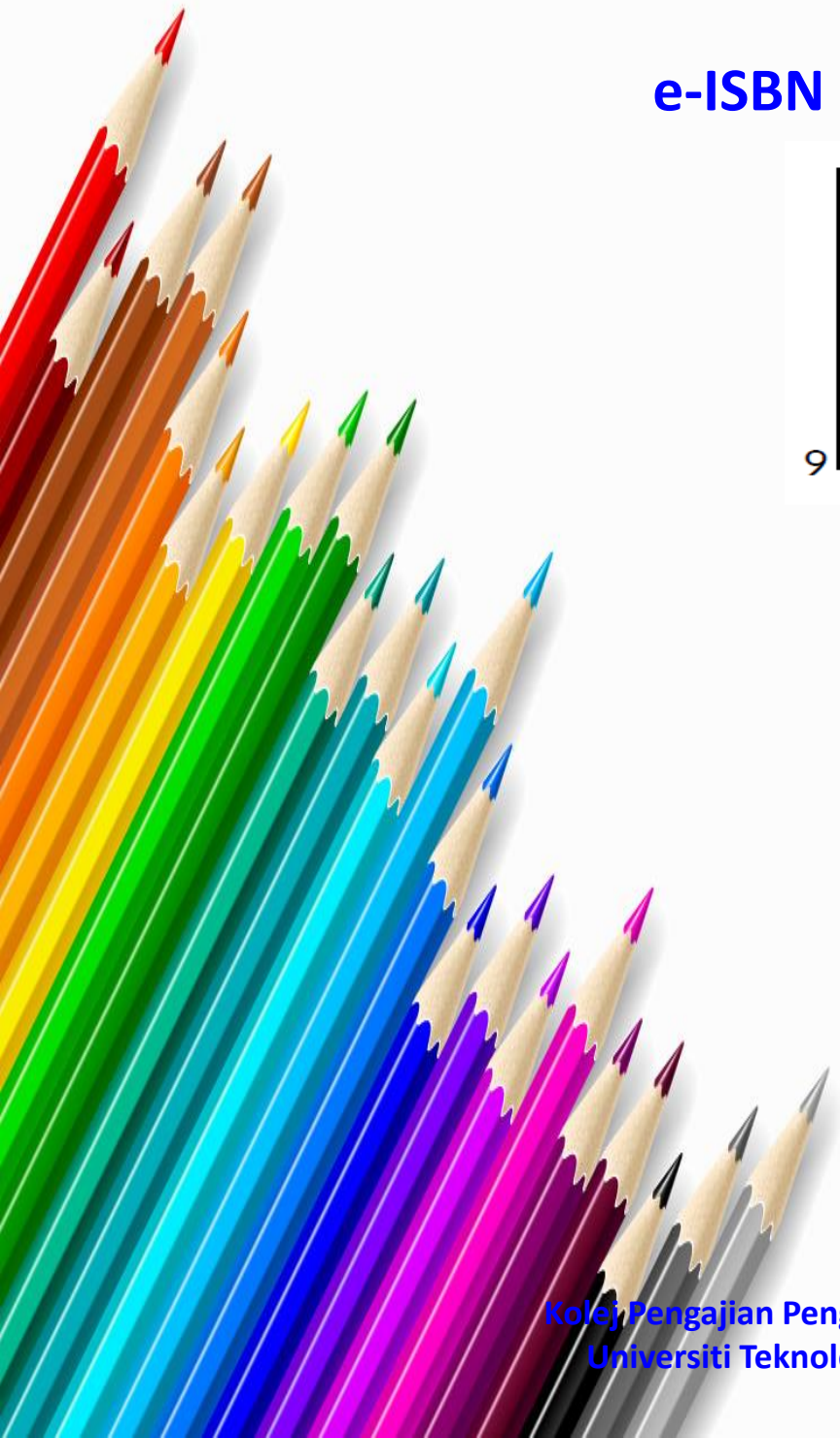


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ELLY'S READER: LEARNING THROUGH MOBILE APPS

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ABSTRACT

Education and the learning process are very important. In the current era of technology, everything related to education and the learning process such as e-learning is also at the fingertips. Since early literacy and resources to help kindergarten children learn to read are limited, quite boring, ineffective, and still go through the traditional method, Elly's Reader is being developed to overcome these problems. Elly's Reader is a learning mobile application to help kindergarten students to read anywhere at any time effectively and quickly. The scope of the project is children from Tabika Kemas Kampung Kota Bukit. Surveys and the requirements needed are identified before the application is implemented to make sure that the functionality and usability of the application are applied. ADDIE Model is used in the development of Elly's Reader. The main purpose of Elly's Reader is to facilitate the process of teaching and learning not just to the students but also to the teachers and parents. By using Elly's Reader, children, teachers, and parents can handle the learning process effectively, quickly, and smoothly with a more enjoyable learning method.

Keywords: *learning mobile application, kindergarten children, Elly's Reader, ADDIE Model*

Introduction

The COVID-19 pandemic has created the largest disruption of education systems in human history, affecting nearly 1.6 billion learners in more than 200 countries. Closures of schools, institutions, and other learning spaces have impacted more than 94% of the world's children population (Pokhrel and Chhetri, 2021). This is disrupting the whole education system. Policymakers are facing many problems in making the policy related to the education system. Teaching is taking place from offline to online.

E-Learning describes any type of learning that relies on or is enhanced through online communication using the latest information and communication technology. This e-learning process is always launched and operated on a variety of e-learning platforms, including applications, websites, and web applications, but in many of these platforms, e-learning applications are the most user-friendly. An e-learning application is an interactive application that allows children to input data and gets expected results on their devices. In this technological age, children are also getting better at using applications like mobile games

that are installed on their or their parents' smartphones and tablets. However, due to this transformation in teaching methodology, children, teachers, and parents are facing many problems (Tarkar, 2020).

The beginning of learning to read is critical and must be implemented for children in order for their early learning to run smoothly. To overcome this, it is strongly demanded that there be further improvements to the strategies and methods applied by teachers in the learning process. One of the efforts that can be applied to improve children's thinking ability is Jerome Bruner's theory. There are four main concepts in this Jerome Bruner constructivist theory: representation of knowledge, discovery learning, categorization, and spiral curriculum (Metsämuuronen and Räsänen, 2018).

Elly's Reader is a learning mobile application which is being developed to overcome the learning problems where it focuses on teaching children how to read. According to Roslan et al. (2021), in their research on learning to read mobile applications, they mentioned a few steps and requirements that the application must meet. The sophistication of information technology in delivering information quickly, accurately, and interestingly in the form of multimedia creates an attraction towards creating a more enjoyable learning atmosphere and greatly influences the current learning pattern.

In terms of learning to start reading, this learning approach focuses on various methods that make children more productive and more effective due to the presence of various elements that will attract children to deepen the application. Not only that, but it can also help children strengthen their speaking skills and confidence to communicate with people. Learning through this application creates a three flexible learning environment where children can choose when and where they want to learn.

Project scope

Data collected during this phase can be used to make decisions about how to improve current business processes to better meet user requirements. A face-to-face interview was done via questionnaire to gather information such as problem statements and the organization's present business process.

The main objective of this phase is to collect data and gain a detailed understanding of Tabika Kemas Kampung Kota Bukit's problems before suggesting solutions based on the proposed project. Problems have been identified where the reading learning process at the Community Development Department's (KEMAS) Children's Nursery (TABIKA) Kampung Gajah Puteh today continues the traditional learning method for reading using some of the learning materials provided by the kindergarten management, such as textbooks and exercise books. The teachers there also use the whiteboard to write all the words. In addition, they also teach children to read using word paper. The word papers containing 26 words will be laminated and given to the children to be read at home.

Thus, based on the problems, a face-to-face interview session have been done to the teacher at Tabika Kemas Kampung Kota Bukit. A questionnaire is used to conduct the interview. During the interview, all crucial information is gathered and recorded, such as the current business process and the problems they

have with the traditional learning-to-read method in the kindergarten.

Three main users for Elly's Reader mobile application have been identified based on the interview done: children, teachers, and parents.

Children

Kindergarten children can learn to read directly through this application. This mobile application consists of three modules, namely beginner, intermediate, and advanced. The content in this beginner module is more about alphabetical identification and alphabetical sound recognition. The intermediate module is for children who already know and remember the alphabet and can pronounce it well and fluently. Finally, in the advanced module, children can pronounce syllables fluently without having to spell, and it is more of an exercise for children to learn to read sentences or stories more fluently.

Teachers

Teachers can also use this Elly Reader application to teach children to read in kindergarten. It can be used as one of the activities or learning materials in the class where teachers can install the application on a tablet and connecting it to a projector and slides. In addition, this application can also be used outside of kindergarten hours as an activity or homework that is assigned by the teachers.

Parents

This mobile application can be used by parents to see their child's early literacy development over time. Parents also can spend time with their children and see for themselves the development of their children by using this application and trying to practice the exercises in this application face-to-face.

Methodology

To build this Elly's Reader Application, The ADDIE model for instructional design is implemented. ADDIE model is one of the instructional design models used by many researchers to develop software or applications related to the field of education (Muhamad Azhar Stapa and Nazeri Mohammad, 2019). Each process needs to be finished before moving on to the next phase. Analysis, Design, Development, Implementation, and Evaluation are the 5 phases of the ADDIE model instructional design. Below is the project framework for the application.

Table 1.1 Project Framework for the Application

Project Framework	Activities	Method used	Outcomes
Analysis	<ul style="list-style-type: none"> Analyze the needs and front end to see all the things that could affect the study. Analyze the scope of the project. Analyze the characteristics and interests of kindergarten children. Analyze the educational process's objectives. Analyze the problem statement. Analyze the current flow process. 	<ul style="list-style-type: none"> Literature study one-learning and application in articles and journals. Interview teachers using closed-ended and open-ended questions. 	<ul style="list-style-type: none"> The needs and front end are identified. The scope of the project is analyzed. The characteristics and interests of kindergarten children are identified. The educational process's objectives are identified. Problem statements are identified such as burdensome traditional methods uninteresting elements and learning materials, lack of content, and so on. The current process's flow is analyzed.
Design	<ul style="list-style-type: none"> Designing Model Use Case diagrams Designing Story Board Designing application interfaces 	<ul style="list-style-type: none"> Designing tools such as Adobe Animate and Canva. 	<ul style="list-style-type: none"> Model Use Case Diagram Story Board Application Interface
Development	<ul style="list-style-type: none"> Develop Beginner, Intermediate and Advanced modules in the application. Develop interesting and varied learning and training materials in the application based on the modules. 	<ul style="list-style-type: none"> Develop this mobile application using several tools such as Android Studio and Adobe Captivate 	<ul style="list-style-type: none"> There are three modules in the application that follow the child's readability level, which is Starter, Intermediate and Advanced Interesting learning and Training materials that follow modules are developed in this application such as alphabetic puzzles, alphabetic matches, and others.
Implementation	<ul style="list-style-type: none"> Test applications on users such as teachers and parents. The verification process by the user. 	<ul style="list-style-type: none"> Test application 	<ul style="list-style-type: none"> This application has been tested by teachers and parents. The verification process by the user result.
Evaluation	<ul style="list-style-type: none"> Performing usability testing and expert evaluations. 	<ul style="list-style-type: none"> Usability testing Expert evaluation 	<ul style="list-style-type: none"> Usability testing and expert Evaluation result.

Similar Existing Systems

Similar existing systems are studied to determine their problems, weaknesses, and strengths so that the new system will be better and more effective. The research also enables the researcher and developer to decide and choose which features of the purpose system can be used. The researcher and developer can also have the same experience as a real user of the system, so from that, they will find which parts of the system they want to remove or repair to make the system more user-friendly and flexible. The problem with the existing system can be avoided when developing the new system. This will improve the new system's user satisfaction, efficacy, and efficiency.

Kids Learn to Read Lite

Kids Learn to Read Lite, or Learn to Read with Tommy Turtle, is a fun game for preschool-aged children that encourages them to blend sounds into words, read and make simple words, identify spoken words, and learn word families. This mobile learning-toread application for children focuses more on letter sounds for early children's learning. It contains few sections. Unfortunately, some sections are only available in the full version, which requires users to subscribe before they can use them.



Figure 1.1 Kids Learn to Read Lite Mobile Application

Endless Reader

The Endless Reader application introduces "sight words," which are the most often used words in school, the library, and children's books. To attain reading fluency, children must be able to recognise these words by sight. Recognizing sight words is beneficial for beginner readers because many of these words have strange spelling, cannot be sounded out using phonics knowledge, and are frequently unrepresentable with pictures. With the cute Endless Monsters, children will have a blast learning sight word, as well as their context and usage. Each word has an interactive word puzzle with letters that come alive, followed by a sentence puzzle

with words that transform into what they describe. Endless Reader, on the other hand, was created with children in mind. There are no high scores, failures, constraints, or stressful situations. Children can use the app at their own pace. Unfortunately, the user must always be online and must have sufficient disk space while running the app to get all the words user purchase in the app.

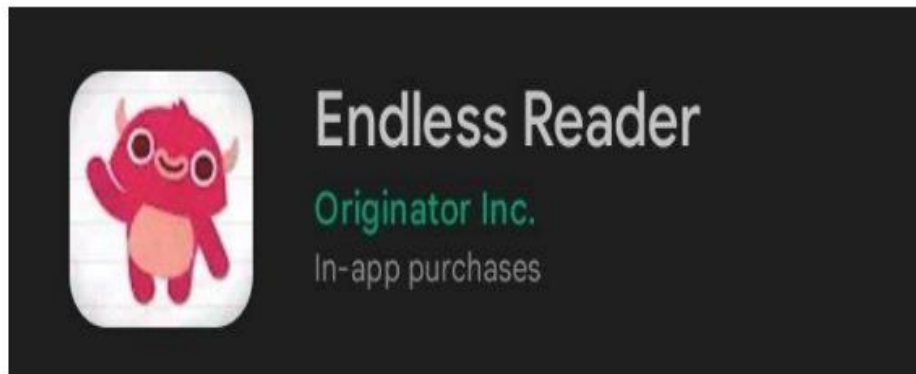


Figure 1.2 Endless Reader

Reading Eggs – Learn to Read

Reading Eggs is a fun and interactive mobile reading app. This app uses interactive reading games, guided reading lessons, entertaining activities, and over 3,000 digital storybooks to help kids learn to read. This app requires the user to have a full subscription to use it. This type of learn-to-read mobile app is beneficial to children because it is self-paced, which means that children are matched to the appropriate level and progress at their own pace.

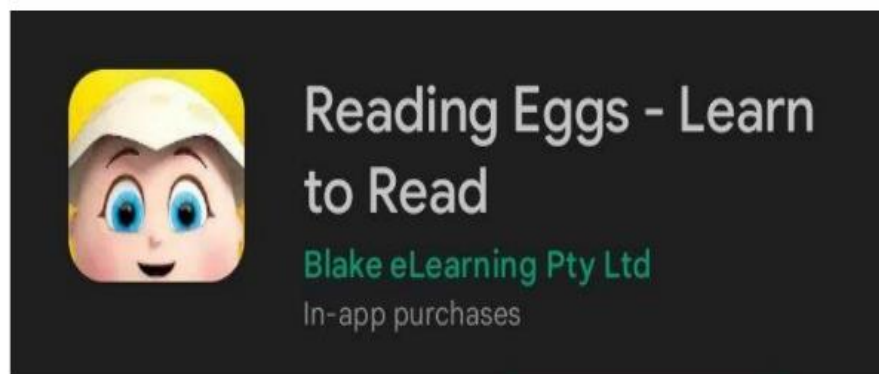


Figure 1.3 Reading Eggs – Learn to Read

Table 1.2 Comparison Elly's Reader with Similar Existing System

Characteristics	Similar Existing System			Purpose d System (Elly's Reader)
	Kids Learn to Read Lite	Endless Reader	Reading Eggs – Learn to Read	
Subscription required	Yes	Yes	Yes	No
Free Content Access	Half	Half	None	Full
Access to Internet	Always	Always	Always	Always
User Age Category	No	No	Yes	No
Multiple Section or Activities	Yes	No	Yes	Yes
Level of User Readability	No	No	Yes	Yes
Score Activities	No	No	Yes	Yes
Can be Monitored by Teachers	No	No	No	Yes
Interesting Content and Activities	Yes	Yes	Yes	Yes
User Friendly and Easy to Use	Yes	Yes	Yes	Yes
Interesting and easy-to- understand background sounds and music.	Yes	Yes	Yes	Yes

Conclusion

The traditional method of learning reading among children is one of the learning methods provided in Tabika Kemas Kampung Kota Bukit. The main problem is that it is less effective and does not arouse the interest of children. Using Elly's Reader application, the process of learning children's reading and the teacher's teaching process is easier, more effective, and faster than traditional methods. The application is user-friendly where it is understandable to children, teachers, and parents even though there are elderly users who are not familiar with the app, but the functionality and interface are easy to use and can be accessed anytime and anywhere. ADDIE model has been chosen as the guideline to finish this project which consists of five phase which are analysis, design, development, implementation, and evaluation, was chosen as the methodology for this mobile application Comparisons were also made between three similar existing applications to give the developer an early idea of how the mobile application should work. In the end, a questionnaire was created for testers to determine whether the mobile application's flow, interfaces, functionality, contents and exercises, efficiency, and navigational and multimedia elements meet their expectations.

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