Implementation of Animal Recognition Game at TK Putra I Bandung

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ARTICLE INFO	ABSTRACT
	The animal recognition game application is designed to support interactive learning at TK Putra 1 Bandung, Arcamanik District, Bandung City. This application aims to provide an engaging learning experience where young children can learn about various animals, their habitats, sounds, and distinctive features. Interactive elements such as animal images, sounds, and videos are presented in an enjoyable way, allowing children to learn in an engaging and active manner. Features such as quizzes, clickable buttons, and animations support children's engagement, enhance curiosity, and encourage active participation in the learning process. The application is also designed to make it easier for teachers and staff to deliver interactive content, ensuring that learning takes place in an enjoyable and effective manner. *Aplikasi game pengenalan binatang dirancang untuk mendukung pembelajaran interaktif di TK Putra 1 Bandung, Kecamatan Arcamanik, Kota Bandung. Aplikasi ini bertujuan memberikan pengalaman belajar yang menarik, di mana anak-anak usia dini dapat mengenal berbagai jenis hewan, habitat, suara, dan ciri khasnya. Elemen interaktif seperti gambar hewan, suara, dan video disajikan dengan cara yang menyenangkan, sehingga anak-anak dapat belajar dengan cara yang menyenangkan dan aktif. Fitur-fitur latihan soal, tombol klik, dan animasi mendukung keterlibatan anak-anak, meningkatkan rasa penasaran, dan mendorong mereka untuk aktif terlibat dalam proses pembelajaran. Aplikasi ini juga dirancang untuk memudahkan guru dan staf dalam menyajikan materi yang interaktif, sehingga pembelajaran dapat berlangsung secara menyenangkan dan efektif.*

A. INTRODUCTION

Technological advances, especially in the field of telecommunications, have encouraged the creation of various software applications that are beneficial to human life. (Dewi et al., 2024). Early childhood education is a coaching effort submitted to children from birth to six years of age which is carried out through providing educational stimuli to help physical and spiritual growth and development so that children have readiness to enter further education (Junaidi, 2024). Educational games are a type of game designed to stimulate thinking skills, improve concentration, and help children solve problems. One of the effective learning techniques for early childhood is using educational games, because at this age, children tend to have high curiosity about everything around them (Jusuf et al., 2024). The "Mengenal Hewan" game is designed as an interactive educational platform that introduces various types of animals, their habitats, sounds, and characteristics. With this game, it is expected that children can learn in a fun and interactive way, increasing their learning motivation and engagement.

In the learning process, children are not only introduced to the names and likenesses of animals but are also introduced to the sounds and unique characteristics of each animal. This feature aims to improve their ability to recognize patterns and associations, which is an important part of cognitive development. With its technology-driven approach, the game also encourages independent exploration, allowing children to learn new information at their own pace and interest.

This game was developed using Adobe Animate to produce smooth animations and attractive graphics, to keep children's attention while creating a fun learning experience.

This platform is expected to be one of the solutions to introduce the concept of technology-based learning from an early age. In addition to introducing children to the animal world, this game also helps familiarize them with the use of technology in educational activities. The use of interactive technology is in line with the development of the digital era, where the ability to adapt to technology from an early age is an important skill to support children's development and readiness in the future.

B. LITERATURE REVIEW

In research conducted by (Indrawaty et al., 2018) identified the need to design and build interactive multimedia-based DSLR camera learning applications as a solution for beginners who want to understand the features and use of DSLR cameras. The proposed solution is the development of a multimedia-based application with scenarios modeled using Petri nets, where features such as ISO, aperture, and shutter speed settings are integrated into a visual format that supports practical and intuitive learning. The results show that the application was successfully implemented and tested well, including the virtual camera feature functioning as designed. In addition, testing ISO settings from 100 to 6400 showed its effect on photo quality, with low ISO producing darker images and high ISO producing brighter images. A Petri Net-based scenario model was also effectively implemented, making it easier for users to understand how the camera features work through visual simulation.

In the research conducted by (Gaol & Nurhasanah, 2023), it was identified that the main problem faced is the conventional learning method that is still dominant in elementary schools, where the teacher's role is more active and students tend to be passive in the learning process. To overcome this problem, the proposed solution is the development of an interactive learning application using the CMIFed scenario model, designed to introduce students to the planets in the solar system in a more interesting and interactive manner. The results of the

application showed that the application successfully increased students' engagement in science learning, provided a more enjoyable learning experience, and facilitated the understanding of material about the solar system for grade 6 students. This research confirms the importance of using interactive multimedia in education to create a more dynamic and effective learning atmosphere.

C. METHODS

In the methods section, we will explain the steps used in the development of this system, from requirements analysis to design implementation. The selection of the right method is key to ensuring the system can meet user expectations and run according to plan. The approach methods that will be carried out include:

1. User Needs and Analysis
   Conduct further research on the specific needs of TK Putra I Bandung regarding interactive learning media, as well as the preferences and learning habits of early childhood children there. In addition, an analysis of similar applications that already exist in the market was conducted to determine features that are effective, educational, and attractive to children.
2. Tools and Technology
   The development of this game application utilizes the main tool, Adobe Animate, which is a tool for creating animations and interactive interfaces. This game application has been designed to be compatible on various devices such as tablets and computers with the aim of facilitating access for users.
3. Interface and Interaction Design Process
   The interface and interaction design began with creating an initial design in Canva, chosen for its variety of templates and design elements. The focus was on developing an intuitive and attractive visual concept. Afterward, the design was used as a reference for coding in Adobe Animate, where interactive elements like dynamic animations and responsive navigation were added. Image assets from Canva were imported into Adobe Animate to maintain consistency between design and implementation, allowing for a more efficient design process.
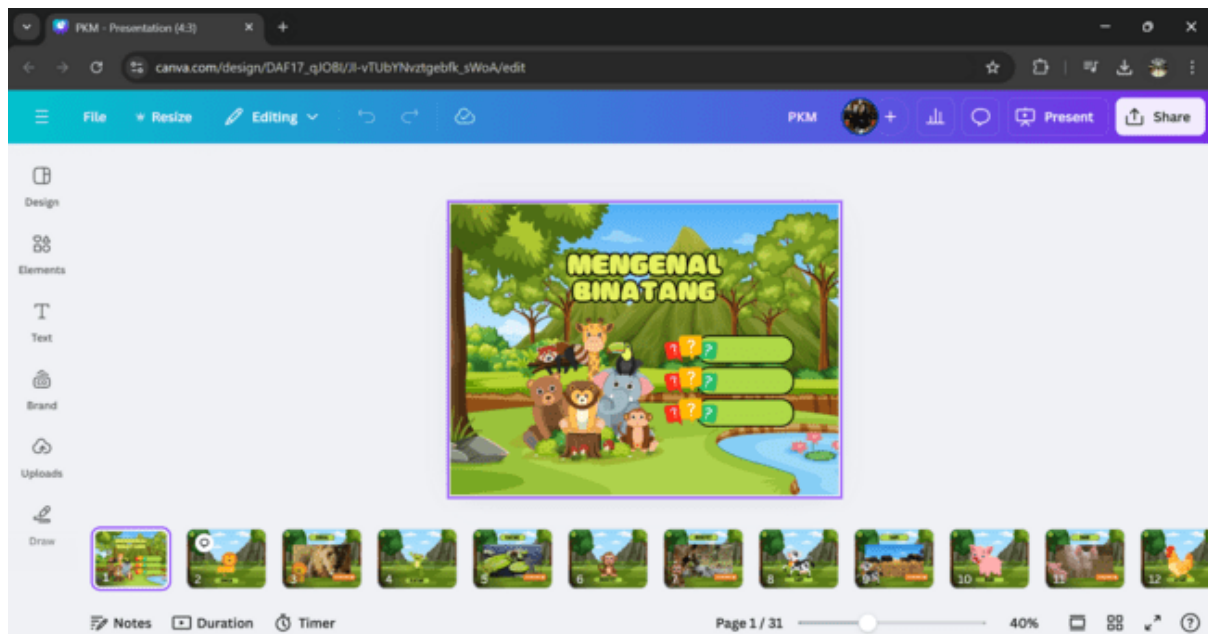
Figure 1. Interface Design in Canva

Figure 1 is the result of the initial design of the animal recognition game application. From the design results, it will then be implemented into the Adobe Animate tool, to turn it into an interactive interface, ensuring a smooth design integration process in the development of game applications.
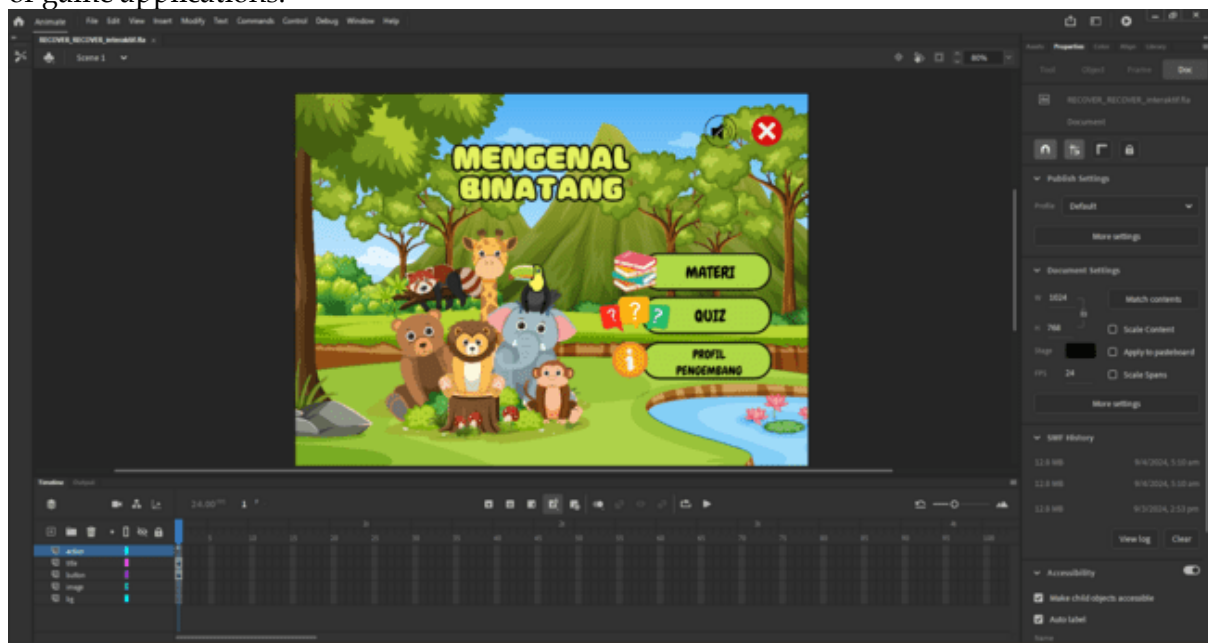
Figure 2. Game Development in Adobe Animate

Figure 2 shows the process of implementing the initial design from Canva to Adobe Animate. This process includes coding button functionality, adding sound effects, integrating video material, and creating interactive quizzes. In addition, this process involves refining the interface layout, adjusting animations, and optimizing to ensure the app runs well on various devices such as tablets and computers.

D. RESULTS AND DISCUSSION

This chapter describes the results of the application that has been developed, specifically for children of kindergarten age. Here, it will discuss how the app is designed to assist learning and play while learning, according to the needs of children.

1. Application Development Results
   The following are the results of the development of educational games for animal recognition made using Adobe Animate.

Figure 3. Application Menu Page

On the menu page, there are 3 application menus, including: material, quiz, and developer profile. Users can select the menu by pressing the available buttons.

Figure 4. Material Menu

In the material menu, there are cartoon images of various types of animals and videos that have been voiced over to introduce animal characteristics to users.

Figure 5. Quiz Menu

In the quiz menu, users are presented with questions about animals to increase the user's understanding of animals.

2. Community Service Activities

The community service activity was held on Thursday, December 5, 2024, at TK Putra I Bandung. This event went smoothly, where the children seemed enthusiastic about trying the features in the application we developed and felt happy when we demonstrated the application. In addition to the children, the teachers at TK Putra I Bandung also gave positive feedback on the app. This activity was closed with a group photo session and distribution of small gifts to the children as a form of appreciation for their participation. Through this activity, we as a team gained valuable experience in developing technology-based applications and seeing the direct impact that can be given to the community, especially in the world of early childhood education.

Figure 6: Children Look Enthusiastically at the Game Application

In Figure 6, the children look very excited and enthusiastic using the animal recognition game application. They can understand the information conveyed through

the application well. Some of them even came forward and tried to use the app independently.

Figure 7: Children Paying Attention to the Game Application Demo

In Figure 7, the children are attentively listening and paying attention to the explanation of the app demo, which shows that they have high curiosity and curiosity. They seem enthusiastic in understanding how the app works and want to find out more about the features presented.

Figure 8. Photo Session with the Principal of TK PUTRA 1

In Figure 8, before saying goodbye, we took a group photo with the principal of TK Putra 1 and handed over souvenirs as a token of gratitude for the support and welcome.

E. CONCLUSION

The Animal Recognition Game App had a real positive impact on the children, as seen from their enthusiasm and excitement when interacting with the app. The children were curious and excited as they played, indicating that the app not only captured their attention, but also provided a fun and rewarding learning experience. With its interactive design and engaging educational content, the app serves as an effective learning tool as well as a means of entertainment that supports children's development. In addition, the interactivity in the app encourages children's active participation, helps improve their understanding of different types of animals, and enriches knowledge through fun, hands-on experiences.

F. ACKNOWLEDGEMENTS

G. AUTHOR CONTRIBUTIONS

In this section, we list the contributions of each team member, covering the various stages of the implementation of the activities and the preparation of the article. This description aims to recognize the role that each member has played, as well as to show solid collaboration in achieving a common goal. System analysis: Yusup Miftahuddin (YM), SOP creation and system design: Lisa Kristiana (LK), UI and UX system design: Hanna Nathania Anindya (HNA), Creating storyboards and video editing: Fadhilah Nurrahmayanti (FN), Setiyawati (S), Assisting the overall system testing process quality control system and UI & UX testing: Muhammad Arkan Adli (MAA), Assisting the frontend programming process: Ariq Bagus Sugiharto (ABS).

H. REFERENCES

Dewi, I. A., Miftahuddin, Y., Triseptiyadi, F., Vito, N., Naufal, M. T., & Fahreza, A. (2024). Development Of Attendance Information System For Teacher Attendance At Pertiwi Elementary School Bandung. *REKA ELKOMIKA: Jurnal Pengabdian Kepada Masyarakat*, *5*(2), 135–144. Https://Doi.Org/10.26760/Rekaelkomika.V5i2.135-144

Gaol, H. N. L., & Nurhasanah, Y. I. (2023). *IMPLEMENTASI MODEL SKENARIO CMIFED MULTIMEDIA INTERAKTIF PADA PEMBELAJARAN PENGENALAN PLANET-PLANET*.

Indrawaty, Y., Rosmala, D., & Makatita, V. (2018). *APLIKASI PEMBELAJARAN KAMERA DSLR MENGGUNAKAN MULTIMEDIA INTERAKTIF*. Http://Visilubai.Petri-Net/

Junaidi, J. (2024). *Aplikasi Game Maze Untuk Meningkatkan Semangat Anak Usia Dini Menggunakan Metode Game Development Life Cycle (GDLC)* (Vol. 4, Issue 2). Https://Doi.Org/Http://Dx.Doi.Org/10.58794/Santi.V4i2.764

Jusuf, A., Aspriyono, H., & Beti, I. (2024). PEMBUATAN GAME EDUKASI SEBAGAI MEDIA PEMBELAJARAN PADA TK SANDHY PUTRA TELKOM BENGKULU. In *Journal Of Science And Social Research* (Issue 1). Http://Jurnal.Goretanpena.Com/Index.Php/JSSR