Introducing Indonesian Culture through Educative Boardgame Using Augmented Reality: A Prototype of Grand Indonesia Java Edition Boardgame

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ABSTRACT

The use of digital media in education is a necessity nowadays. This is also an effect due to conditions of Covid-19 pandemic. Although there is a stigma that digital media has an unfavorable impact on the student learning process, technological developments also support creative concepts that can be used at the educational level. Based on these conditions, the idea emerged to develop an educational media based on boardgames to provide a learning process. In this study, researchers chose a general topic as the basis for the content of the boardgame, which is Indonesian culture. This topic was chosen considering the need for the younger generation to understand about Indonesian culture as their homeland. The research method in finding content is collecting data about Indonesian culture from books and the internet. While the design development uses qualitative methods as the basis for thinking. In this development, the resulting prototype is a combination of designs on paper and the use of smartphones in the explanation process using Augmented Reality technology. It is hoped that this prototype can become a design that attracts the interest of the younger generation to learn about their own culture.

Keywords: Boardgame; education; augmented reality; culture; Indonesia.

INTRODUCTION

The Covid-19 pandemic that has occurred for the past two years has had an impact on various sides of human life. The impact is felt in various aspects of activities due to restrictions on various activities with the aim of preventing the spread of the Covid-19 virus. This condition makes various parties faced with various limitations, especially in activities that have generally occurred from face-to-face results such as the field of education. Schools, where the education process occurs in general, are also affected by this pandemic condition. The process of transferring knowledge that had generally occurred in the classroom with face-to-face activities between teachers and students, became changed with this condition.

However, Kusnandar's (2021) writing on the portal of the Data and Information Technology Center of the Ministry of Education and Culture stated that there are many innovations in the learning process for students in schools. Some innovations such as learning by utilizing certain LMS (Learning Management System) based applications, asynchronous use of social media, learning with a blended approach, involvement of parents of students, the application of innovative learning models, and learning oriented to student needs. Various forms of learning are also directed to learning so that students remain motivated in a fun way so that the educational process can still run during a pandemic. Furthermore, Kusnandar wrote the importance of innovation as a basis in solving a problem in general. Innovation is built from the process of creative thinking and proper problem analysis so that the educational process can still run well (Kusnandar, 2021).

In the context of discussions about the educational process, in general, people have become accustomed to various media platforms to find and absorb information. In general, social understanding, today's society is a mediated society. Visual imagery that appears on a wide variety of media, becomes part of the visual routine. Various visual imagery and text on media, can be a source of information and education for the community.

Boardgame and Educational Process

Learning and playing is not a new concept in the world of education. In children's education, the term playing sambal learning or vice versa, is an activity recommended by experts in the field of child development. As in lev Vygotsky (1962) who wrote that play is a major

process in development in children. In the process of play, many attributes that can appear and have significance for the growth of children for example actions that are voluntary or develop motivation to act something (Amory, 1999). In the process of playing this, Huizinga (1950) well defines that play is part of human cultural activity. Because human must live their time as children, the culture to play has become a natural thing. Play in Huizinga's definition is quite broad and includes several concepts. An interesting concept is the concept of "Magic Circle" where in this state, people who enter the circle become as if they have different attributes and goals compared to activities outside the circle. This philosophy leads to a gaming experience where in a certain order of concepts, time and purposes, the activity of playing will bring a certain experience to its players. Suppose playing chess, then there will be a series of rules and objectives that appear where the player will try to understand it to achieve his goal (become a winner) (Huizinga, 1950).

This gaming experience has benefits for individual development because in the process of playing there are several characteristics such as: the nature of voluntary engagement, having intrinsic motivation (the action itself is fun), involving the active involvement of the player, and containing elements of simulation (role play). Play activities, offering organizational functions based on cognitive, social, and cultural levels. For example, a child who tries to imitate playing at home or playing in cars, is trying to repeat the experience or create an experience based on cultural activities that he has felt. Through the imitation process, there is a learning process that individuals do either from setting strategies, trying the process of reconstructing events or solving certain problems with critical thinking processes (Rieber, 1996).

Quoting from Adhicipta Wirawan in his book, the existence of Boardgame is a manifestation of the study of the importance of involving participants or players in the thought process to solve problems that arise from the boardgame played. Furthermore, Wirawan in his book provides insight that outside Indonesia, many manufacturers focus on boardgame products as commercial products. For example, ThinkFun is a company that works with the Institute for Cognitive Research at UC Berkeley. In general, the process of studying a material or transfer of knowledge can be mediated by a boardgame (Wirawan, 2022)

METHODS

Design Methods and Concepts

This research study adopts the descriptive method of *cauldrontitaf* in the process of searching for data. The purpose of this study is to try to explore certain phenomena that are then translated and rebuilt to bring up certain descriptions of a condition. In conducting this study, the research team tried to dig up literature data about Indonesian culture and then clustered the existing data to formulate the concept of presenting it. a problem. These descriptive formulations will be used as a basis in the design of boardgame media. The data are analyzed by using interpretative phenomenological analysis perspective. It is started with description of data, interpretation, (narrative) quotation and theoretical elaboration (Merriam, 2009).

Concept Design

a. Basic Idea
   The basis of the idea is the need to create a media that has a function to be an educational media. In the design of this prototype, the topic of the introduction of Indonesian culture became a focus by looking at the development of today's younger generation who are accustomed to the daily use of technology. With a design that prioritizes the value of fun through boardgames and combines with the use of technology such as Augmented Reality, it is hoped that this prototype concept is more in line with the daily life of today's younger generation.

b. Educational Content
   The content of this prototype uses Javanese culture as a prefix or basis for ideas. This is because Javanese culture is easy and better known even though Indonesia consists of various tribes and cultures. After conducting research on various cultural results in general, the content that appeared included:
   1. Regional Songs
   2. Traditional dance
   3. Traditional cuisine
   4. Traditional clothes

c. Boardgame Design

Figure 1. Boardgame Map Design

In the boardgame "Grand Indonesia" there are 3 kinds of cards that are part of the game. These cards become

the foundation for the running of the game because on these cards there are instructions, fun facts, and challenges for players. These cards can determine the continuation of the player's steps in this game. This card can be an aid or obstacle for players in completing the game map. The player will take cards based on the player's position on the game map. These three types of cards:

1. *Green Card (Bonus Card):* is a card containing fun facts about the results of Indonesian culture. The information from this card can be useful for answering questions on quiz cards.
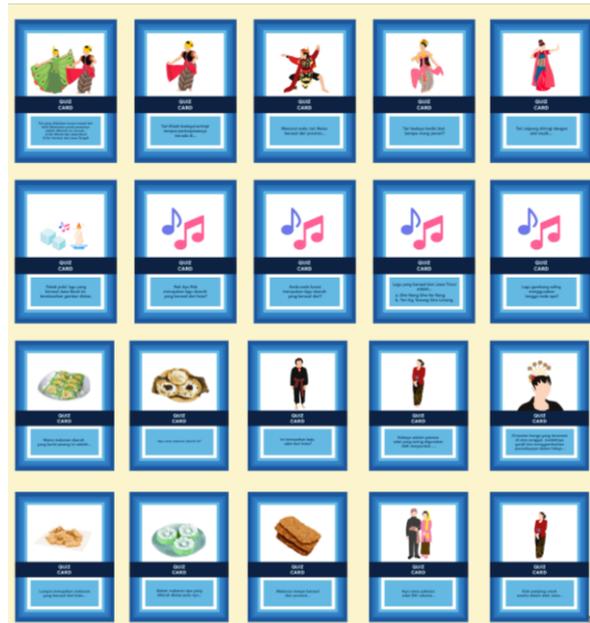

Figure 2. Bonus Cards Design Design

2. *Blue Card (Quiz Card):* is a card designed to challenge players' knowledge of the results of Indonesian culture that is a topic in this boardgame. This card is designed with an Augmented Reality function where the questions that arise can be images or sounds that must be scanned by utilizing a smartphone.

(a)

(b)

Figure 3. (a), (b) Quiz Cards Design

3. *Red Card (Challenge Card):* is a card that contains a challenge, without question. But if the player stops on a tile with a red card, the player will get special instructions. Suppose you take 3 steps back, then take a card in the new tile where the player is located.

Figure 4. Challenge Card Design

To be able to play this boardgame, players need a set of complete boardgame "Grand Indonesia". For this prototype, researchers and teams have provided the necessary complete design including game maps, cards, gambit sets, dice, and game instructions.

Figure 5. Set of completeness of the boardgame prototype "Grand Indonesia"

To be able to mandate this "Grand Indonesia" board-game, there needs to be a game instruction design so that players can read and understand the process and purpose of this game. The game instructions are as follows:

1. Players take pawns that have been provided, namely kris, peci, etc. the game can be done with at least 2 people and a maximum of 4 people.
2. The player shuffles the dice and takes the cards according to the color of the box that can be obtained.
3. CHALLENGE CARD: The player follows the instructions according to the explanation on the challenge card.
4. QUIZ CARD: the player scans the card and answers the question with a 30-second count down time which will later be seen in AR if the wrong will retreat according to the many dice obtained (take three steps back when the dice number obtained is three) if true will remain in place.
5. BONUS CARD: here players get a bonus that is not needed to answer quizzes or do challenges and only scan the card to find out the facts about the island of Java. But bonus cards can be a clue to quizzes so it is better to remember.
6. The players will be vying to try to get to the finish line the fastest. The fastest at the finish line will be the winner and if there is already a winner then the game will be completed without waiting for the other players to get to the finish line.
7. The cards drawn must be returned to the deck of cards and not for the player to keep.

FINDINGS

Based on the process that has been done by the team, there are some findings in the process of making this boardgame. In design process, the workflow carried out by the team is shown in Figure 6.

In the process of work carried out by the team, the collection of research data on the results of Indonesian culture, which is the main topic, is a priority for the team. As is known that Indonesia consists of many tribes so that it has diverse cultural results, so finally for the development of this prototype focuses on the island of Java as the main topic. Based on the cultural results selected by the team, it is tried to develop into a gameplay order. The game mode chosen is a board-game with a competitive type of game. As explained by Adhicipta Wirawan in his book, competitive game is a game concept on the basis that players compete to become winners (Wirawan, 2022, p. 20). This mode is chosen with the aim that the players are motivated to win and one of the ways they win is by having more insight than the player. another. With this concept, players will try to get as much information as possible about the results of Indonesian culture. In mechanical processes, augmented reality design is done using Unity software while visual design uses Adobe Photoshop and Adobe Illustrator. The prototype of this work has been displayed at the *Beyond Reality* virtual exhibition held by Binus University on December 18th, 2021.
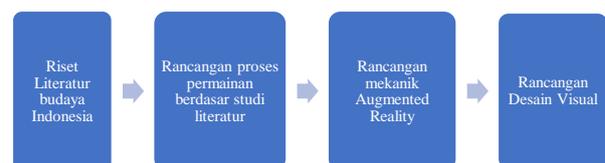
Figure 6. Team's Workflow

CONCLUSION

Quoting from Wirawan's writing, the pattern and learning process has begun to change from the teaching era as a source to an interactive process where learners or information targets become participants in the teaching process (Wirawan, 2022, p. 45). Boardgame has a uniqueness where the designer or designer is required to have knowledge of the object or theme of the boardgame designed so that research becomes a necessity in the creation of content. boardgame. On the player side, game elements such as challenges, quizzes, and so on become joint activities where in addition to players competing, there is a process of information transfer and Cognitive activities for players can complete existing games.

In this prototype boardgame "Grand Indonesia" Java Edition, the content that is the foundation of the game is about cultural results that can be found on the island of Java. The use of competitive game modes was chosen to generate competitive motivation for players, where the existing competition is focused on the knowledge possessed by players. The hope is that there is certainly a desire to learn the cultural results that are a topic in this boardgame because of the competitive value offered based on aspects of player

knowledge. This work has earned a place in the exhibition even though the local scale shows public interest in the learning process through new media, one of which is boardgame.

Based on the results of teamwork for this prototype, development is very possible. First, regarding educational content on this boardgame is very likely to be expanded to other islands in Indonesia so that the number of cards in the length of the game can be further developed. In the process of discussing the research team, the difficulties that can be faced regarding this development are the mechanical design of augmented reality and digital modeling that are part of the contents of this boardgame. This prototype still needs further evaluation and trials to be able to determine the level of difficulty in players of a certain age.

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