



DEVELOPMENT OF ANDROID-BASED DIGITAL POCKET LEARNING MEDIA TO INCREASE STUDENT'S INTEREST AND LEARNING OUTCOMES IN IPS LEARNING

Maria Dewi Ratna Simanjuntak¹

State University of Medan, Indonesia

Email : madeemaddy2@gmail.com

Dede Ruslan²

State University of Medan, Indonesia

Naeklan Simbolon³

State University of Medan, Indonesia

Abstract

This study aims to describe the level of feasibility and effectiveness of developing android-based digital pocketbook learning media to increase student interest and learning outcomes in social studies learning for class IV. This research was conducted at the Pembina Experimental Elementary School, Medan, North Sumatra. The subjects of this study were all fourth-grade students of the Medan Pembina Experiment Elementary School for the 2020/2021 academic year, totaling 60 students. This research method is ADDIE development research. The results showed (1) Based on the validity of material experts 92.5%, design experts 80%, and linguists 90%. From the results of the validation of the developed media, the media is included in the perfect criteria and is declared valid and feasible to use; (2) Learning Media for Android-Based Digital Pocket Books is categorized as practical because the media resulting from student responses from the first and second trials has increased; and (3) Based on the research results, the Android-based digital pocketbook learning media is said to be effective in learning with the assumption that students' social studies learning value is higher when using Android-based digital pocketbook learning media.

Keywords: *Learning Media, Android, Interests and Learning Outcomes*

A. Introduction

In education, learning media is an essential component. Especially in the current era of globalization, conventional learning media are no longer suitable to be applied. Conventionally, in this case, conveying the material is only lectured and giving assignments in printed books. Without modern learning media, student learning outcomes will be challenging to improve. With well-designed learning media and exciting content and illustrations, it will stimulate students to use learning media as learning aids (Yusrizal & Fatmawati, 2020).

The rapid development of technology and information in various aspects of life, including in education, is an effort to bridge the present and the future by introducing efficiency and effectiveness reforms. Updates in the learning process in the classroom are essential, considering that in this modern era, the use of information and communication technology is very much needed by educators and students. (Yusrizal et al., 2019).

Social Sciences is rich in abstract concepts that make it difficult for students to imagine. If only abstract concepts could be made into a reality to be easily grasped by the five senses, the problem would be very different. The lack of interaction between teachers and students causes students not to have too many opportunities to express what is on their minds.

Social Sciences is often considered a complicated subject, even very complex for students. In learning social studies, this is due to the lack of potential from the teacher to develop media that allows it to be used in learning so that it can add knowledge to students. This is because teachers only use textbooks, LKS, as a source to introduce social studies learning.

The level of achievement of learning outcomes can be influenced by certain conditions, both internal and external factors. According to Slameto (2013:107), two factors influence learning achievement: internal and external factors. Internal factors include physical or physical maturity, fatigue, psychology in talents, interests, intelligence, motivation, and cognitive abilities and achievements. In comparison, external factors include the natural environment, family environment (how parents educate, relationships between family members, home atmosphere, family economic situation, understanding of parents, cultural background), school environment (teaching methods, learning media, curriculum, teacher relations with students, student relations with students, school discipline, school time, standard of study above the size, learning methods, homework assignments), and the community environment (student activities in the community, friends to hang out with, forms of community life).

Learning media must be adjusted to analyze student needs and learning characteristics, learning objectives, and student learning development. Teachers should also consider measuring tools for student learning success (Suherman, 2008). To help the process of delivering material, a teacher to students can use learning media. Learning media is one of the factors that support student success.

In order to create exciting learning activities, it takes the creativity of a teacher who can choose, develop and utilize various types of media with the help of multimedia learning that can stimulate students' interest in participating in learning activities during the learning process. Therefore, to overcome students' difficulties in understanding the material and increase interest in learning and student learning outcomes, teachers need to create media that can convey messages and display the

material in its entirety with learning objectives. The media selection must be appropriate to attract students' attention, be effective and efficient and provide clarity of the object or material being studied (Yusrizal et al., 2017).

B. Method

This type of research is Research and Development with a development model learning design. ADDIE has five steps or stages covering Analyze, Design, Development, Implementation, and Evaluation aspects. This research was conducted at the Medan Pembina Experiment Public Elementary School on Jl. Sei Peasant no 19 Medan. The subjects in this study were all fourth-grade students of the Medan Pembina Experiment State Elementary School, totaling 60 students.

In comparison, the object in this study is an Android-based digital pocketbook learning media in KD 3.1 identifying the characteristics of space and the use of natural resources for the welfare of the community from the city/district level to the provincial level in social studies subjects. The data collection instrument in this development is an assessment instrument to assess the product that has been developed. In addition, a questionnaire was also given to students. Before the test was used, the test was first tested for validity, reliability, level of difficulty, and differentiating power of questions.

C. Finding and Discussion

1. Result

a. Product Trial Result Data Description

1) Learning Material Expert Validation Results Data

Based on the validation by the material expert, validation 1

received an assessment of 75%. After the revision reached 90% after adjusting to the eligibility table, this score was included in the "very valid" criteria. However, according to the operational word material expert, the media must be emphasized or sharpened and stated it is worth using with revision. Suggestions from material expert assessments in general the material follow the existing KD. The concepts outlined in the learning media are also perfect, but there are some improvements in the sections in this learning media and pay more attention to the concept of the material to students.

2) Learning Design Expert Validation Results Data

The results of the assessment by learning design experts include aspects of physical appearance attractiveness, the accuracy of design use, conformity of format, presentation with target characteristics, clarity of media instructions, clarity of material exposure, and suitability of evaluation with the material as a whole can be concluded that the level of score achievement is 80% in stage 1 and 91% in stage II where the range is at the level of achieving a score of 85 - 100 categorized as "Very Good." The results of the assessment of learning design on the development of learning media for Android-based digital pocketbooks received several comments, suggestions from media experts; the design of the layout of the learning media was made even more interesting, the content and images in the learning media were presented in original images, not cartoons. The conclusion from the assessments, comments, and suggestions by learning design experts is that the Android-based digital pocketbook learning media deserves to be tested in the field with revisions.

3) Media Expert Validation Result Data

The results of the assessment by the learning media design expert, which includes aspects of media display design, media programming design, and media content design as a whole, can be concluded that the level of achievement of the score of the media design expert 1 is 80% where the range is at the level of achievement of a score of 75-85 categorized "Good" and the level of achievement of the score from media design expert 2 is 92.5% where the range is at the level of attainment of a score of 85–95 which is categorized as "Very Good."

4) Individual Trial

Analysis of individual trial data, which includes aspects of media display and content of android-based digital pocketbook learning media on natural resource materials as a whole, reached 81.67% included in the "Very Good" category. The assessment and response to the Android-based digital pocketbook learning media on individual trials conducted by 3 students showed that the product developed was feasible to use. There was a suggestion for improving the appearance that was less attractive by students in individual trials of learning media development products. Android-based digital pocketbook so that development activities are continued in small group trials with revisions.

5) Small-Group Trial

Small group trials covering aspects of media display and content of android-based digital pocketbook learning media on economic activities and their relationship to various fields of work in the surrounding environment reached 90.42% included in the "Very Good" category. Students said that "the media that is seen is exciting and suitable for learning, the appearance is following the students who use it, the

selection of colors and layouts of the learning media is quite interesting, by providing real pictures, it would be nice if all subjects used this media as a reference in the study.

The assessment and response to the Android-based digital pocketbook learning media on individual trials conducted by 3 students showed that the product developed was feasible to use. There was a suggestion to improve the display of fishing images that students had not seen in individual product development trials—android-based digital pocketbook learning media so that development activities are continued in small group trials with revisions.

The following formula can calculate students' classical learning mastery:

$$PKK = \frac{\text{Many Students Complete}}{\text{Many Research Subjects}} \times 100\%$$

$$PKK = \frac{4}{6} \times 100\%$$

$$PKK = 67\%$$

Based on the data above, there are 67% of students have achieved KB 70%. After the students' mastery of individual and classical learning processes were analyzed, the pre-test and post-test results were calculated with the gain score.

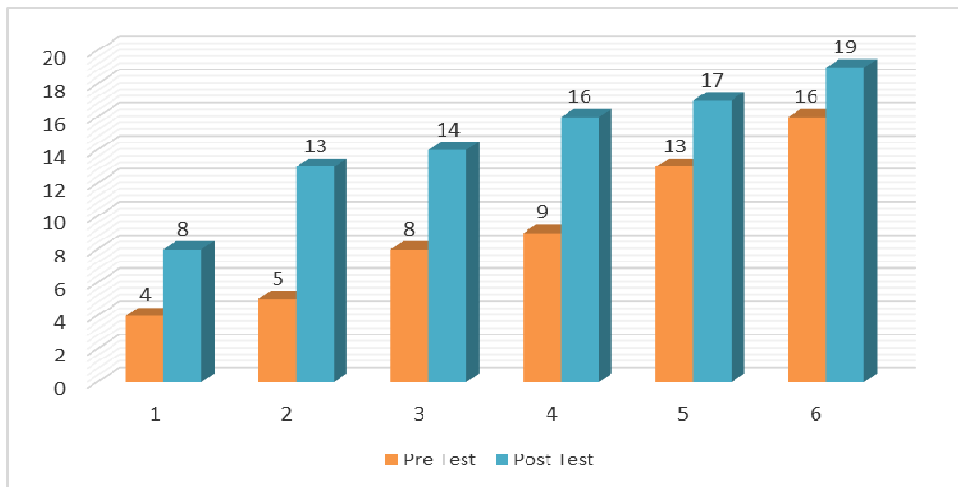


Figure 1. Pre-Test and Post-Test Diagram of Small-Scale Test Students

$$g = \frac{S_{Post} - S_{Pretest}}{\text{Maximum Score} - S_{Pretest}}$$

$$g = \frac{14,8 - 9,2}{6 - 9,2}$$

$$g = 0.50$$

Criteria: $0.70 < g \leq 1.00$ *tall*
 $0.30 < g \leq 0.70$ *currently*
 $0.00 < g \leq 0.30$ *low*

Based on the gain Score obtained results are 0.50, then the gain score on the small-scale test, which is 6 people, is classified as moderate.

6) Large Group Trial

The following formula can calculate students' classical learning mastery:

$$PKK = \frac{\text{Many Students Complete}}{\text{Many Research Subjects}} \times 100\%$$

$$PKK = \frac{27}{30} \times 100\%$$

$$PKK = 90\%$$

Based on the classical learning completeness data above, 90% of students have achieved KB 70%. After the students' mastery in individual and classical learning is analyzed, the pre-test and post-test results are calculated with the gain score. To see the increase in the value and effectiveness of the media developed between before and after using the normalized gain score formula:

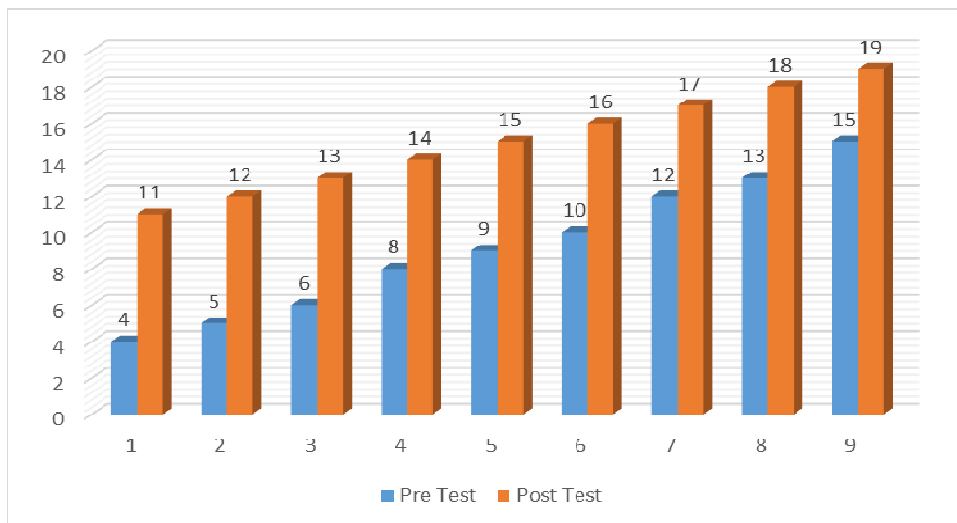


Figure 2. Pre-Test and Post-Test Diagrams of Large-Scale Test Students

$$g = \frac{S_{Post} - S_{Pretest}}{Maximum\ Score - S_{Pretest}}$$

$$g = \frac{17 - 8,4}{20 - 8,4}$$

$$g = 0.74$$

Criteria:	$0.70 < g \leq 1.00$	<i>tall</i>
	$0.30 < g \leq 0.70$	<i>currently</i>
	$0.00 < g \leq 0.30$	<i>low</i>

Based on the gain score, the results obtained are 0.74, so the gain score on the large-scale test is high.

Based on the table, it can be seen that of the 30 students in the development of android-based learning media, 16 students have high learning interests, and 14 students have low learning interests. It can be concluded that learning by using android-based learning media can increase the learning interest of fourth-grade students of SD Negeri Pembina Medan.

2. Discussion

The validity that is carried out at the validity stage is theoretical validity, with experts and competent in their fields based on theoretical and logical considerations. 3 parts of Android-based digital pocketbook learning media will be validated: material, design, and media. Android-based digital pocketbook learning media that is developed needs to be validated to obtain feasibility so that it is suitable for learning. At the validation stage, the researcher conducted an assessment using discussion techniques by showing the initial design of the Android-based digital pocketbook learning media to learning design experts, material experts, and learning media experts. In addition, researchers also provide validation sheets to validators in order to obtain theoretical validation results.

Based on the validation of the material experts, it is known that the validation assessment is 84.09% with valid criteria, but there are still improvements from the material experts. The material expert suggests correcting simple words so that students can understand them after revising the percentage to 92.11% validity with very valid criteria. The validator also recommends using materials that are following current conditions. After discussing with material experts, the Android-based digital pocketbook learning media was revised based on the validator's

input and suggestions.

Based on the validation of the learning design experts based on content, presentation, display language, and content, it received an assessment of 78.57% in the excellent category. The validator suggested that the color of the media used is more variable and that the size of the writing be slightly enlarged so that all students can see clearly. After being revised, it is suitable for use by students.

Furthermore, the media feasibility test was tested on individual students, the percentage results were 81.67%, and in a small-scale trial of 6 people, the percentage results were 90.42%, with an excellent category and very feasible to use. In line with Trianingrum and Airlanda (2017), interactive media is feasible in elementary schools based on research results showing the feasibility of interactive media for media aspects of 4.00, material aspects of 3.23, and language aspects of 4.11. In the limited trial, the results of the student questionnaire showed the feasibility of 4.34 and the teacher's questionnaire of 4.70. While the results of student questionnaires in the broad trial showed the feasibility of 4.44. Based on the results of a series of due diligence processes,

Based on the assessment given by the validator and the assessment given by students to the Android-based digital pocketbook learning media that was developed and input provided by the experts, the Android-based digital pocketbook learning media that was developed is said to be valid and feasible to use in learning.

The effectiveness of the Android-based digital pocketbook learning media is measured using the pre-test and post-test results at the beginning of learning and at the end of the learning activities carried out. The pre-test results amounted to 20 multiple choice questions consisting of four choices, namely a, b, c, and d. Student pre-test data shown in table

4.18 shows that student learning outcomes are still low, with an average of 8.4 with a standard deviation of 3.8. This is seen based on the minimum completeness criteria of the minimum school completeness for social studies subjects is 70.

A post-test is carried out at the end of the learning activities and has used the media to see student learning outcomes. Based on the post-test results carried out, it can be seen that the post-test results of students reached an average of 14 with a standard deviation of 2.7. Based on the minimum completeness reference for social studies subjects is 70, it can be seen that learning outcomes have increased, and it can be said that student learning outcomes have reached the minimum completeness criteria (KKM). Based on the results of students' classical mastery in table 4.18, it can be seen that the average classical learning mastery data reached 17 students who had reached KB 70%. After students' mastery in individual and classical learning is analyzed, then the results of the pre-test and post-test are calculated with the gain score to assess the increase in the effectiveness of the Android-based digital pocketbook learning media between before using and after using the results obtained 0.74, the student's gain score is high. Based on the results above, there is an increase from before and after using, in line with that in the journal. Radityan et al. (2014) say that interactive media greatly influences student learning outcomes.

Besides based on learning outcomes, the effectiveness of the media can also be seen with student response questionnaires using android-based digital pocketbook learning media, students who strongly agree as much as 73.3%, and students who agree with android-based learning media developed by researchers. Based on student responses, it is concluded that the learning media developed is said to be effective.

Based on the journal Naniek K (2015), it can be seen that children's enthusiasm can be seen from a student response questionnaire data.

Based on the description of learning outcomes and student responses above, it can be concluded that the Android-based digital pocketbook learning media developed can be said to be effective. Because it meets the criteria for the quality of media completeness, namely effectiveness and feasibility, the Android-based digital pocketbook learning media is of high quality. In addition, from the research that researchers have done and based on research that previous researchers have done, it can be said that it is necessary to make a change in learning design, one of which is by developing learning media in the form of an Android-based digital pocketbook learning media combined with various learning models/strategies, which can support the learning process to make students more active in the learning process.

Based on the purpose of development research, namely to determine the feasibility and effectiveness of the Android-based digital pocketbook learning media, this can be said to be effective and suitable for all students because based on the data obtained shows that this android-based digital pocketbook learning media is effective for improving student learning outcomes.

D. Conclusion

Based on the discussion that has been described previously, several conclusions can be drawn, including the following:

1. Based on the results of the validity of the material, experts obtained feasibility with a percentage of 92.11%, learning design experts obtained feasibility with a percentage of 78.7%, on student responses about the feasibility of the media obtained a percentage of 81.67%

on a small-scale trial, namely 6 students and 90,42% in the large-scale test that is 30 people. Based on the data from the validation results, the Android-based learning media developed is included in the perfect criteria and is feasible to use.

2. Based on the data of students' learning mastery before using, the average score reached 8.4, while after using individual and classical mastery, the average reached 14 with a gain score of 0.74 into the high category. Moreover, student response questionnaires about the effectiveness of android-based learning media reached 73.3% of 30 students. Based on this data, the Android-based learning media is said to be effectively used.

Bibliography

- Abdul. M. 2011. *Pengembangan Buku Saku Media Pembelajaran Berbasis SETS (Science, Environment, Technology, Society) pada Materi Zat Adiktif dan Psicotropika di Mts NU 20 Kangkung Kabupaten Kendal Kelas VIII* tahun ajaran 2010/2011. IAIN Walisongo Institutional Repository.
- Alghamdi, A. 2015. An Investigation of Saudi Teachers' Attitudes Towards IWBs and their use for Teaching and Learning In Yanbu Primary Schools in Saudi Arabia. *International Journal of Arts and Sciences*. Vol. 8(6). pp. 539–554.
- Anwariningsih, S dan Ernawati, S. 2013. *Development of Interactive Media for ICT Learning at Elementary School Based on Student Self Learning*. *Journal of Education and Learning*. Vol.7 (2) .pp. 121-128.
- Arikunto . S. 2010. *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: Rineka Cipta.
- Arsyad, A. 2013. *Media Pembelajaran*. Cetakan ke-16. Jakarta: Raja Grafindo Persada.
- Daryanto. 2016. *Media Pembelajaran*. Cetakan Pertama. Yogyakarta: Gava Media.
- Suherman, E. 2008. *Model Belajar Dan Pembelajaran Berorientasi* [777]

- Kompetensi Siswa. *Educare Jurnal Pendidikan dan Pengembangan*. Vol. 5 (2). hal. 1-32
- Sugiyono. 2014. *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.
- Yusrizal, Y., & Fatmawati, F. (2020). Analysis of Teacher Abilities in Implementing Online Learning in Elementary Schools of the North Sumatra PAB Foundation. *Jurnal Ilmiah Teunuleh*, 1(2), 129–137. <https://doi.org/10.51612/teunuleh.v1i2.27>
- Yusrizal, Y., Hajar, I., & Tanjung, S. (2019). Analysis of Elementary School Teachers' Ability in Using ICT Media and Its Impact on the Interest to Learn of Students in Banda Aceh. *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, 2(3), 45–57.
- Yusrizal, Y., Safiah, I., & Nurhaidah, N. (2017). Kompetensi Guru Dalam Memanfaatkan Media Pembelajaran Berbasis Teknologi Informasi Dan Komunikasi (Tik) Di Sd Negeri 16 Banda Aceh. *Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 2(2), 126–134.