

## The Development of Android-Based Mobile Learning for Indonesian History Course at Vocational High School

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### Abstrak

Tujuan penelitian ini adalah mengembangkan mobile learning berbasis android pada mata pelajaran Sejarah Indonesia di SMK YIS Martapura. Penelitian ini merupakan Research and Development (R&D) yang menggunakan model Alessi & Trollip. Teknik pengumpulan data menggunakan angket, sedangkan data penelitian dianalisis menggunakan rumus persentase. Dari hasil validasi ahli media memperoleh nilai 88,69 persen termasuk dalam kategori "Baik". Pakar desain pembelajaran memperoleh nilai sebesar 82,0 persen yang termasuk dalam kategori "Baik". Ahli materi memperoleh nilai 89,9 persen, termasuk dalam kategori "Baik". Pada evaluasi one-on-one dengan jumlah responden 3 siswa memperoleh hasil rata-rata sebesar 86,38 persen yang termasuk dalam kategori "Sangat Baik". Kemudian dilakukan evaluasi kelompok kecil dengan 6 siswa sebagai responden memperoleh hasil rata-rata sebesar 86,73 persen termasuk dalam kategori "Sangat Baik". Selanjutnya dilakukan uji lapangan dengan jumlah siswa sebanyak 28 orang dengan hasil rata-rata 86,78 persen dengan kategori "Sangat Baik". Nilai uji coba lapangan menunjukkan adanya peningkatan pada post-test. Dari hasil evaluasi ahli dan uji coba lapangan dapat disimpulkan bahwa mobile learning berbasis android pada mata pelajaran Sejarah Indonesia di SMK menunjukkan tingkat kelayakan yang baik dan dapat diterima sebagai salah satu media pembelajaran yang dapat digunakan dalam pembelajaran di kelas. .

**Kata kunci:** android, media pembelajaran, mobile learning, pembelajaran, kelas sejarah indonesia

### Abstract

This study aimed to develop android-based mobile learning for Indonesian History course at SMK YIS Martapura. This is a Research and Development (R&D) using the Alessi & Trollip model. Data collection techniques used questionnaire while research data were analyzed using the percentage formula. From the validation results, media experts scored got 88.69 percent belong to "Good" category. Instructional design experts scored is 82.0 percent which is belong to "Good" category. Material experts scored got 89.9 percent, belong to "Good" category. In one-to-one evaluation with the number of respondents is 3

	<p><i>students got an average result of 86.38 percent which is belong to "Very Good" category. Then a small group evaluation was carried out with 6 students as respondents got an average result of 86.73 percent belong to "Very Good" category. Furthermore, field test was carried out with a total of 28 students with an average result of 86.78 percent in the "Very Good" category. Field trial score showed that there is an increase of post-test. From the results of expert evaluations and field trials, it can be concluded that android-based mobile learning for Indonesian History subject at Vocational Schools show a good level of feasibility and can be accepted as one of the learning media that can be used in classroom learning.</i></p> <p><i>Keywords: android, learning media, mobile learning, instructional, indonesia history course</i></p>
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## INTRODUCTION

Preparing human resources who have expertise and skills according to the demands of the intellectual development of Indonesian can be reach through education. The challenge in the education system is renewal to keep up with science and technology developments. Science and technology which develop rapidly encouraged the creation of innovations in all fields, including the field of education. The rapid development of technology in education field bring students to become part of a digital native. Digital native is a term for people who were born in the digital era, when technology develop rapidly such as computers and the internet (Davies & Eynon, 2018). The digital native generation is generally used to technological developments, so they quickly adapt and feel comfortable using digital tools (Widyawinata, 2023). One of the technologies that has supported all digital native activities is the development of an operating system commonly known as Android. Currently android can be called the king of smartphones. Many devices use android applications, ranging from Smartphones, Tablets to games. Android is an operating system for smartphones and tablets. The operating system can be illustrated as a 'bridge' between the device and the user, so that the user can interact with the device and run the applications available on the device. (Prabowo et al., 2013; Satyaputra & Aritonang, 2016). Android is an operating system for Linux-based mobile devices that includes an operating system, middleware and applications (Ichwan & Hakiky, 2011; Lauren & Murtiwati, 2013).

Android provides an open platform for designers to create their own applications. The Android operating system makes special learning media for students packaged in software. This application is easy to use and can integrate and combine various things such as images, colors, videos and animations in learning materials, so that students are interested in reading and learning. The process of receiving and obtaining information from various knowledge sources that are broad and easily available to students. This application is easy to use. It is combination of various things such as images, colors, videos and animations in learning materials, so that students are interested in reading and learning. The process of receiving and obtaining information from various knowledge sources that are broad and easily available to students. A teacher is required to take advantage of the digital native era in the learning process. One of them is the use of Android as a learning medium that helps teachers in delivering learning material. The use of android as a learning medium is also known as mobile learning.

Learning is a complex process that happens to everyone and lasts a lifetime, from when born to the last breath (Sadiman, 2011). The learning process occurs within the individual with indications of a change in the learner (Budiningsih, 2005). Learning is a set of events that affect learners in such a way that learning is facilitated (Gagne, 1992). The term learning is used to denote an educational effort that is carried out deliberately, with objectives set in advance before the process is carried out, and the implementation is under control (Miarso, 2004). Instructional is a process of interaction between teachers and students, both direct interactions such as face-to-face activities or indirectly by using learning media (Rusman, 2013). Learning media is media which is used in instructional process, it functions as a means of delivering messages from learning sources to recipients of learning messages or students (Suryani et al., 2012). Learning media is expected can increase the interest and motivation of students, so that the competence and learning objectives can be achieved properly. One alternative learning media that can be used anywhere and anytime is mobile learning (Darmawan, 2015).

Mobile learning is also defined as any learning that applies in places and locations that are not specified or learning that applies when students use mobile technology (Sahara, 2017). Based on field observations, it was found that the characteristics of the Indonesian History subject were theory and verbal which were more dominant in the development of cognitive abilities. The learning process at that time still used printed teaching materials and media had never been specifically designed for these subjects. Learning outcomes are still not in line with expectations. It is expected that all students can achieve a minimum grade standard criterion or KKM score, but there are still 20% of students who have not meet the target. Teachers hope that there will be an innovation in learning media, especially media based on recent technology, but the main obstacle is the limitations of teacher skill, especially skill in developing media. Looking at the current phenomenon where almost all of students today have mobile as a means of communication, while in this subject matter, there's no have a learning media based in mobile. So, the author is interested in developing Android-based media which is expected can help students learn and utilize mobile for positive activities that also support the learning process. This android-based learning media is special for history subject in class X Vocational School.

## METHOD

This is a Research and Development (R&D). Research and Development is a research method used to produce certain products then test the effectiveness of these products (Sugiyono, 2012). The research procedures follow the Stephen M. Alessi and Stanley R. Trollip development model. The research development step has three phases, they are; planning, design, and development (Alessi & Trollip, 2021: 410). In the planning phase researchers carries out needs analysis by doing the following steps: 1) define the scope; 2) identify the characteristics of students; 3) conduct brainstorming or discussions with teachers about matters relating to product development. In the design phase, the researcher do several things, they are; 1) analyzed concepts and tasks related to the material; 2) do initial product descriptions; 3) create flowcharts and storyboards; 4) preparing scripts to produce material in the form of audio and video. The development phase, researcher produces supporting elements based on prepared scripts such as preparing audio or narration, video, graphics or other things needed then producing products and conducting evaluations. The evaluation carried out is a formative evaluation that aims to improve the product being developed. The

formative evaluation refers to Tessmer (Tessmer, 1998). The development model and step of formative evaluation can be seen in the Figure 1.

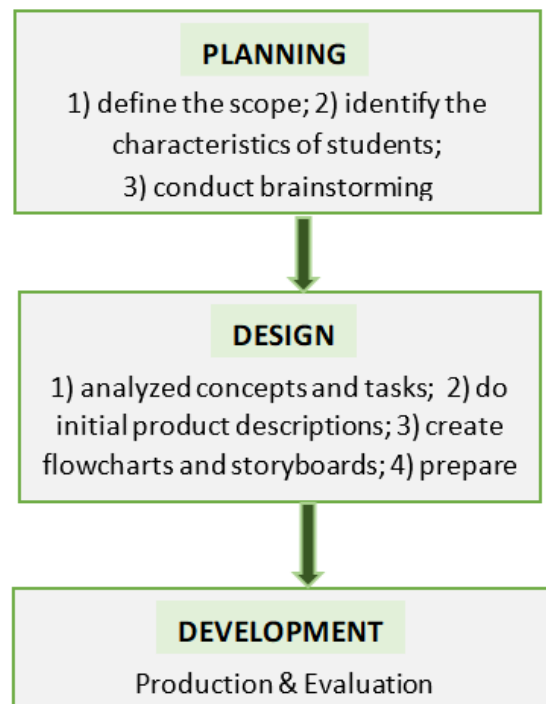


Figure 1. Alessi & Trollip Model in Research and Development

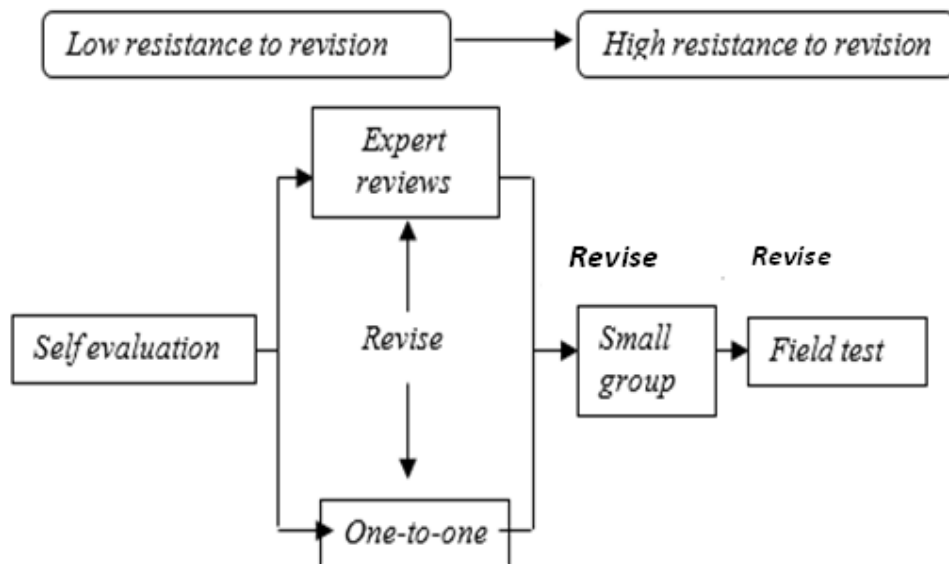


Figure 2. Formative Evaluation refers to Tessmer

This research was conducted with the aim of utilizing Android mobile phones in the learning process by developing Android-based learning media in order to increase the effectiveness and quality of learning. This learning media product was tested on class X students of YIS Martapura Vocational School. Before being tested, this learning media was first validated by several experts, they are; media expert, instructional design expert and

material expert. This evaluation held ensure the validity of learning media products. The next stage is individual trials or one to one evaluation. The respondent is 3 students which is representing high, low and medium abilities. The process of determining the sample was carried out by researchers in coordination with subject teachers, after students were grouped based on ability criteria and then randomly selected. The next stage is a small group trial or small group evaluation of 6 students. The final stage is a field trial or field test conducted on 28 students. The instrument used in this study was a questionnaire in the form of a list of questions given to validators and respondents to provide an assessment of the learning media products being developed. The results of the questionnaire were calculated using percentages with reference to the Sudijono percentage calculation as shown in [Formula 1](#) (Sudijono, 2010).

$$\text{Percentage} = \frac{\text{Total of Score}}{\text{Maximum Score}} \times 100\% \quad (\text{Formula 1})$$

One group pre-test and post-test design is used to see the effectiveness of this product for learning. Pre-test is given before treatment then at the end of learning given post-test ([Sugiyono, 2007: 111](#)). This research design was used to determine the increase in students' score after carrying out learning using the android mobile learning for Indonesian History. The research design can be seen at the Table 1:

Table 1. One group Pretest -posttest Design

Pre-test	Treatment	Post-test
O <sub>1</sub>	X	O <sub>2</sub>

## RESULT

The learning media developed is Android-based mobile learning. The materials are developed refers to the standard of competence and the basic competence for first semester grade X Indonesian history at Vocational School. Students need to install applications first on Android Smartphone before using the media. There are several menus in this media, they are; the initial page contains information to start learning as the first step to enter the learning media. The main menu contains buttons, such as the instructions button functions to provide instructions for using the media, the Competency button functions to display core competencies and basic competencies, the material button functions to display material, the evaluation button functions to work on evaluation questions, the Profile button functions to display the Developer profile . The instructions page contains information regarding general instructions on how to use the program, namely regarding the button functions or displays used in this program. The competency page contains information about core competencies and competency standards adapted to the syllabus for Class X Indonesian History at SMK YIS Martapura. The material page is a sub menu of the main menu page. On this page there are menu buttons to link to material based on basic competencies. As for the material page in each basic competence, there is a menu to link to the material, as shown in the picture. The Evaluation page contains questions in the form of multiple choice to find out students' understanding of the material that has been studied, as shown in [Figure 3](#).



Figure 3. Screen of android-based mobile learning

Before the m-learning media is used, it is first validated by experts to determine the feasibility of the media. Developers make improvements according to the suggestions of these experts. The results of the media expert validation obtained an average score of 88.69% belong to "good" category. Instructional design experts obtained an average score of 82.0% which is belong to "good" category. Evaluation of material experts obtained an average score of 89.9% which is belong to "good" category. The results of the acquisition of scores from experts can be seen in Table 2.

Table 2. Experts Validation Score

Expert	Average Score	Category
Media Expert	88.69%	Good
Instructional Design Expert	82.0 %	Good
Material Expert	89.9%	Good
Total Score	86.83	Good

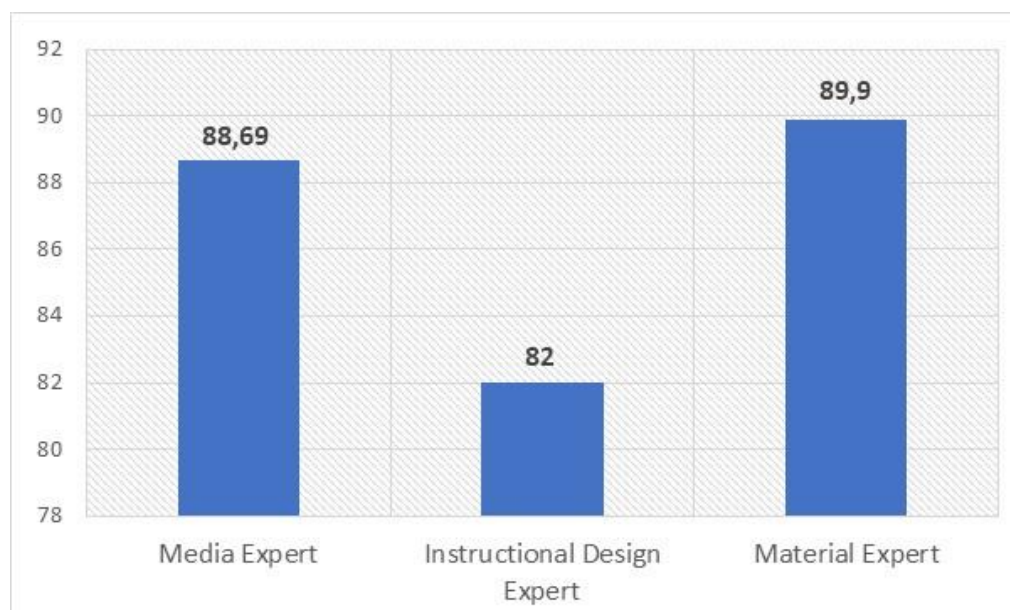


Figure 4. Result of Expert Validation



Some suggestions from the experts can be seen in [Table 3](#).

Table 3. Expert suggestion

Expert	Suggestion
Instructional Design Expert	Need to put the aim and objectives of the learning
Media Expert	Need to repair some link The color composition should be adjusted Enter the video source if the video was not self-produced
Material Expert	Check again the evaluation questions, the number of questions is adjusted to the depth of the basic competency material

In the one-to-one evaluation or individual trial conducted on 3 students, they obtained a percentage of 86.38% which is belong to "very good" category. In the small-scale trial or small group evaluation conducted on 6 students, they obtained a score of 86.73% in the very good category. At the field trial stage or field tests conducted on 28 students with a score of 86.78% belong to Very Good category. The results of the value acquisition from the product test can be seen in [Table 4](#).

Table 4. The product test Result

No	Trial	Average Score	Category
1	One to One Evaluation	86.38 %	Good
2	Small Group Evaluation	86.73 %	Good
3	Field Test	86.78%	Good
4	<b>Total Score</b>	<b>86.63</b>	<b>Good</b>

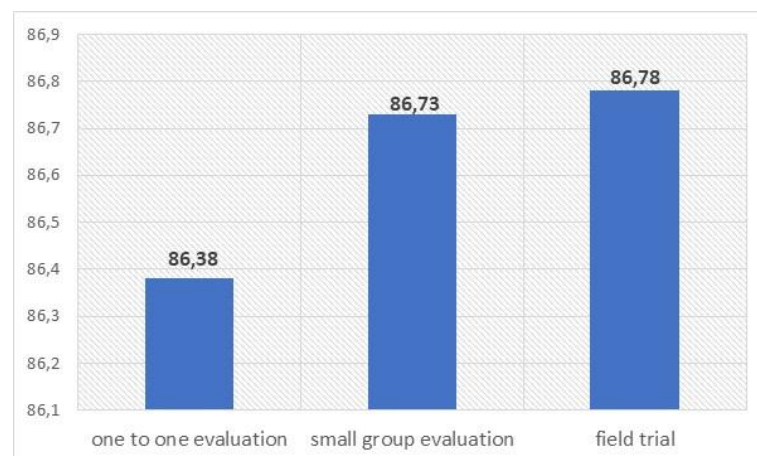


Figure 5. Result of Mobile Learning Trial

To see the effectiveness of the product, we gave pre-test and post-test in the field trial, pre-test was given before instructional process using mobile learning for Indonesian History and at the end of learning, students were given post test questions. The average score of pre-tests got 65,17 and the average score of post-test got 78,44. This showed that there was an increase in learning outcomes.

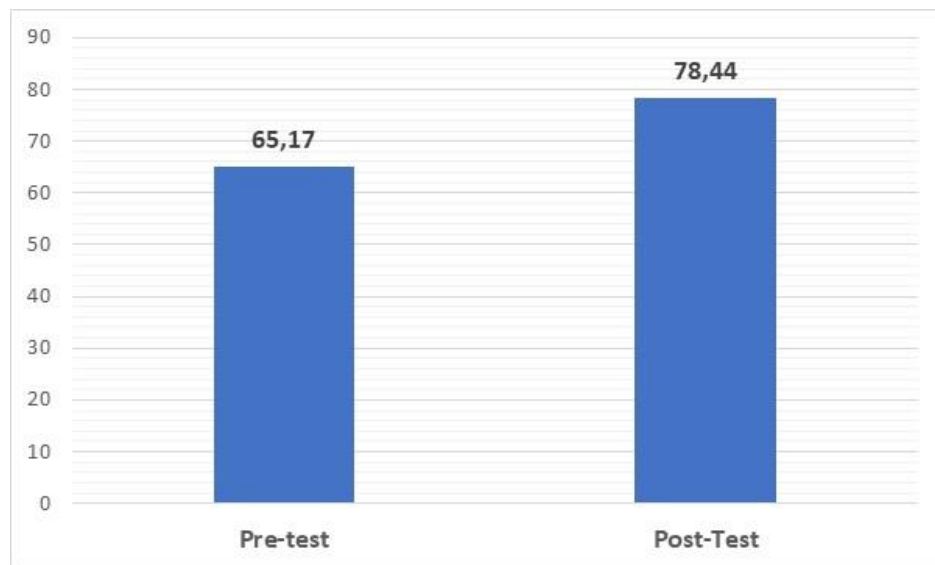


Figure 6. Result of T-test

## DISCUSSION

After carrying out a series of validations and trials, the results of this research and development stated that the developed mobile learning in the form of learning media for history subjects at Vocational High Schools was declared feasible to use. This result supporting some opinions about the use of mobile learning. [Junita](#) (2019) stated that the benefit of using mobile learning in learning is that it makes the teaching and learning process easier in the classroom or outside the classroom. Several previous studies discussing the development of mobile learning for learning also stated that the m-learning-based learning model was appropriate for use as a medium in learning. [Meihan](#) (2020) supported the results of this research that mobile learning is effectively used for history subjects. Some research about mobile learning also stated that mobile learning can support learning process in various subjects. The results of development research conducted in high school for mathematics subjects show that mobile learning is appropriate for use as a learning media ([Peled & Schocken](#), 2014; [Sista](#), 2016; [Yosiana et al.](#), 2021). M-learning is suitable for use in Software Engineering subjects at Vocational School in Semarang ([Wulandari et al.](#), 2019). M-learning is also effective in increasing learning outcomes in the science study program in Sumenep ([Mabruri et al.](#), 2019; [Matlubah et al.](#), 2016). In general, [Warsita](#) concluded that using mobile learning can be an effective model used in learning ([Warsita](#), 2018).

The results of interviews with students, one thing emphasized in this study is that mobile learning help students easier to learn because it can be accessed anywhere. This is in line with several studies which inform about the advantages of mobile learning when used in learning ([Aripin](#), 2018; [Junita](#), 2019). This learning media is accessed using a handphone, this simplifies and helps the learning process, especially if the learning process is implemented using distance learning methods as happened during the co-19 pandemic, this is supported by [Masruria](#) in his research on learning during co-19 ([Masruria](#), 2021). The students' interview



results also stated that one of the lack of mobile learning is the display screen which is relatively small this cause discomfort to the user's eyes, this opinion is in line with Arifudin (2016) who states that this condition has an effect on participants when learning using mobile learning for a long time. Cruz et al. (2012) also stated their result that the size of the screen and interface on mobile devices were perceived as not sufficient to enhance mobile activities. This can also be a consideration for future research so that developers can adjust the font and display used in mobile learning to make it more eye-friendly for its users. This small screen display can also be overcome by using the help of another device, which is connected to a projector, so that explanations in class can be done with a focus on that device.

## CONCLUSION

The resulting product is android-based mobile learning in the subject of Indonesian History in class X which is designed according to the needs of YIS Martapura Vocational School. In developing Android-based mobile learning, researchers have carried out procedures or stages according to the model used, namely the Alessi & Trollip model. The evaluation results of media experts obtained an average percentage of 88.69% which is belong to "Good" category, design experts obtained an average percentage of 82.0% belong to "Good" category, and learning materials experts obtained a percentage of 89.9% belong to "Good" category. ". The results of one to one evaluation obtained an average percentage of 86.38% belong to "Very Good" category, small group evaluation obtained an average percentage of 86.73% belong to "Very Good" category, large-scale trials obtained an average percentage 86.78% belong to "Excellent" category. Based on the results of the research and discussion on the development of android-based mobile learning in the subject of Indonesian History in class X at SMK YIS Martapura, the researcher can conclude that the android-based mobile learning product that the researcher developed is feasible to use because it has been tested for its feasibility to be used in the learning process at school. Recommendations for future researchers would be better this learning media could be tested to see the effectiveness after it was used in real instructional process.

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