DIGITAL MALAYSIAN TRADITION GAME: A CASE STUDY OF BALING TIN

Nur Sufilea Izzati Azhar, Suzana Ahmad, Marina Ismail, Norizan Mat Diah, Norharziana Yahaya Rashdi, Sumarni Abu Bakar

Kolej Pengajian Pengkomputeran, Informatik dan Media, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

ABSTRACT

Baling Tin is one of Malaysia's popular traditional children's games. However, as time passes, Baling Tin has practically almost vanished. Children nowadays are more interested on digital games. This study aims to preserve the traditional games by digitalising it in tandem with the current interest. The challenge in this study is to re-create the physical game play into a digital game play. The game application which was developed for primary and middle school childrenalso includes interactive 3-D objects, images, sounds, and suitable theme colours.Furthermore, the user can explore many other captivating pages, including Shop and Quest. Even though the game was designed for Malaysian community, it comes with dual language to enhance user preference. The functionality of the game mechanics was tested. The game fulfils game characteristics and imitate the traditional physical gaming.This application is believed to help younger generations become more familiar with one of Malaysia's traditional games, Baling Tin, and preserve traditional games.

KEYWORDS

Tradition Game, Educational Game, Baling Tin

1. INTRODUCTION

Traditional games, also known as folk games, were the most popular pastimes for children and youngsters in the past. Before digital games started in Malaysia in the mid-80s, the only entertainment that could be found was by playing locally invented games [1]. As technology advances through the years, with the invention of social media and electronic gadgets, traditional games are losing their appeal among millennials. There is a growing concern that traditional games, in their existing forms, will finally be forgotten by the younger generation, or the so-called techno-savvy generation [2]. Ibrahim Ismail, the Director General of the Malaysia National Museum, agreed, "Traditional games and pastimes are being slowly but surely forgotten in the face of the onslaught by technology-based entertainment that is becoming more easily available." [3]. Traditional games from the 1960s, 1970s, 1980s, and 1990s probably need to be made familiar to youngsters in the new century. Younger generations are more familiar with and preferably engaged with contemporary games on their smartphones or tablet PCs.

This information and knowledge about traditional games must be preserved and passed down through the generations. People nowadays are accustomed to mobile-based games as the new standard; thus, this is one of the approaches to preserving cultural games. Besides contemporary digital games, digital versions of traditional games have been developed to preserve national heritage. Through the National Heritage Department, Malaysia is making the same effort to preserve traditional games by digitizing them. The Ministry of Culture, Arts, and Heritage has

established JabatanWarisan Negara (JWN) to cultivate, conserve, preserve, and protect national heritage for younger generations through their portal. Digitizing Malaysian cultural games can be seen as one of the efforts to preserve our national heritage [4]. This mobile game application may expose young people to Baling Tin and also remind people of Baling Tin, a traditional game that children and younger members of society once enjoyed.

2. BACKGROUND STUDY

Baling Tin is one of the traditional games popular among Malaysians. This is a game that both boys and girls may enjoy. This game is known as Baling Tin because the primary tool of this game is a can (figure 1). It is also called a Baling Pot or Lecut Pot in some areas. The area needed to play Baling Tin is around 40 square feet. The area must be marked to prevent players from going outside the boundary during the game. Baling Tin was first introduced in the early 1950s and continued to be popular until the mid-1970s. The origins of this game cannot be ascertained, as it has already been played in this country for a long time. Typically, this game is played in an area lacking entertainment, and Malays and Chinese mostly play it. However, the game continues to grow all over Malaysia and is enjoyed by people of all ethnicities. One will need talent, agility, and knowledge to win a Baling Tin game. Aside from the game, this also necessitates strong coordination among team members.

Figure 1. Traditional Baling Tin Game [5]

Baling Tin has practically vanished due to the passage of time. Based on JabatanKebudayaan dan Kesenian Negara (JKKN) [5], classic games like Kaki Hantu, Ketinting, TujuGetah, and Tuju Tin became popular among youngsters over half a century ago, and it was an absolute blast. However, as technology advances and new devices replace traditional games, these games have become among the ten traditional games that have gone extinct [6]. Because people are exposed to a variety of mobile games, Baling Tin is no longer played and has fallen out of favor. With the mass media promoting and exposing us to electronic games and toys that are commercially produced in the market, more and more gadgets, such as handheld game consoles, computers, and mobile phones, have entered our children's daily lives [7]. With that in mind, and in conjunction with the advancement of computer technology, digitalization is chosen to preserve traditional games.

There will be two groups in one game. To begin, the player must separate themselves into two groups and determine which group will lead. They must arrange the tin in a pyramid before the game starts. The game will start with the leading team (example: Team A) tossing a ball towards the tin. Each person is allowed three throws to knock down all the tins. After Team A has

knocked down all the tins, Team B will begin throwing balls at Team A members as they attempt to reassemble the tins in pyramid form. When a ball strikes a member of Team A, the player is considered "dead" and is removed from the game. If Team A can reassemble the tins, they are deemed the round's winner. Then, in the second round, Team B will take the lead. So, this is essentially how the game is played.

2.1. Digital Game

A digital game is an interactive game that can be played on electronic devices such as consoles and computers. Digital games have become some of the most popular online content. A survey conducted by Pastore revealed that people spent an average of 20 hours per week on the Internet, of which 48% were spent playing digital or online games [8]. Traditional games are no exception to being influenced by advances in digital technology. Traditional games have been acknowledged as part of a country's cultural heritage, and therefore, attempts to digitize traditional games are mainly driven by the need to preserve cultural heritage [7]. Therefore, this study focuses on digitizing the traditional game of Baling Tin to preserve our national heritage.

2.1.1. Game Type & Genres

Target games, net/wall games, striking/fielding games, and invasion games are the four primary divisions of games. All games in each category have similar concepts and tactical challenges to solve, allowing tactical knowledge to be transferred from one game to the next. The term "game genre" refers to a specific sort or style of game. The game's specific category is determined by its goals and plot, levels, camera point, features, and storyline, which may be expressed through related gaming qualities. A game genre is a specific category of games related by similar gameplay characteristics, and genres are not usually defined by the actual content of the game or its medium of play but by their common challenge; they may cause a wide variety of games, leading to even more specific classifications called subgenres [8].

Digital Baling Tin application is developed as a target game with action, sports, and strategy as its genres. In target games, players aim an object, such as a ball or a dart, towards a target area. To prevent the opponent from scoring, this may also include avoiding obstacles, defending, guarding, or stopping the route of the rival's ball. There are two types of target games: opposed target games and unopposed target games. Opposed target games, such as snooker or bowls, are those in which the opponent's actions influence the next move. The outcome of unopposed target games like golf and darts is unaffected by what the opponent does.

2.1.2. Game Approach

In terms of game approach, Digital Baling Tin Game uses the Game Sense approach. Game Sense is an exciting and innovative approach to coaching and physical education that places the game at the heart of the session. It encourages the player to develop skills in a realistic context, to become more tactically aware, to make better decisions, and to have more fun [9]. Game Sense is, by design, less structured than the Teaching Games for Understanding (TGfU) model, with the absence of an authoritarian model initially intended to encourage existing good coaching practice and avoid any association with pedagogical practices used in school-based physical education [10].

Game sense allows them to develop talents and an awareness of the game's tactics. Game sense is a modified sport approach involving children in minor and modified game strategies and concepts, allowing them to develop skills and an understanding of the game's tactics. It also encourages simple modifications to accommodate different ability levels, maximizing inclusion

and challenge. Fun, playing, inclusion, and challenges are all part of Game Sense, as are decision-making and problem-solving, as well as communicating and collaborating.

2.1.3. Game Design Technique

This game uses customization and quest for game design techniques. As the gaming industry has developed, many games now allow players to customize their avatars. Character customization improves avatar identification, which impacts many elements of a player, including psychology, behavioural, arousal, learning, and self-building. While the player's representation in some games is permanent, many games provide a basic character model or template, allowing the player to personalize the physical attributes as they see fit.

A quest, sometimes known as a mission, is a task that a player-controlled character, party, or group of characters can perform in video games in exchange for a reward. The most frequent types of quests are those found in role-playing games and massively multiplayer online games.

2.1.4. Game Rewards

In digital games, the reward system can motivate the player to avoid disappointment when compromises are made. In addition, rewards can encourage players to stay engaged with video games in various contexts. A reasonably general reward mechanism is currency rewards, which are the acquisition of a gaming resource that may be spent. Giving players stores to spend monetary incentives can be useful if the shops have a wide variety of items to pick from. For example, players can purchase skins for the can and ball in digital Baling Tin games. Using their monetary rewards, they may also purchase different products from the shop, such as clothing, trousers, shoes, and other accessories.

3. METHODOLOGY

The game's development was adapted from ADDIE an instructional design framework for systematically developing instructional materials, including specified course content execution. The five steps of ADDIE are analysis, design, development, implementation, and evaluation, which offer a dynamic, adaptable framework for developing successful training and performance support systems. Figure 2 shows the diagram of the ADDIE model.

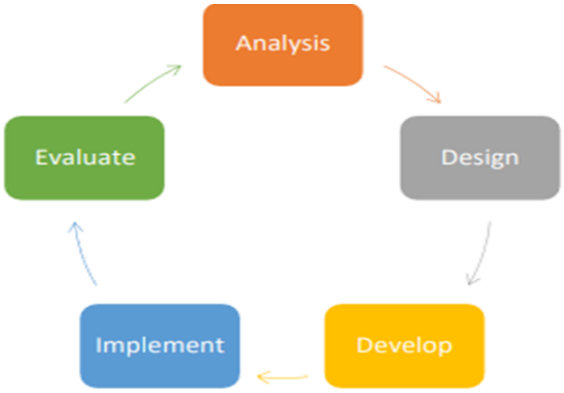

Figure 2. Diagram of ADDIE Model

3.1. Analysis

The first level of the ADDIE model is Analysis. The problem statements, objectives, scope, and significance of the Digital Baling Tin Game are identified at this level. This level meets the first objective of this research, which is to identify the appropriate technique and platform to develop a Digital Baling Tin Game. A lot of reading and finding information from multiple sources, such as websites, articles, and journals, were required during this phase. The most important thing at this level is to discover similar works to define the research's problem statement, objective, scope, and significance. Furthermore, it is necessary to choose a suitable platform for this research since several platforms have been discovered that are relevant to this research. As a result, a literature review is required to determine which platform is most suited for this application development. The literature review is on Baling Tin, digital games, and comparative studies. Similar studies have been covered in the Google Play Store for Android and the Apple App Store for IOS, including Can Knockdown 3, 3D Bowling, and Hit and Knockdown. Unity will be used to create the Digital Baling Tin Game for this research.

3.2. Design

Design is the second level of the ADDIE project methodology. This phase is carried out to achieve a partial part of the second objective of this research: to design and develop the game based on the technique and platform defined. Traditional game digitization is an adaptation of traditional games with the rules, presentation of players, and environment managed through electronic means. For example, Digital Baling Tin Game is a traditional game that has been digitized and is based on Baling Tin. During this level, there are two deliverables: the flowchart (figure 3) and the storyboard (figure 4).

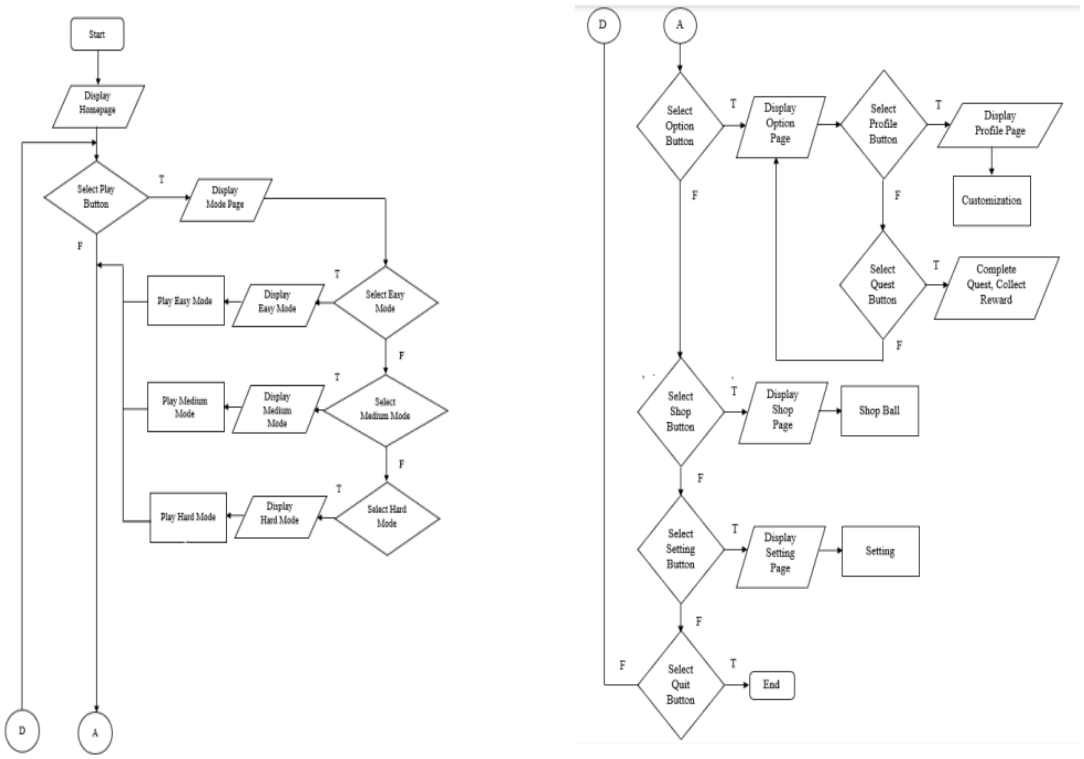

Figure 3 Flowchart of the Application

The development of five storyboards included the main page, profile page, quest page, shop page, and settings page. The storyboard depicts the appearance of the user interface. The game play for the digital Baling Tin is designed to be similar to the traditional game. Player will click on the ball while aiming to the stacked tin. The objective is drop as many tin as possible.

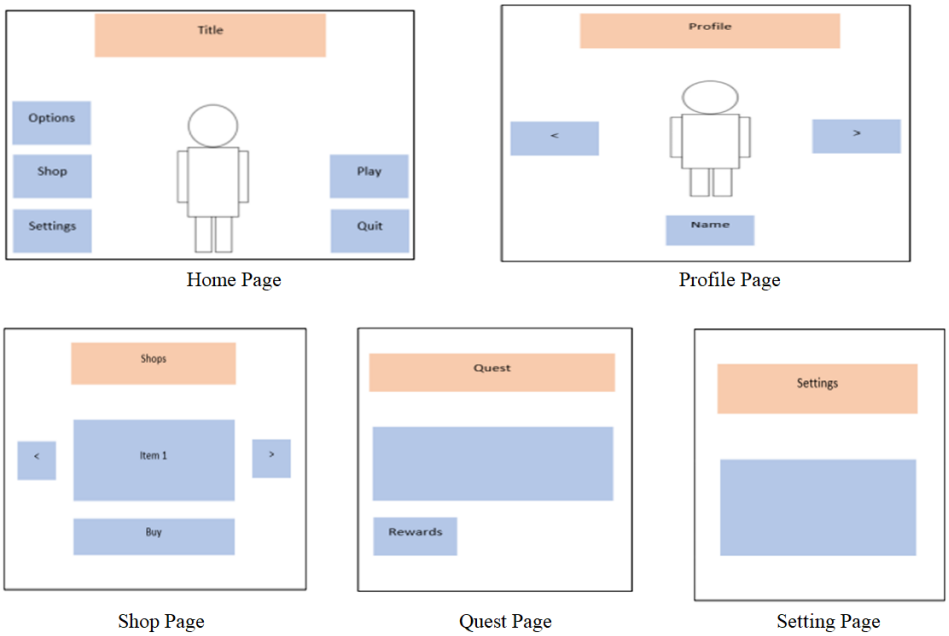

Figure 4. Storyboard of the Application

3.3. Development

In the ADDIE model, at the development level, all information from the analysis and design levels must be accomplished. The primary objective of this phase is to design and develop the application to fit the research's requirements. The hardware and software requirements to be used in developing the Digital Baling Tin game are defined at this level.

Hardware requirements include the physical devices to be used in the development process, which involves the usage of a personal computer and an Android mobile device. As for the software requirement, Unity Version 2021.1.24f1 is used to develop the application. Unity has built-in support for opening scripts in Visual Studio Code as an external script editor on Windows and macOS. Unity will detect when Visual Studio Code is selected as an external script editor and pass the correct arguments to it when opening scripts from Unity. Unity will also set up a default [11]. One must be familiar with C# programming to construct an application on this platform. The Unity Android Build Support platform module is required to build and run for Android. To develop and run any code on our Android device, we must install the Android Software Development Kit (SDK) and the Native Development Kit (NDK).

3.4. Implementation

The implementation phase is the fourth level in the ADDIE model. The research plan is put into action during the implementation phase. The objective of this phase is to deliver the contents effectively and efficiently.

In this phase, a working prototype for the Digital Baling Tin game application is developed and tested. The Digital Baling Tin Game application is developed by implementing the source codes for both back-end and front-end parts. After testing, the developer will return to the design phase to modify the application if there is an issue or problem with the interface design. Finally, uponacceptance, it will move on to the evaluation phase for debugging. This application's implementation includes several interfaces and functions, including the Main Page, Options Page, Profile Page, Quest Page, Shop Page, Setting Page, and Play Page.

3.4.1. Main Page

Figure 5. Main Page of digital Baling Tin

Figure 5 shows the interface of the Main Page, which consists of the game title, Digital Baling Tin. Some buttons point to the Options Page, Shop Page, Settings Page, and Play Page. Also included in the interface are a suitable background picture and soundtrack. The codes written in this part are to be applied to control the user selections, and when the user presses a button, the correct functions must be called to move to the corresponding scene.*Option Page*

Figure6. Option Page

Figure 6 shows the user interface for Option Page. Users can select whether to go to the profile page or the quest page using the buttons on the option page.

3.4.2. Profile Page

Figure 7 (a). Profile Page

Figure 7 (b) Profile Page

The user interface for the Profile Page is shown in Figures 7 (a) and (b), two different players. The user can customise their name and profile by selecting the icons. The user may view their profile with the selected icon and their name by clicking the save button.

3.4.3. Quest Page

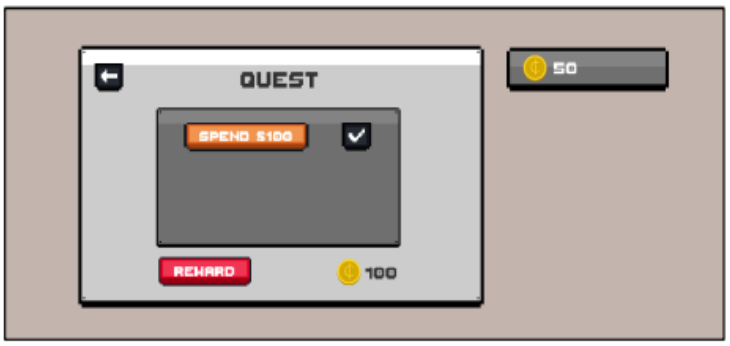

Figure 8. Quest Page

The user interface for Quest Page is shown in Figure 8. In order to be granted the reward, the user must complete the quest. When the user clicks the quest list, they will be taken to the shop page so that they can complete the quest by spending at most $100. Only when the user has completed the mission can they click the reward button.

3.4.4. Shop Page

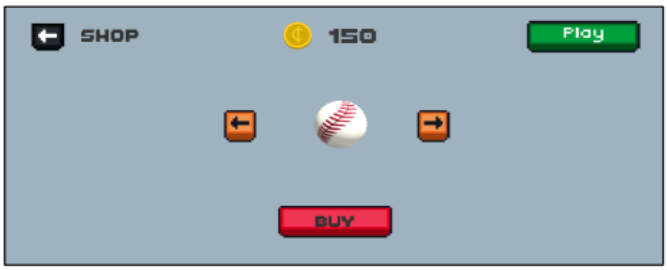

Figure 9. Shop Page

Figure 9 shows the user interface for the Shop Page. Using available coins, the user may purchase the ball. The "BUY" button can be clicked if the ball's price is sufficient to be purchased with the available coins, and vice versa if not. The ball on the Shop Page rotates due to the Rotate script.

3.4.5. Setting Page

Figure 10. Setting Page

Figure 10 shows the user interface of the setting Page. The user has the option of having the game in English or Malay. The user can also change the game's audio volume.

3.4.6. Play Page

Figure. 11. Play Page

The Play Page user interface could be seen in Figure 11. To score more points, the player must knock down as many cans as they can.

3.5. Evaluation

The evaluation phase is the last phase of the ADDIE model. A functional test will be used to measure the successful completion of this project. This is a test to see if the game performed as intended and produced the desired outcomes. The result from the functionality test that has been done for the Digital Baling Tin game application shows that the application has successfully passed all test elements, as the actual results are the same as the expected result.

4. CONCLUSIONS

Malaysia is a country rich in culture and tradition due to its multi-racial society, which includes people from several ethnic groups. Traditional children's games such as *Congkak, Gasing, Baling Selipar*, and others, which have existed for a long time, are part of this rich cultural history. Therefore, it is crucial to retain all the existing traditional games. They are part of our history, culture, and traditions. With traditional games, we can better understand our roots, sense of identity, and belonging within a group.

Hence, this digital Baling Tin game is developed with the purpose of exposing young people to Baling Tin and preserving traditional games. The most important part of developing this digital Baling Tin game application is that it can impart knowledge on Baling Tin. Users get a chance to experience the culture so they can gain knowledge about the traditional game and a better understanding of the game and its values.

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