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The Effect of Concept Map Learning, Problem Solving and Achievement Motivation on Indonesian Learning Outcomes

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ABSTRACT

The purpose of this development is this development is to produce an M-Learning learning media in the form of a digital book as an interesting source of information with Indonesian language subject matter. The development model used in the development of interactive learning multimedia is the Borg & Gall model. The stages of development research on the Borg & Gall model consist of ten steps, namely: (a) research and data collection, (b) planning, (c) initial product development, (d) initial product trial/limited trial, (e) improvement of the initial product, (f) wider field trial, (g) improvement of the product resulting from wider field test, (h) final product trial, (i) revision or refinement of the final product, (j) dissemination and implementation. The results of this development research are that this Mobile Learning Media Product has a material feasibility level, learning design feasibility, and learning media feasibility. While the level of small group trials and field trials with qualifications is very feasible and does not need to be revised.

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1. INTRODUCTION

Education is a human effort to expand the horizons of knowledge in order to form values, attitudes, and behavior. One of the main problems in learning in formal education (schools) is the low absorption of students. This can be seen from student learning outcomes that are still unsatisfactory. Farizal (2021); Salsabila, Ilmi, Aisyah, Nurfadila, & Saputra (2021); Syukri (2021) To improve the quality of education is not an easy thing to do because there are factors that influence, for example: (1) students' understanding in mastering the subject matter provided, (2) teachers must have the knowledge and skills to teach such as approaches or learning media given, thus students can be expected to increase their involvement in teaching and learning activities and of course can improve their own understanding of the subject matter, therefore education plays an important role to ensure the survival of the nation and the state, namely creating a smart and intelligent society (Patras et al., 2019; Shiddiqi et al., 2021).

Teachers in carrying out teaching and learning activities are able to choose media that are in accordance with the subject matter, to achieve optimal success, it is necessary to

apply the right media (Hae & Rezeki Patricia Tantu, 2021; Kartini, 2021; Prahesti & Fauziah, 2021). Thus, it can be understood that if a teacher cannot choose media that is in accordance with the material being taught, teaching will not provide optimal results (Prawiro et al., 2021; SARI, 2021). The main indicators used to assess the quality of learning and the sincerity of students from education, are often based on learning motivation listed on student learning tests. Therefore, in the teaching and learning process, teaching media is a tool to achieve learning goals, so to be a creative and fun teacher, it is required to have the ability to develop and choose effective teaching media. This is important to create a conducive and fun learning climate, the way teachers carry out learning activities may require different media from other learning (Djonnaidi et al., 2021; Shafitri et al., 2021; Stefani & Samsiyah, 2021; Suharti, 2021).

The media used must be in accordance with the objectives to be achieved and in accordance with the learning materials (Handaini & Zulfah, 2021; Masruroh, 2021; Ramadhani & Liwayanti, 2021). The selection and application of inappropriate media will have an impact on student learning outcomes so that it will lead to the next learning process (Pramestika, 2021; Suparman, 2021; Windayanti et al., 2021).

In Indonesian language learning activities, students can be brought directly into the community. With the community environment, students will be familiar with local conditions so that they know the real meaning and function of learning Indonesian. By studying Indonesian, students can directly observe and learn the norms of regulations and good habits that apply in the community so that these students get direct experience of the reciprocal relationships that affect each other's personal and community lives.

Based on the results of observations and interviews of researchers at Madrasah Aliyah Miftahul Ulum Gresik, it is known that the learning carried out by teachers in the classroom, especially in Indonesian subjects is still lacking. The fact that we see in the field is that the learning given to students only refers to cognitive learning by using the lecture method, taking notes and giving exercises or assignments. The learning used is still monotonous (less varied). This causes students to become inactive or tend to be passive. During the learning process the teacher only uses the lecture method, where learning activities are only centered on the teacher while students only passively listen to the teacher's explanation so that students feel bored in receiving the explanation given.

In this case the learning process can not be said to achieve maximum learning. One of the changes that need to be made so that learning becomes active and fun is to use Mobile Learning Media (M-Learning) (Ananto & Ningsih, 2020; Ibnu Aji Pamungkas & Wasis Djoko Dwijoko, 2020; Katoningsih et al., 2020). If in the Indonesian language learning process using the right learning media M-Learning, the learning process carried out can improve student learning outcomes (Faqih, 2021; Ninghardjanti et al., 2021; Widyastuti & Wuryanto, 2020; Wijaya et al., 2021).

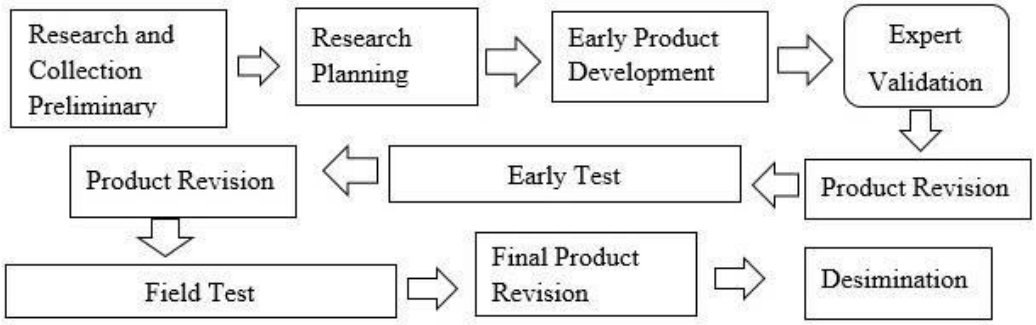
The development of mobile technology in the form of cellular phones is currently very attractive to students because of the various features of mobile phones that are offered and supported by internet capabilities that allow users to provide or show various types of digital media, so that as educators can see a form of strategy in developing learning media, which expected to be able to make students enthusiastic in learning therefore the presence of M-Learning is intended as a complement to learning media (Christianto & Dwiyogo, 2020; Kamasi & Saruan, 2020; Khabibah & Yuwana, 2020; Kristiana et al., 2020).

Based on observations in schools, it has been seen that the majority of students use Android smartphones as a medium of communication and information seekers. So there is the potential to develop learning media by utilizing cell phones by making digital books aimed at all cellular phones with the Android platform. Seeing this potential, the development of learning media by utilizing cell phones is to create a Digital Pocket Book that is intended for all cellular phones with the Android platform. The reason is because the Android operating system is transformed into a system that is most widely used on smartphones. So that it is more practical and simple, therefore users only need to download

and install it through the Play Store application contained in the Android Smartphone menu.

2. RESEARCH METHOD

The development model used in the development of the Indonesian language learning package is the Borg & Gall model. Therefore this model aims to solve learning problems programmatically with a systematic sequence of activities, which consists of ten stages, namely: (a) Research and Data Collection, (b) Planning, (c) Initial Product Development, (d) Testing Initial product trial/Limited Trial, (e) Initial Product Improvement, (f) Wider Field Trial, (g) Product Improvement of Wider Field Test Results, (h) Final Product Trial, (i) Product Revision or Improvement Finally, (j) Dissemination and Implementation. The following is an overview of the steps of the Borg and Gall Model Research.



The trial subjects in the development of this learning package consisted of: (a) Expert subjects consisting of one content expert in the field of study, one media and learning design expert, (b) Individual trial consisting of 3 students, (c) The small group trial consisted of 9 students, and (d) the field trial consisted of 21 students and 1 Indonesian teacher.

The instruments used for data collection were interviews and questionnaires: (a) The interview guide was used as a guide for interviews in order to collect information and data in identifying problems, suggestions and input from test subjects, and (b) Questionnaires were used to collect data and suggestions. from test subjects for improvement purposes.

Qualitative descriptive data analysis techniques were used to process data collected from the results of product reviews and trials. Qualitative descriptive analysis techniques were used to process data from interviews and discussions with experts as well as the results of individual and small group trial questionnaires. Qualitative descriptive analysis was carried out by classifying information in the form of input, criticism and suggestions for improvement contained in the questionnaire. The results of this analysis are then used as the basis for product revision. Meanwhile, descriptive statistical analysis. Data obtained from expert test questionnaires, individual tests and small group tests were processed using descriptive statistical analysis techniques in the form of percentage descriptive. The formula used to calculate the percentage of each expert test subject and individual test is as follows:

$$\text{Persentase} = \frac{F}{N} \text{ x } 100$$

F: the frequency of subjects who chose the alternative
N: the total number of test subjects

To give meaning and make decisions in revising the product, a level qualification that has the following criteria is used:

Table 1. Rating Scale

Rating Scale	Classification	Description
81%-100%	Very good	No Need to Revise
61%-80%	Well	No Need to Revise
41%-60%	Enough	Need Revision
21%-40%	Not good	Need Revision
0%-20%	Very Not Good	Need Revision

Source: (Sugiyono, 2017)

3. RESULTS AND DISCUSSIONS

The data presented in this section are data obtained from product trials from content experts, media design experts, colleagues, individual trials, small group trials, and field group trials. The assessment carried out by the respondents by giving a score to each question in the questionnaire and providing comments and suggestions. The range of scores in the questionnaire is (a) 1 (very less valid), (b) 2 (less valid), (c) 3 (fairly valid), (d) 4 (valid) (e) 5 (very valid). The following is a presentation of data from each respondent.

3.1 Material Content Expert Validation, Media Expert Validation and Peer Validation.

a. Content Expert Validation

Results of Expert Assessment of Indonesian Language Content

Table 2. Descriptive

No.	Aspect	Numbers Of Item	Aspect Percentage	Percentage of Total Aspects
1	Eligibility of content	15	92,00%	93,26%
2	Language	6	96,67%	
3	Serving	9	91,11%	
	Total	30		

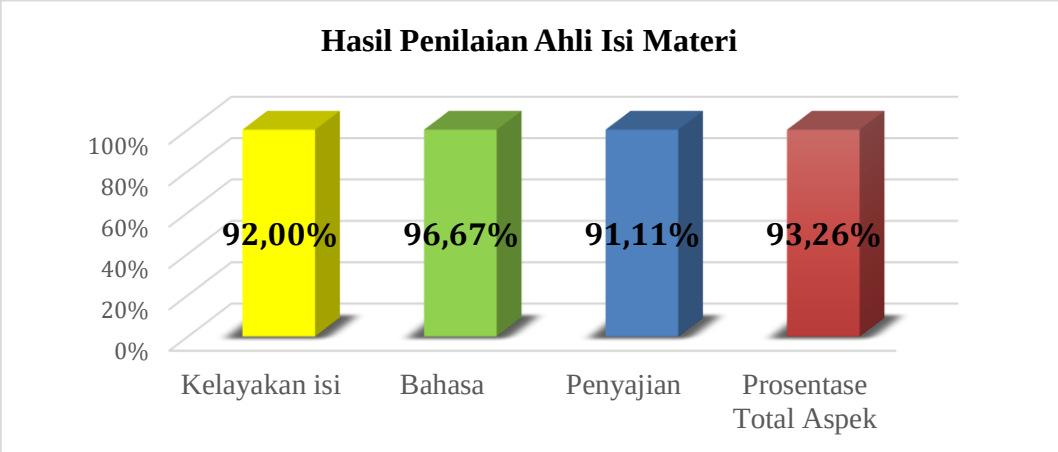


Figure 1. Material Content Expert Assessment Results

In table 2 the overall aspects measured get a percentage of assessment from the validator of 93.26%, this indicates that the Mobile Learning Media product developed can meet the design aspects according to learning theory, so this product is very feasible for individual trials.

b. Media Expert Validation

Table 3. Media Expert Testing Table

No.	Aspect	Numbers Of Item	Aspect Percentage	Percentage of Total Aspects
1	Appearance	7	94,29%	91,90%
2	Use	7	97,14%	
3	Consistency	3	86,87%	
4	Benefits	6	90,00%	
5	Graphics	7	91,43%	
	Total	**30**		

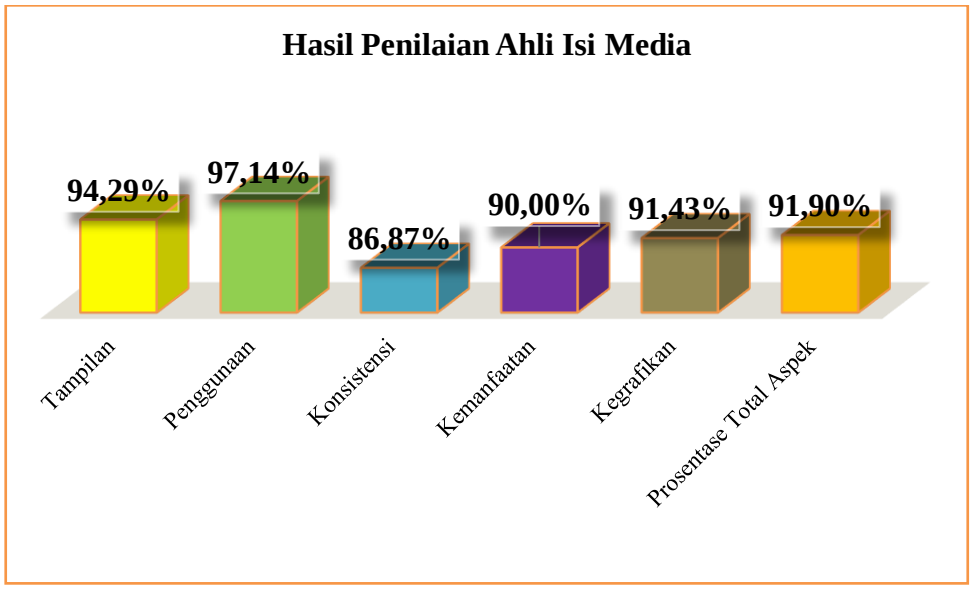


Figure 2. Media Content Expert Assessment Results

In Figure 2 the overall aspects measured get a percentage of assessment from the validator of 91.90%, this indicates that the Mobile Learning Media product developed can meet the design aspects according to learning theory, so this product is very feasible for individual trials.

c. Peer Validation

Table 4. Peer Testing Table

No.	Aspect	Numbers Of Item	Aspect Percentage	Percentage of Total Aspects
1	Eligibility of content	15	92,00%	95,85%
2	Language	6	100,0%	
3	Serving	9	95,56%	
	Total	30		

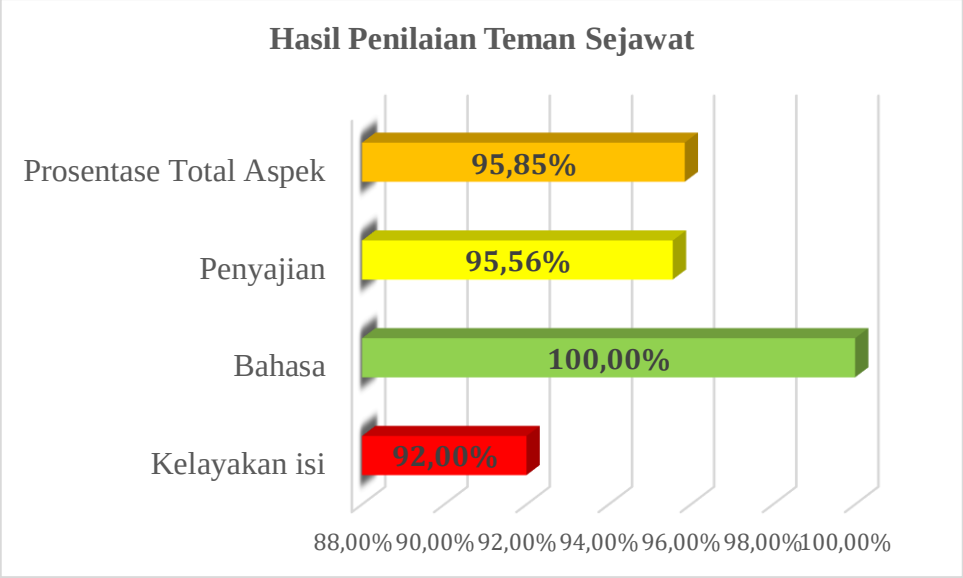


Figure 3. Peer Assessment Results

In figure 3 the overall aspects measured get a percentage of assessment from the validator of 95.85%, this indicates that the Mobile Learning Media product developed can meet the design aspects according to learning theory, so this product is very feasible for individual trials.

3.2 Student Response

a. Individual Trial

Table 5. Individual test student responses. Hypothesis testing 2

No.	Aspect	Numbers Of Item	Aspect Percentage	Percentage of Total Aspects
1	Eligibility of content	8	93,50%	93,65%
2	Language	6	93,33%	
3	Use	8	95,00%	
4	Layout	8	93,75%	
	Total	**30**		

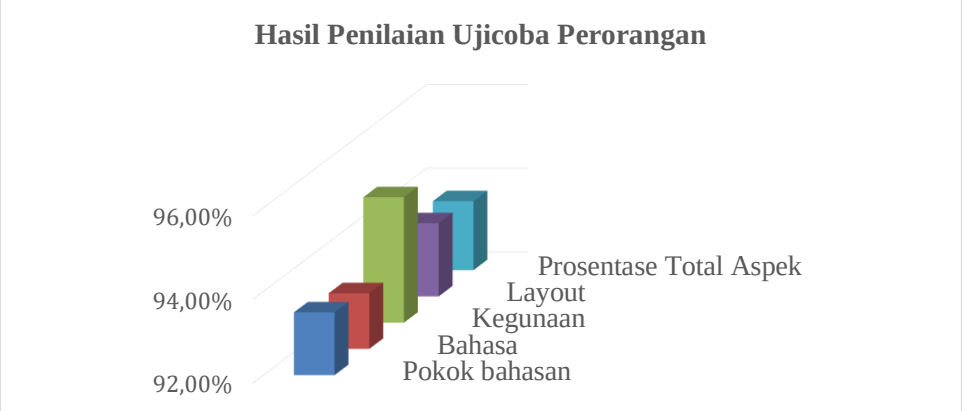


Figure 4. Individual test student response table

In Figure 4the overall aspects measured get a percentage of the assessment of student responses carried out on 3 students of 93.65%, this indicates that the Mobile Learning Media developed received a positive response from 2 students. This response was carried out as a form of initial validation to a number of students before being tested in small groups. so this product is very feasible for small group trials

b. Small Group Trial

Table 6. Student responses for small group trialsc. Hypothesis testing 3

No.	Aspect	Numbers Of Item	Aspect Percentage	Percentage of Total Aspects
1	Eligibility of content	8	96,50%	95,42%
2	Language	6	94,67%	
3	Use	8	94,50%	
4	Layout	8	96,00%	
	Total	**30**		

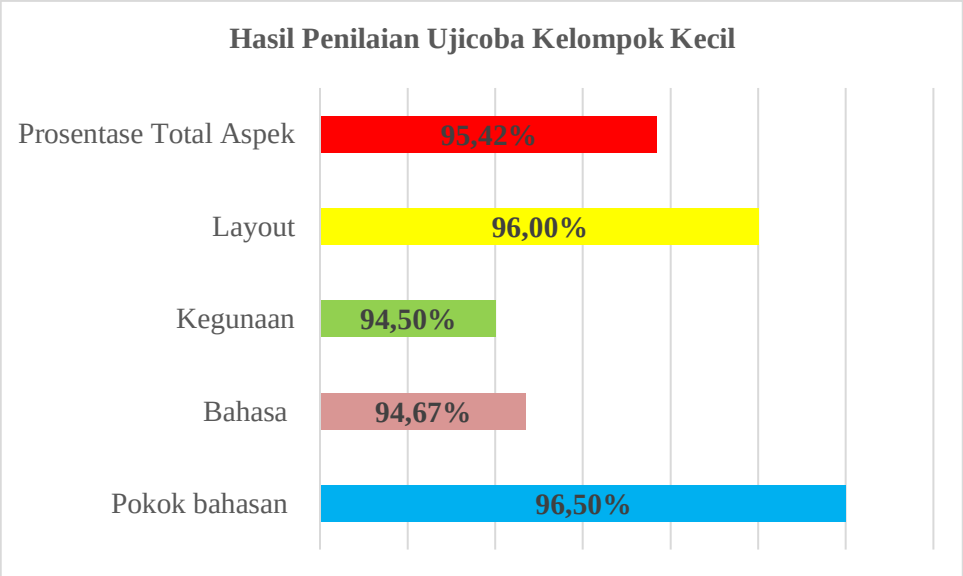


Figure 6. Student responses for small group trialsc

In Figure 6 the overall aspects measured get a percentage of the assessment of student responses carried out on 5 students of 95.42%, this indicates that the Mobile Learning Media developed received a positive response from 5 students. This response was carried out as a form of initial validation to a number of students before being tested in the field. so this product is very feasible for field trials.

c. Field Trial

Table 7. Field trial student responses table

No.	Aspect	Numbers Of Item	Aspect Percentage	Percentage of Total Aspects
1	Eligibility of content	8	92,50%	94,23%
2	Language	6	93,04%	

3	Use	8	93,82%
4	Layout	8	97,57%
	Total	**30**	

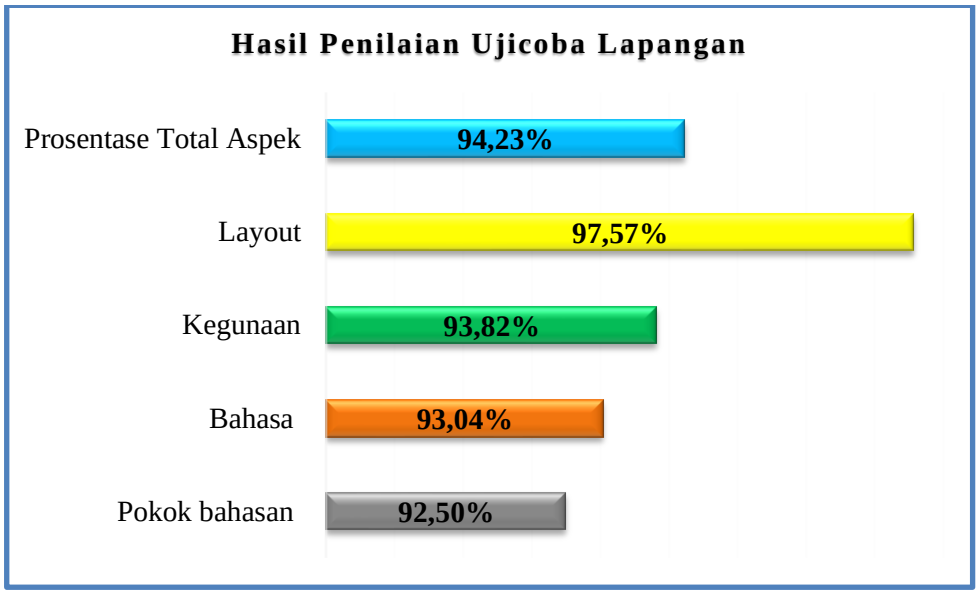


Figure 7. Field trial student responses table

In table 7. the overall aspects measured get a percentage of the assessment of student responses carried out on 34 students of 94.23%, this indicates that the developed Mobile Learning Media received a positive response from 22 students. So that it can meet the design aspects that can be liked and accepted by students. In this field trial, it is carried out before being carried out in the actual class, namely field trials, so this product can be said to be very feasible to use.

The product produced in this development is Media Mobile Learning. This Mobile Learning Media can be used with computers or laptops as well as Android-based mobile phones, the material contained in Mobile Learning Media is equipped with videos, audio, images, and links to help understand the material more easily. This media is also independent and interactive which aims to make learning more accessible anywhere and anytime in line with the opinion of Suryadie (2014) in Herawati (2018), namely Mobile Learning Media is a module in digital form, which consists of text, images, or both. which contains digital electronics material accompanied by simulations that can and are suitable for use in learning.

According to Arsyad (2020) and Sadiman Arif S (2020), media comes from the medius language, which means intermediary, or intermediary. The media component itself can be in the form of software or hardware. Some argue that media is the use of hardware that contains text, images, audio and visual or video by using tools and interaction relationships so that learning can run interactively.

The lack of media utilization makes the learning process more boring for students. Daryanto (2020) explains that the use of media itself has benefits in the learning process, (1) making it easier to deliver messages, (2) being mobile or being able to be carried everywhere, and (3) increasing learning motivation.

According to Brown (1983) each learning media has a different role, in order to improve a good learning process. The role of learning media in learning activities is as a substitute for the teacher but cannot completely replace its role. Learning media can make the

learning process more efficient and effective in achieving learning objectives, therefore the function of learning media is very important, especially in the current era of rapidly developing technology, the existence of learning media can accelerate students' understanding of what students learn. The teaching and learning process will be optimal if it utilizes learning media effectively.

Smartphone users are now considered to have become part of one's life. Small children to adults have depended on this technology for their lifestyle. Not a few uses of smartphones that are used in the education shutter. Moreover, it is only used to make money or to play games. Therefore, smartphones can be used especially in the education shutter at the appropriate age. If it is used at a low age, it is not uncommon for students who still do not understand. So it is recommended for students who have stepped on SMA-SMK equivalent.

Mobile learning is an innovation in the field of learning, which allows the learning process to be more flexible (Alsop et al: 2020). There is also a growing understanding of the "Potential Phone" to support learning (Attewell & Savill-Smith: 2020), and of changing cultural and social behavior with cell phone use (Plant: 2021).

The term mobile learning includes personal, connected and interactive use in the classroom and outside the classroom (Perry: 2021), (O'Malley & Stanton: 2022). In the context of learning, learning with device phones acts as a learning system, learning media or source of learning material.

Mobile learning as a medium and source of learning uses various application programs, both paid and non-paid applications that can be accessed by everyone, including students. One of the mobile operating system platforms that is easily accessible and which has been widely developed in the development of learning media programs, namely an Android-based program. Huang, Wang & Hsieh (2022), explained that the use of Mobile Learning Media is expected to facilitate and solve the problem of learning difficulties in students, not even adding to the problem due to the limitations of the devices that will be used later. To develop a product in overcoming learning problems, developers must look at the background, characteristics, and problems that occur in the learning environment so it is necessary to develop a media to support learning objectives (Molenda and Januszewski: 2018).

In this developed research, it has the advantage that it can be used in media such as personal computers or smartphones. Supriyono (2014) explains that the tools used in learning such as android mobile-based applications will facilitate the learning process, especially independently or not depending on the teacher because applications that have been given material on a smartphone can be carried everywhere and the material has been summarized in such a way that it does not like carrying a printed book in general.

Maulana (2017) suggests that the development of mobile learning learning media must be made as attractive and interactive as possible in order to increase students' learning motivation. The use of smartphones is the latest innovation in today's era. If not used wisely, smartphones also have a negative side, so there needs to be supervision from parents and teachers. Media is a means to convey interesting messages for students in a learning process (Surahman & Surjono: 2017).

Surahman (2019) argues that the advantage of mobile learning is as a path to knowledge and technology that focuses on speed, convenience, and attractiveness without compromising on the principles of learning. It can be concluded that learning to use mobile learning is used without any pressure during learning within the learner.

According to Ally (2014) states that mobile learning or mobile learning facilitates equal opportunities for everyone by enabling learning that can be accessed across time zones, so as to make locations and distances closer for students. Mobile learning can be said as a dynamic and systematic learning environment through the use of mobile technology, especially in the field of education (Keengwe & Bhargava: 2014). Mobile learning can be

used during learning in addition to using computer devices. Most users' mobile learning devices are based on Android where their use is cheap and easy to use.

The results that have been tested show that mobile learning is effective when used in Immune System subjects. If students only use books as a learning reference, it is felt to be lacking. Therefore, when tested in SMA Panjura Malang class XI IPA, it has been proven that after using the media it is valid and effective. The students are helped by the media.

Mobile learning is a learning method that utilizes gadgets that have been specifically designed to assist the learning process. Mobile learning development is able to provide an environment that is motivating, fun and enhances creativity. The approach in the form of mobile learning is able to stimulate children's intellectual, emotional, and psychomotor abilities. Mobile learning can help solve various learning difficulties in students and make learning in the classroom more interactive.

Based on the 2013 curriculum, schools are required to apply a scientific approach, both primary and secondary schools. The 2013 curriculum itself is considered a bit burdensome for students, because there are several components that must be achieved in one learning process. The use of media is expected to help students in the learning process in the 2013 curriculum, where students are required to be more critical and scientific in solving a problem.

In a scientific approach, the use of mobile learning is an innovation in the world of education. On the other hand, this media is also very helpful for students in delivering material in class and makes students more motivated and enthusiastic in learning as found during research in the field.

This Mobile Learning Media is the result of development in the field of education to foster student interest in Indonesian language material which is considered very difficult because it relates to things that may not be known so far. Media Mobile Learning as a means of seeking knowledge and skills properly is in accordance with (Iskandar, 2014) namely development is an educational effort both formal and non-formal that is carried out consciously, planned, directed, organized, and responsible in order to introduce, grow, guiding, developing a personality basis that is balanced, intact, in harmony, knowledge, skills in accordance with talents, desires and abilities as provisions on their own initiative to add, improve, develop themselves towards the achievement of optimal dignity, quality and human abilities and personal independence.

From the product development planned by the researcher, the validation test carried out by the expert validation of Media Dr. Hari Karyono, M.Pd. get the results of the assessment and the feasibility is very significant, namely 91.90% and the advice given is the instrument of the questionnaire, which is explained by the researcher to revise it. Furthermore, material expert validation also concluded that the product developed could be applied to individual trials. On the validation of material content experts by Dr. Retno Danu Rusmawati, M.Pd got a percentage of 91.90%, this very significant assessment determines that the product can be carried out in individual trials. Tests from colleagues conducted by Lilik Emi Rahayu, S.Pd, M.Pd obtained a percentage of 95.85%, this also indicates that the product developed is very feasible to be carried out in subsequent trials. In individual trials, which is called validation Initial to determine student responses to 2 students get a percentage of 93.65%. This trial is needed to determine the feasibility of the developed material which is tested on different groups of research subjects in small group trials and field trials.

In a small group trial conducted on 5 students, students received responses with a total percentage of 95.42%, this indicates progress from the feasibility trial of 2 students who received a percentage of 93.65% to 95.42%. This indicates that the product can be carried out in field trials. In the field trial, the total percentage yield was 94.23%. This trial was carried out in a large class, namely in the class that was the subject of the trial, amounting to 34 students. The progress of individual trials from the percentage of 88.67%

to 94.23% in field trials is a significant progress. So that this product can be produced, socialized, and disseminated to be used by teachers and other students in the same subject as a reference in the learning process.

Thus, the researcher concludes that the product that has been developed has been tested for validity and the product can be used in the implementation of the Mobile Learning Media product design. Due to time and cost limitations in carrying out this research, the researchers did not carry out this research within the scope of field trials. Field trials involved schools other than individual trials, small group trials and field trials. Field trials involving schools within the school environment in sub-districts, districts, cities or provinces require very large funds. Therefore, in this research, it is only enough to carry out in the form of a field. However, the results of this study can be accounted for because all the validation results show very significant results, so that this product can be reproduced to be used by teachers, students or other schools to be a guide in developing the learning process.

From the results of the research that has been carried out, it has supported the results of research on the development of Mobile Learning Media and this media can be used and distributed to teachers and students, as well as schools in the same subject to be used as guidelines and guidance in carrying out the learning process.

4. CONCLUSION

From the data and analysis carried out, it can be concluded that the feasibility of developing Mobile Learning Media is stated to be very suitable for use through testing content experts, media experts and colleagues, while in the trials conducted by individual, small group and field tests, this development product is also stated very suitable for use by students in the learning process. New findings from this study are the use of multimedia (audio, video, and animation) provides many options for creative learning and there is an increase in interaction between teachers and students, students enjoy learning because multimedia can support creativity, and student learning motivation increases because the subject matter is presented. more interactive and practical. In the Mobile Learning Media product, there are various unique features, so that students' interest and curiosity can be stimulated for successful learning, including the existence of a guide on how to use it, there is a purpose for learning after studying interactive e-modules, the material is presented interactively because there are videos, audio, and video. animation, as well as a learning evaluation in the form of exercises and formative tests that are carried out interactively so that students can find out the results after studying the material.

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