

Interactive Comic: Misi Angkasa

Syasya Binti Mumin
Universiti Kuala Lumpur
Malaysian Institute of Information Technology (MIIT)
Kuala Lumpur
syasya.mumin28@s.unikl.edu.my

Abstract—Misi Angkasa Interactive Comic an interactive comic project based on a comic book by Skuad Misi that was published by PTS Media Group. The number if students who are pursuing a higher degree in science as their first choice and the lack of awareness of outer space research. The goal of the project is to promote space exploration among secondary school student and piques their interest in STEM-related field careers. This project intended to suggest ways to create an exciting medium using a mobile app for students to learn more about outer space study. For the project's methodology, the ADDIE model is used as the primary methodology in developing this project which contains analyze phase, design phase, design phase, development phase, implementation phase, and evaluation phase. The results of the tests indicate that the project's goal was met, which was to evaluate the effectiveness of interactive comic. In conclusion, Interactive comic is proven to be a suitable medium to promote outer space study among students.

Keywords—Outer space study, Interactive Comic, STEM field

I. INTRODUCTION

Space exploration is the investigation of the reaches of the universe beyond Earth's atmosphere using crewed and uncrewed spacecraft and the use of the information gained to increase knowledge of the cosmos and benefit humanity(Logsdon, n.d.).This project aims to increase student awareness of space studies in Malaysia and develop a multimedia medium that gives a unique platform for students to learn more about space studies and pique their interest in STEM-related fields.

II. SIGNIFICANT OF STUDY

These findings will contribute to the benefit of society, given that space exploration plays a vital role in today's science and technology. The growing demand for graduates with STEM-related backgrounds justifies the need for a practical educational approach. Thus, using the recommended mediums in the study could help pique students' interest in space study. This research would also be beneficial to teachers and administrators because they will be able to use the new medium proposed in this research. The students can easily follow the comic method of learning interactively. The study would benefit the parent as they can help their child enrich reading, writing, and thinking. It also helps develop creative and higher-level thought processes. This research would benefit future researchers because they can get some information that might be needed in their research, and some of their questions may be answered by this research.

III. RESEARCH SCOPE

This study focuses on the ways to develop a multimedia medium that could help pique the interest of secondary school students in outer space study. The data collection will be conducted among Form 4 to Form 5 students. The other student who does not fall in Form 4 till Form 5 is not within the scope of this study. This study would utilize questionnaires for the students as a survey and reference. By this strategy, researchers will be able to identify if the new type of medium could pique their interest in outer space studies.

IV. PROBLEM STATEMENT

Based on the pilot study conducted in the previous research, statistics show that a decreasing number of students are pursuing a higher degree in science as their first choice(Majid et al., 2015). In 2010, the ratio of science to non-science pupils was 48:52, while in 2014, it was 47:53, with 29 percent of Form Five students enrolling in pure science. According to National STEM Association president Prof Datuk Dr. Noraini Idris, STEM subjects are taught in schools – often lacking real-life examples that students can relate to – is the main reason why more students choose arts and humanities over sciences. To make matters worse, the number of students applying to university STEM programs - including teaching courses - has been continuously falling, according to her (Rajaendram, 2021).

V. METHODOLOGY

This chapter covers the theoretical concepts and procedures employed in the study, as well as the development of the interactive comic titled "Misi Angkasa." This researcher must conduct extensive research on how to make this interactive comic more intelligible and user-friendly in terms of the user interface, navigation of the application, user interaction, and other application aspects. As a result, the researcher was required to conduct a case study including four interactive comics/novels related to the topic that has been chosen and a comparison has been made by identifying the strengths and weaknesses of the applications in terms of multimedia aspects and interaction.

A. Respondent Demographic

This researcher chose Klang Valley as the demographic location of the target respondents due to the large population in

the area which ranges from all classes of the family that is within the respondent's requirement. Almost 30% of students ranging from sixteen to seventeen years old take Physics, Biology, Chemistry, and Additional Mathematics as their subjects in the science stream in their school.

B. Research Method (Quantitative)

For this research, this researcher will be using the quantitative type of research as it is more effective and accurate for this type of research. Quantitative research is preferable to qualitative research because it is more scientific, objective, expedient, focused, and acceptable. Qualitative research, on the other hand, is used when the researcher is unsure of the outcome. It is used to define the problem or to create a strategy for resolving it (15 Reasons to Choose Quantitative over Qualitative Research, n.d.).

C. ADDIE Model

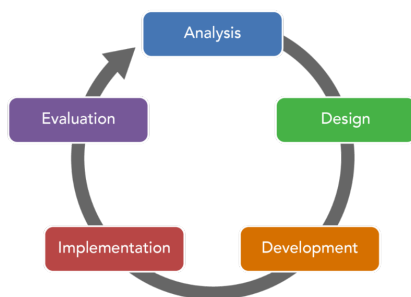


Figure 1: Addie Model

1) Analysis

In the analysis phase, the researcher analyses the original printed 'Misi Angkasa' book to take input on what to add and improve the interactivity of the design based on the whole theme and look of the original work. Then, an academic evaluation is carried out, which consists of perceiving the supply of the problem, objective, goals, and audience, perceiving content material, and coaching the strategies. The users can learn more about outer space study in a new fresh way that is through an interactive comic.

During this phase also, the researcher conducted a requirement analysis by creating a Gantt chart outlining all of the tasks involved in the creation of this interactive comic titled 'Misi Angkasa'. Refer to Figure 1 for illustrations of Gantt charts used throughout the development of this interactive comic. The purpose of this Gantt chart is to include any necessary or critical tasks and to ensure the effectiveness of time management throughout the development process.

2) Design

During this phase, the researcher develops a strategy for achieving the described objective throughout the evaluation phase. Before the development section, the researcher created a storyboard to outline the project.

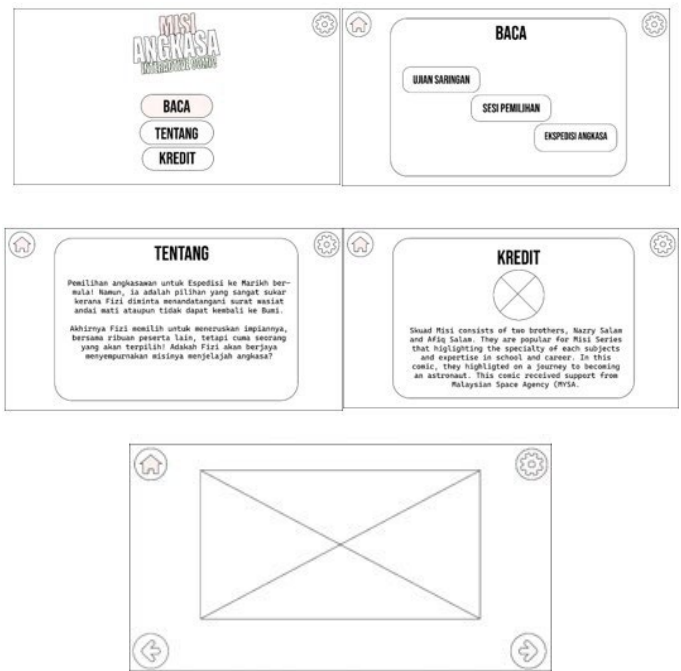


Figure 2: Sample storyboard

3) Development

This section is where all the development and improvement undertake where all the methods are primarily based on a storyboard. The researcher traced the original printed comic in Adobe Photoshop and transfer it into Unity to create a small motion animation and interactivity for this interactive comic. This section is primarily focused on encoding, animating small motions, and creating interactivity.



Figure 3: Unity Software Logo

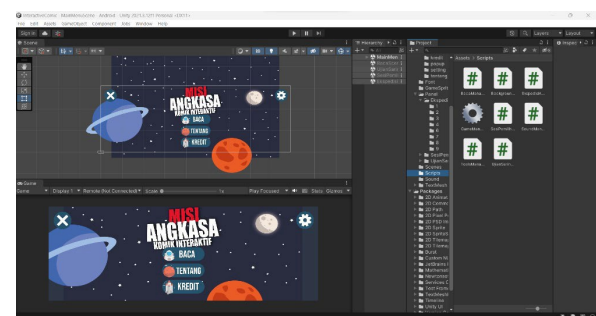


Figure 4: Misi Angkasa Scene Manager

4) Implementation

The implementation segment is the primary objective of this phase. The purpose of this section is to establish a mission that is both effective and powerful. Implementation entails more

than simply supplying the fabric under development; it also entails an evaluation of the method and design.

The researcher will present the finished product, ‘Misi Angkasa’ interactive to the intended audience.

5) Evaluation

This assessment is the most important part of the process’s conclusion. As a summative assessment, the researcher evaluates the challenges through the use of questionnaires. Next, quantitative analysis will be used on the data findings to identify the effects and the variable acquired.

VI. DESIGN

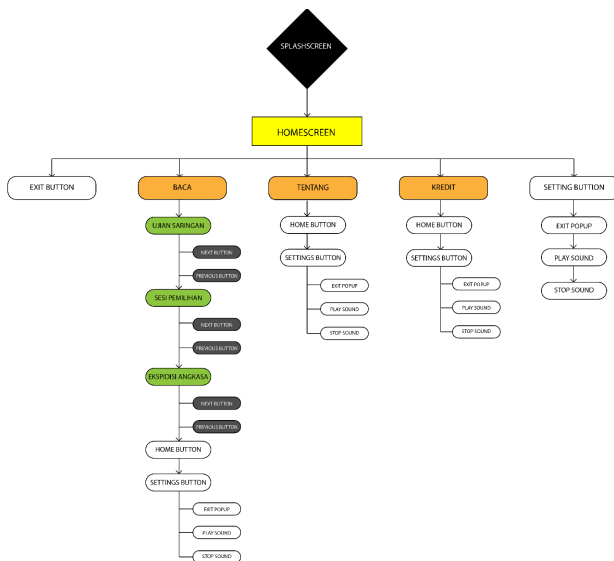


Figure 5: Flowchart

The flowchart for Misi Angkasa Komik Interaktif is shown in Figure 5. The main pages for this interactive comic are Homescreeen, Baca, Tentang, and Kredit. Users will start from the Homescreeen to navigate to any pages in this interactive comic.

A. Major components of interface and navigation design



Figure 6: Homescreeen Page

After a splash screen sequence, the user will see the Homescreeen. On the home screen, there will be three main buttons and two vital buttons. The three main buttons are the “BACA” button, “TENTANG” button, and “KREDIT” button whereas the two vital buttons exit button and the settings button. In the settings button, there is a toggle for users to choose whether they would like the music background playing in the

background while they are reading or toggle it off while reading.



Figure 7: BACA Page

In the “BACA” Page, it will show the three main buttons that represent chapters that are containing the Misi Angkasa interactive comic. Users can choose which chapter they would like to read first although the ideal sequence is started with “UJIAN SARINGAN”, “SESI PEMILIHAN” and lastly “EKSPEDISI ANGKASA”. On this page two vital buttons is home button and the settings button. In order to go back to the next page, user can click on the home button and to toggle on and off music background, user can click on the settings button.



Figure 8: Comic Page

Upon clicking on any of the chapters that users want to read, they will see the comic page. In this page there is two main buttons and two vital buttons. The two main buttons are the next button and previous button. User will use these two main buttons on to navigate through the comic. When reach the end of the chapter, if user click on the next button, they will be directly navigating to the “BACA” page for them to choose the next chapter. In this page there is also two vital button that is home button and settings button. In order to go back to the next page, user can click on the home button and to toggle on and off music background, user can click on the settings button.

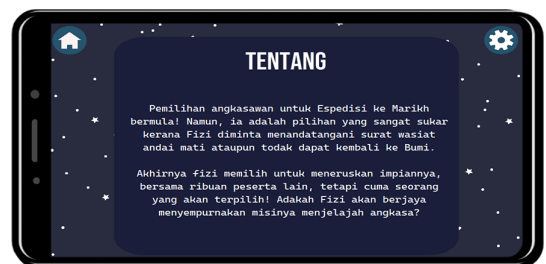


Figure 9: Tentang Page

The “TENTANG” Page, it will show a short synopsis of Misi Angkasa. On this page, there is two vital button which is home button and settings button. In order to go back to the main screen, user can click on the home button and to toggle on and off music background, user can click on the settings button.

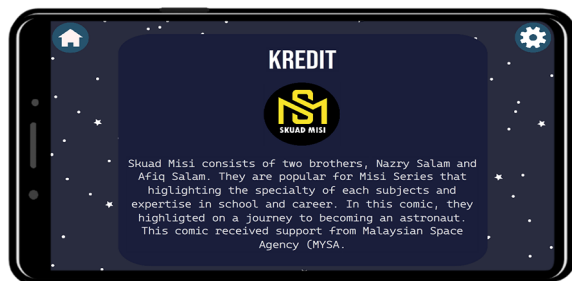


Figure 10: Kredit Page

In “KREDIT” Page, user can read the brief information of the Skuad Misi who is the authors of the Misi Angkasa. In this page also there is two vital buttons which is home button and settings button. In order to go back to the main screen, user can click on the home button and to toggle on and off music background, user can click on the settings button.

VII. RESULT

The researcher created a questionnaire as an evaluation tool to make sure the effectiveness of the prototype during the evaluation phase. A total of 30 questionnaires are distributed. The questionnaire is divided into four sections: Section A: Demographic questions, Section B: Evaluation of the Project's Content, Section C: Evaluation of the Interactive Comic, and Section D: The effectiveness of the Interactive Comic. Respondent comments in this evaluation are critical for researchers to develop the mobile application.

By reading our interactive comic, the users proved to have gained knowledge on outer space study and the journey of becoming an astronaut. Based on the survey, the interface for the interactive comic proved to be appropriate and attractive.

This interactive comic has also proved to be effective on educating others about outer space study.

VIII. CONCLUSION

In conclusion, the interactive comic developed and fulfilled the aim, and the researcher learned how to handle and manage challenges, even going so far as to fix it as soon as there are tiny flaws or little imperfections in finishing this Final Year Project. The study taught the researcher to think creatively because application and interactivity development focuses around creating and thinking critically in order to capture the attention of the target audience.

Several upgrades and modifications are done throughout the development phase. When it came to dealing with the program, the hurdles in creating the prototype and animation were quite significant. Adobe Photoshop, Adobe Illustrator, and Unity are all used by the researcher. It has been an adventure developing this project in order to create an appropriate medium for learning, and the feedback we have received from others makes the researcher feel appreciated. In addition, the researcher learns more about the adventure of becoming an astronaut.

REFERENCES

- [1] Logsdon, J. M. (n.d.). space exploration Facts | Britannica. The Information Architects of Encyclopaedia Britannica. Retrieved March 25, 2022, from <https://www.britannica.com/facts/space-exploration>
- [2] Majid, R. A., Abdullah, M., Bais, B., Hasbi, A. M., Bahri, N. S., Bahari, S. A., & Mokhtar, M. H. (2015). Malaysian's Students' Perception and Attitude towards Space Science: A Pilot Study. 2015 International Conference on Space Science and Communication (IconSpace), 297–301
- [3] Rajaendram, R. (2021, October 1). INTERACTIVE: STEM teachers on the decline | The Star. The Star.
- [4] K. Elissa, “Title of paper if known,” unpublished.
- [5] R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.
- [6] Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Electron spectroscopy studies on magneto-optical media and plastic substrate interface,” IEEE Transl. J. Magn. Japan, vol. 2, pp. 740-741, August 1987 [Digests 9th Annual Conf. Magnetism Japan, p. 301, 1982].
- [7] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.