

Game Based Learning Using Construct for Basic English Vocabulary at Elementary School Students

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Article Information	ABSTRACT
Article History Received : March 17, 2025 Revised : March 31, 2025 Published : April 12, 2025	English basic vocabulary learning plays a very important role for elementary school students, as it serves as the main foundation in mastering language skills, including reading, writing, listening, and speaking. Thus, this research is focused on development. Basic English Vocabulary Education Based on Construct, which is an interactive learning method utilizing digital technology of educational games to increase the effectiveness for learning. Construct, as a platform for developing educational games for students can understand basic English vocabulary in a more enjoyable and non-monotonous way. This study applies the Multimedia Development Life Cycle (MDLC) method with a constructivist approach, which allows students not only to receive information passively but also to actively build their understanding through exploration, experimentation, and direct interaction with various elements in educational games. Based on the feasibility assessment results, the satisfaction level of respondents obtained from the questionnaire reached 93% out of a total of 10 respondents. The construct based educational game is an effective tool for improving students' grasp of basic English vocabulary through educational game-based learning.
Keywords: <i>Basic Vocabulary; English; Construct 2; Elementary School Students.</i>	

INTRODUCTION

In recent years, advancement of technology has significantly impacted to educational landscape, particularly in elementary schools (Abedi, 2023). This technological evolution has transformed not only the content delivered to students but also the pedagogical approaches employed by educators. At this level of education, students are more interested in games because they are simple to play and supported by bright colours and interesting animations. Along with the era, technology continues to develop and has a greater influence on various aspects of our lives, including in the field of education, where methods are becoming more innovative and access toward knowledge and it is also easier to learn.(Natakusuma & Informatika, 2022)

Children's life is closely related to game activities. However, nowadays there is a change where they use smartphones more often as a means of entertainment. Children tend to be more interested in watching videos and playing games, which has triggered various studies related to the impact of gadget addiction. Nevertheless, this habit can be utilized positively, one of which is by developing Android-based educational games.(Alwatzikhoebillah et al., 2025; Rokhman & Ahmadi, 2020). Language is used as a communication tool and (Budiyono et al., 2021). Currently, one of the language used as an international language is English (Kurniawan, 2019). Vocabulary

mastery plays a essential part in the language learning, because a broad and good vocabulary will help a person understand, use and master a language more effectively.(Chowdhury et al., 2024; Kinasih, W. S., & Wijayanti, 2024).

Technological development in the field of education is growing rapidly, one of which is through the use of Construct, a software that supports the creation of educational games with attractive visuals and intensive interaction. By utilizing Construct,(Kustari, 2021; Yuditihwa et al., 2023) Technology is the result of scientific progress. Therefore, it is proper that the world of education also utilizes technology to support the learning process.(Setya Dewi & Ganing, 2022) Previous research was only limited to displaying images and quizzes. To provide a clearer understanding of the development of this Android-based basic English vocabulary educational game, this research sets the limitation that the application is made using the Construct 2 development base (Agung et al., 2024; Damayanti et al., 2020). One of the advantages of Construct 2 lies in its built-in features that facilitate and accelerate the game development process. With this feature, it is expected that the resulting game can present an interesting and effective learning experience for young children (Afif Arif Wijaya et al., 2019; Kristanto et al., 2024)

This research aims to design an educational game that not only functions as entertainment, but also provides educational value and supports the improvement of early childhood understanding. In addition, this research is expected to be useful for educational institutions as a medium to enhance the educational experience for students. In early childhood education, one of the instructional components involves the presentation is English vocabulary, designed with engaging and visually appealing elements to enhance learning. With the Android device provided by parents, it is expected that children can understand and enjoy the content of the developed application (Novianto & Siahaan, 2021).

METHODS

The method applied in this study is (MDLC) method, which has systematic approach used in the development of multimedia software, including educational games. This method is designed to ensure that each stage of development is carried out in a structured and efficient manner, resulting in a quality, interactive product that meets user needs. MDLC involves six major stages: idea design, design, material collecting, manufacturing process, testing stage, and distribution. (Rosyida et al., 2024).

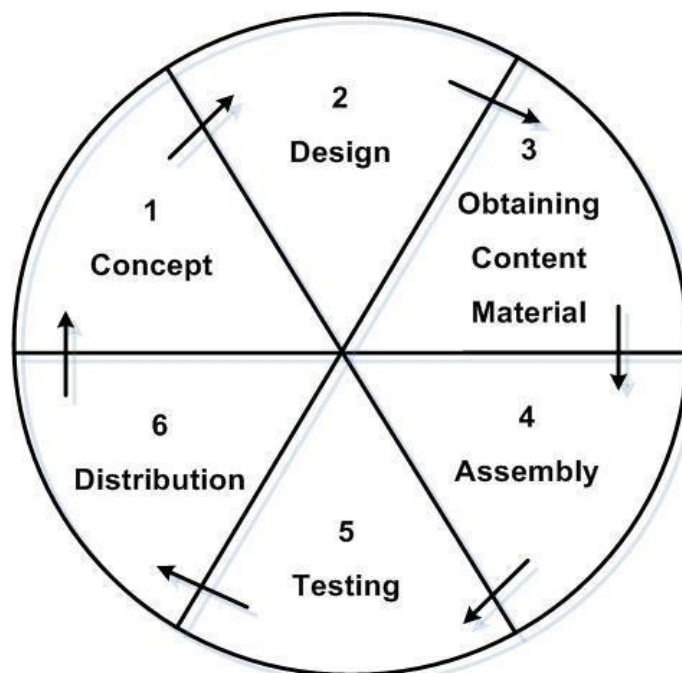


Figure 1. MDLC Method

1. Conceptualization

This stage includes identifying needs, determining the type of application, and designing rules, such as size and target. In addition, the steps of the educational game are designed, including mechanics, difficulty levels, and learning interactions.

2. Design

In this stage, the visual design of the display, interface, storyboard, navigation structure, as well as the design of the educational game steps are made. Multimedia design requires a navigation structure mapping that describes the relationship between several contents.

3. Material Collection

At this step, the necessary materials, such as photos, audio, and video, are gathered. The required materials can be obtained for free from any source or made specifically for this use.

4. The development

The development phase involves the production of all multimedia elements, guided by the storyboard and navigation framework established during the design phase.. In this stage, it is made in such a way as designed using predetermined tools. In addition, at this stage the development and implementation of various elements in educational games are also carried out, including level design, game mechanics, and integration of learning content to suit the expected educational objectives.

5. Testing

The testing step occurs following the end of the production stage. First of all, testing is carried out in the developer's own environment whether it is as desired, then testing is carried out for users.

6. Distribution.

Following the testing phase, which might require multiple iterations to ensure functionality and performance, the next step involves storing the application. In *User Requirement there is a Final Draft Elicitation* (Purnomo, 2020) This result is the final output of the elicitation process, which includes stages that can be used as a guide and basis for development. Based on the third stage of elicitation, a final draft of requirements is obtained which is expected to help developers in designing the system more effectively.

Tabel 1. Elicitation

Functional	
Needs Analysis	
No	Description
1	Display the Main Menu
2	Display the Game Menu
3	Display the Lesson Menu
4	Display the Area of Game
Non Functional	
Expected System	
1	Easy to use by users
2	Has an attractive appearance
3	Runs on Android smartphones

RESULTS AND DISCUSSION

This research has successfully developed an Android-based interactive educational game application specifically designed to assist in the process of learning basic English vocabulary. The development of this application uses Construct2 software, which allows the creation of games with an attractive and easy-to-use interface. This educational game not only aims to introduce letters to users, but also provides various interactive features that support learning, such as attractive image displays, sound effects that support vocabulary understanding, and various forms of entertaining games. In addition, this application also includes a letter guessing quiz designed to test and improve the user's understanding of the material that has been learned, so that learning becomes more effective and fun (Damayanti et al., 2020).

To provide a clearer understanding of the concepts and mechanisms of the educational game for basic vocabulary in English, a visual representation in the form of a Use Case Diagram was used. This diagram aims to describe the user and systems. An illustration of the Use Case Diagram (Darma & Lestari, 2020)

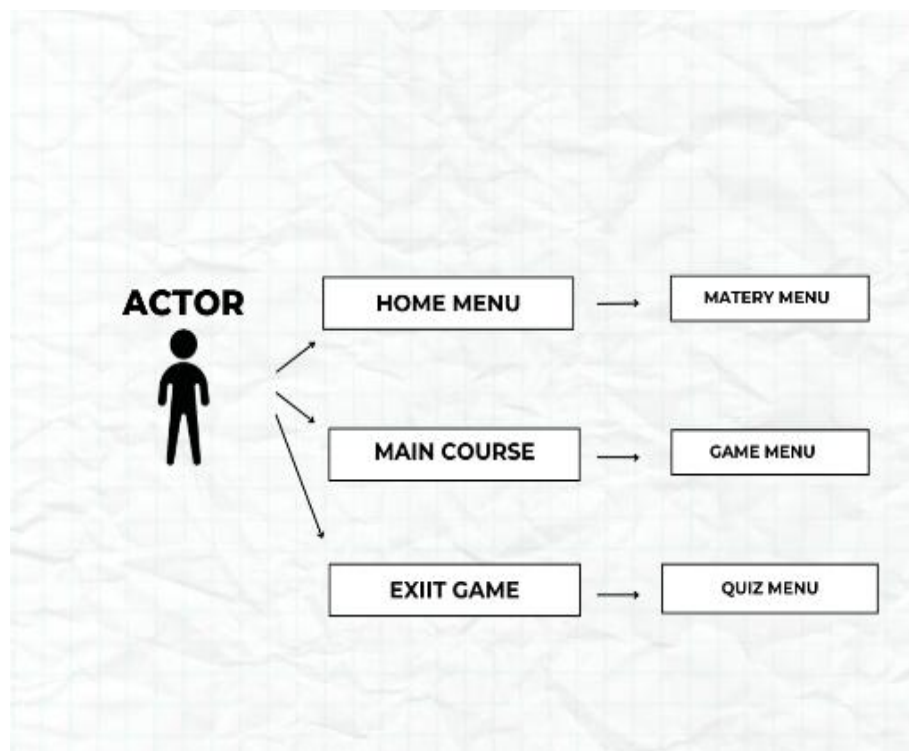


Figure 2. *Use Case Diagram*

The figure above presents a scenario in a Use Case diagram that in detail describes the sequence of events or the flow of interactions that occur between actors and the main use cases in the system. This diagram shows how the actor interacts with the various features available, starting from the initial step to the final process in a flow of use. Each stage in this interaction is represented systematically to provide a clear understanding of how the system responds to actions taken by actors, so that the application workflow can be understood more easily and structured.

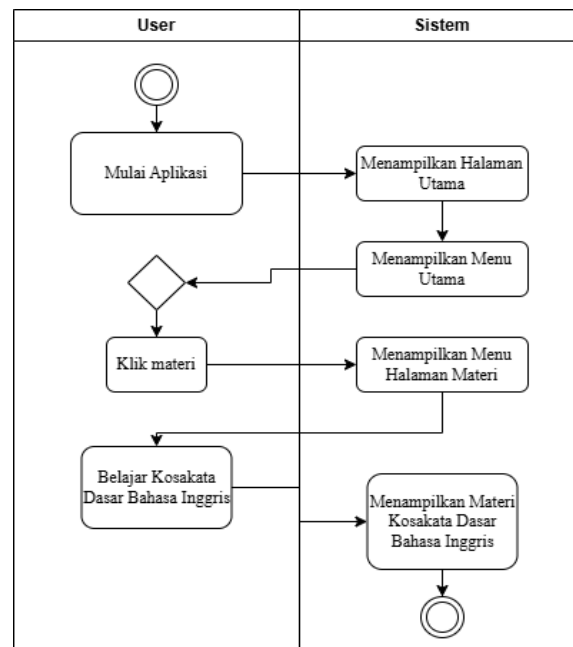


Figure 3. Activity of Diagram

An Activity Diagram is a visual representation used to explain the process flow or series of activities in a system in a structured and systematic manner. After the initial display appears, the user will then select one of the available options, namely “Start Application,” as the first step to access the features that have been provided in the system. After the user makes the selection, the system will automatically respond by displaying the page corresponding to the option that has been selected. The displayed page depends on the design and function of the developed application, which can be a learning page, game, quiz, or other features that support the main purpose of the application.

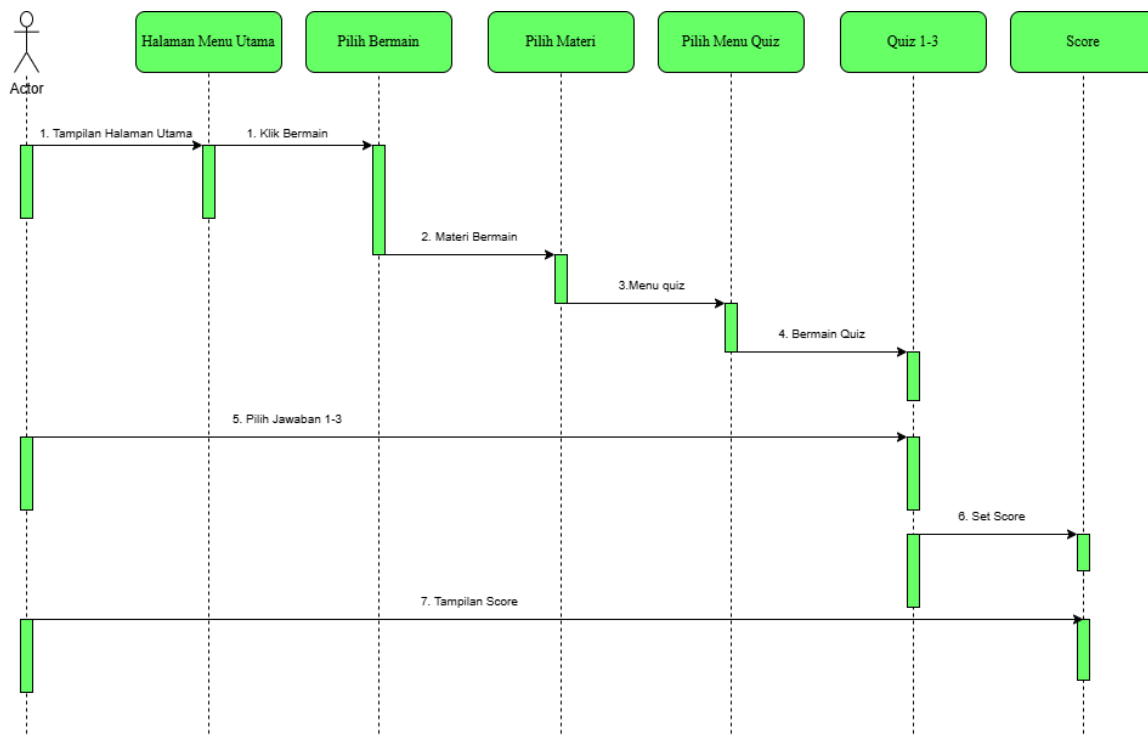


Figure 3. Sequence Diagram

Based on the figure above, the Sequence Diagram illustrates the flow when users first open the application, where they will be automatically directed first to the Main Page as the initial display of the application. On this page, there are two main options that the user has to choose from, namely the Start menu, which allows the user to start using the application, and the Instructions menu, which contains guidelines or instructions on how to use the application correctly. If the user chooses to click on the Play menu, then they will be redirected to the next page which provides three main options, namely the Material menu, which contains various learning information, the Quiz menu, which allows users to test their understanding through interactive questions, and the Game menu, which offers a more fun learning experience through educational games.

A storyboard is a collection of sketches organized sequentially and used as a planning tool to visually depict how a story or action develops from beginning to end (Saputri & Putra, 2023). The storyboard shown in Figure 4 serves as a visual representation of the previously designed storyline sketches, so as to provide a clearer understanding of the sequence of events in a narrative. This element is very crucial in the product design process, especially in the concept development stage, because it can help in visualizing how each scene or action occurs in a systematic and structured manner, make things easy for the development team to comprehend the workflow before the implementation process is carried out. The application's final design stage resulted in the construction of an interactive learning media specifically designed to assist elementary school students in learning basic English vocabulary. The design of this application is organized by considering various aspects of learning as follows:



Figure 5. Start Menu and Course



Figure 6. Letter Materials and Number Materials



Figure 7. The Display of Quiz

Furthermore, it has made the Android version of the application, so below is the result of the game application with the following display:

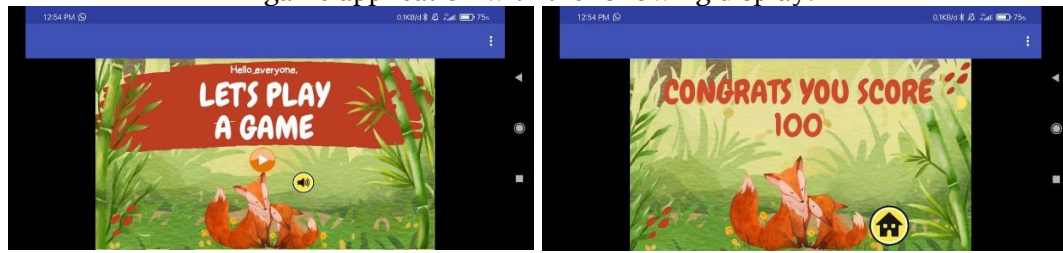


Figure 8. Start Menu and Scores

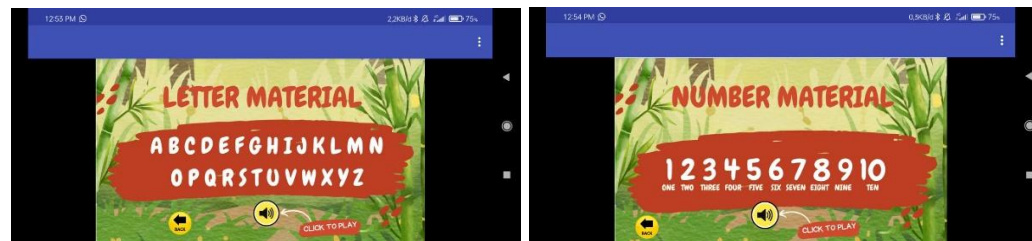


Figure 9. Letter Materials and Number Materials

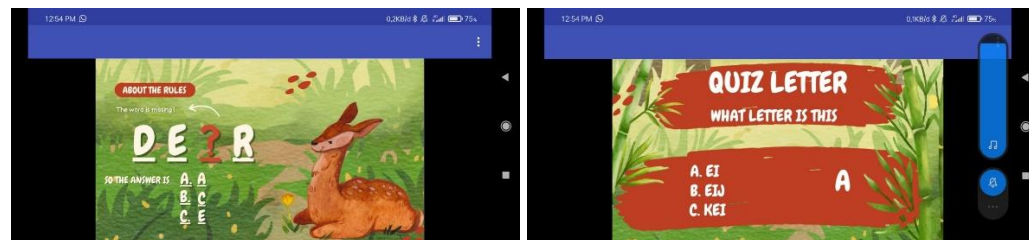


Figure 10. The Display of Quiz

The results of the User Acceptance Test (UAT) are utilized as a means to gain insight and a deeper understanding of the respondents' or users' perspectives on the system that has been developed. In this process, a questionnaire is used for obtaining the data. The following are the results of questionnaire data that has been collected from 10 respondents, consisting of grade 1 students at SD DOYONG 2, through a series of UAT testing stages that have been carried out (Saputri & Putra, 2023). The analysis focused on the first question of this study. The total values obtained were as follows: 47, 45, 48, 44, and 50. The calculated averages were 4.7, 4.5, 4.8, 4.4, and 5, respectively. The percentage values were 94%, 90%, 96%, 88%, and 100%. The User Acceptance Test (UAT) results show a strong level of user satisfaction with the developed system. Based on responses from 10 first-grade students at SD DOYONG 2, the average scores varied between 4.4 and 5, with percentage values ranging from 88% to 100%. These results indicate that the system is well-accepted and aligns with user expectations, proving its functionality and ease of use.

CONCLUSION

A game-based learning using construct was implemented in the process of learning basic language vocabulary. This tool is aimed at primary school students in an effort to create a more effective and meaningful learning experience. This approach is designed with the main objective of actively building and developing students' understanding through a series of learning activities that are more interactive, creative, and constructive, allowing them to be directly involved in the

learning process. By using this approach, students are not only given a list of vocabulary to memorize, but are also invited to understand the meaning and use of these words in various contexts of daily life. This is expected to help them enrich their vocabulary, improve their memory, and be able to apply the learned vocabulary in appropriate situations.

The effectiveness of this game-based learning method was supported by the results of the User Acceptance Test (UAT), which aimed to gain insight into users' perspectives regarding the developed system. The test involved 10 first-grade students at SD DOYONG 2 and used a questionnaire to collect data. The average scores ranged from 4.4 to 5, with percentage values between 88% and 100%, indicating a high level of user satisfaction (Saputri & Putra, 2023). These findings demonstrate that the system is well-received, functional, and easy to use. Ultimately, the application of the construct-based approach in learning English vocabulary can have a positive impact on improving students' English language skills from an early age, so that they can better meet the demands of advanced language learning.

In the process of developing an appearance for learning media, it is very important to consider the selection of the right color and layout that is attractive and in accordance with the level of cognitive and psychological development of children. With an attractive and child-friendly design, It is intended to improve students' interest and engagement in using the application as a means of learning Basic English Vocabulary in a more interactive and fun way. In addition, in order to develop a more comprehensive and in-depth Basic Vocabulary learning media, it is recommended to add more variations of educational games that can help students understand the lessons more fascinating and less boring. Furthermore, it is necessary to improve teachers' competence in utilizing various available learning technologies in order to optimize the teaching process and significantly increase students' learning motivation. Thus, the various steps applied in the development of this learning media will contribute to creating a more effective, enjoyable learning experience, as well as providing a broader and deeper understanding for students of the Basic English Vocabulary material taught at school.

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