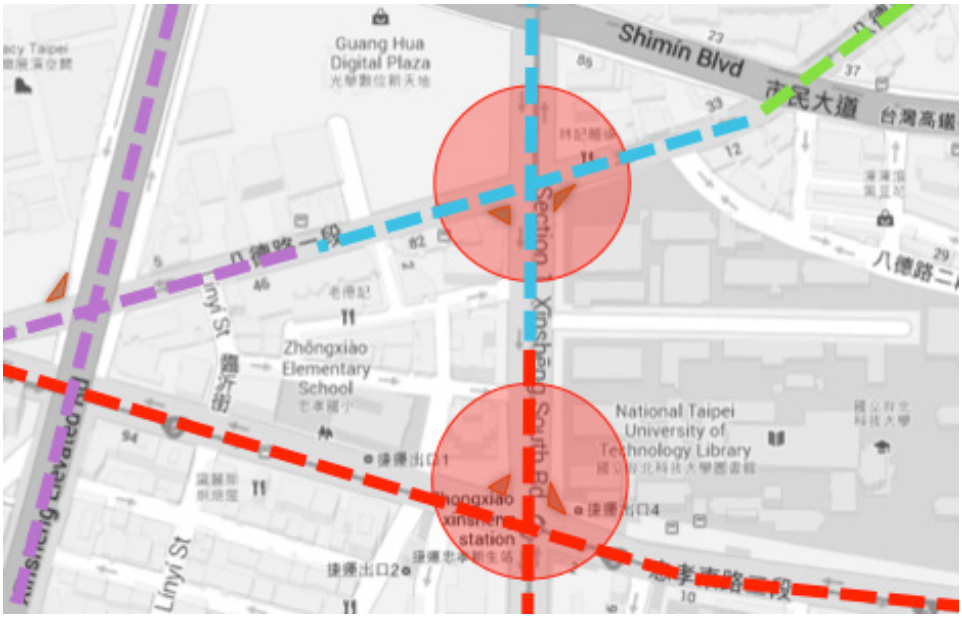

Figure 4. Two Main Nodes

From 4 defined edges of Taipei Tech University, it concluded that the corner of Xinsheng South Road and Bade Road and the corner of Xinsheng South Road and Xinsheng East Road (figure 4) are the major edges that can serve as the connection from two historical public places, namely Huashan Park and Beer Factory and for the Guanghua Market because it has the direct access from MRT exits of Zhongxiao Xinsheng Station. The corners are proposed to have the main way-finding systems.

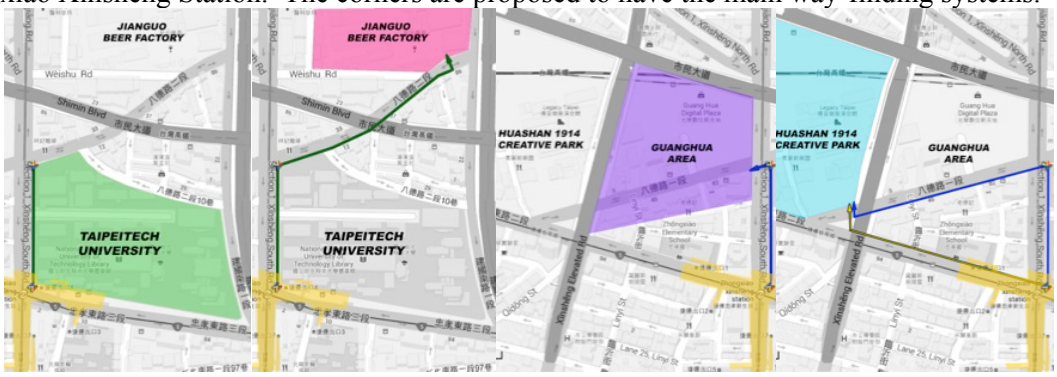

Figure 5. Flow of directions to TaipeiTech University, Jianguo Beer Factory, Guanghua Market, and Huashan Creative Park, respectively

This diagram mainly shows the user's flow of direction towards 4 districts. There are two ways on how to go to Huashan Creative Park. Right after getting out from MRT Zhongxiao Station, one way is to walk straight in Zhongxiao East Road (path A) and other one is to walk along Zhongxiao South Road towards Guanghua Market and turn left to Bade Road (path B). Though the path B is much longer, the experience of walking along the Guanghua Market makes you feel not tiring at all. The time difference between path A and path B is only 1-2 minutes. The recommendation is that those tourists who want to visit the area to take the path B as it is more "smart" path and experience to go to Huashan Creative Park.

3.4 Board Game Concept Design

The board game creates an environment for participants to learn the importance of a number of issues. Learning in this case is a "method that draws on structured behavioural activities to teach complex, affective, cognitive and behavioral concepts" (Gundry and Kickul, 1996). The board game allows participants to gain their game performance through congruent decisions, and also learn the context from playing it.

In this project, a board game for creating exploration experience of the case study site. The board game is named for "Bump into Good Life", and the purpose is to find out how will "good life" change under different points in time and situations and to bring players to go through the area of Guanghua Market and Huashan Creative Park. For carving out an entire region and marking down all the elements of "good life ", the players will be back through time to a decade ago, and be brought to the Taipei Tech University, Guanghua Market and Huashan Creative Park at that time, so that players can be in different characters with different experience.

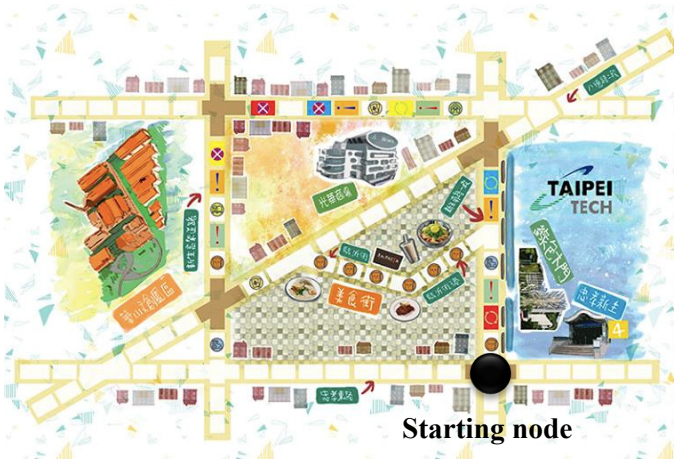

Figure 6. Game broad

Figure 7. Four types event cards

The Green Gate in Taipei Tech University as the starting node (figure 6) covers the area of Guanghua Market and Huashan Creative Park. All players can play though different characters in different situations, experience the story and servicescape through playing different event levels (figure 7).

Figure 8. Character Cards

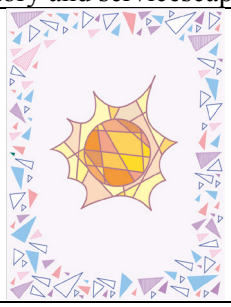

Figure 9. Situation Cards

Figure 10. Money

Figure 11. Good life points

Before the game started, each player draws a "character card" and "situational card". And, try to collect the "good life points" and "money" according to the "character card". There are "workers", "student", and "tourists", three kinds of cards. Each one character is with a different amount of "good life points" and "money" information value (figure 8 to 11). Depending on the selected character, the players in the game will have different actions. This game allows players to understand that money and information can be used to exchange "good life" points. Streets and areas on the board contain different nodes for specific servicescape, and play around this game the players can find out how the context of simple good life will be.

4 DISCUSSION AND CONCLUSION

At the end of the process, the clarification is to find what kind of prototype that is needed for every identified user and try to observe the behaviours of the early prototype of the board game. The idea of the study is to provide the very basic thinking that offers context and simple game for the users who want to know the environment and related servicescape. The proposed concept of the board game is basically based on user behaviour observation and Taipei Tech University Town.

Figure 12. Surface prototype for AR APP for main node of Taipei Tech University Town

Figure 13. Prototype of floor patterns for AR APP

The board game is being developed with augmented reality, RFID technology and mobile app: the "good life" mobile game app information and maps will be displayed on the mobile devices, and when the players walked around the real area, directions will be projected to interact with people on the floor.

The proposed prototype will be a user-friendly based application that helps to understand and navigate easily. First step is to start from the main node of Taipei Tech University (figure 12), after choosing the character cards and receiving RFID signal, the mobile screen will show immediately the information and how to do for next step. Then when selecting situation card and event card from the screen, it will show you how much money you gain and how to change to good life points.

Eventually, the players can not only play with others for AR mobile game but also learn the context and serviescape of Taipei Tech University Town. Ideally, this app proposes solutions on how to

connect Guanghua Market and Huashan Creative Park by reconfiguring the servicescape in the city nodes and city edges of the case study areas to create more user-oriented, innovative and creative board game concept for Smart City. Moreover, the future research can be conducted to enrich the context and service information for serviescape of Taipei Tech University Town.

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