Interactive Folklore - Re-Modernizing The Culture Through Digital Storytelling

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Abstract— This project focuses on developing an interactive visual novel prototype based on a popular Malaysian folklore, Batu Belah Batu Bertangkup. The aim is to modernize and digitize folklore as an interactive visual novel with branching narratives for teaching children about moral values through the story. This visual novel includes user interaction, core gameplay mechanics, storyline, character design, and backgrounds. The game is developed using Ren'Py for Windows PC as the platform.

Keywords— Malaysian folklore, visual novel, games, Batu Belah Batu Bertangkup, interactive storytelling.

I. INTRODUCTION

Folklore is defined as stories, customs, and beliefs in a culture that are unwritten and passed down orally from generation to generation. In other words, it is seen as a corpus of culture shared by a certain group of individuals. Some folklore contains highly valuable lessons, meant to teach a life lesson to youngsters [1]. Folklore can also assist the youngsters in developing the essential reading abilities of phonology, fluency, vocabulary, and comprehension required to satisfy the standards of reading.

Most children in this era did not grow up with traditional folklore stories and traditional fables. Thus, the younger generations are not interested in these old tales anymore. The huge age gap between these two generations is also a problem resulting in the receding spreading of the morals and values of folklores to the younger generations [1]. These folklores are a part of national histories that are slowly being lost in the passage of time due to modern entertainment.

The aim of the project is to digitize a Malay folklore into an interactive narrative that focuses on teaching the youngsters on morals and ethics by providing them with several narrative options that will lead to different endings. The digitilization of the folklore will also help in the preservation of the story, hence will not be forgotten [2].

This project adapted the folklore story of "Batu Belah Batu Bertangkup" as its first prototype. It incorporates multimedia elements such as 2D animations, sound effects, music and interactive buttons to enhance the gameplay.

Creative aspects are required in creating an interesting narrative as well as producing believable assets for the game. Furthermore, as the world of entertainment is growing rapidly, reintroducing the folklore through digitization to the youngsters might spark their interest to learn more about their traditional culture.

II. LITERATURE REVIEW

There are already efforts from people all around the world to bring the folklore in the form of digital media. [3] collected and analysed literacy studies on the delivery of folklore using digital media such as website, digital book, digital comics, animated film and game. They believed that through the digital media, the folklore of the Nusantara archipelago i) can be preserved, ii) can be introduced to digital society, iii) can provide the educational values, iv) can help to sharpen the emotional intelligence, and v) can develop ecotourism since various potentials of folklore are closely related to material and immaterial heritage.

There is also a podcast called Digital Folklore that uses storytelling, voice acting, interviews, and scripted narrative to analyse various expressions of internet [4]. Though the topics ranged from the absurd to the unsettling, this podcast provides an entertaining way to learn about folkloric concepts and societal truths.

[5] stated that the value of the existing heritage is very important, which led to folklorists working together with IT experts to undertake efforts in using digital technology to enhance access to cultural heritage and the benefits which derive from it by the implementation of international digitising standards.

Given the importance of passing down the folklore to the youngsters in this digital age, in this project, we chose to use a visual novel approach as the medium. Amongst work done in this area is a folklore known as The Origin of Lake Toba, where the researcher aimed at creating an application in the

form of animation that can be enjoyed by many people and used as a learning medium [6].

Another visual novel developed based on folklore from The Philippines is Ibong Adarna. This visual novel was developed for an educational purpose where it contains multiple story branches with minimal gameplay [7].

Kabaret, a Malaysian fantasy indie game, is a dark fantasy folklore adventure game that explores the vibrant myths and folklore of Southeast Asian culture [8]. Though this game received several nominations such as Best Storytelling and Best Audio at the SEA Games Award 2022, the content is not suitable to teach about cultural heritage to the youngsters since it contains elements of violence, strong language, and mental health issues such as depression and suicide.

To help with the implementation of this visual novel, we also reviewed some other existing games, movie and book that use branching narratives as their mechanics.

Bad End Theater, created by NomnomNami, uses a unique method of interaction that is based on the characters' behavior as possible choices that will affect new paths. This game does have the same mechanics as other visual novels, but some options are locked or unlocked behind the behavior mechanic. This game mechanic of replaying the same storyline from multiple perspectives will make both the story richer and the characters more developed. As the player keeps playing, they will become more engaged with the characters as they learn more about their personalities and traits [9].

A visual novel made by Team Salvato, Doki Doki Literature Club (DDLC), is a story told from the perspective of a high school student who reluctantly joins the school's literature club at the insistence of his best friend from his childhood, and is given the option to woo three of its four female members. DDLC features a non-traditional plot structure with multiple endings and unlockable cutscenes with each of the main character. Although the game initially appears to be a lighthearted dating simulator, it is in fact a psychological horror game that extensively breaks the fourth wall. The gameplay follows the typical example of a visual novel, where it contains a dialogue box, backgrounds, and static images of the characters that will change according to the script. A unique feature of this game is the minigame that will increase the likability of certain characters towards your character. And at a certain level of likability, users will unlock hidden choices or cutscenes [10].

In Ace Attorney, the visual novel follows the story of Phoenix Wright, a rookie defense attorney who attempts to justify his clients' being declared "not guilty". The game is split into two sections: investigations and courtroom trials. During the investigation phase the players have to gather information and evidence by moving around using point-and-click on the scene or interacting with people and certain items to find clues that will help win the trial. During the trial phase, they cross-examine witnesses and answer questions from the judge, the prosecutor, and the witnesses. This game is plot-heavy as you have only two possible endings, while if you fail any of the trial court sections, it will result in "game over" and you have to start over the trial case. Therefore, the narrative is mostly linear, and the only significant branches are near the end of the story [11].

In 2018, Black Mirror: Bandersnatch, an interactive movie was premiered on the Netflix streaming platform. Users are allowed to choose between two choices of answers throughout the whole movie, which will then proceed with different story endings. Viewers make selections for the main character, Stefan Butler (Fionn Whitehead), a young programmer who is turning a fantasy gamebook into a video game in 1984. Users are allowed to choose between two choices of answers throughout the whole movie, which will then proceed with different story endings [12].

Created by Ryan North, To Be or Not to Be is a choose-your-own-adventure book or also known as gamebook, where it uses the mechanic of "guiding the reader to a certain page". The book is an adaptation of the famous literary works of Shakespeare with a twist. The book provides many choices that will lead the reader to many different storylines and endings. The enjoyment of these types of books comes from the "what if's" of a story having multiple different endings whereas normal books have a fixed storyline. This book also contains illustrations and puzzles that can pique the interest of its target demographic [13].

Many visual novels contain several common features, such as a dialogue box for the players to read, static characters with multiple expressions, interaction buttons for the player's input, and multiple background settings. On the other hand, each visual novel contains its own unique twists or features to differentiate and attract its own audience. The puzzles and storylines of these visual novels depend on the creativity and ingenuity of the designers to produce a higher quality visual novel. The concept artwork also contributes to the game's popularity. Table 1 summarizes the result of the literature review.

TABLE I
LITERATURE REVIEW SUMMARY

Application	Type	Features		
		Storyline	Interactivity	Multiple Endings
Bad End Theater	Game	Linear	Yes	Yes
Doki Doki Literature Club	Game	Non-Linear	Yes	Yes
Ace Attorney	Game	Linear	Yes	No

Black Mirror: Bandersnatch	Movie	Linear	Yes	Yes
To Be or Not to Be	Book	Non-Linear	No	Yes

III. METHODOLOGY

Following the game development process, it is divided into three stages which are the pre-production stage, the production stage and the post-production stage as shown in Figure 1. Each stage has a different set of tasks to be done before going to the subsequent phase.
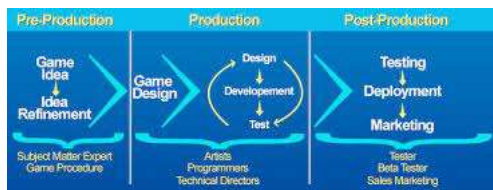

Fig. 1 Game Development Process

Source: Adapted from [14]

Pre-production stage is a preparatory stage before going into the development of the game. Using the SDLC approach, the pre-production process includes planning and design stages of the gameplay, game mechanics, the creation of the overall user experience, storyboard, and character sheets. This will be the main overall guideline for the production stage. The concept and the plot of this visual novel are described below.

A. Concept

The game starts with a cutscene to introduce the premise of the story before being presented with the branching narrative options. The users can choose to skip the introduction and start with the story based on their choice straight away. Few other choices are presented to the users throughout the storyline, where they can experience the different narratives created. Users have the power to decide how they want the storyline to continue, which will lead to different endings. In the end, users is given the choice to restart the story or to go back to their previous choice. Users are also eligible to save their progress in the game.

B. Plot

The game starts with a cutscene to introduce the premise of the story before being presented with

The story starts when the users have selected the profession of Mak Tanjung, whether she is a farmer or a fisherwoman. The story branches out differently depending on the choices made. If the users choose farmer, a storyline based on Mak Tanjung's farming will be shown as the users will be asked to go back to the other choice that was not selected. This is to make sure that the users follow the proper storyline. Choosing a fisherwoman will direct them to the true story plot where Mak Tanjung will be catching "Temakul" fish to feed their children and cook for them.

The next choice that will appear is whether Mak Tanjung should remind her daughter to keep some fish eggs for her to eat when she gets back from work, and the other option states otherwise. If the users choose that Mak Tanjung does not remind Melur, when she gets back home, there will only be a few "Temakul eggs" left for her, as Melur has told Pekan that their mother would catch more fish the next day, so he agrees to leave some for Mak Tanjung. When Mak Tanjung comes back home, she eats the fish eggs happily, and catches almost twice as many "Temakul" fish the next day. But if the users choose for Mak Tanjung to remind Melur to keep some fish eggs for her, it will follow the original story plot where when Mak Tanjung comes back home from work, she found out that Pekan has already eaten all of the eggs which causes her to be very upset with her children.

The next option comes when Pekan is still hungry and decides whether he should finish the fish eggs or not. If the users choose for Pekan to leave some fish eggs for their mother, the story plot will go back here: "Mak Tanjung came back home and ate the fish eggs happily, and the next day she caught almost twice as many "Temakul" fish." But when the users click on the "Finish the fish eggs" option, it will continue to the part where Mak Tanjung feels very upset, and she will go to the cursed stone afterwards. The fourth option is when the users are allowed to choose whether Mak Tanjung should "step in between the stone" or "listen to Melur and Pekan". The storyline when users choose "step in between the stone" will continue according to the original story plot where Pekan and Melur will lose their mother as the stone swallows Mak Tanjung. Besides that, if the choice is to "listen to Melur and Pekan", Mak Tanjung will stop in front of the cursed stone and her children will come to her and apologize, and they will go back home together with Mak Tanjung feeling remorseful for her actions.

The production stage is where the creation of the game using the Ren'Py game engine takes place. The branching storyline is given the priority over the normal storyline during the development of the game. After the main storyline is finished, the mechanism for branching storylines is developed. Using the RAD approach, this stage undergoes several iterations to completely satisfy any requirement or feedback to improve the quality of the game. This stage is demonstrated further in Section IV.

The final stage is post-production where the testing of the game is conducted to find any bugs or glitches in the game

to be fixed. Also, the game is polished by adding additional cosmetic elements as described in Section V.

IV. DEVELOPMENT

Making an interactive visual novel game requires many different elements of media to be included and implemented in the game. The characters, interactive buttons, background art, and other elements were designed using Adobe Illustrator and Canva. All of the elements are implemented in the development of the game using the Ren'py Engine which has commonly known as the best visual novel engine. The engine uses Python programming language to develop the game, and the engine already implements the core structure of common visual novels, but we opted for some changes to the GUI to suit our theme. The programming software used to code the game engine is Visual Studio Code. Other miscellaneous elements, such as music, and sound effects, are taken from royalty-free sources and then implemented into the game through the engine.

Figure 2 shows the concept art of the main characters used in this game. The first iteration of the character design took inspiration from the original source and traditional elements. This final iteration incorporates more Islamization in it and is suitable for the current demographic of this game. The first character on the left is Mak Tanjung, followed by Melur and Pekan.

Fig. 2 Main Character's Concept Art

Figure 3 is the textbox element where the dialogues and conversations appear throughout the storyline of the game.

Figure 4 shows the buttons that are designed for user interaction. It will be the choices that users can click in the button element.

Fig. 3 Textbox Element

Fig. 4 Buttons Elements

In Figure 5, the main menu of the game will show a few options such as the start button, load previous saved progress, preferences and a quit button.

Once the users click the start button, the cutscene will play and there will be some animations and a voice actor narrating the introduction of the characters and the game as shown in Figure 6.

Fig. 5 Main Menu

Fig. 6 Introduction Cutscene

There will be a few choices for the user to choose from throughout the whole storyline as shown in Figure 7. Users can select either one of the two choices given and a different answer will lead to a different storyline and ending.

In Figure 8, the character dialogues in the visual novel will be placed inside the textbox throughout the game. The name of the character in the current conversation will appear on the top left corner of the textbox as an indicator of who is currently talking.

Throughout the storyline, the users will have a few options to pick from as demonstrated in Figure 9. The users

can select one of the two choices provided, and various responses will result in distinct plots and endings.

The Ren'py game engine enables users the save their last progress of the game. It can load the recent progress of the game and users can continue from where they saved instead of starting from the beginning. You can save and load at any point in the game as shown in Figure 10.

Fig. 7 Option Scene

Fig. 8 Dialogue Scene

Fig. 9 Another Option Scene

Fig. 10 Pause Scene

V.   RESULTS AND DISCUSSION

The initial phase of testing, called "alpha testing," is done to evaluate whether the game will function as expected and to find any errors or bugs and fix them in the next iteration following the game development process. These alpha tests were carried out by internal staff or developers early in the development phase and were followed up with playtesting, in which a group of the intended audience from the targeted demographic actually try the game and produces feedback from them to be implemented in the next iteration of the game. Playtesting also allows to observe users' reactions and the general reception of the targeted audience towards the game. The testing will confirm the playability of the game toward the users in terms of:

- the game user interface,
- the branching narratives and storyline,
- fluidity of the game.

The target audience of this project is children aged between 7-13. The participants are required to have the basic skills of using a computer and good reading comprehension. This is due to the nature of our application which is a computer game that is using English language as its main language. Not following this requirement will make a significant impact on the project and this, the objective will not be met.

Following the objective of the game, we selected the users based on their knowledge of folklore stories. Participants used are the ones without prior knowledge of our chosen folklore, that is "Batu Belah Batu Bertangkup." This is also a significant factor since those who know the story will know exactly which storyline to follow. The testing was conducted by presenting the prototype game to the users and let them play while their actions were recorded for reference using a camera, and were interviewed for any comments from them. Personal information about the users were also recorded prior to the testing with consent.

A controlling factor for this test is the user's experience with our game in general since this will give more accurate test results. From the test, we observed the impact of the

game on the users, its effectiveness, and the lessons learned from the game.

From the feedback given, most of the players learned a moral value from it and are interested to play more of this type of interactive game. They prefer this type of medium to learn more about folklore, compared to other media such as books or videos, which are not interactive.

VI. Conclusions

Our project's key point is to develop a folklore into a visual novel, utilizing the interactive narrative that focuses on teaching morality and ethics to youngsters. It is anticipated that creating an interactive visual novel will be a significantly better option for recapturing the interest of the younger generations, to spread the moral values and ethics through folklore. It is an attempt to revolutionize the way we teach traditional folklore values to Gen-Z through an interactive visual novel. The branching narratives allow us to develop different stories that may teach different values, as well as demonstrating the repercussions of their actions.

The future enhancements and improvements that we would like for our project are to expand this prototype by adding more famous folklores since different folklore has its own moral values embedded in it. Besides that, we would want to continue to develop our digital assets to be on par with the standard market of visual novels. In addition, the branching narratives in the folklore can be further expanded, and there will be more choices in the storyline that can be chosen by the user so that it won't be repetitive and predictable.

Conflict of Interest

The authors declare that there is no conflict of Interest

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