

DEVELOPING HYBRID MEDIA INSTALLATION GAME IN TAMAN GAJAH TUNGGAL

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Abstract: In the recent five years, City parks have been developing rapidly in urban cities in Indonesia. Built in 2007, Taman Gajah Tunggal is one of the city parks located in Tangerang. This park is situated at The Center of Tangerang City on the edge of Cisa-dane River. Like many public spaces in Indonesia, this park has littering issues by visitors' lack of care. This research is offered to develop social marketing by using a digital game for gaining awareness of Taman Gajah Tunggal's visitors age 17-30 years old about littering issues. This paper focused on developing the prototyping process in iteration design method by using a digital game to suggest possibilities design for future development interactive installation design in public space which can bring a new experience.

Keywords: public space, digital game, park, hybrid media game, trashing

Background

Taman Gajah Tunggal is one of the popular city parks in the center of Tangerang, Indonesia. It was built in 2007 by one of the largest tire company located on the edge of Cisadane river. This park has a green area, playground facilities, fishing area at the edge of the river, jogging track, open plaza, and canteen. Along with the existing, Gajah Tunggal park has de-

creased comfort because litters are scattered on the bench and the corners, even though this park has cleaning services that clean the area twice a day. Therefore, this issue potentially leads to discomfort that keeps visitors decrease from time to time and leaves the city park in dormant condition worst it may lead to vandalism and criminals.

Observation in the preliminary studies found a lot of plastic waste and cigarette

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stubs were thrown away or just put on the desk or bench even though trash cans are available and reachable. The conclusion from visitors and field park officers interview said Taman Gajah Tunggal has the peak number of visitors on the weekend especially on the 2nd -4th weeks in every month. On the weekend in the morning (9-12 am) and in the afternoon (3-5 pm) visitors usually come to this. The visitors who came from C class Socio-Economic Segmentation (SES) who are around 17-30 years old and work as labor or high school students.

Visitors of Taman Gajah Tunggal are usually doing sport activities, such as jogging, walking; eat from the culinary street food and canteen, playing on the playground, fishing, and sightseeing with their partner.

Regarding visitors physiographic, demographic, and sociographic, there are some media that can be used for gain awareness. They also familiar with digital games even though they play individually using their mobile device.

Moreover, not all digital games can give player more sociable in physical rooms interactivity especially in city park, because digital games are related to solitude activities for pleasure. Even though, using digital game for social campaign has beneficial to bring idea through storytelling and deliver it to enhance awareness of trashing issue. Games are a useful vehicle for generating prototypes of new constellations of people and sensing and output technologies. The game design emphasizes moment-to-moment engagements, aesthetics, and emotional outcomes (Isbister, 2017).

By using design thinking method, this research seeks to find solution for social campaign to gain awareness of visitors in Taman Gajah Tunggal by using interactive media.

Literature Studies

Littering Phenomena

Litter includes domestic or commercial waste including debris or rubbish that is not placed in an appropriate receptacle (Ojedokun, 2015, p. 552).

Based on the research observation studies though behavioral ecological framework in the public space, it is found that the environmental factors bring major impact on littering behavior to someone. This can be tackled by placing bins around can change visitors' behavior (Al-Mosa, 2017).

Social Marketing Design

Social marketing, as a discipline, has made enormous strides since its distinction in the early 1970s, and has had a profound positive impact on social issues focus on behavior change such as; (1) accept a new behavior; (2) reject a potentially undesirable behavior; (3) modify a current behavior or (4) abandon an old undesirable behavior (Lee, 2020).

Regarding Behavior Change Theories, Models, and Frameworks, there are 4 groups that most applicable: (1). Selecting priority audiences, (2) Setting behavior objectives and goals, (3) Understanding audience barriers, benefits, motivators, the competition, and influential others, (4) Developing marketing intervention mix strategies.

In order to developing social marketing products, there are three products level; behavior objective (What designer needs audience to do), Core Product (What audience need in exchange for performing the behavior, Actual product (Major tangible goods or service that can be promoted and any special products features), and Augmented Products (Additional tangible goods or service that

might make it more likely will adopt the behavior. There are some possibilities to make social marketing products in various media such as gamification, apps, artificial intelligence, wearable devices, and GPS (Zhao, Etemand & Arya, 2016).

Park as Public Activities Space

According to Dyer (2010), some of the existing spaces in the human environment are divided into 3 stages including primary space (home), secondary space (workplace) and tertiary space (public space). A public space means that a green open space as a place of interaction, community activities. Generally built by the government with a variety of consideration. In its use, the park is generally a place for sports, a place for community activities, picnics and just out of boredom at home for individuals and families. Various types of social classes for city park visitors make this place a public space with a variety of activities, habits and behavior. This statement linear as it found on the city park in Indonesia for an activity center.

Playing Activities in Play Ground in Public Place

City parks usually have facilities such as playground for physical activities for children, adult and elderly visitors. The playground offers little playing space. Playground can be seen as demarcated areas that are exclusively intended for child's games, they restrict the essence of play as a part of human nature which emphasizes in safety.

In the urban context of homo ludens, play space represents the mental freedom, and leeway to deviate from the rules which also has significance as a physical margin that enables movement between different components of the construction of a machine. Play space is something that is for

all ages and all places even though Physical play space can be found in desolate grounds on the edge and the seams of the city structure (Lefaivre, 2007).

One of optimizing play space is Laimikis's project. Lamikis is a laboratory for urban games and research and aims to engage public spaces in a playful way. The aim is to use urban games as an approach to research the full potential of public spaces – both socially and spatially. Lavrinec (2018) identifies what a game actually is and its requirements; Space, where the game can take place, whether it's physical or virtual; Time, A duration and/ or some kinds of regular; Rules, A sort of behavior models; and Participants, different roles and involvement.

Game Installation in Public Space

Games are useful in order to: 1) foster engagement and promoting learning in situations where environmental issues interface with humans (gaming as intervention tool); and 2) extract qualitative and quantitative data about system behavior and/or about behavior/responses of humans that are part of systems (gaming as research method).

There are a growing number of applied games and playful interventions in an urban context, as a way to involve citizens and urbanites with their environment in the broadest possible sense, across spatial, social, and mental levels. These playful applications range from; (1) Involving urbanites in the actual planning process of the city, (2) Engaging them in collective urban issues like air pollution, vacancy, (3) Engaging them with fellow citizens as a way to create more playful interactions and build trust between strangers, (4) Creating meaningful memories via playful poetic experiences, or (5) Play as critical tool, e.g., procedural rhetoric that allow people to reflect on future

of their cities, or play/ games as ways to imagine possible alternatives (Schouten, 2016). Combination of Social interaction and Computer game brings a serious game play approach and has to be differentiated from other city planning games whose purpose is solely for entertainment.

Therefore, some research show on how to interact with the virtual world has also been progressing from Graphic User Interfaces (GUIs) to natural user interfaces. Tangible interfaces are now expected to bridge the gap between the real world and the virtual world. As such, an augmented reality on tangible interfaces could be used rather than a fully virtual reality, as seen in tabel 1 Cristie (2017).

Table 1 explains combination of media using physical, augmented and virtual environment through the interface of the game and the collaboration space. From that table, Physical environment suggest tangible interface, 3D model, pen and paper and using collaborative space in the same room for interaction

Table 1. Interface and collaborative space options in physical, augmented, and virtual environments in architecture and urban planning

	Environment		
	Physical	Augmented	Virtual
Interface	Tangible interface: 3D model, pen, and paper	Tangible interface with head-mounted display/projectors (usually table-top-based)	Any display device or screen
Collaborative space	Same room		Could be same room (using a large screen) or via internet (multiple players, each with own screen)

One common way to think about tangibles interface is that they move interaction beyond the computer screen, blending physical and digital worlds and leading to more natural and intuitive interaction. Moreover, another important way to understand tangible interaction is that it gives designers new freedom to engage broader cultural landscapes by thought-

fully shaping objects, environments, and situations (Horn, 2014).

Method

This research adopts research through design method by practicing design thinking, develop prototype and bring design suggestions to community. This present research focused on gaining social marketing to visitors' awareness about littering issue by enhance digital gamification in Taman Gajah Tunggal.

This research adopts the iteration design process into 5 steps of design phase as can be seen in Figure 1. Firstly, Concept Phase, we did our preliminary studies together in the large team member. In this phase, the problem about enhance technology using gamification in social marketing for behavior changing in lettering issue is defined to solved. Secondly, Design Phase is to develop the hybrid media combining digital and non-digital media, creating assets and compile into game design engine. Thirdly, User Test. In this phase, digital game tested for developer participants in the same age as our target users. Most participants are from visual design background and game developer. Fourth, Evaluation Phase, the user test and input result as data for evaluation and revision in game. And finally, recommendation design was made based on this research (Tjandra, 2018).

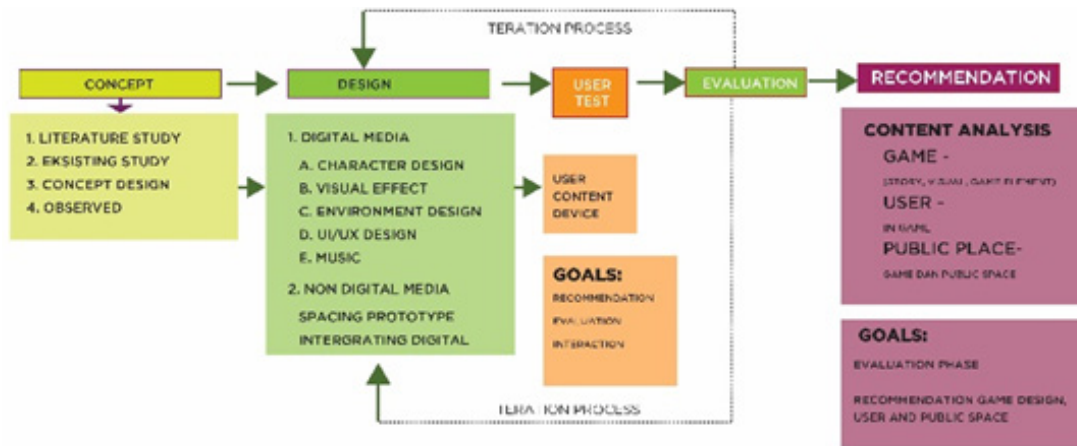


Figure 1. Adaptation iteration process design for developed game research

Concept Phase

Based on the problem, there are three priority for the concept research. There are the litter issue, user or visitors and possible media to develop the game. In this research, we focus on trashing phenomena in Taman Gajah Tunggol which selected based on the urgency. From the observation in Taman Gajah Tunggol, the litter, such as plastics and stub, were from visitors, in which this research is focused on.

In order to know the user, observation was conducted to analyze usual activities by visitors at Taman Gajah Tunggol. Users ages 17-30 years old. From the observation, they did various activity such as walk around, chat, picnic, fishing (this park located along the river), biking, playing music, selling books and so on. This park usually full of visitors on the weekend in the morning before 9 am and 4 pm until 6 pm.

Taman Gajah Tunggol has facilities to support the activities such as playground, bench, and plaza for music performance, and trash can. From the observation, playground area is the most favorite place among the other facilities. Park developer using tires to make swings, see-saw, and

some agility play equipment as seen in figure 2.



Figure 2. Playground area in taman Gajah Tunggol

Design Phase

In this phase, research was developed in digital and non-digital prototype to have various possibilities and alternatives of media, content and interaction regarding the pre-production research.

Game digital was built by using hand

gesture sensor to improve interaction. This game using leap motion controller to catch the rubbish. Player will have time limited health and highest score.



Figure 3. Developed smart park game

This digital game using 3 tiles to catch the trash using bin which controlled by hand motion gestures. Player should catch all the trash to gain the point and fight the time. The prototype can be played individually and cooperative regarding the controller.

Regarding this, some alternatives proto-types for social game are developed. These prototypes combine the hybrid media of digital application and tangible interface consider the hand and body gestures.

Prototype of social game build in lab and do the exhibition for user to do the test the interaction, engagement and the possible issue.

User Test and Evaluation

User test was gathered by using the



Figure 4. Prototypes for social games for exploration media.

prototype. Tester played one level of and asked some questions regarding their experience through questionnaire about balancing level of difficulties or easily the game and sensor worked.

From user test, this game has positive feedback and some insight about visual development.



Figure 5. Process user test gathered in exhibition

Recommendation

The usage of digital installations should be considered for the capability of pre-sending visual needs and interactions on a large scale. Combining the installation with a game can be packaged to be placed in a public space with an iteration method approach so that later it can produce a work and analysis of both visuals and findings from that which are deemed appropriate in content and context to increase visitor awareness in public spaces.

In order to gain visitors' awareness for trashing issue, the hybrid media installation game in Taman Gajah Tunggal should consider the gameplay and media.

Gameplay for the hybrid media should consider about the rules, which is a sort of behavior model such as throw the rubbish or catch the rubbish and should consider of user participants in different role such as social game with certain time.

Besides that, the media should consider about the space, where the interaction will take place outdoor interaction. The media can combine agility play equipment and digital game.

Conclusion and Future Research

Social marketing by using game through hybrid media not common use at outdoor public space. Difficulties of maintaining facilities and cost can be a problem these for the devices. Theme of digital game can relatable with the trash issue and encourage visitors to aware of trash in the real life and present time.

Integrating digital game and facilities is interesting but not a significant factor to consider. Even though playground area has potential interaction activities, it can't be guaranteeing the installation can be gather and makes uncomfortable for

visitors.

In future research this combination of digital game and exploration physical media can be started by using simple media such as AR Mobile and social games.

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