

DESIGN OF EDUCATIONAL GAME ABOUT TOURISM OF BANDUNG FOR ELEMENTARY STUDENTS

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Abstract: Now days, Bandung has became one of the most favorite local destination which always visited by tourists, especially during weekend and holiday. However, not all kind of attractions have the same number of tourist arrivals. For example, the number of visitor for educational attractions is fewer than shopping mall or nature attractions. One of the reason why they do not visit educational attractions, because its not really attractive especially for young people and children. There are many ways have been done by the government tourism officer to attract the attention of tourist, especially the tourist from Bandung to visit some educational attractions. They have been trying to use some of the media. But, still need a media to attract their attention, especially for the elementary students, to make them want to come and visit some of the educational attractions in Bandung. Games are one of the effective media to approach elementary students, it can be assumed that the "play while you learn" concept will not forced the players to be educated to know educational attractions in Bandung. The methods that used are visual observation, open questionnaire, interview, documentation, and literature study. The game that we designed is an educational game about tourism in Bandung, in this game the player will meet 6 educational attractions around Bandung area and 3 attractions nearby Bandung area. After playing this game, we hope the players will apprehend the moral values, considering any information that has been given, and have a desire to become more familiar with the city, especially the educational tourist objects.

Keywords: *Design, Educational, Games, Tourism, Bandung*

1. Introduction

Bandung is a capital of West Java, which have many tourist attractions with objects that have historical value. Generally consists of museums, historical places, and tourist attractions of science and art. There are also places to breathe in fresh air, places for nature and Argo tourism, places for children to play up to places for shopping and culinary [1].

Based on data from Tourism Department of Bandung [2], the number of tourists who come to Bandung in 2012 were 3.513.705 people consist of foreign tourists (158.848 people) and domestic tourists (3.354.857 people). In 2011, the number of tourists who have been visited educational and art attractions just 912.188 tourists. Those attractions are Geologi Museum, Pos Indonesia Museum, Konferensi Asia Afrika Museum, Mandala Wangsit Siliwangi Museum, Sri Baduga Museum, and Saung Angklung Udjo.

The government tourism officer have been done a few ways to attract the attention of tourist especially tourists from Bandung. One of the ways is using a media to attract the attention, especially for elementary students, to visit educational attractions in Bandung.

Technological developments at this time followed by the development of the game where the current game can be played also on the Personal Computer (PC) and the elementary students nowadays are familiar in the game and the Personal Computer (PC). So, a game is one of the selected media as a tool for elementary students to get close to Bandung's Tourism Object.

Based on description that has been described, a game on a personal computer (PC) can be used as one of the media that is able to attract the tourist's attention, especially the elementary students, to visit educational attractions in Bandung.

1.1 Theory

Tourism [3] is travel activities carried out by a person or group by visiting a particular place for recreational purposes, personal development, or to learn the uniqueness of the visited tourist attraction in the interim period. A person or group of people who do the tours are called tourists.

The term *objek wisata* has been known in Indonesia, but not in foreign tourism literature. They prefer to use the term "tourist attractions" [4], which is everything that is attraction for people to visit a particular area. The definition of attractiveness [5] is everything that has an uniqueness, beauty, and value diversity in the form of natural resources, culture, and artificial objects were subjected or excursions destination. Attractions are divided into 7 (seven) kinds [6], namely:

1. Nature
2. Cultural Tourism
3. Art Travel
4. Tourism Recreation
5. Other Travel
6. History (includes museum)
7. Special Interest

Games or *permainan* in Indonesian [7] has become part of people's live, from children to adults, who are often used it as an entertainment. Yet apart from being used as entertainment, gaming is also used to learn. As explained by Pepen Supendi [8], which in addition is entertaining, playing in the eyes of children and adults also can be used as a means of socialization, create popinquity with friends, and as a learning tool.

Ernest Adams[9] explained A game is a type of play activity, conducted in the context of a pretended reality, in which the participant(s) try to achieve at least one arbitrary,

nontrivial goal by acting in accordance with rules. Chandler., et.al[10] said, A game as a play activity defined by interactive challenges, discernible rules, and attainable goals.

Based on those explained theories, it can be concluded, that the game is an activity that has a interactive challenging and conducted to achieve a goal by acting according to the rules. Through that theoretical approach, recognition of educational attractions in Bandung will be designed through a game.

As the development of games, appeared several games in various genre, namely action, adventure, casino, educational, first person shooter, puzzle, sports, role playing game, dan strategy [12]. One of the genre that mentioned is educational. This genre is aimed to educated the player(s).

Besides to entertainment and educational functions, the game also has another function to aid cognitive development. Through play, children explore their environment, studying the objects around it, and learn to solve their problem [13]. Piaget confirmed that cognitive structures of children need to be trained, and the game is a perfect setting for this exercise [13].

One type of game that is in line with the stages of cognitive development is the kind of game with rules. It is a game that involves certain rules and often competed with one or more people [13].

2. Research Question

How to design an educational game about educational attractions for elementary students in Bandung.

3. Methods

The methods for collecting data is done by observation, open questionnaire, interview, documentation, and literature study. Observation has been done by visual and game-play in a few games on the website that played on both personal computer and conventional. Open questionnaire was given to 100 target audiences, also interview to the Officer of Government Tourism Office. And we use some literature about game and tourism for this game.

4. Analysis

4.1 Data and Analysis

Research conducted through questionnaire method and elementary students as target audience, shows that they most often do travel activities. However, the destination of attraction is not a museum or educational place but they prefer shopping mall more

interesting. Besides, the result of the data obtained and showing that the elementary students are really like to playing game because the game is fun.

From another data about students, they like to play conventional game such as “snakes and ladders” and they also like to play digital games that played on personal computer than from their gadgets.

Therefore, concluded that the types of “snakes and ladders” game will be used as a media used to attract and provide education to elementary students about educational attractions in Bandung.

4.2 Matrix

Before designing educational game named Mari Mengenal Bandung, takes the matrix comparison of similar games with the game structure approach to get a conclusion. The kind of that game is conventional snakes and ladders game “Nutrition Snake and Ladder” [14] and digital snakes and ladders game “CRY Snakes and Ladders” [15]. The following matrix comparison:

Table 1. Matrix

No.	Game Element	Nutrition Snake and Ladder	CRY Snakes and Ladders	Analysis
1	Objective	Helps children to learn about nutrition and good health.	Helps a child right, especially in education or takes them ahead in life.	Nutrition Snake and Ladder tend to teach players for themselves and CRY Snakes and Ladders tend to teach players to help other people.
2	Procedures	The number of players from 2-8 players. Each player can be free choose the marker to be used and then determine the player's sequence to shuffle the dice. Player with highest dice numbers is the first sequence.	Select the player first and then click on the dice to make it roll.	Both games are referring to the sequence of players in play and teach players to interact with other players if the number of players is more than one.
3	Rules	The players should discuss the meaning of the message that written on the square. Not only on a square at the bottom of the ladder and at the top of the	When the marker's player is on the square with snakes head, the marker have to be move down to square with bottom of snake. But, if the marker is	Players learn about spatial language, such as up and down.

		ladder, but also on a square at the bottom of the snake and snakes head. Even on the square without snakes and ladders, there is a message written and the players have to discuss about it.	on a square with ladders go to the top, the marker have to move to the top.	
4	Conflict	A conflict occur When the players almost lands on a finish square but they lands on a square at the snakes head, so they have to move down to the small number. And when the players discuss about the message that written on a square where the marker lands.	When the players almost land on a finish square yet they land on a square at the snakes head, so they have to move down to the small number.	The players have to be careful in controlling the dice in order to land on a square that had become their target.
5	Outcomes	The first player who has been reached the square with highest number on it is the winner.	The winner is the players who have been reach the highest number on square.	Both of them have a similar outcome. So the game needs to be added reward that appeal to players.

Based on comparison matrix, these are conclusions that can be used as advices for game design:

1. A game needs a specific objective. Game that will be designed is a game about educational attractions. So that, the purpose of this game is provide information and knowledge about educational attractions in Bandung.
2. It should be added procedures game that makes the player feel really involved in the game.
3. Rules of the game need to be added in order to make the game more challenging.
4. By adding conflict in the game, players feel more motivated to play until the game is finished.
5. It should be given the reward and punishment to the players so that the game is not tedious.

5. Result and Discussion

Educational game about educational attractions in Bandung, named “Mari Mengenal Bandung” can be played on personal computer (PC). Type of game that exist in this game is snakes and ladders. The main visual of this game is the main menu, board game and heads up display interface.



Figure 5.1 Main Menu of Game Mari Mengenal Bandung



Figure 5.2 Boardgame and Headsup Display of Game Mari Mengenal Bandung

This educational game provide information and knowledge about educational attraction in Bandung, such as:

1. Geologi Museum
2. Konferensi Asia Afrika Museum
3. Pos Indonesia Museum
4. Mandala Wangsit Siliwangi Museum
5. Sri Baduga Museum
6. Saung Angklung Udjo

This game also has three other educational attractions located nearby Bandung area such as Bosscha Observatory, Barli Museum, and Monumen Bandung Lautan Api.

In order to design this games, we conducted an approach through a formal element of game, Fullerton [16] such as:

1. Objectives

This game is aimed to educate the players with some information and knowledge about the attraction of education in Bandung.

2. Procedures

Choose the number of players before start the game and character. To determine who is the first or second player is just do "rock, paper, scissor games". Subsequently, click the dice button to make it roll.

3. Rules

The player, who lands on a square at the picture of the object, would have a mini-quest. The player should finish the mini-quest in order to get some information of the object.

4. Conflicts

The player, who has been passed the mini-quest will get a point. But, if the player lands on rope sign, their point will dwindle.

5. Outcomes

The winner of this game is the player who has highest score and they will get a reward from it such as a free pass for entry the tourist attraction.

Afterwards, conducted an approach through a dramatic element of game, Fullerton [16], such as:

1. Challenge

The challenge in this game is given in the mini-quest where players should be able to compete the mini-quest to acquire the information and knowledge about educational attractions.



Figure 5.3 Mini-quest of Game Mari Mengenal Bandung



Figure 5.4 Information Display of Game Mari Mengenal Bandung

2. Character

There are five characters in this game. Four characters that can be used in game, acts as a pawn that can be executed by the player and one character is non-playable character (NPC), which acts as tourist who invites players to help provide knowledge about educational attractions in Bandung.

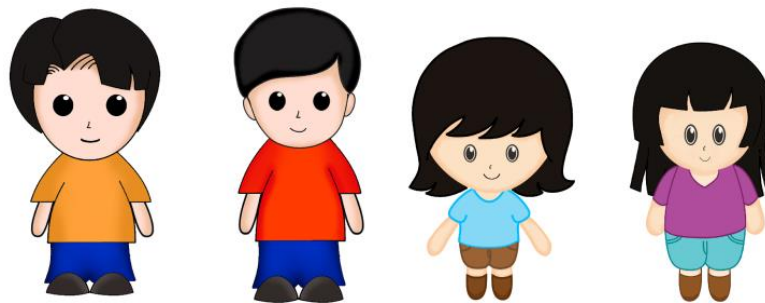


Figure 5.5. Characters of Game Mari Mengenal Bandung

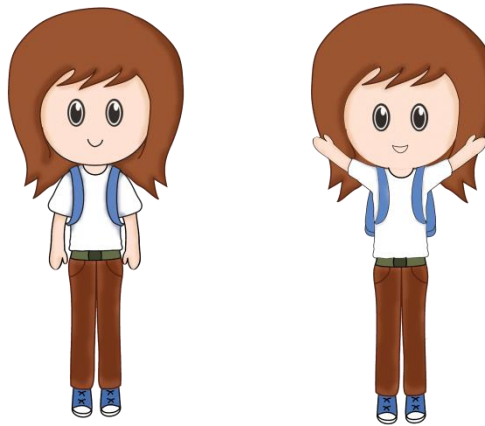


Figure 5.6 Non Playable Character (NPC) of Game Mari Mengenal Bandung

3. Premise

Players will feel like playing an adventure because the display of snake and ladder's path is like lane road on a treasure map



Figure 5.7 Board game Interface of Game Mari Mengenal Bandung

4. Freedom

Because of this educational game adapted the game of snakes and ladders, players do not have the freedom to run the character they played. However, the player can be free to imagine as players on a mission to help someone get information and show the way towards educational attractions in Bandung.

5. Story

The story of this game is there is a tourist asking someone to help her obtain information and knowledge about educational attractions in Bandung and where the sites is located. Along the way, players who helped the tourist have to pass several challenges, completing mini-quest in this game. Players who successfully complete the mini-quest and be the first lands on the end of the square, it will be given a reward by the tourist.

This game design is a prototype to invite general public to know educational attractions in Bandung.

7. Conclusion

Based on facts and observation result, it can be concluded that:

1. Games are become the media that needed to help elementary students recognize educational attractions in Bandung.
2. Through game of Mari Mengenal Bandung, elementary students can have information in advance about educational attractions in Bandung.
3. The rewards in game of Mari Mengenal Bandung are design to make players more interested to come and visit educational attractions in Bandung.

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