

# Preserving Malaysian Folktales Through Mobile AR Application: Sumpahan Ikan Tapah

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**Abstract**—Malay folktales can provide us with variety of benefits, including moral values and cultural values. This involves being a positive role model, honoring traditions, seeing the world in a new way. Folktales also aid in development of healthy behavior. People on the other hand, prefer to overlook the positive attributes they may learn from folktales and instead want to hand out the smartphones. As a result, upcoming generations will be less familiar with Malay folktales. The exponential development of smartphones, on the other hand, presents a possibility to build a new gate to conserve folktales. The experiences will enrich the user's learning and narrative experience by introducing a different kind of edutainment that combines Augmented Reality (AR) and a storybook. This study is being conducted to incorporate AR as a storytelling medium. The ADDIE model was chosen as the primary methodology for developing AR Storytelling. The accessibility of AR folktales for children under the age of 18 is investigated. As a result, Malay folktales will be preserved for future generations.

**Keywords**—Augmented Reality, Digital Storytelling, Malay Folktales, Smartphones

## I. INTRODUCTION

In Bahasa Melayu, “Penglipur” Lara means storyteller. These storytellers go by different names based on where they live like “Tok Selampit” in Kelantan or “Awang Batil” in Perlis. They are the ones that can say the folktales. Songs, poems, stories, fairy tales, taboos, religions, folklore, and more are all examples of folktales. There are no physical books or archives that contain these folktales. Every folktale is a story that has been passed on from generation to generation in the local community. Depending on the venue, one will find a number of folktales and a variety of stories to pick from. Which may be about legendary beasts, while others are just a morality tale or the origins of a certain location from folklore. According to [1] Folktales are valuable because they give children ideas about

their country, culture, and customs, according to one research. The story was handed on to the children by the elders in order to ensure that folktales were passed on from generation to generation. When the storyteller dies, the story will come to an end at some stage during the era. This address doubts about folktales that could vanish into oblivion.

However, as technology advances, the folktale is increasingly forgotten and on the verge of extinction. According to [2] these stories, folktales, and legends must be maintained in this modern era to prevent the precious legacy from extinction. The technology of AR is one of the ways this is possible. This journal has been organized as follows. Section 2 explains about the related works. Section 3 discussed on the methodology used in this research. Section 4 will analyze the result and discussion. Section 5 concluded the overall research.

## II. RELATED WORKS

The problem with folktales appears to be present in the other countries as well. A research was conducted in the neighboring nation of Indonesia to identify innovative and exciting methods to preserve and reintroduce Javanese folktales into modern culture. Javanese folktales are threatened, according to 34% of respondents since they are no longer part of society's lifestyle. This is most likely due to the presence of a competition, as well as the fact that local or traditional folktales are sometimes labelled as old-fashioned by society.

The presence of Javanese folktale is declining due to competition and people's beliefs that this topic is outdated. Traditional Javanese folktales are passed down by word of mouth from generation to generation. Once a generation stops passing on its legacy, it is lost for good.

According to [3] with the advancement of technology and globalization, there is something that is noticed across the world, particularly in Jamaica. Aspects of their culture are being forgotten, especially among the younger generation. As

time passes, new technology is introduced, and people become more aware of the beliefs and practices of other civilizations. When they incorporate elements of other civilizations, they tend to forget a little of their own culture. Folklore is an essential component of any society, and Jamaican culture is no different. Superstitions, as well as folklore and stories about supernatural beings, are used to teach lessons, transmit knowledge, and educate traditions. However, as time has gone, people have grown more connected, and stories are told in different ways, as well as being exposed to stories from cultures different than our own.

To preserve and promote folklore, one need to tell better stories, and as previously said, experts believe AR will be a viable choice. This is not to say that AR is the only way to promote folklore; many small-time producers have used folklore as inspiration for their work. On the other hand, AR will provide a significantly more immersive experience. One that will allow everyone, young and old, to enjoy the beauty of our folktales.

### 1. Gergasi dan Penghuni Rumah Panjang

This book is Malaysia's first AR storybook featuring Sabah folktales. It was created by Universiti Malaysia Sabah (UMS) in collaboration with Dewan Bahasa dan Pustaka in 2018. (DBP). The book contains three Sabah folktales in all. The folktales of Sabah are told in this book using a mixture of riddles and AR. The AR Riddle application, which is used in conjunction with the book, can be downloaded from the Playstore for Android users or the Appstore for IOS users.



Fig. 1. Interface of “Gergasi dan Penghuni Rumah Panjang” AR storybook.

### 2. Cerita-Cerita Rakyat Nusantara

The approach taken by this program is animation with narration. This is a fantastic choice for a multimedia storybook on a mobile device. The narrative can be read in three different ways. To begin, press the “Dengar Cerita” button. There is no navigation control in this linear animation with narration audio narrative. The consumer will essentially just listen to the story and do nothing more. Second, there is the “Bacaan Saya button”. This button encourages the user to read along with the narrator using the text presented. According to the syllables, this text was colored in black and blue alternately. Finally, there is the “Bacakan Saya” button.

The user can read the story by reading the given text, which is the same as the second option. However, the user has power of moving between the next and previous scenes.



Fig. 2. Interface of Cerita Cerita Rakyat Nusantara mobile digital storybook

### 3. Dragon Brothers Books

The 3-Dimensional (3D) model and animations are the key strengths of this product. The large-scale 3D world was extremely well-constructed. The user can zoom into the 3D world by moving the camera. Characters such as people running or a dragon circling around can be seen by the user. The animation is not limited to organic objects, but also includes inorganic objects such as volcanic eruptions and clouds. As opposed to non-AR approaches, this aspect raises the user's desire to read the books, making them more excited, curious, and engaged to work with modern technologies as well as teaching and learning material.

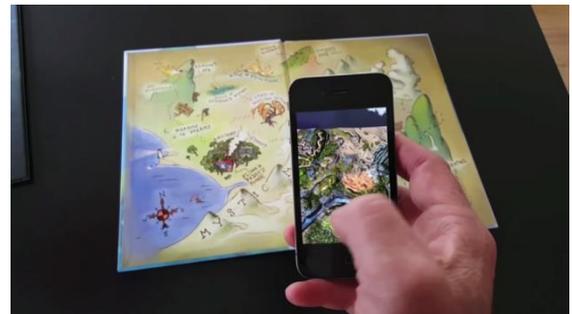


Fig. 3. Interface of AR Reads while scanning the map.

### C. The features for Sumpahan Ikan Tapah

Based on the existing storytelling application, this project has compared the design each application. The design from each application has been identified and applied in the project of “Sumpahan Ikan Tapah” development. The summarization can be seen in the table below.

TABLE I: Comparison of previous application

	a	b	c
<b>Narration</b>	No	Yes	Yes
<b>Animation</b>	Yes	Yes	Yes
<b>Instructions</b>	No	Yes	Yes
<b>Interactivity</b>	Yes	Yes	No
<b>AR features</b>	Yes	No	Yes

- a. Gergasi dan Penghuni Rumah Panjang
- b. Cerita Cerita Rakyat Nusantara
- c. Dragon Brothers Book

### III. METHODOLOGY

The ADDIE model was used as the research model in this study. This model was chosen because it is commonly used in the development of digital applications and can help people understand the methodology better. The ADDIE Model is a good model to use for this project because it is simple to build teaching materials with. According to [4] the ADDIE model has the advantage of being easy to use and adaptable to any program that teaches expertise, skills, or attitudes. AR folktales is used as a teaching tool because it talks about folktales and their moral meaning. “Sumpahan Ikan Tapah” is considered an educational material as it teaches about folktales and moral value.

#### A. Analysis

The project's first phase is analysis. During this process, a study was performed to determine the features needed to be implemented in the application by referring to previous study and existing storytelling medium.

#### B. Design phase

Following the analysis phase, the developer would identify the most appropriate and feasible functions to be performed when designing the course. The input from the study is used by the developer to design the project's flow. The below is a list of the material that was completed during this phase:

- Estimating the time it would take to create the AR storytelling app for “Sumpahan Ikan Tapah”. This is the timetable in the final project's Gantt table.
- Getting to know the rough architecture of the AR application's interface and designing the application's navigation flow.
- The pages of the storybook are sketched to exactly complement the text that will be assembled in the book. This drawing was created to assist the viewer in further understanding the story's rhythm.
- In terms of style, the graphic should not be too cute or use too many bright colors, since the target demographic is young teenagers, not children [6]. The offered interactivity is user-friendly and simple to comprehend. Instead of using a sophisticated font style, a San serif font was used to make it easy to read.

#### C. Development phase

During this stage, the developer can concentrate on the content of the multimedia elements that will be used, such as text, animation, audio, video, and graphics. Using Clip Studio Paint tools and a Wacom Intuos drawing pad, the developer begins to sketch and color the storybook pages. The completed pictures are then imported into Adobe Illustrator, which is used to develop the book layout. This contains the storybook's text. Two Bahasa Melayu teachers grammatically reviewed the text ahead of time to ensure there were no

mistakes in the final product. The completed pages are then submitted to the Vuforia website, where they can be used as the AR target marker. Adobe Audition is then used to record the narrator audio. The narrator used appropriate intonation during the recording session to ensure that the narrative flowed smoothly. After that, Adobe After Effects 2020 and Adobe Premiere Pro 2020 are used to animate the animation. Finally, Unity 3D was used to get all of the elements together. This software is responsible for both navigation and features. The storyboard and analysis from the analysis and design phase is used to guide both of these procedures.



Fig. 4. Drawing in Clip Studio Paint



Fig. 5. All element combined in Unity 3D.

#### D. Implementation phase

In this phase, the storybook and the AR folktale application are ready for testing. The audience is given the application along with the “Sumpahan Ikan Tapah” folktale storybook. During this session, the overall usability of the project is tested. Any errors, bugs or problems that is detected in this phase can be repaired or improvised.

The testing is performed on the target audience by giving the application to an adult to supervised and guide them. The audience selected are all within the same demographic background. After they has gone through the application, a survey is hand out to them to get their feedback.

#### E. Evaluation

The storybook and the AR folktale application are ready for testing at this stage. The application, as well as the “Sumpahan Ikan Tapah” folktale storybook, are given to the audience. During this session, the project's overall usability is assessed. Some defects, glitches, or issues discovered during this process may be fixed or improved. After the testing of the Sumpahan Ikan Tapah AR application, the

target audience was sent a questionnaire through Google Form. There was a total of 30 people that responded. The target audience is tested by entrusting the application to an adult who will supervise and guide them through the process. Many of the people in the target group are from the same demographic which is schoolchildren ranged from 7 years old to 17 years old.

#### IV. RESULTS AND DISCUSSION

After doing the testing, it is found that 80% of the respondent are strongly agreed that the application is useful as a medium to preserve Malay folktale. While another 20% of the respondent are agreed that the application is useful as a medium to preserve Malay folktale. The Sumpahan Ikan Tapah application did not require internet access and need a small amount of space to be installed. The easy to access application may result such a positive feedback from the users. One can clearly see that none of the respondents hold a negative viewpoint on the subject. This positive response is due to the functionality that the developer has included in the app. According to the case study in the literature review, interaction in the AR application is needed to improve the experience. According to [5], this engagement can provide the consumer with a sense of social presence as well as interpersonal appeal. To summarize, AR is an important tool for preserving Malay folktales.

TABLE II: Respondent agreement on the statement about application “Sumpahan Ikan Tapah”.

	Natural	Agree	Strongly Agree
More interesting rather than using traditional storytelling.	0	5	25
Wish this AR technology is incorporated into other Malay folktales.	0	7	23
recommend the implementation of this technology for other storytelling medium.	0	5	25
Narration of the story clear and appropriate.	0	13	17
Animation used are appropriate.	2	14	14
Image drawn are visually appealing.	1	9	20
Instructions easy to understand.	0	11	19
Application easy to interact (buttons/3D models/videos).	3	15	12
Text size and font are suitable and easy to read	1	7	22
AR features enhance the experience of using the application.	0	12	18
Enable me to understand the story quickly.	2	8	20
Improve my mood to learn about the story.	0	9	21
Useful in delivering a storytelling.	0	7	23
Application easy to use.	0	9	20
Prefer to use this application to learn more Malay folktales.	1	7	22
<b>Useful as a medium to preserve Malay folktale.</b>	0	6	24

#### V. RECOMMENDATION AND CONCLUSION

To preserve one of the Malay folktales, the researcher created an Augmented Reality application. The folktale Sumpahan Ikan Tapah, which originated in the state of Perak, was utilized in this application. This program was designed with the goal of introducing augmented reality as a new storytelling medium. It was also designed to measure schoolchildren's acceptance of augmented reality technologies. During the evaluation phase, the replies and comments obtained are valuable resources for taking the project to the next level. According to the testing findings, all users are satisfied with the program, and the researcher has met his goals. The “Sumpahan Ikan Tapah” AR application has been demonstrated to be effective in teaching Malay folktales to kids. Aside from that, the interaction given has shown to enhance the user's experience in terms of moods and understanding, as shown by the in the case study.

Based on the feedback, it is suggested that future researchers use these features in their storytelling AR applications.

- If the 3D model is animated, it will increase the user's curiosity when engaging with the application.
- In terms of interactions, one can incorporate things like spinning and pressing the 3D model to initiate an animation.
- A proper animation with voice actors should be used in lieu of the 2D looping animation.
- Government organizations such as Dewan Bahasa dan Pustaka will play a key role in fostering this kind of application in order to conserve Malay folktales.
- As the project progresses toward commercialization, more folktales will be combined into a single application to have more diversity.
- An iOS update should be listed since certain respondents have requested it. Along with Android users, Apple users are one of the largest communities.

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