

## **DESIGNING GAMES APPLICATIONS FOR EARLY CHILDHOOD UNDERSTANDS THE SELECTION OF COLOURS AND IMAGES IN N INTERACTIVE TEACHING AND LEARNING PROCESS USING TECHNOLOGY**

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### **Abstract**

Early childhood education is an important stage in the formation of child development. In this context, the use of technology, especially through game applications, offers great potential to increase children's interaction and learning in a fun and interactive way. This training aims to develop game applications specifically designed for early childhood education, with a focus on basic conceptual learning such as numbers, letters, colors, images and shapes. Through collaboration between app developers, educators, and parents, it not only aims to improve children's academic skills, but also promotes positive interactions between children and technology, while ensuring proper supervision and mentoring from adults. It is hoped the development of this application will provide valuable additional knowledge in efforts to improve quality of early childhood education through innovative and fun learning approaches in understanding selection of colors and images.

**Keywords:** Games, Technology, Early childhood, Learning

### **INTRODUCTION**

Early childhood education plays a crucial role in forming the foundation for a child's development towards a successful future. In this digital era, technology has become an inseparable part of everyday life, including in the world of education. The use of technology, especially through game applications, offers great potential to improve the quality of early childhood learning with a more interactive, fun and effective approach. Researchers obtained references to several other research results, such as: [1] The development of interactive games to develop children's reading skills. [2] The application utilizes multimedia technology with the CAI concept for early childhood. [3] Media application that provides basic introductions in English to assist in the learning process. [4] Educational games can be an effective interactive learning medium for children. [5] Helps children develop and improve their thinking patterns. In this context, developing game applications specifically designed for early childhood education is an attractive solution.

By combining engaging games and basic learning such as numbers, letters, colors and shapes, this app has the potential to be an effective and entertaining learning tool for children. However, developing game applications for early childhood education is not without challenges. It is important to note that the use of technology in early childhood education requires a careful and planned approach in order to provide maximum benefits. Therefore, a collaborative approach between application developers, educators, parents and education experts is key in ensuring that the applications developed are not only academically effective but also support the holistic development of the child as a whole.

### **RESEARCH METHODOLOGY**

1. **Analysis:** The initial stages of research will involve an in-depth analysis of early childhood education needs and the challenges faced in the learning process. This will involve surveys and interviews with teachers, parents, and child education experts to understand specific needs, preferences, and expectations related to gaming applications for early childhood education.
2. **Prototype Development:** Based on the results of the needs analysis, the development team will design an initial prototype of the games application. This process will involve designing the user interface (UI), developing educational features, and integrating engaging game elements. This prototype will become the basis for subsequent iterations based on feedback from related parties.
3. **Testing :** This testing will involve children's active participation in playing with the app, while teachers and parents will provide feedback regarding the app's usability, engagement, and effectiveness in supporting children's learning.
4. **Evaluation and Revision:** Based on the test results, a comprehensive evaluation of the application will be carried out in terms of learning effectiveness, suitability to the needs of young children, and overall quality of user experience. The development team will use feedback to make revisions and improvements to the application before it is launched and used.
5. **Training and Dissemination:** After the game application for early childhood education has been developed and tested, training will be carried out regarding the use of the application through workshops, seminars and online and offline promotions.

## RESULT AND DISCUSSION

### Game Application Display



Figure 1 View of the initial opening of the Games

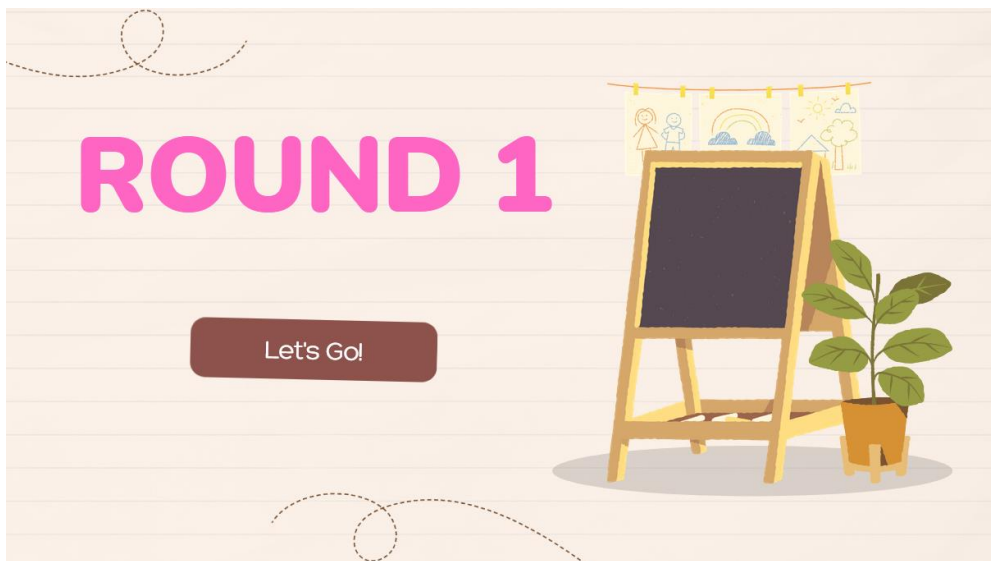


Figure 2. First round

In picture 2 you can see the instructions for the first round, then clicking let'go will continue to the initial game

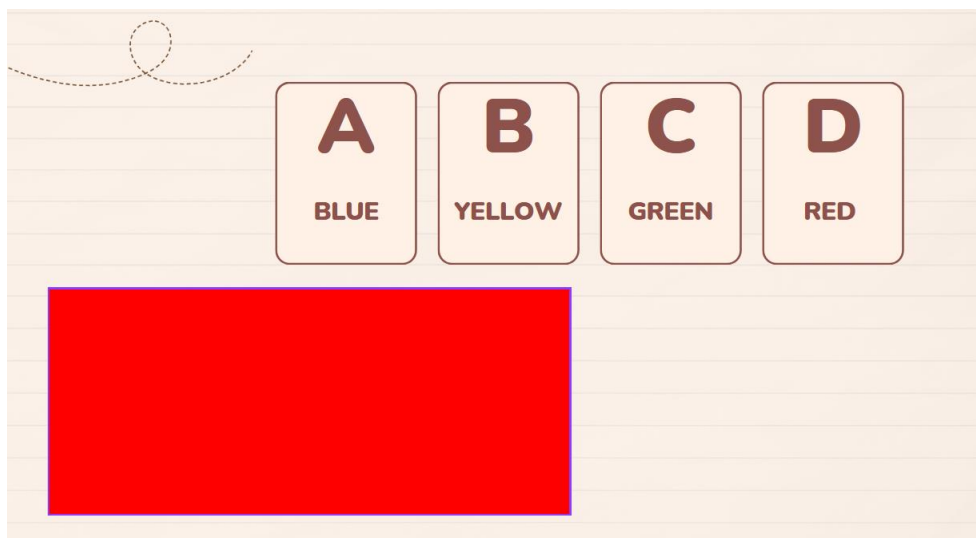


Figure 3 The color selection game begins

In image 3 you can see an image to select the color in the image below, then select the column that corresponds to the answer. For example, in red, select the answer in the choice box column A, B, C, select D (Red). If the answer is correct, you will automatically proceed to the next colours selection stage.

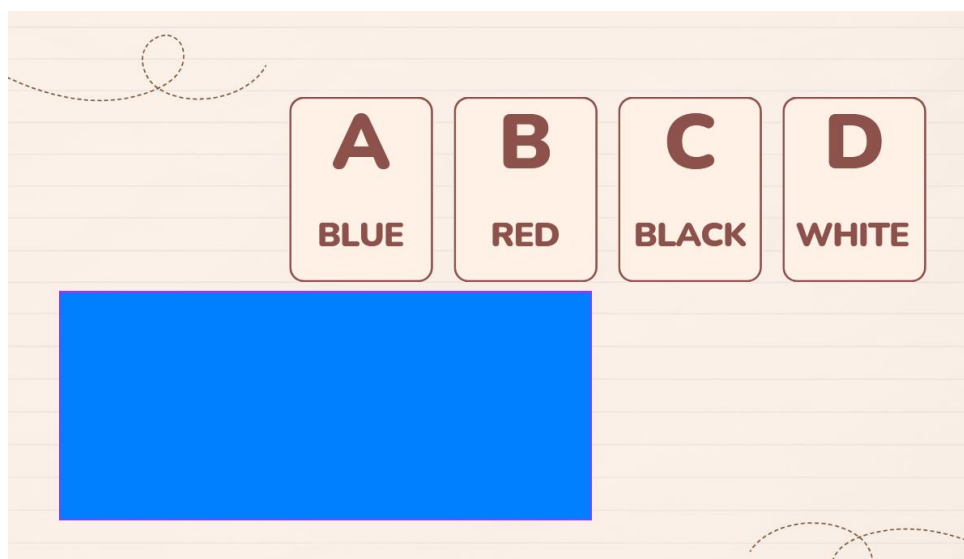


Figure 4 Advanced color selection game

In image 4 you can see an image to select the color in the image below, then select the column that corresponds to the answer. For example, choose the answer in blue in the selection box column A (Blue), B, C, D. If the answer is correct, it will automatically proceed to the next color selection stage.

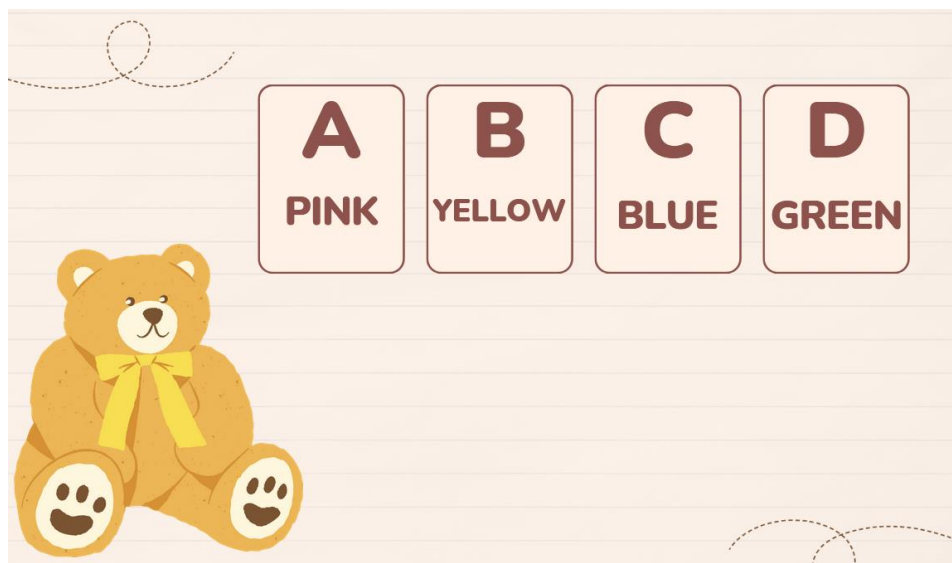


Figure 5 Game for choosing doll colors

In picture 5 you can see a picture of a doll to look at and choose what color the doll is, then select the column that corresponds to the answer. For example, if the doll's color is yellow, please select the answer in the choice box column A, B (Yellow), C, D. If the answer is correct, it will automatically proceed to the next color selection stage.

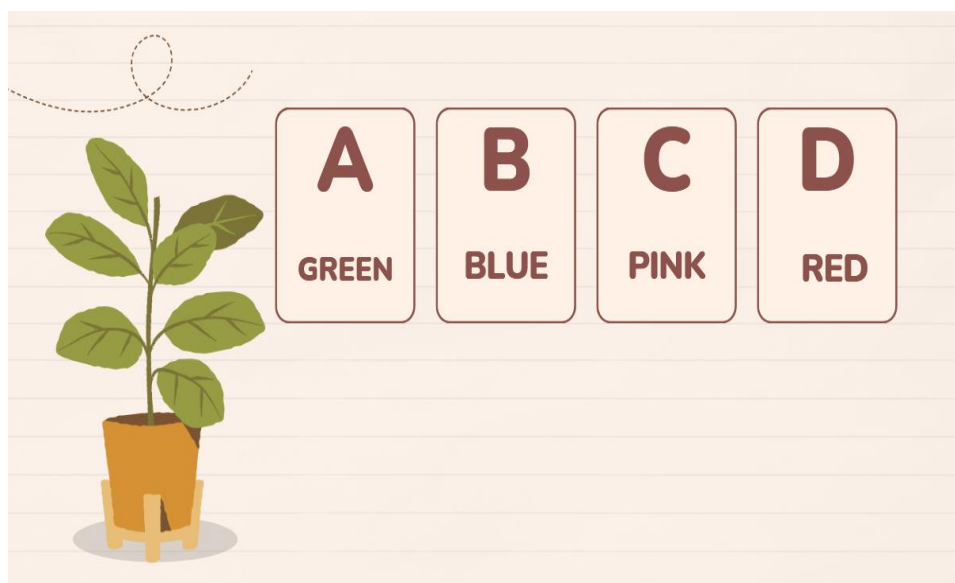


Figure 6 Leaf color selection game

In picture 6 you can see a picture of a leaf to look at and choose what color the leaf is, then select the column that corresponds to the answer. For example, the color of the leaves is green, please select the answer in the selection box column A (Green), B, C, D. If the answer is correct, it will automatically proceed to the next color selection stage.

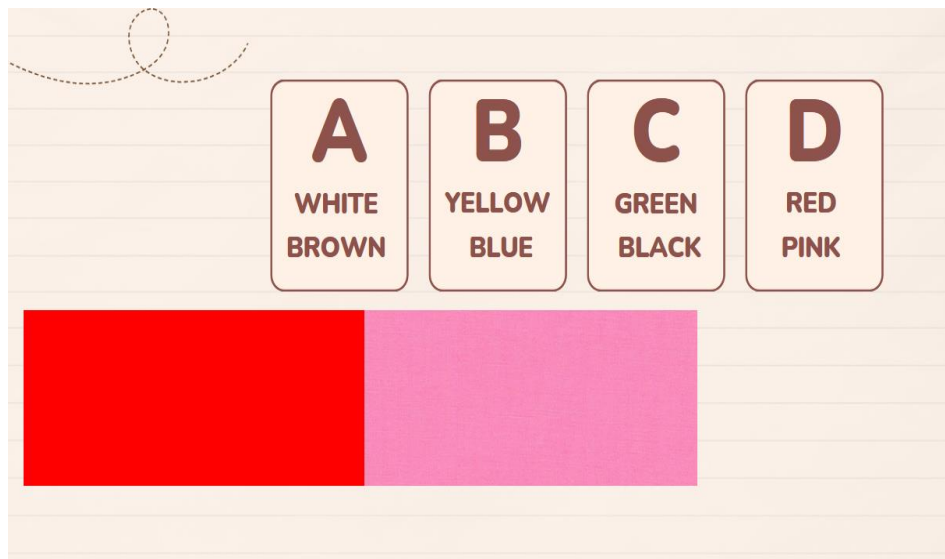


Figure 7 Mixed color selection game

In Figure 7 you can see a picture of mixed colors to look at and choose what color it is, then select the column that corresponds to the answer. For example, if the mixed colors are red and pink, please select the answer in the option box column A, B, C, D (Red Pink). If the answer is correct, it will automatically proceed to the next color selection stage.

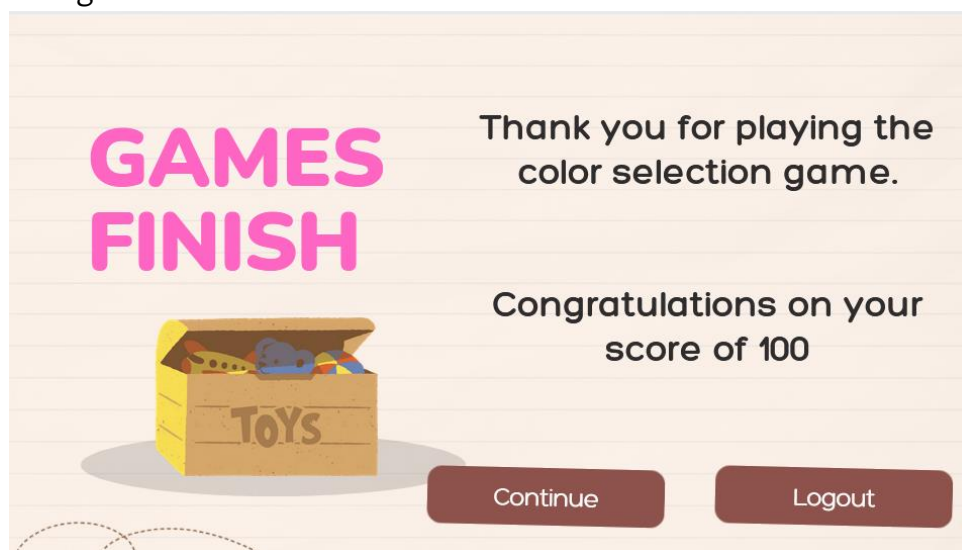


Figure 8 The game is Finish

In figure 8 you can see the score from the game results, for example, all correct answers will be given a score of 100. Continue the game or exit the game application.

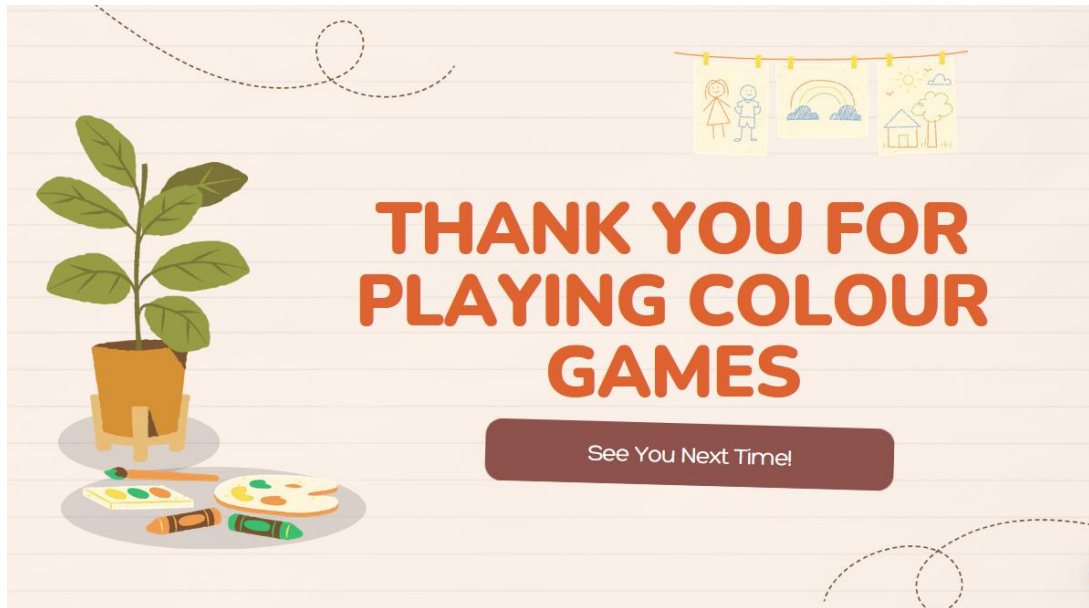


Figure 9 Logout games

In Figure 9, if we click logout games, a thank you screen will appear for playing the colours and image guessing game.

### Results and Discussion

The results of this training show that the development of game applications for early childhood education has great potential in increasing children's involvement and interest in learning. Through specially designed applications using an interactive and fun learning approach, children show a higher level of participation in the learning process. Apart from that, this application helps children understand basic concepts such as colours and shapes in a more fun and effective way.

Discussion of the results of this study highlights several important aspects. First, the importance of application design that is appropriate to the cognitive and emotional development of young children. The interactive design and attractive visuals help increase children's interest in learning. Second, collaboration with related parties such as teachers and parents very important in identifying children's needs and optimizing the effectiveness of the application. Overall, the development of game applications for early childhood education in this research makes a positive contribution in enriching innovative learning approaches and supporting children's holistic development. The next step is to increase efforts to spread and adopt this application in various educational environments and children's communities.

### CONCLUSION

The development of game applications for early childhood education shows great potential as an innovative and effective learning tool in improving the quality of children's education. Through an interactive and fun learning approach, this application is able to increase children's involvement and interest in learning and help them understand the basic concepts of colours and images more effectively and interesting.

The success of developing this application cannot be separated from close collaboration with various related parties, including teachers, parents and children's education experts. Through comprehensive needs analysis and integration of feedback from relevant parties, applications can be designed according to children's needs and preferences and support their holistic development.

Thus, this training makes a positive contribution in helping early childhood learning methods through the use of technology to recognize types of colors and images. It is hoped that ongoing efforts in development, deployment and user training will continue to strengthen the application's role in supporting quality education for future generations.

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