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by 39573 Final R3

Android-Based Media in Course of Mathematics Learning Strategy at Muhammadiyah University of North Sumatra

Abstract

This research is presented through teaching materials used by lecturers in learning procedures that have not aroused student learning interest so students experience difficulties understanding the material provided in distance learning (online). This study's goal is to design android-based mathematics learning media in mathematics learning strategies courses. This android-based mathematics learning media design model utilizes Research and Development (R&D) developed by Borg and Gall. The product trial population in this study was students of the Muhammadiyah University of North Sumatra majoring in mathematics education using a questionnaire as an instrument. This trial went through three stages, namely individual group trials, small group trials, and field trials. Before the product test is carried out, an expert validation test is carried out on the content and design of mathematics learning media through the use of a questionnaire according to predetermined indicators, then after that, a questionnaire analysis is carried out to see the percentage and comparison validation of mathematics learning media. This study designed an android-based mathematics learning media that was declared valid and suitable for use by 3 material experts who received a mean score of 3,73 (valid) and 2 programming experts with an average score of 3,87 (valid). So, it can be concluded that android-based mathematics learning media is valid and feasible to be used as a mathematics learning media. The results of this study can be applied in the process of distance learning (online) and face-to-face to further enhance student enthusiasm for learning.

Keywords: Android, Mathematics Learning Media, Mathematics Learning Strategies.

Abstrak

Penelitian ini disajikan melalui bahan ajar yang digunakan dosen dalam prosedur pembelajaran yang belum membangkitkan minat belajar mahasiswa, sehingga mahasiswa mengalami kesulitan dalam memahami materi yang diberikan dalam pembelajaran jarak jauh (online). Penelitian ini bertujuan merancang media pembelajaran matematika berbasis android pada mata kuliah strategi pembelajaran matematika. Model perancangan media pembelajaran matematika berbasis android ini memanfaatkan Research and Development (R&D) yang dikembangkan oleh Borg and Gall. Populasi uji coba produk dalam penelitian ini adalah mahasiswa Universitas Muhammadiyah Sumatera Utara jurusan pendidikan matematika dengan menggunakan kuesioner sebagai instrumennya. Uji coba ini melalui tiga tahapan, yaitu uji coba kelompok individu, uji coba kelompok kecil, serta uji coba lapangan. Sebelum dilakukan uji coba produk, dilakukan uji validasi ahli terhadap isi dan desain media pembelajaran matematika menggunakan angket sesuai indikator yang telah ditentukan, kemudian setelah itu dilakukan analisis angka untuk melihat proporsi dan perbandingan validasi media pembelajaran matematika. Penelitian ini merancang media pembelajaran matematika berbasis android yang telah dinyatakan valid dan layak digunakan oleh 3 orang ahli materi yang memperoleh skor rata-rata 3,73 (valid) dan 2 orang ahli pemprograman dengan skor rata-rata 3,87 (valid). Sehingga dapat disimpulkan bahwa media pembelajaran matematika berbasis android valid dan layak digunakan sebagai media pembelajaran matematika. Hasil penelitian ini dapat diterapkan dalam proses pembelajaran jarak jauh (online) dan tatap muka untuk lebih meningkatkan semangat belajar mahasiswa.

INTRODUCTION

Education is a way to influence, protect, and provide assistance aimed at student maturity or in other words help students to be quite capable of carrying out their life tasks without the help of others (Suriansyah, 2011) Maturity in the sense of education is not maturity in the everyday sense identified with aspects of age. A student can be said to be mature in the sense of education if the student has and shows the following characteristics: (1) the existence of stability and stability of behavior; (2) an attitude of responsibility; and (3) the existence of an independent nature (Suriansyah, 2011).

Education is a learning plan to develop students' potential. Potentials developed

include diverse abilities, self-control, personality, intelligence, noble character, and life skills. These life skills are needed in the life of society, nation, and state. Education basically forms knowledge, knowledge is expanded access through technological advances.(Chang et al., 2021)

The development of the world of education requires lecturers to be able to compete in improving education in Indonesia. Improving education begins with the provision of learning media in the learning process in the classroom. Government Regulation Number 32 of 2013 concerning National Education Standards states that educators must have academic qualifications and competencies as learning agents, be physically and mentally healthy, and have the ability to realize national education goals (Peraturan Pemerintah, 2013).

What is meant by educators as learning *agents* is the role of educators, among others, as facilitators, motivators, boosters, and inspirational learning for students. The 2013 Ministerial Regulation on national standards of higher education states that the learning process must be interactive, fun, and challenging, and motivate students to participate actively, as well as provide opportunities for creativity and independence. (Peraturan Pemerintah, 2013)

The world of education, in the current era, has been facilitated by advances in science and technology. One of them is an android or mobile phone. The development of the Android operating system, ranging from gadgets, desk PCs, smartphones, and other applications that have other Android operating systems can certainly support students to own and use android in everyday life and during learning. (Muyaroah & Fajartia, 2017)

The world of education has entered the era of the media world, where the learning process prioritizes media, rather than lecture methods, so the role of learning media is increasingly important to realize an effective learning process because the function of media in learning can generate new desires and interests, increase motivation and stimulation of learning activities and even affect psychological students (Saputri, 2016)

In our society, lecturers are given professional status. As professionals, they are expected to use best practices to help students learn important skills and attitudes. It is no longer enough for lecturers to be warm and compassionate towards students, nor is it enough for them to use teaching practices based solely on intuition, personal preference, or conventional wisdom (Arends, 1959).

So, students will not be able to fulfill their needs with traditional education. Students need interactive learning media as a technology product. This is due to students' interest in learning that needs to be improved. The reality in traditional education is the transfer of information without the learning process. As a result, students lose interest in learning and their learning outcomes are not good. (Lee & Osman, 2012).

One that can help smooth the learning process is learning media. So, lecturers must use media as much as possible or even make the media. Therefore, as much as possible lecturers must be able to make teaching material media that are by the material to be taught to students. The purpose of suitability is for students to receive learning well and correctly as a whole. Where learning media is a tool to make facts, concepts, principles, and procedures seem more real or concrete (Yuni, 2017).

The material presented is easy to understand. This is consistent with student research (Gluzman et al., 2018). Media selection must consider learning goals to be achieved, accuracy, student availability, hardware availability, technical quality,

and cost, among others (Wahab et al., 2021).

Learning media as a learning process is communication and takes place in a system such that communication cannot occur without media and learning as a communication process cannot function optimally. AECT (*Association for Education and Communication Technology* (1977) in Yuniastuti; Miftakhuddin; Khoiron, 2021), defines media as any form and channel used to conveys a message or information. When a medium conveys a message or information for teaching or instructional purposes, the medium is known as an instructional medium.

Learning Media is everything used in learning activities to channel or convey messages from a source in a planned manner, to create an effective thing. Learning media always consists of two important elements, namely equipment or hardware elements and message elements that it carries (software). Things that include device media, namely: materials, equipment, hardware, and software. Material terms are closely related to terminal equipment and hardware terms are related to software terms. Material is something that can be used to store a message to be conveyed to an audience by using certain tools or the shape of the object itself, such as transparencies for overhead devices, films, film strips, slide films, images, graphics, and printed materials. Meanwhile, equipment is something that is used to move or convey something stored by the material to the audience. (Pito, 2018)

Learning media as a learning process is communication and takes place in a system, so without media, communication will not occur and the learning process as a communication process will not be able to take place optimally. Thus, it can be concluded that learning media is an intermediary used to convey information or lessons to stimulate students to learn.

From the point of view of mathematics learning, the media is more likely to be called mathematical teaching aids which are interpreted as tools to facilitate the explanation of mathematical concepts. With the use of teaching aids, mathematics learning strategies are very helpful to provide optimal understanding for student communicants. As in explaining mathematics learning strategies, lecturers as communicators can use visual props to clarify mathematics learning strategies, so that student communicants can understand and remember explanations conveyed through visual props.

The mathematics learning media that will be developed in the mathematics learning strategy course is presented as simply as possible, to help the difficulties experienced by students during learning. By implementing and developing android-based learning media, which can facilitate students in the learning process. Learning media is a supporting tool used by teachers in learning (Amil et al., 2020).

Android is a Linux-based operating system for mobile phones, such as smartphones and tablet computers. As an open application, Android is an open platform for developers to create applications that can be used by various smartphones. (Komputer, 2013)

The mathematics learning strategy course aims to provide provisions for prospective mathematics teacher students to have the knowledge, experience, abilities, and skills to choose and implement efficient and effective mathematics learning strategies. Learning strategy is the next step of the learning design process, namely, how to get to the learning process in question is a series of external events for students designed to improve the internal process of learning.

Mathematics learning is a strategy or tips that are deliberately planned by the

teacher, regarding all learning preparations so that the implementation of learning runs smoothly and the goals in the form of learning outcomes can be achieved optimally. Learning strategies need to show the integrated use of mathematics on various problems, to try to make students understand that in real life often problems or symptoms contain various aspects so that branches of mathematics can be used together to analyze the problem or phenomenon. So, it can be said that mathematics learning strategies are activities in mathematics learning that must be carried out by teachers and students so that learning objectives can be achieved effectively and efficiently (Rahman, 2018).

Mathematics education students are prospective educators or prospective mathematics teachers who play an active role in improving students' mathematical abilities in the future. Therefore, the role of mathematics education lecturers is very necessary to improve the mathematical ability of prospective student teachers. The Committee on Undergraduate Programs in Mathematics (CUPM) (Schumacher & Siegel, 2015) recommends that each mathematics course should be an activity that will assist students in developing analytical, critical reasoning, problem-solving, and communication skills. Therefore, mathematics learning provided in universities must be able to hone students so that they have basic competencies in mathematics, namely understanding, problem-solving, reasoning, mathematical connections, communication, critical thinking, and creative thinking.

From the description above, the need for android-based mathematics learning media during a pandemic or for distance learning in mathematics learning strategy courses, it is hoped that students will be interested in these courses and the learning process will be interactive, fun, challenging, and motivate students to actively participate, as well as provide opportunities for creativity and independence, even if learning is carried out online or remotely.

This mathematics learning strategy learning media is designed because there are no android-based mathematics learning strategy learning media. After the learning media design is completed, the learning media is validated by material experts and media experts. Based on the results of validation that have been carried out by a team of material experts and media experts, it is stated that android-based learning media has a very interesting category to be presented to students to be used as learning media in mathematics learning strategy courses.

Some research relevant to the research conducted by researchers includes: The purpose of this study is to develop an e-module based on Realistic Mathematics Education (RME) on a System of Two Variable Linear Equations. Based on the calculation results, the e-module is feasible for material experts and media experts. From the validation of material and media experts, the same category was obtained which was very good with an average score of 3,56 and 3,65. Based on tests for students, e-modules are practical with criteria for small and large class trials with scores of 3,17, and 3,22. Based on the average combination of expert material and media and trials, students achieved an average score of 3,40 with excellent criteria. In conclusion, a smartphone-based e-module with a Realistic Mathematics Education approach to the material of a two-variable linear equation system is feasible to use. (Fahmi et al., 2022)

The main purpose of this research is to produce android-based learning media products on trigonometric material that are valid and practical to use. The research conducted is development research with

4D models (define, design, development, dissemination). Participants in this study were grade X students of SMK. Data in the study were collected using questionnaires, consisting of expert validation questionnaires, and student response questionnaires as users. Based on the results of data analysis, the research conducted obtained a value of 75,50% for media experts and 75,60% for material experts with good categories. The next stage is a practicum test and questionnaire on a small scale which obtained a score of 75,17% with good and practicum categories. So it is concluded that Android-based learning media is feasible and practical to be used in mathematics learning. (Bilda et al., 2021)

Learning becomes more fun and not boring with supporting media, such as android. Android is an alternative to distance learning or online. With Android as a learning medium during a pandemic or distance learning. Lecturers will increasingly develop in the delivery of modern learning. Students will be more enthusiastic about receiving learning materials that are not boring.

A learning strategy can be interpreted as a plan that contains a set of activities designed to achieve specific educational goals. Learning strategy is the next step of the learning design process, namely, how to get to the learning process in question is a series of external events for students designed to improve the internal process of learning. There is another sense of learning strategy is an action plan or series of activities including the use of methods and the utilization of various resources or strengths in learning that are structured to achieve certain goals. According to Mulyono &; Wekke (2018), learning strategies are a set of learning procedure materials that are used together to produce learning outcomes for students.

Suherman and Suryadi (2003), stated that mathematics learning strategies are tactics or tips that are deliberately planned by teachers, regarding all learning preparations so that the implementation of learning runs smoothly and goals in the form of learning outcomes can be achieved optimally. Learning strategies need to show the integrated use of mathematics in various problems, to make students understand that in real life often problems or symptoms contain various aspects so that the branches of mathematics can be used together to analyze the problem or phenomenon.

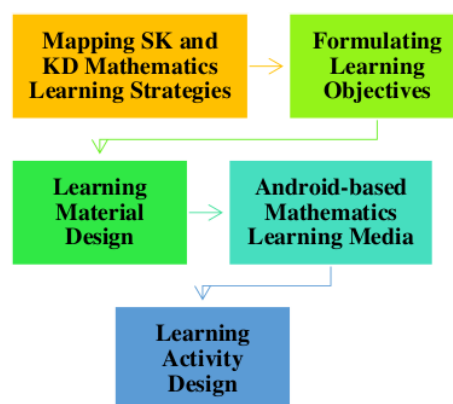The design of making mathematics learning media is as follows:

Figure 1. Android-Based Mathematics Learning Media Design Flowchart

METHOD

The research method used in this study is the research and development method (*Research and Development*). Producing a specific product and testing the effectiveness of the product is the main purpose of this method. So that the development of teaching materials is designed with research and development methods. (Sugiyono, 2013)

The research procedure is guided by the design of instructional media development by Borg &; Gall, namely the process of developing and validating educational

products (Borg &; Gall, 1983 in A & Abdillah, 2019). The Borg & Gall (in Waris et al., 2018) model includes 10 stages of development outlined as follows: (1) determining potential and problems, (2) data collection, (3) product design, (4) design validation, (5) design revisions, (6) product trials, (7) product revisions, (8) usage trials, (9) product revisions, and (10) mass production or final product.

This model has development steps that are by educational research and development, namely research that produces or develops certain products by conducting several expert tests, such as material tests, design tests, and product trials in the field to test the attractiveness of a product.

Of the 10 stages, researchers only carry out stages 1 to 6, due to time constraints.

Determining Potential and Problems

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Data Collection

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Product Design

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Design Validation

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Design Revision

↓

Final Product

Figure 2. Procedure for Implementing Research Stages

Experiment Design

The trial design consists of several stages, namely: 1) Expert validation: 2) validation of android-based mathematics learning media design; 3) revision of android-based mathematics learning media design based

on the assessment of 2 content experts and 2 android-based mathematics learning media design experts (stage I test); 4) testing Android-based mathematics learning media by 5 students (individual trials) and 10 students (small group trials; 5) product revisions (phase II trials); 6) field trials on students; and 7) design revision (phase III test).

Test Subjects

The test subjects are product users, namely fourth-semester (IV) students of the Mathematics Education Study Program, University of the Muhammadiyah North Sumatra. The implementation of the trial went through three stages, namely: (1) *Individual trials*. In this step, Android-based mathematics learning media has been revised based on suggestions from several experts. Assessment questionnaires are given to users individually to find out the validity of the product after it has been improved by a team of content and design experts. Input from individual trials is then used as a basis for making improvements to the product; (2) *Small group trials.* This trial is to find out if any flaws need to be corrected in the product after revisions from experts and individual trials. If there are any shortcomings, they will be revised; and (3) *Field trials.* This trial was conducted to find out whether there are still shortcomings that need to be corrected in Android-based mathematics learning media developed after discussions with a team of experts and the results of individual and small group trials.

In the implementation of research and development (R & D), researchers use two types of data collected, namely: (1) Data described in sentence form are qualitative data. Usually input and suggestions by validators and (2) Data processed with numbers is quantitative data. Usually

a questionnaire assessment.

For student questionnaires that have participated in the implementation of product trials, the instrument used has 4 answers, so the total assessment score can be found using the following formula:

$$\bar{x} = \frac{\sum x}{n} \ x \ 4 \ (\text{Yupinus et al., 2020})$$

Description: $\bar{x}$: average rating | $\sum x$: umber of scores (questionnaire scores of each student | n : Number of students (maximum score)

The criteria for the assessment results of validators and test subjects are as follows: (Damayanti et al., 2018)

Table 1. Learning Media Feasibility Scale

Presentation	Criterion
81% – 100%	Very worth it
61% – 80%	Worthy
41% – 60%	Decent enough
21% – 40%	Not worth it
0% – 20%	Not really worth it

RESULTS AND DISCUSSION

Result

This research produces Android-based learning media in the Mathematics Learning Strategy course. Sugiyono's (2013) procedure method quoted from Borg and Gall which was carried out from stage 1 to stage 6 used in this research and development, among others:

Potential and Problems

Technological advances that can be used in learning, especially mathematics, will be potential in this research. Lecturers to be creative and innovative in delivering learning, especially in mathematics learning, are certainly required to see existing technological advances. Teaching that still uses the same method or learning model, namely lectures and besides that, there are limitations for lecturers to explain the material to students, because they still use a limited face-to-face system, so there is a reduction in course hours from 100 minutes to 60 minutes for 2 credits. Therefore, lecturers must innovate and be creative in learning so that students are not bored and bored in learning mathematics learning strategies.

These problems and potentials make researchers design android-based learning media, namely using classroom applications in mathematics learning strategy courses so that learning is more effective and utilizes existing technology.

Collecting Data

In the process of designing this learning media, researchers collect information in the form of supporting theories for the design to be made. Researchers collect several books related to the subject and other sources relevant to the research. All this information or data is certainly related to the design of this Android-based learning media with classroom applications. Among its supporters are: Book: Creating Android Apps Without Coding with App Inventor (Komputer, 2013). To see how to create an android app.; Package the book: Mathematics Learning Strategies (Muhlisrarini, 2014). To create materials.; and Some journals, as relevant research.

The ideal book in lectures on mathematics learning strategies is as follows: (1) Includes systematics and writing structure, such as the purpose of the sub-chapters of the material written along with the explanation of the sub-chapters, examples, and exercises to reflect on students. (2) Completeness of the book discussion, meaning the content of the book by the title of the book made, as the book that the researcher designed with the title of mathematics learning strategies, then the content of the book includes strategies, methods, approaches, and so on about

mathematics learning. Equipped with references (bibliography), glossary, about the author, and synopsis.; and (3) Pay attention to writing style, the writing style that researchers use is the language that is easily understood by students or readers. Written using fonts and spacing appropriate for reading.

One of the books on mathematical learning strategies designed by researchers:

Figure 3 Book of Mathematics Learning Strategy

Product Design

The design of learning media will be carried out at this stage. Materials, assignments, UTS, UAS, student grades, and student attendance are part of the media to be designed. Researchers use classroom applications as android-based mathematics learning media. In addition, researchers also use textbooks on mathematics learning strategies designed by the researchers themselves.

Main course

Figure 4 Main Menu display

Figure 4 is the main menu that displays the number of classes to be taught, the class schedule, the number of students, and the name of the course being taught.

Forum Menu

Next, if you click on one of the classes in the main menu, the forum menu will appear, as shown below:
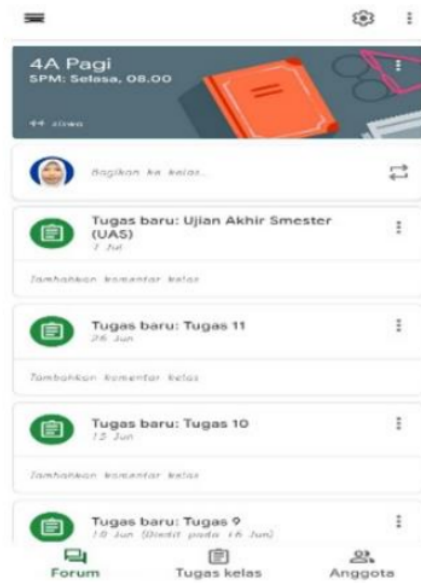

Figure 5 Forum Menu Display

Figure 5 shows the class name, course name, number of students, and class schedule, just like the previous main menu. The forum menu also displays the latest news or posts made by lecturers containing materials, attendance, assignments, as well as midterm exams, and final semester exams. In this menu, discussions can also occur between students and lecturers, by commenting on one of the posted contents.

Classwork menu

This menu contains materials, attendance, assignments, quizzes, and midterm exams, end-of-semester exams, as shown below:
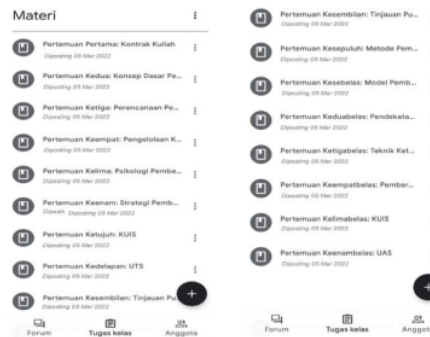

Figure 6 One Semester Material

Figure 7 Tasks, UTS, UAS

Figure 8 Attendance List

Members Menu

The next menu is the member menu, where this menu contains the name of the

teacher (lecturer) and the name of the student (student). The display results are as follows:
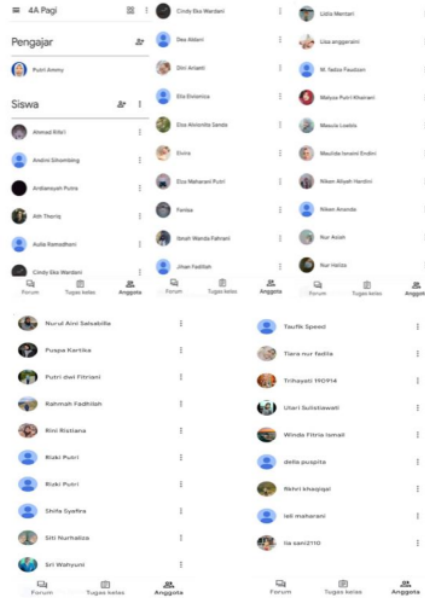

Figure 9 Members Menu

Materials, Tasks, UTS, and UAS

One view of materials, tasks, UTS, and UAS. Students can download materials directly and can also comment on materials, assignments, UTS, and UAS that they do not understand.
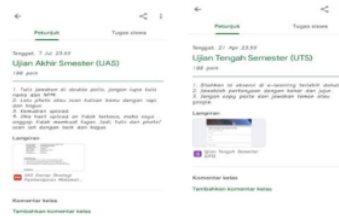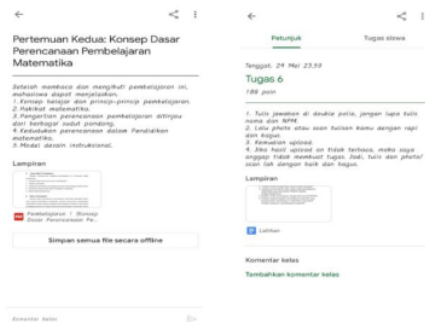

Figure 10 Display of Materials, Tasks, UTS, and UAS

Design Validation

The validity or feasibility of the media that has been designed will be tested so that the media can be entered or used at the trial stage. 5 experts will test this media, namely 3 material experts and 2 programming experts. Criteria in determining expert subjects, namely: (1) Experienced in their fields, (2) Minimum education S2.

Validation Results by Material Experts

Testing the completeness of the material, the correctness of the material, and the systematics of the material is the purpose of material expert validation. Presents the validation results as follows:

Table 2 Results of Phase 1 Validation by Material Experts

No	Aspects	Average Score	Information
1.	Theory	3,4	Valid
2.	Discussion	3,2	Quite valid
3.	Evaluation	3,16	Quite valid

Because the media is still in the Quite Valid criteria, it is partially corrected. If the revision has been completed, then revalidation is carried out by material experts, the results are as follows:

Table 3 Results of Stage 2 Validation by Material Experts

No	Aspects	Average Score	Information
1.	Theory	3,73	Valid
2.	Discussion	3,64	Valid
3.	Evaluation	3,66	Valid

Data Source: Processed from the results of expert validation assessment questionnaires for Android-Based Learning Media in Mathematics Learning.

The scores obtained in stage 2 validation obtained 3,73 highest scores, and 3,64 lowest scores with each achieving the "Valid" criterion.

Validation Results by Media Experts

Graphical testing of android-based learning media in mathematics learning is the goal of this media expert validation. The validation results are as follows:

Table 4 Validation Results by Media Experts

No	Aspects	Average Score	Information
1.	Media Efficiency	3,87	Valid
2.	Button Functions	3,5	Valid
3.	Graphics	3,4	Valid

Data Source: Processed from the results of the Android-based Learning Media Questionnaire in mathematics learning.

The expert validation results earned the highest score of 3,87 and the lowest score of 3,4 with each achieving the "Valid" criterion.

Design Revision

After the product design is validated through the assessment of material experts and media experts, researchers revise the product design developed based on expert input. Where this stage is the final stage of the research stage. Because the results of small-group trials and large-group trials have been said to be interesting and feasible by validators, it can be concluded that the media that has been designed meets the standards of the attractiveness of learning media.

Design Trials

Design trials are conducted after the media is improved with suggestions and input provided by validators. 15 small group students and 42 large group students were used by researchers in testing this design. The results of the trial are as follows:

Table 5 Small Group Trial Results

Number of Respondents	Average score	Criterion
10	3,65	Very Interesting

Data Source: Processed from the results of the Small-Scale Field Trial Assessment Questionnaire.

Involving 10 students of grade 4A Morning, especially students of the Mathematics Study Program FKIP Semester 4, resulted in an average score of 3,65 with the criteria "Very Interesting". Hereby it is stated that the designed media has attractive criteria to be used as an aid in learning activities in mathematics learning strategies.

Table 6 Results of Large Group Trials

Number of Respondents	Average score	Criterion
58	3,51	Very interesting

Data Source: Processed from the Results of a Large-Scale Field Trial Assessment Questionnaire.

Involving 42 students of grade 4A Morning, especially students of the Mathematics Study Program FKIP Semester 4, resulted in an average score of 3,51 with the criteria of "Very Interesting". Hereby it is stated that the designed media has attractive criteria to be used as an aid in learning activities in mathematics learning strategies for mathematics.

Discussion

This study aims to design android-based mathematics learning media in mathematics learning strategy courses.

The media designed in this study is an application on Android, namely Classroom. This application provides various features, such as being able to make learning videos, book files, or materials that can be sent and can be read by all students and can discuss and ask directly to the lecturer if anyone does not understand or discuss with other friends. This application can be used by anyone if they

have access or a code given by the lecturer. This application can be opened using a smartphone or laptop.

The problem that occurs on campus is that students are bored and bored with the usual learning model or method (lecture), so it requires a lecturer to be able to innovate and be creative in making learning media. This android-based learning media can be one of the learning media for smoothness in the learning process, especially in mathematics learning strategy courses.

After the learning media design is completed, the learning media is validated by material experts and media experts. Based on the results of validation that have been carried out by a team of material experts and media experts, it is stated that android-based learning media has a very interesting category to be presented to students to be used as learning media in mathematics learning strategy courses.

Android-based learning media is feasible and practical because it can be used anywhere (Bilda et al., 2021) It is proven that during the Covid-19 pandemic, which causes learning cannot be carried out face-to-face and carried out online, this android-based learning media is very helpful in learning (Siregar et al., 2021)

Can test students' perceptions of the use of digital technology in formal learning, and test their differences in perceptions of the use of digital technology in formal learning, based on gender, age, major, academic year, perception of digital competence, and perception of digital dependence (Dyah, 2014). By using android, it can create comics to make learning more interesting (Utomo et al., 2020)

In addition to android-based learning media, there is also a blended learning model that uses the Edmodo application (Wati & Sudarma, 2020). By using an an-

droid or smartphone with a Realistic Mathematics Education (RME) approach, you can develop a mathematics e-module (Fahmi et al., 2022)

To improve students' assessment and self-understanding, they can use Mathbox media developed with the Codular website (Ulfa et al., 2023). The advantages and disadvantages of android-based learning media are: (1) Excess: Easy to use, attractive, and simple; Learning can be anywhere; The size of the device is small and lighter than a laptop or computer; and (2) Deficiency: Need android with high enough specifications; Always connected to the internet; The battery drains quickly. (Kuswanto & Radiansah, 2018)

Limitation

The limitation of this study is that not all students have smartphones with high specifications or RAM. As well as the limited time of researchers, this research is only up to the production of learning media design. In addition, this research can produce android-based learning media that facilitate learning during distance learning and can make innovations or alternative learning media so that the method used is not just a lecture method.

Implication

The results of this study are expected to provide information to lecturers to design or develop android-based learning media on other materials or courses, to provide choices for teaching methods in Higher Education to increase enthusiasm for learning and eliminate student boredom or bored during learning.

CONCLUSION

Based on the results of the research described earlier, several conclusions can be

drawn as follows: The development of mathematics learning media in mathematics learning strategy courses using Android media was developed with the characteristics of learning media, namely to arouse student learning enthusiasm, more interactive (can be applied in distance learning), more flexible, easy to use (can be read anywhere), and overcome space and time limitations.

The development of android-based mathematics learning media starts from looking for potential and existing problems, then collecting information about the media needed through interviews with students who are researched and pre-existing research (relevant), after that an appropriate product design is carried out from the results of information collection. The next stage, design validation by material experts and media experts is then improved (revised) design by the input of material experts and media experts, the last stage, is design trials, at this stage two trials are carried out, the first is small-scale trials and large-scale trials.

Reviewing the results of media validation that has been developed, there is an average score of 3.73 obtained from media experts and an average score of 3.87 obtained from material experts. Each of the criteria possessed is valid or feasible. The responses obtained from students obtained 3.65 average scores on small group tests and 3.51 average scores on large group tests. The criteria obtained by each of them are very interesting.

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    Hayuning Adi, Engelwati Gani. "The Effect of
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