LEDY: AN ANDROID APPLICATION-BASED LEARNING MEDIA DEVELOPMENT TO IMPROVE STUDENTS' WRITING SKILL

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ABSTRACT

Smartphones can play a pivotal role in enhancing the learning process. Additionally, the multimedia capabilities of smartphones, such as interactive videos and educational games, make the learning process more engaging and enjoyable. The problem by students encompassed a shortage of interactive learning materials, challenges in understanding English content, restricted chances for practical application, and a sense of monotony in the learning process. Therefore, this research aims to design an Android application-based learning media, especially on writing skills. This research is a Research and Development (R&D) with the ADDIE model. The subject of this research is tenth-grade students at SMK Wikrama 1 Jepara, with data collected through questionnaires and a pretest-posttest procedure. The effectiveness of the Android application was assessed by using the N-Gain method in analyzing pretest and post-test data. The test outcomes demonstrated an 83.8% success rate, falling within the appropriate category. The pre-test and post-test scores exhibited improvement, with the N-Gain analysis revealing a value of 0.60, signifying enhancementin writing skills. It means that using LEDY an Android application-based learning media, contributes to an improved comprehension among 10th-grade students at SMK Wikrama 1 Jepara, particularly in the area of procedure text material.

Keywords: *Android, Learning Media, Writing Skill*

INTRODUCTION

The Industrial Revolution 4.0 has significantly affected education, necessitating a shift in the perspective of education itself. This includes changes in curriculum construction, teacher competencies, and technology integration. Lase (2019) states that the development of current and future curricula must focus on students' pedagogic abilities, life skills, and critical thinking abilities. This shift will affect all educational components, requiring adaptation and renewal in curriculum construction, teacher competencies, and technology integration.

Technology and education are interconnected, with communication in education primarily utilizing smartphones, computers, and the internet as the most commonly used media. Arianti (2018) stated that learning involves a process of changing an individual's

behavior, transforming them from unaware to aware, and this can be achieved through communication between teachers and students or through the use of learning materials.

Learning media serves as a means to transmit instructional content or information from teachers to students. Hanif (2019) explains that the learning media also functions as a tool to spark student interest, to boost their motivation to learn. Mobile learning is a new trend in e-learning, utilizing portable devices like smartphones running Android, IOS, or Windows Phones to enhance competence in coaching and education. Moreover, Kaustubh et al (2017) cited that using learning media is making a crucial tool for mastering the learning process. It means that learning media is a tool for mastering the learning process which can boost student motivation to learn.

Smartphones that are widely used today are Android-based. Android is an operating system that is based on Linux and specifically developed for touch-screen mobile devices like smartphones and tablets. Wahyuni et al (2022) explained that an Android application is a form of media that can facilitate students in establishing a connection with their teachers while they are engaged in the process of learning. Almost all high school students already use Android-based smartphones or similar.

The ease of use and usage increases the interest of users, especially teenagers, in using it. Apart from searching for information or news, smartphones are widely used as a learning medium in secondary schools. The development and use of new technology as a learning medium will make the learning process more varied attract students' interest in following lessons and make it easier for them to understand the material being taught (Ridho et al., 2022).

July et al (2022) stated that writing involves the effort to express the author's thoughts, emotions, or concepts in written form, considering writing features and stages to ensure clear understanding by the readers. Moreover, Brown (2001) described that writing requires students to demonstrate their ability to generate ideas, arrange them logically, incorporate relevant references and rhetorical techniques to create a cohesive written piece, revise the text to eliminate ambiguity, edit for proper grammar usage, and ultimately produce a polished written product. It means that writing describes an idea in a text so that the information conveyed can be understood by the reader.

Based on observations conducted at SMK Wikrama 1 Jepara, it was evident that students faced challenges comprehending English subject materials during the instructional

sessions. The primary issue identified was associated with the instructional tools employed by teachers. Throughout the learning process, teachers predominantly relied on textbooks and occasionally utilized PowerPoint presentations. Unfortunately, this conventional approach failed to captivate the students' interest in learning English.

Many students found the teacher-centric learning model to be monotonous, leading to disinterest. In addition, some students struggled with their English writing skills. Therefore, this research aimed to solve these issues by developing learning materials that leverage smartphone technology. The objective is to make English learning more practical and interactive.

Muhfiyanti et al (2021) explain that using Android-based mobile learning media positively affected the learning process. Utilizing mobile learning media based on Android enhances the effectiveness of the learning process compared to the conventional method. Moreover, incorporating Android-based mobile learning media empowers students to become more self-directed in their learning process.

Saadah & Hasanah (2023) state that using Android-based educational tools has the potential to enhance students' grasp of learning content, particularly when employing media featuring clear visualizations. The inclusion of vivid visual representations aids in conceptualizing abstract or intricate ideas, facilitating improved understanding and retention of information among students.

Agustine et al (2023) concluded that utilizing Android applications can enhance the enjoyment of the learning process, leading to increased engagement among students, particularly in comprehending the structure and linguistic rules of intricate procedural texts. Furthermore, the Android application proves to be captivating and innovative, encompassing diverse materials in the form of images, text, and videos.

According to the implementation of Android application-based learning media, there are some studies conducted with similar issues in teaching English writing. Agustina & Muslimah (2021) conducted research by applying Android application-based Learning to improve students' English skills. The research indicated that learning media based on Android applications enables students to practice English writing both within the school environment and anywhere else. This suggests that it is viable to utilize Android application-based learning media for learning English subject.

From the discussion, it can be concluded that the use of Android application-based learning media, specifically the "LEDY" application, is a suitable tool for enhancing students' English writing skills. The researcher developed an Android application to provide a convenient platform for tenth-grade high school students to improve their writing abilities. The "Let's Study (LEDY)" application aims to assist students in comprehending, studying, and completing English assignments more effectively.

METHODOLOGY

The method of this research is a research and development (R&D). The research and development (R&D) method involves the development or production of a product followed by testing to assess its effectiveness (Sugiyono, 2016). The research used the ADDIE development model which contains 5 stages, namely analysis, design, development, implementation, and evaluation. The ADDIE model was developed by Dick and Carry (Harjanta et al, 2018). The objective is to develop an Android application-based learning media that can improve students' writing skills. The research focused on crafting a learning media using an android application, specifically designed for procedural text material.

The researchers created products that included assessment and validation sheets. These sheets were evaluated by expert validators who specialized in the relevant field. The validation process involved using instruments that had been previously validated by the supervisor. Two validators, a media expert and a material expert, were given these instruments for evaluation. The researchers then discussed the validation results with the validators and made revisions to the products based on their assessments.

The collection of data involves field observation, interviews with English teachers, distribution of questionnaires to students, and the administration of tests in the form of both pre-tests and post-tests. The N-Gain method is used to calculate pretest and post-test data analysis results. The questionnaire is a data collection technique that is done by giving a set of written questions or statements to respondents to be answered (Sugiyono, 2016). A questionnaire is shared to identify the students' responses toward the LEDY application in the learning process, especially in the procedure text material. The questionnaire has close-ended questions. The total of the questionnaire consisted of 16 questions.

The study involved implementing the "LEDY" application for tenth-grade students at SMK Wikrama 1 Jepara. The researcher provided instructions for studying the material,

engaging with the game, and attempting practice questions within the application. To assess the product's effectiveness, a Likert scale was employed to simplify score calculations based on student testing. The evaluation focused on the "LEDY" application, highlighting its potential to facilitate teachers in delivering English lessons to tenth-grade students.

FINDINGS AND DISCUSSION

The steps for the development of the LEDY an Android application-based learning media in this research have been accomplished using the ADDIE (Analyse, Design, Development, Implementation, Evaluation). As for a more detailed explanation of the steps, it is explained as follows:

Analyse

Based on observation conducted by tenth-grade students at SMK Wikrama 1 Jepara, the researcher found that students are not interested in learning English. The primary issue identified was associated with the instructional tools employed by teachers. In the learning process, teachers predominantly relied on textbooks and occasionally utilized PowerPoint presentations. Therefore, the students in the classroom tended to be sleepy and bored.

The results of interviews with English teachers show that students tend to be lazy and have no motivation to learn English. Teachers still use conventional methods of learning and sometimes use discussion methods. In addition, teachers do not have the skills to use interactive learning media.

Therefore, researchers developed an Android application based on learning media to facilitate learning motivate students to learn, and make learning more enjoyable. The name of this learning media-based Android application is LEDY "Let's Study". This application contains procedure text material, whereas in this application there are material explanations, text examples, videos, games, and evaluations.

Design

At the design stage, researchers create an Android application based on research findings. LEDY Application incorporates both discovery-based learning and procedural text content tailored for tenth-grade students. The initial phase of creating the media involves designing the display, which includes such as preparing visuals

and the logo of LEDY, audio background, creating navigation buttons, and planning the game layout. To facilitate the development of Android-based learning media, the Canva application is used to design display layouts or storyboards.

Development

At the design stage, the media design process requires a design that can make it easier for researchers to create media. The software Unity is utilized in landscape format at this phase. The initial menu display contains the material's title alongside various navigation buttons. These buttons facilitate different functions, including the activation and deactivation of audio backsound, a developer profiles button, and an exit button used to close the application. Moreover, there are several menus such as the introduction menu, the material menu, the game menu, and the evaluation menu. The main menu display is as follows:
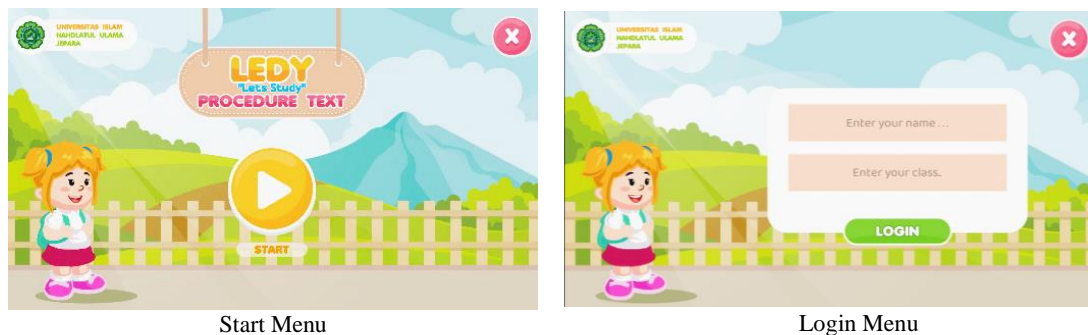
Start Menu   Login Menu
Figure 1 Start menu display

Figure 2 Main menu display

The introduction menu display has four items, such as core competency, basic competency, and indicator. Then, there is a material menu display containing the definition of the procedure text, generic structures of the procedure text,

language features of the procedure text, example of the procedure text and the procedure video. The introduction menu and material menu display are as follows:

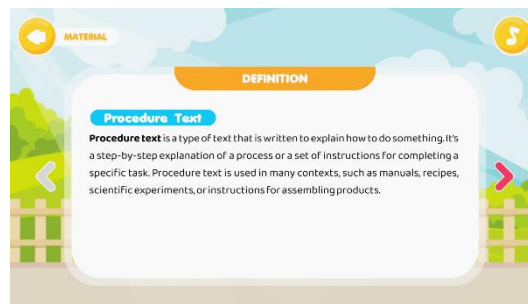**Figure 3** *Introduction menu display*

Figure 4 *Material menu display*

The game menu display contains a spinning wheel and match-up. The spinning wheel functions by allowing students to randomly select a procedural text title through a spinning wheel. Next, there is a match-up game, where this game consists of matching text with appropriate images to make it into procedure text. Apart from that, there is a game to match the generic structure of procedure text. The game menu display is as follows:
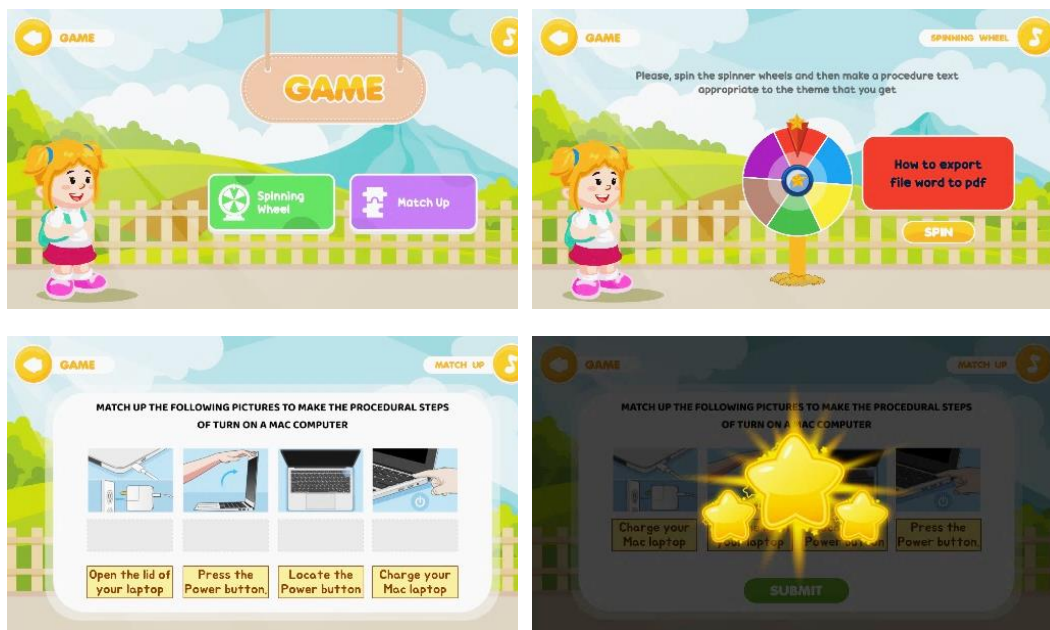

Figure 5 Game menu display

The evaluate menu display contains both multiple-choice and essay options. This menu serves the purpose of reinforcing students' retention of the learned

material. In the multiple-choice section, a procedural text and a corresponding question are displayed. If the student answers the question correctly, three yellow stars will be visible; however, if the answer is incorrect, three red crosses will appear. Additionally, there is an evaluation menu containing 10 questions designed to assess students' comprehension of the presented content. Upon completing all the questions, the interface will display a final score. The evaluate menu display is as follows:
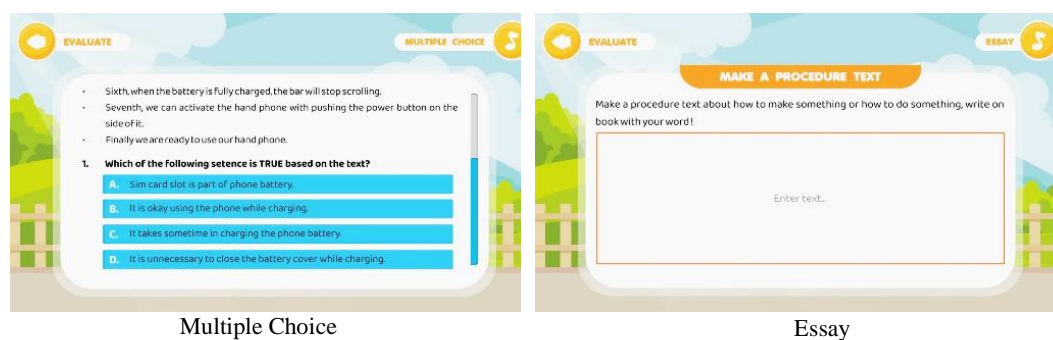

| Multiple Choice | Essay |

Figure 6 Evaluate menu display

The created media was validated by both media and material experts. This process aims to assess the viability of the media and provide recommendations for enhancement. The validation involves experts in media and material, namely lecturers from Nahdlatul Ulama Islamic University Jepara. The percentage results from media expert and material experts are as follows:

Table 1 Results of the Percentage of Media Experts and Material Experts

No	Validators	Score obtained	Percentage	Category
1	Media expert	81	90%	Very eligible
2	Material expert	60	80%	Eligible

Based on the information provided in Table 1, the score from the expert Media Validator is 81 with an eligibility Percentage of 90%, it shows that the media expert evaluated the media is considered very eligible. The score from the expert Material Validator is 60 with an eligibility Percentage of 74,6%, it shows that the material expert evaluated the content material is considered eligible. Both validators have provided criticism and

suggestions for revisions to repair the display of the media and the content material. These suggestions can be implemented to enhance the quality of the material. The researchers made revisions in compliance with input from validators media experts, and material experts. Revisions are as follows:

Table 2 Revision Expert Material

Revised Indicator	Content Material Before Revision	Content Material After Revision
Change the instruction of the questions		

Implementation

After the LEDY application was deemed suitable for implementation, it underwent practical trials in classroom settings. These trials were conducted to assess the application's practicality in class. Subsequently, learning activities were conducted in an experimental class over four face-to-face sessions, including both pre-test and post-test assessments. The research was conducted at SMK Wikrama 1 Jepara, especially the 10th grade chosen as the research class, consisting of one class, namely X TKJ class. Microsoft Office Excel 2016 software is used to calculate the average N-Gain score. The average N-Gain score is as follows:

Table 3 The Average N-gain Score

No	Student's Name	Pre	Post	Post - Pre	Maximum Score - Pre	Score N Gain
1	ADM	75	90	15	25	0,6
2	AI	60	80	20	40	0,5
3	AK	70	85	15	30	0,5
4	ADR	50	75	25	50	0,5
5	BPS	65	85	20	35	0,6
6	BCL	60	85	25	40	0,6
7	DCH	70	90	20	30	0,7
8	FMS	75	90	15	25	0,6
9	GT	55	80	25	45	0,6
10	H	50	75	25	50	0,5

11	INA	60	80	20	40	0,5
12	JA	75	90	15	25	0,6
13	LDS	75	90	15	25	0,6
14	LK	80	95	15	20	0,8
15	MR	60	85	25	40	0,6
16	MAP	60	85	25	40	0,6
17	MAM	65	85	20	35	0,6
18	MRA	70	85	15	30	0,5
19	MRF	70	90	20	30	0,7
20	NA	65	85	20	35	0,6
21	PDS	45	75	30	55	0,5
22	RA	50	80	30	50	0,6
23	RAP	70	85	15	30	0,5
24	SEF	55	80	25	45	0,6
25	SGT	65	85	20	35	0,6
	AVERAGE	63,8	84,4	20,6	36,2	0,6

The table shows that most of the students agree with using the LEDY application. The N Gain score evaluates the improvement in students' writing skills between the pretest and post-test assessments. It is measured on a scale from 0 to 1, where a higher score signifies a more substantial improvement in student understanding. The result of students demonstrated N Gain scores spanning from 0.4 to 0.8, with scores exceeding 0.5 indicating a noteworthy enhancement in understanding for the majority of students using LEDY an android application-based learning media. The average N-Gain score among students is 0.6, underscoring a significant overall improvement in understanding. It can be concluded that using the LEDY application can improve students' writing skills.

Evaluation

In this evaluation, based on the results of the questionnaire after implementing LEDY android application-based learning media were as follows:

Table 4 The result of questionnaire

No	Question	Frequency	Percentage	Grading Interval
1	Ease of use of the Ledy application media via handphone	117	94%	Very high
2	The appearance of the Ledy application	113	90%	Very high
3	The relationship between Ledy application teaching materials and material learning	114	91%	Very high

4	Suitability of the material provided in the Ledy application with learning objectives	117	94%	Very high
5	Suitability of media content with learning material	113	90%	Very high
6	Ease of language used in the media	113	90%	Very high
7	The problems presented are related to everyday life	105	84%	Very high
8	The Ledy application media facilitates carrying out English language activities (finding problems, looking for information, solving problems, etc.)	116	93%	Very high
9	The presentation of games in the Ledy application is very helpful in strengthening understanding of concepts	113	90%	Very high
10	The Ledy media application helps solve problems that arise in learning English	113	90%	Very high
11	The attractiveness of the images, the storyline in the Ledy application	111	89%	Very high
12	Availability of evaluation in the Ledy application	109	87%	Very high
13	Suitability of evaluation questions to learning objectives	114	91%	Very high
14	The benefits of the Ledy application can make me more motivated to learn	113	90%	Very high
15	The Ledy application can make me more interested in learning	109	87%	Very high
16	Ability to increase understanding of concepts after using the Ledy application media	112	90%	Very high
	Mean	112,625	90%	Very High

From the results of the data calculations above, in each question, the researcher got the highest position. It can be shown the mean of frequency is 112,625 and the percentage of 90%. The use of LEDY an Android application-based learning media is very effective in English subjects, especially in procedure text material for tenth graders of SMK Wikrama 1 Jepara.

This research aims to answer the research questions. It was to explain the process of developing an Android application-based learning media, the advisability of Android application-based learning media, and the effectiveness of using an Android application-based learning media in teaching procedure text for students' tenth graders at SMK Wikrama 1 Jepara.

The evaluation phase of the research findings demonstrated the effectiveness of utilizing Android-based English learning media in enhancing the comprehension of procedural text material among class 10 students at SMK Wikrama 1 Jepara. A higher N Gain value indicates that the learning media had a positive and significant impact on students' understanding.

In addition, the students were also asked to give their responses for the use of the LEDY application in the learning process. Most of them noted that the LEDY application can make learning more effective, students can study independently and students can study with play. Utilization of LEDY Android application-based learning media is motivating toward students to learn than without it. The implementation of LEDY application is giving affect to learning achievement.

The result of this research showed that the students had positive responses toward the LEDY an Android application-based learning media. By using LEDY Application students can practice writing a procedure text. Students have more enjoyment in the learning process and are more motivated to learn. Besides that, the students also can learn anywhen and anywhere. These findings are in line with research done by (Agustina & Syafa, 2021). They found that the Android application can help the students practice English writing and it can be used anywhere. It can be conclude that The LEDY Android application-based learning media is worthly to use in teaching English subject, especially in procedure text material.

CONCLUSION

Technology plays a pivotal role in aiding educators to craft diverse and stimulating learning experiences through various applications. This research developed an Android application-based learning media to improve students' writing skill, especially in procedure text material. Based on whole the research findings, it can be seen that employing the LEDY application in tenth-grade can improve students' writing skills. In addition, LEDY application can make fun learning. In conclusion, the seamless incorporation of technology, such as the LEDY application, into the learning process not only making easier the learning process but also contributes to the student's engage in learning process.

LEDY application is suitable for a teacher because it has material, exercises, and games that make the learning process enjoyable. By using the LEDY Android application-based learning media, the students feel motivate in learning process and can improve the learning achievement. This article suggests further research to make an application with another material with more examples, and more exercise and games.

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