



The Effectiveness of Android Teaching Materials Based on Local Wisdom in Improving Students' Writing Skill

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ABSTRACT

Objective: This research aims to investigate the effectiveness of Android teaching materials based on local wisdom in improving student's writing skills in Indonesian language learning subjects at the junior high school level. **Method:** This research used a quantitative approach with the type of quasi-experimental research. The sample of this research was two classes (control and experiment class) from VII students of Junior High School 7 Tangerang City, which consists of 60 students. **Results:** The pretest and post-test results indicated a significantly different effect on students' writing skills between the control and experimental classes after being given Android teaching materials based on Local Wisdom in Indonesian language learning at the Junior High School level. **Novelty:** This research used new, unique elements of android teaching materials integrated with Tangerang local wisdom to help students acquire the materials more exciting and beneficial, especially in Indonesian language learning.

INTRODUCTION

Indonesian is the national language used across the country and regions. In addition to being the official language of instruction, Indonesian is a subject learned at every level that needs to be studied in elementary, secondary, and higher education (Kusyani, 2022). Acquiring linguistic proficiency also includes mastering written and spoken communication skills in the Indonesian language. Therefore, every language learner is responsible for comprehending, acquiring, and using language abilities (Sari et al., 2021). Learning Indonesian is beneficial for growing one's communication abilities and gaining knowledge mastery.

According to previous studies, there needs to be more interest in Indonesian language instruction among students and society. The need for a more innovative learning approach is one of the reasons why students find Indonesian language instruction less engaging (Kurniawan et al., 2020). In several cases, teachers also put in less effort; for example, teachers need to master the main ideas of their learning material since the current Merdeka Belajar curriculum demands student-centered learning (Dorlan & Epa, 2023). The study's findings demonstrate that originality and inventiveness are necessary to produce engaging Indonesian language materials. Developing instructional materials is one of the creative and innovative things that may be done to learn Indonesian. The creation of instructional materials is an attempt to raise the standard of instruction in schools in line with curricular requirements and advances in knowledge (Guswita, 2021). The creation of instructional materials is required since having access to learning resources, or instructional materials, is crucial to the learning process.

It is necessary to use the teaching materials for learning the Indonesian language since they are designed to help students develop both their language proficiency and the

Values they wish to instill in them (Santika & Sudiana, 2021). Teaching materials are more helpful to use in the learning process (Subakti & Handayani, 2020) and are also effective in improving student learning achievement because students need to obtain learning outcomes that meet the Minimum Completeness Criteria (Alimah, 2020a; Subakti & Handayani, 2020). Curriculum demands can integrate teaching materials into learning (Alimah, 2020b; Meilani, 2020). The research findings indicate that developing Indonesian language teaching resources is urgently needed. The limitations of pertinent teaching resources and the relatively new, independently developed curriculum that Junior High Schools are using are other factors that contributed to the development of this curriculum. Language learning in the Independent Curriculum (IKM) context is typified by text-based Indonesian language learning or the genre pedagogy approach (Cholifah et al., 2022; Haerazi & Irawan, 2019). The four critical steps of the genre pedagogy model are explaining, setting context, modeling, mentoring, and independence (Vidya et al., 2019).

The Indonesian language teachers were interviewed based on the results of a questionnaire conducted by researchers at Junior High School 7 in Tangerang City. The results showed that most Indonesian language teachers had implemented the Merdeka Curriculum and used teaching materials to support the learning process. The characteristics of learning by implementing the Merdeka Curriculum are active, creative, innovative, and independent learning. This means that learning must be student-centered so that students can develop the skills needed for themselves, society, nation, and state. The teacher's role now is as a facilitator who must prepare practical approaches, strategies, models, and teaching materials to create comprehensive learning to achieve learning objectives. Implementing the Merdeka Curriculum in schools is also the beginning of the digitalization of schools, so its implementation integrates various learning platforms as learning media. This shows that the Merdeka Curriculum requires teachers and students to apply digitalization, so teaching materials developed as an Implementation of the Merdeka Curriculum must utilize technology to be relevant to the demands of the curriculum (Cholilah et al., 2023; Rahmadayanti & Hartoyo, 2022).

Technology also develops rapidly as time passes, impacting people's views on seeking and obtaining information. Therefore, this technological development also significantly affects education (Mayasari et al., 2021; Mukhsin, 2019). Education is a communication process between teachers and students that contains educational information. The educational information teachers communicate to students is a subject matter that is systematically arranged into teaching materials (Efendi, 2019). Thus, these teaching materials can be given a touch of information technology media to invite active student involvement, creating enjoyable learning. The touch of information technology media in developing teaching materials can be realized by developing teaching materials that combine elements of printed and non-printed teaching materials (Shahrubudin et al., 2019) and also contain audio, audiovisual, and interactive videos containing material, practice questions, and tests which are then converted into digital format, not only packaged in CD (Kustyarini et al., 2020; Paino & Hutagalung, 2022). The other form of teaching materials is via internet network-based technology media using special applications and intended to be read via digital devices such as Android-based smartphones (Danar et al., 2022; Rianto, 2022).

Generally, teaching materials contain knowledge, abilities, and morals or values that students must acquire. Ideal teaching materials suit the environment where the learning process takes place. In other words, educational materials must be relevant to the

surrounding environment and the daily lives of the students who will use them (Herawati, 2019). Teachers can inspire students and guide them to build their knowledge and create good learning that must adapt to the environment and characteristics of the students they have built (Marbun, 2019). The subject matter contained in teaching materials must be relevant and accessible to students at a psychological and physical level. Physical proximity indicates that the subject matter is in the school environment and where students live, while psychological proximity means that cognitive abilities quickly assimilate the subject matter and contain information appropriate to the student's age (Irawan et al., 2020).

Therefore, students' social and cultural environmental conditions must be considered when developing teaching materials. This will help students understand the lesson material (Gusnawaty & Nurwati, 2019). According to Minister of Education and Culture Regulation No. 67 of 2013 concerning the Basic Framework and Structure of Primary Schools/Madrasah Ibtidaiyah, students are the heirs of a dynamic national culture. This regulation argues that for students to learn, the history of the nation's achievements in all areas of life must be taught in the curriculum. By interpreting what is seen, heard, read, and learned from cultural heritage based on the meaning determined by cultural lenses and by their level of maturity, the educational process provides opportunities for students to develop their potential into the ability to reason and academic excellence, as well as the development of student's physical and psychological aspect (Nugroho et al., 2019)

Tangerang is a city located in Banten province, Indonesia. The original tribe of the people of Tangerang City is the Sundanese Banten tribe (Sulaiman et al., 2020). Most people living in Tangerang are heterogeneous people from various ethnicities. In fact, in Tangerang, there is an ethnic Chinese settlement which is nicknamed "Cina Benteng." The name "Cina Benteng" comes from the word "Fortress," which is the old name of the city of Tangerang. This fact illustrates that Tangerang has a solid cultural mix (Fitriawati et al., 2019). Therefore, the cultural values and social norms that apply in the city of Tangerang are very diverse, so it is not uncommon for some people not to know the local wisdom of the city of Tangerang itself.

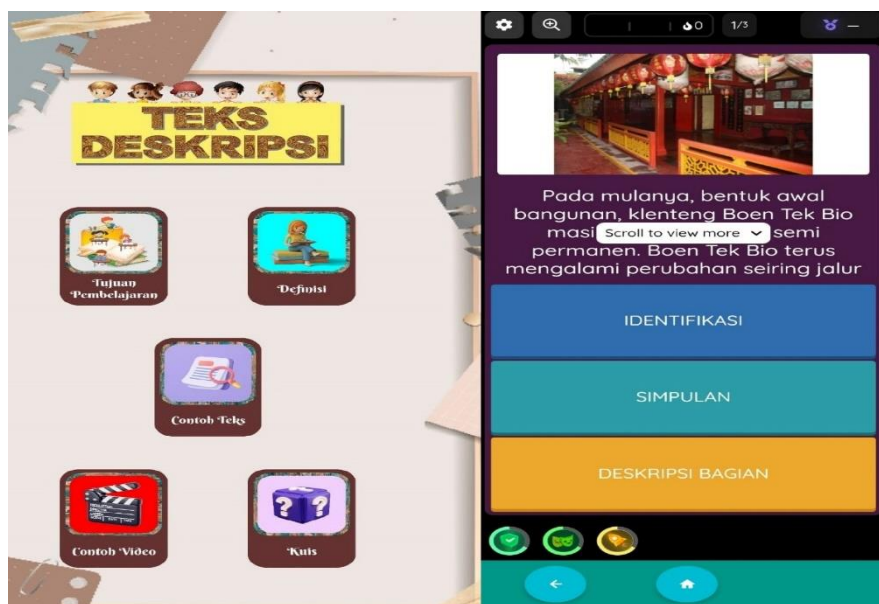


Figure 1. Example of android teaching materials based on local wisdom in Tangerang city.

From the facts, researchers are interested in using teaching materials oriented toward Tangerang's local wisdom, such as in Figure 1. Local wisdom needs to be introduced to the people of Tangerang City early so that integrating local wisdom in Indonesian language teaching materials for class VII middle school students in Tangerang City is considered appropriate. Local wisdom is the ethnic identity of a local community that utilizes local resources to develop local potential. Therefore, local wisdom that will be integrated into the development of Indonesian language teaching materials for class VII semester 1 includes historical buildings of the city of Tangerang in studying descriptive texts, folklore of the city of Tangerang in studying narrative texts, and typical food of the city of Tangerang in studying procedural texts as curriculum implementation independent. Based on the explanation above, it is necessary to carry out an in-depth study regarding the development of Android-based local wisdom-oriented Indonesian language teaching materials as the implementation of the Independent Curriculum for Junior High Schools in Tangerang City.

The aforementioned supports the researcher's claim that local wisdom should be incorporated into text-based Indonesian language instruction when implementing the Merdeka Curriculum, particularly in the language teaching materials used in class VII Junior High Schools (Naryatmojo, 2019). As an embodiment of the cultural, social, personality, and behavioral systems applicable in society, the text is structured for Indonesian language learning (Mudiartana et al., 2021a). In order to foster a love of the area in the next generation, content that highlights local wisdom is therefore thought appropriate to be incorporated into Indonesian language instruction. In order to comprehend the values that arise, local knowledge is a value with character attributes that might form an upbeat personality.

Therefore, local wisdom that will be integrated into the development of Indonesian language teaching materials for class VII, semester 1, includes historical buildings of Tangerang City in studying descriptive texts, folklore of the city of Tangerang in studying narrative texts, and typical food of the city of Tangerang in studying procedural texts. Based on the explanation above, conducting an in-depth study on the effectiveness of Android-based local wisdom-oriented Indonesian language teaching materials in implementing the Independent Curriculum of Junior High Schools in Tangerang City is necessary. Thus, this research objective is to investigate the effectiveness of Android teaching materials in improving students' writing skills. The novelty of this research is that the researchers used new, unique elements of android teaching materials integrating with the local wisdom of Tangerang's culture to help students acquire the materials more excitingly and get more beneficial, especially in the Indonesian language learning process. *id Teaching Materials Based on Local Wisdom in Improving Students Writing Skill.*

RESEARCH METHOD

The type of this research is called quantitative research. It used statistical data analysis to test and establish the research hypothesis. The type of method used is quasi-experimental research. Quasi-experimental research plays a crucial role in social sciences, allowing researchers to study the impact of specific interventions or variables when actual experimentation is either difficult or impossible (Maciejewski, 2020). Using quasi-experimental research designs, researchers can gather valuable data and make informed conclusions about the effectiveness of interventions, even when a random assignment of

subjects is not possible or, in another name, is a nonequivalent control group design. The population of this research is all students from the VII grade of Junior High School 7 in Tangerang City. They consist of five classes (VII-A to VII-E), but only two classes are used as samples (VII-D consists of 30 students as the control class, and VII-E consists of 30 students as the experimental class). The research instrument used in this research is a set of tests. A test is a tool or procedure used to gauge a student's performance based on a set of questions or tasks the student must complete (Sutami, 2020). Essay tests are the kind of exams utilized in research because they are good at measuring learning activities that are hard to quantify objectively. Pretests and post-tests are assessment tools used in research studies to measure the effectiveness of an intervention or treatment (William & Hita, 2019).

Before use, the instrument is tested first to be sure it is valid and that its correctness is beyond doubt to be suitable for use. The validity test uses the Pearson Product Moment correlation formula ($r_{bis} > 0,349$) while testing the reliability of the instrument using Croanbach's Alpha formula ($r_{0.668} > r_{table 5\%}$). Both tests were analyzed using IBM SPSS version 25.0. Later, the pretest and post-test are administered to participants before and after the intervention to see if any changes or improvements resulted from the treatment. Additionally, tests help researchers evaluate the participants' initial knowledge or baseline before the intervention and compare it to their knowledge or outcomes after the intervention (Setiyawan & Wijayanti, 2020). In this study, the pretest and post-test were used to assess the impact of the teaching protocol. The study data source was the test results provided during classroom learning.

RESULTS AND DISCUSSION

Results

The description of the data obtained in this research is data in numerical form or ability test scores that researchers have obtained from pretest and post-test scores in two classes, namely the experimental and control classes. Furthermore, researchers have processed numerical data or data on writing skills test scores. The control class was taught using the conventional method, while the experimental class used Android teaching materials. Below are the descriptions in Table 1.

Table 1. Descriptive statistics of students' pretest and post-test scores.

Descriptive Statistics	N	Range	Min	Max	Mean	Std. Deviation
Pretest_writing_skill	60	60	35	95	68.90	14.338
Posttest_writing_skill	60	50	50	100	79.82	13.177
Valid N (listwise)	60					

In this study, the control class was class VII-D, which consisted of 30 students, while the experimental class was class VII-E, which also consisted of 30 students. The pretest was given to both classes. The treatment using Android teaching materials based on local wisdom was only given to the experimental class. After receiving treatment, both classes were given a post-test again. Based on Table 1, the mean of pretest writing skills from both classes is 68.90, with a maximum score of 95.00, while in the post-test writing skills score is 79.82, with a maximum score of 100.00. After obtaining the pretest and post-test

writing skills, the researcher analyzed the prerequisite data, including the normality and homogeneity of variance. The hypothesis for normality is:

H0: Population scores (pretest and post-test) are typically distributed.

H1: Population scores (pretest and post-test) are generally not distributed.

If the normality test results show a significant value ($p\text{-value} < 0.05$), then the null hypothesis is rejected, and the data is considered not normally distributed. Conversely, suppose the normality test results do not show a significant value ($p\text{-value} > 0.05$). In that case, the null hypothesis is accepted, and the data is considered to come from a normally distributed population.

Table 2. The normality test result was obtained using one sample of Kolmogorov-S.

		Pretest_writing_skill	Posttest_writing_skill
N		60	60
Normal Parameters ^{a,b}	Mean	68.90	79.82
	Std. Deviation	14.33	13.17
Most Extreme Differences	Absolute	.097	.080
	Positive	.073	.080
	Negative	-.097	-.079
Test Statistic		.097	.080
Asymp. Sig. (2-tailed)		.20 ^{c,d}	.20 ^{c,d}

Based on Table 2, it can be seen that the result for the pretest normality test is $0.20 > 0.05$ or accept H0. The post-test normality test results are $0.20 > 0.05$ or accept H0. Thus, both pretest and post-test scores are normally distributed. After conducting the normality test, the researcher continued to test the homogeneity of variances between the two classes. The homogeneity test is a statistical test that aims to show that two or more data samples taken from a population have the same variance. The data tested is said to be homogeneous based on the following assumptions:

H0: A significance ($p\text{-value}$) > 0.05 indicates that the data group comes from a population that has the same variance (homogeneous).

H1: A significance ($p\text{-value}$) < 0.05 indicates that each group of data comes from a population with a different variance (not homogeneous).

Table 3. Result of homogeneity test using Levene's test.

		Levene Statistic	df1	df2	Sig.
Pretest_writing_skill	Based on Mean	.13	1	58.00	.71
	Based on Median	.17	1	58.00	.67
	Based on the Median and with adjusted df	.17	1	56.23	.67
	Based on trimmed mean	.15	1	58.00	.69
Posttest_writing_skill	Based on Mean	.02	1	58.00	.88
	Based on Median	.02	1	58.00	.88

Based on the Median and with adjusted df	.02	1	57.84	.88
Based on trimmed mean	.01	1	58.00	.90

Based on Table 2, the homogeneity test result using Levene's Test statistics is that the pretest p-value is $0.71 > 0.05$ or accept H_0 , while the post-test result is $0.88 > 0.05$ or accept H_0 . Thus, it can be assumed that data groups (control and experiment classes) come from a population with the same or homogeneous variance. Thus, the normality and homogeneity tests proved that the data is suitable for use as a research data source.

After conducting the prerequisite data analysis, the researcher applied hypothesis testing to test whether Android teaching materials based on local wisdom significantly affect students' writing skills. The research hypothesis is stated below:

Pretest:

H_0 : Students' writing skills were similar between the control and experiment classes before they were given Android teaching materials based on local wisdom.

H_1 : There was a significant difference in students' writing skills between the control and experiment classes before they were given Android teaching materials based on local wisdom.

Post-test:

H_0 : Students' writing skills were similar between the control and experiment classes after receiving Android teaching materials based on local wisdom.

H_1 : There is a significant effect on students' writing skills between control and experiment classes after being given Android teaching materials based on local wisdom.

Table 3. Result of hypothesis testing.

Test of Hypothesis	t-count	t-table	Sig. (2-tailed)	Result
Pretest_writing_skill	2.39	2.00	.020	Accept H_1
Posttest_writing_skill	2.15	2.00	.036	Accept H_1

Based on Table 3, the result of the pretest writing skill of t-count $2.39 > t$ -table 2.00 or accept H_1 means a significant difference in students' writing skills between the control and experiment classes after being given Android teaching materials based on local wisdom. In addition, the result of the post-test writing skill of t-count $2.15 > t$ -table 2.00 or accept H_1 means there is a significant difference in students' writing skills between the control and experiment classes after being given Android teaching materials based on local wisdom. Both pretest and post-test scores have similar results, so it can be concluded that Android learning materials based on local wisdom can improve students' writing skills in Indonesian language learning subjects in VII grade students of Junior High School, especially in Tangerang City.

Discussion

Several advantages support this research result. First, the android teaching materials based on local wisdom are a learning medium that can integrate characters and values into the Indonesian language learning process (Mar'atussolichah et al., 2024). The android teaching materials are presented excitingly and attract students' learning

interests (Negara et al., 2019). Local wisdom-based learning materials combine Indonesian concepts and principles with local wisdom, which makes learning more exciting and compelling. Second, Android teaching materials based on local wisdom make learning more meaningful by integrating local values into learning (Nasarudin & Ahyuni, 2023). Third, it can improve the quality of learning. Using learning materials based on local wisdom positively impacts the quality of learning, such as increasing concentration and interest and creating a conducive learning environment (Naryatmojo, 2019). Fourth, using android teaching materials based on local wisdom can increase teacher competence. Learning media based on local wisdom can enrich teacher competence in managing classes and using technology (Mudiartana et al., 2021b). Fifth, it can improve students' language abilities. Learning media based on local wisdom can help students develop their abilities, such as creativity, innovation, and understanding of the material (Ridho et al., 2021). Lastly, it can minimize student learning problems. Learning media can solve student learning problems by increasing concentration and interest and creating a conducive learning environment (Dwijayani, 2019). Using Android devices as learning tools, students can improve their writing skills and develop digital literacy and technological competence, essential skills in today's digital age.

Additionally, teachers should provide learning experiences in animation, movies, sound effects, and other complements that combine technology with traditional wisdom since it can enhance critical thinking abilities (Peguera-Carré et al., 2024; Syahfitri, 2024). Students found it easier to understand concepts, work through problems, and develop their critical thinking abilities when the material was visualized about real-world scenarios (Lord et al., 2024). Additionally, learning objectives could be more successfully attained, and an inventive and dynamic learning environment could be created when the material is presented in an interactive multimedia format.

Using Android-based material presented in class or adding to student learning and teaching writing improves students' language and communication skills (Napaldi et al., 2024; Rosmiati et al., 2023). Students who do not receive optimal writing instruction will not be able to impart to future generations the knowledge and skills they acquire in the classroom and the advancement of science and technology. Since the written form of a language is used to exchange experiences with people from different civilizations and generations, writing projects based on local wisdom can help them impart their legacy to new generations.

CONCLUSION

Fundamental Finding: Based on the findings of this research, there is a significant effect on students' writing skills when using Android teaching materials based on local wisdom in Indonesian language learning at the junior high school level. The fact that Android teaching materials are based on local wisdom might benefit the students' learning process. **Implication:** The implications of your research can highlight how Android, based on local wisdom, can expand the themes or topics of learning material to provide cultural knowledge to the younger generation with the help of technology. **Limitation:** The limitation of this research is that it only studies a limited type of text based on local wisdom; many features of cultural aspects still need to be researched. **Future Research:** In future research, it is hoped that researchers will make a needs analysis, develop Android into a complete learning application, and make it at each level, including elementary school, middle school, and higher institutions.

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