Development of Nara-Media Applications to Improve Reading Ability in Language Education

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Abstract:- The main goal of this project is to create a mobile learning platform for language education students that runs on Android and allows them to study whenever and wherever they choose. Learning must be flexible to accommodate the various learning preferences that lead to online learning, in line with current trends. Instead of dragging books about with them, students will find it more comfortable to study on their cellphones whenever and whenever. Materials, tests, assessments, and material growth are only a few of the capabilities included in this platform. The ADDIE approach, which has five stages— analysis, design, design development, implementation, and evaluation—is used in this study. An android-based mobile learning platform called Nara-Media is the study's final output. The accessibility of this product to different sorts of Android still has to be improved by the evaluation results. The benefit is that after studying the content on this platform, students can learn immediately and determine the amount of their understanding by completing the test. Students can study the offered content at any time and anywhere using this platform to learn from it and analyze it. The ease of use offered by this platform will improve language education's efficacy and efficiency.

Keywords:- Android Based; Learning platform, Language Education, ADDIE Model, Media Learning Language Naramedia, Pentigraph.

I. INTRODUCTION

Learning to compose texts or writing is one of the lessons in Indonesian language subjects that require special attention either by subject teachers or other parties involved in preparing the learning curriculum. Currently, writing learning is primarily presented in the form of theory, not much writing practice. This causes students to lack writing habits, so it is difficult for them to express their ideas in written form. Writing skills that are not balanced with practice are one of the factors for students' lack of skill in writing. Junior high school students should be able to express their ideas, thoughts, and feelings in writing. However, in reality, writing activities have not been fully implemented. Composing an argument, opinion, and experience into a series of written language that is regular, systematic, and logical is not an easy job but a job that requires continuous practice. Crompton & Burke [1] stated that the ability to write is a complex ability that involves some knowledge and skills.

In the modern educational setting, a number of platforms are used to support learning, making it easier for students to understand course material with or without teacher involvement[2]. In-person instruction between students and teachers in a classroom is no longer regarded as being as effective or efficient. Due to the space and time constraints, pupils are not able to fully learn the content covered by the teacher in class. The utilization of traditional learning activities has not been successful up to now since the pupils who do not understand cannot repeat the same material that the teacher has already taught them. Additionally, teachers have no control over the learning activities that children engage in outside of the classroom. One of the biggest obstacles to teaching and learning, according to M. Elkhateeb and E. All [3], is the absence of engagement and communication between teachers and students. Teachers only explore the material's content—often neglecting the students' boredom—by making the most of the short time available for face-to-face meetings. As a result, it's not unusual to see students playing games on their smartphones or using social media on their smartphones while in class to pass the time.

The world has now reached an era known as the "Industrial Revolution 4.0," where technical advances and sophistication have significantly impacted human life and where the expansion of the internet and digital technology has made everything seem limitless in both space and time. However, the idea of digitization in education is still transforming the teaching method from analog to digital[4]. The existence of the fourth industrial revolution offers the field of education a new hue. The government has currently restricted the use of technology through a number of laws and regulations, which does not negate the role that technology plays in education. The usual learning process is thought to be unpleasant and tedious, according to Satya [5], hence it is predicted that using technology will boost students' interest in learning. Students will be confused by learning that puts instructor activities and textbooks first. As a result, we need to innovate in the way we teach, and one such innovation is e-learning, which is designed to increase students' enthusiasm for learning.

Technology's rapid growth has led to a widening variety of learning resource kinds and formats, as well as a requirement that effective learning tools be adaptable to their environment. All sources that can be packaged through computers, cellphones, the internet, and other devices and

that provide knowledge and information can be referred to as learning resources. Utilizing learning whenever and wherever is one of the cutting-edge teaching methods that can be used with current fashions to help pupils better understand the topic.

Learning resources are divided into six categories by the 2016 Minister of Education and Culture[6]: messages, people, materials, tools, strategies, and locations. The core, or the message to be delivered to pupils, is contained in the six different types of learning resources. Learning materials can be found in the form of applications as learning resources. Print and non-print media that include information and can aid students in meeting their learning objectives are included in the materials used as learning resources[7]. Also frequently referred to as software, materials.

Android is software that is utilized on mobile devices (Running devices), according to Huda [8], and it consists of an operating system, middleware, and core apps. Android is an operating system for smartphones and tablets, according to Satya [5].

The operating system can be thought of as a bridge that connects the user to the device, allowing them to interact with it and use the apps that are installed on it. Mueangpud et al. [9]discovered additional evidence that Android is a specialized Linux-based operating system for mobile devices like smartphones or tablets. Since the Android operating system is open-source, a large community of programmers has flocked to develop applications or alter it. Because of this open-source factor, programmers have a great opportunity to get involved in Android application development. There are some paid and most free apps in the Play Store. Using Android as a learning resource for students encourages teachers to support students' preferred learning styles.At this point, the best teaching strategy is to provide students the freedom to use technology to study and learn content repeatedly in accordance with their own learning rhythms.

According to the aforementioned opinion, mobile-based learning is one of the alternative learning medium that can be provided to students. The learning process in the study program for language education is thought to be supported by this instructional medium. It is necessary to innovate in order to create alternative learning systems that are engaging and participatory. Develop mobile learning with the idea of studying anywhere, at any time, and without paper. Learning alternatives must be created in order to create the Nara-media platform, which will help language educators improve their students' reading abilities.

The challenge in this project is how to build pentigraph, an Android-based mobile learning platform, for language learning. This study also attempts to describe how mobile learning using Android for Education is designed in the area of language education.

II. RELEVANT LITERATURE

There isn't a clear description for what mobile learning is. However, there are four ways to describe the motivation behind this movement: student mobility, educator mobility, and learner mobility[10], [11].

The technology utilized in learning was the original definition of mobile learning. In other words, the delivery of learning using a variety of handheld devices is what is meant by the term "mobile learning." It indicates that it can be a mobile phone, smartphone, tab, tablet, or palmtop computer - a portable computer or personal digital assistant (PDA) - but not a PC with a bulky desktop that is difficult to carry [12]. The type and technology are described. This definition has become shaky, and its clarity is called into doubt, as technology that can be used to understand hardware, software, and different file formats develops[13].

When students, teachers, and learning are mobile, the community may communicate knowledge to individuals, groups, communities, and nations that were previously socially and geographically constrained. According to a more recent definition, mobile learning can enrich and improve on learning activities that have already been possible. Certainly, the definition of mobile learning is still being developed. The foundation for the rapid development of this definition of mobile learning will continue to be the need for learning, the pedagogical expertise of educators, the shortcomings of prior mobile learning, and budgetary issues. These factors will coexist with the rapid development of science and technology [14].

E-learning and mobile learning are not the same thing. This description makes it clear that mobile learning involves using a variety of features and handheld devices, whereas e-learning makes use of larger devices like computers and networks. Additionally, e-learning offers huge learning, is accessible across a network, and comes with a variety of structured features and interactive learning materials. Mobile learning, meantime, has attributes like being connected, personalized, and interactive, as well as automatic, instant, portable, personal, informal, compact, and lightweight [12]. Learning methods that demand content explanation may encounter difficulties as a result of this mobile learning restriction. In the meantime, poor connectivity will make it difficult to access practicum materials, courses, interviews, and synchronous material delivery[12]. In other words, because they frequently coincide with the devices being created and used, the technical features that make one set of gadgets apart from another might operate as a barrier. Therefore, in order to deliver engaging mobile-based learning, educators must investigate various learning models, methodologies, and tools. Mobile learning also refers to online education that uses a smartphone. This mobile learning describes the function of new technology created to offer a forum for knowledge management, accessibility, distribution, and acceptance of materials delivered with designs that adhere to the characteristics of students and learning materials[10], [15]. Students of all ages are increasingly requesting and using cellphones to help their

academic work, from young children to college students [16], [17], [18]. These devices are practical and useful for enhancing learning outcomes[19], [20].

This is further supported by APJII data, which shows that internet penetration in Indonesia has climbed to 73.7 percent of the population, with 95.4 percent of that population accessing the internet via a smartphone[21]. The need for distance learning that is simple, convenient, and effective to use anywhere, anytime, and by anyone without being limited by gender and age [15], [22] and wide-open access to both in formal and informal education [23] are factors that encourage the growth of online-based learning, particularly during the current pandemic era when online learning is needed.

Knowing the requirements and level of readiness of students and educators for mobile learning is one of the primary things that cannot be achieved, even if millennial students are well suited to mobile learning due to their close proximity to gadgets in daily life[24].

Careful planning is required for every aspect of mobile learning in order to get the best learning results possible given the learning environment. Reminders, accessible profile settings, progress reports, and download choices for offline access are some aspects that are particularly beneficial in mobile learning and enable students to study content in minimal conditions even without a network[19], [22]. The drawbacks of online learning include network access restrictions, a lack of devices, operational capabilities, and little in the way of in-person connection between students and teachers [23]. Balancing internal interests connected to job growth and external interests related to the context and urgency of this development is another problem faced by those who adopt and develop mobile learning.

Any development in mobile learning will therefore appear subjective depending on the issues that need to be resolved. The urgency of product creation can be put into practice and help with problem-solving, especially in the context of learning, with benefits that are anticipated to make up for the drawbacks of comparable applications[25].

III. RESEARCH METHODS

Developmental research is being conducted here. A platform called Naramedia that runs on Android is the end result of this study. The ADDIE development design will be applied. Following is how researchers characterize the stages of ADDIE design:
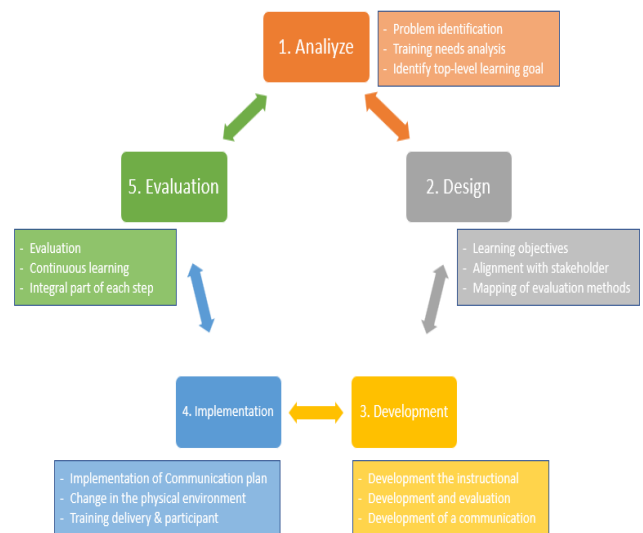

Fig 1: ADDIE Model

The following explains the ADDIE development that the researcher will do.

A. Analysis

The researcher evaluates the development requirements, feasibility, and needs for instructional materials during the analysis stage. Materials analysis, user needs analysis, learning media analysis, and problem analysis are some of the author's analytical steps.

B. Design

The design stage is the second phase of the ADDIE model. At this point, a platform is created that will be developed in accordance with the findings of the earlier analysis. Developers and researchers will now talk on how the information or content will be delivered as well as how the application interface will be designed. The following is the text or material that will be created.
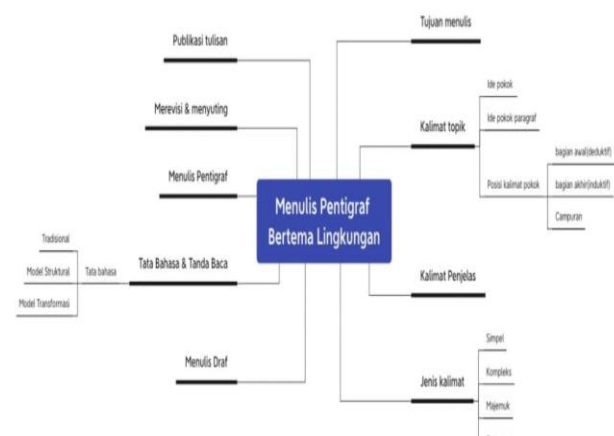

Fig. 2: Content Pentigraph

C. Development

The development stage is the stage to start making applications with steps following the designs that have been made previously, at this stage includes the determination and selection of application development methods, as well as supporting applications that will be used in making the system later.

D. Implementation

The fourth stage is implementation. The application that has been developed will be a trial of the application that has been made. This stage is carried out by testing the application with users with a pre-test and post-test with 20 students of SMP 8 Tamban. A pre-test is carried out before students are given an application to determine their understanding level before using it. At the same time, the post-test was carried out after students tried the application, with the two data being able to compare whether there was a significant change before and after using the NaraMedia application.

E. Evaluation

The ADDIE model's ultimate step is this one. This evaluation is being done to see if the created and constructed application conforms to expectations. The effectiveness of the Naramedia application will be evaluated here using the results of the implementation stage.

IV. RESULTS AND DISCUSSION

A. Analysis Stage

In the context of developing the NaraMedia Application, several things that can be obtained are:

a) Material analysis

The material that will be included in the application consists of:
- Introduction Writing.
- Purpose Writing.
- Topic Sentence
- Explanatory Sentence.
- Type Sentence
- Posts Publishing
- Revising and Editing
- Grammar and Punctuation
- Writing Drafts.
- Writing Pentigraph

b) User Needs Analysis

Analyze users' needed features, such as Login and Register, Learning Progress, account settings, material lists, text to speech to read the material, and Quiz to evaluate learning outcomes.

c) Problem Analysis

How to make a system that is easy to use by users and provides a fun and not dull learning experience and the researcher will make the NaraMedia application according to the design that has been created starting from the material presented and the appearance of the application following the design that has been made.

B. Design Stage

The design stage is a process carried out before development or development is designed. At this stage, the interface design of the Naramedia application is created. The result of the design of the Naramedia Application (Fig .3 – Fig10).

Fig 3. SplashScreen
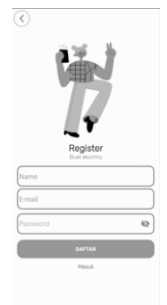

Fig 4. Login Page

Fig 5. Register Page

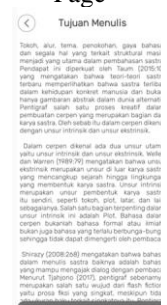Fig 6. Material Page

Fig 7. Writing Material
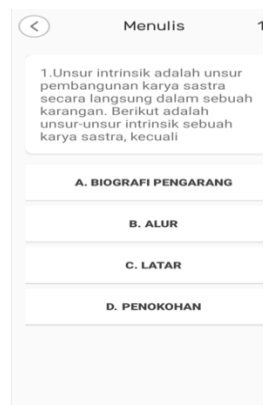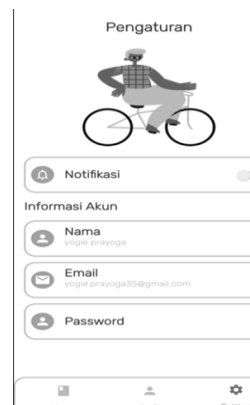

Fig 8. Content Page

Fig 9. Quiz Page

Fig 10. Settings Page

In addition to the design of the application interface to support applications that can be used as learning media, the design of the content to be presented is also needed. The content design shown is in the form of a module. Here is the cover of the module design that was created.

C. Development Stage

At this stage, all designs or designs that have been made into an application. In other words, this stage is the stage of making applications according to the analysis and design designs that have been created. The following are the results of the application development stage:

a) Nara Media Application Interface
This stage is the stage to realize the design that has been made in an application (Fig. 11 – Fig.18).
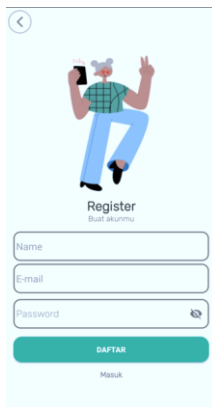
Fig 11. SplashScreen

Fig 12. Login Page

Fig 13. Register Page

Fig 14. Material Page
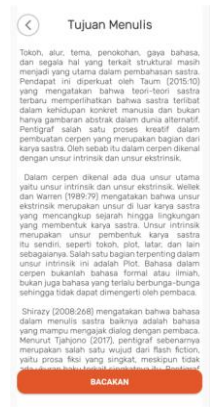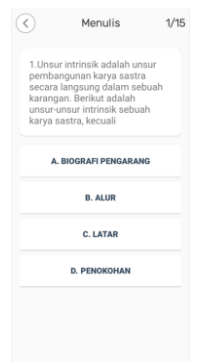
Fig 15. Writing Material

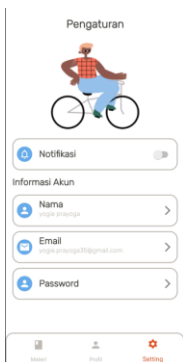Fig 16. Content Page

Fig 17. Quiz

Fig 18. Settings Page

b) Learning module
The following are modules or teaching materials developed to be presented in the Naramedia Application.
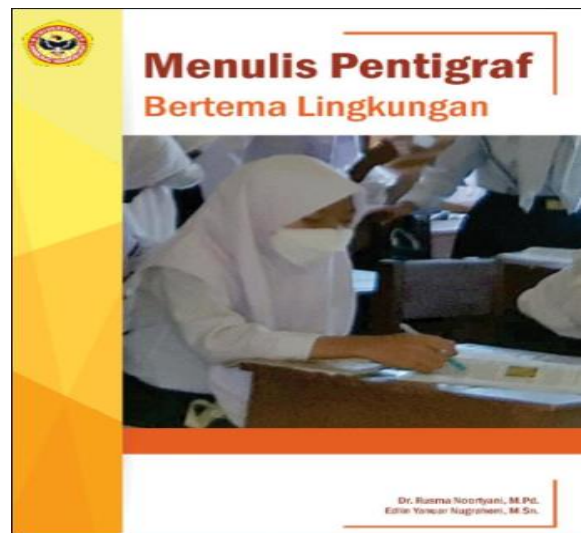
Fig 19: Cover of the module

This module contains writing Pentigraphs with environmental themes. The material will be presented as follows.

- Introduction Writing.
- Purpose of Writing.
- Topic Sentence.
  ➢ Main idea.
  ➢ Paragraph Main Idea
  ➢ Main sentence position
    ▪ The Beginning (Deductive).
    ▪ Final Part (Inductive).
- Mixture
- Explanatory Sentence.
- Type of sentence.
  ▪ Simple
  ▪ Complex.
  ▪ Compound.
- Writing Publications.
- Revising and Editing.
- Grammar and Punctuation.
  ➢ Traditional
  ➢ Structural Model
  ➢ Transformation Model
- Writing Drafts.
- Writing Pentigraph.

D. Implementation.

With this NaraMedia application, users will use this application to read the material and take quizzes to improve students' understanding of writing pentigraphs. The implementation of the NaraMedia application is carried out to find out whether the application made is as expected or not. Users who will try this application are 20 7th grade students from SMPN 8 Tamban. Before using the application, the user will do a pre-test to determine the level of student understanding before using the application so that it can be compared with the post-test, which will be carried

out after students study the teaching materials presented in the NaraMedia application. The average results of the pre-test and post-test are as follows: 20 samples of the same students were carried out the post-test and pre-test to compare the averages of the pre-test and post-test.

Pretest	Posttest
48	49

Table 1: The averages of the pretest and posttest

The results of the average pre-test and post-test above show that there is no significant difference between the pre-test and post-test even though it is increasing.

E. Evaluation

Since e-learning is still a relatively new concept in the context of language acquisition, students can only study through books and teacher explanations. Smartphone use among students has skyrocketed in this day and age[26]. The use of technology in the learning process has a significant impact on the findings of the preliminary examination of the issues students experience with relation to learning motivation, interest in learning, and learning outcomes.

Students will complete a survey and pre-test before the application is tested to ascertain their degree of comprehension of students prior to the application trial. Students will complete the post-test after the NaraMedia Application is tested in order to gauge their degree of understanding following use of the NaraMedia application. The results of the testing conducted on 20 students from SMPN 8 Tamban were as follows.

Pretest	Posttest
48	49

Table 2: The average value of pretest and posttest

From the table above, it can be seen that there was a slight increase in students' understanding before and after using the application. For further detail, we used a paired T-test to determine the level of significance of using the application, and the following are the results of the paired T-test.

	Mean	N	Standar deviasi	Standar kesalahan Mean
Pre-test	47,80	20	13,265	2,966
Posttest	49,20	20	17,074	3,818

Table 3: Paired Sample Statistics

		N	Correlation	Sig.
Pair 1	Pretest-postest	20	,860	,000

Table 4: Paired Sample Correlation

					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest-postest	-1,400	8,828	1,974	5,532	2,732	-,709	19	,487

Table 5: Paired Sample Ttest

The significance value generated in the paired t-test here is 0.487. Decision making, if the significance value > 0.05 indicates there is no significant difference, and if the significance value is < 0.05, then there is a considerable difference.

With the results obtained with the T-test with a significant value of 0.487 > 0.05, there is no significant difference between the results of the pre-test before using the application, and the results of the post-test carried out after the use was made.

It can be concluded that there is no difference between the pre-test before the NaraMedia application is used and the post-test after the Naramedia application is used.

V. CONCLUSION

Thus, it can be inferred that the research topic, namely the students of SMPN 8 Tamban, can benefit from the effective implementation of the Nara-media platform. Even if the functionality are still basic, this program may be utilized quickly and adaptably. Students can more easily acquire the material offered in the NaraMedia application since it offers engaging and simple-to-read language learning content. After learning the subject, students can assess their knowledge and comprehension by completing multiple-choice quizzes at the end of the course. They can then find out the results right away.All Android handsets can run the NaraMedia application, which is based on Android. Students are particularly passionate about technology-based learning innovation since it can be done anytime, anyplace, even though this program cannot function on the IOS operating system. For this NaraMedia application to reach its full potential and increase the quality of learning using it, numerous enhancements and new features are required. This is because the study's findings indicate that the NaraMedia application still requires improvement in order to be effectively used. This is because there is only a small increase shown in the results of the pre- and post-tests that were conducted.

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