Android-Based Economic Learning Media for Senior Secondary Education Students: A Development Research

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ABSTRACT

This research aims to produce products and test them validity product as well as Practicality of Android-Based Economic Learning Media. Types of research This is study development with Alessi and Trolip Models. The Alessi and Trollip development procedure includes three important stages, namely Planning, Design,and Development. Subject study is 30 participants educate class X Madrasah Aliyah Nurul Azis DDI Barobbo. Instruments used is sheet validation from media experts and material experts. Research result obtained Based on Media Expert Validation of 96% is in the Very Eligible qualification and Material Expert Validation is 94% with Very Decent qualifications, and the Small Group Test of 91.6% is in the Very Practical qualification and 90% of the Group Test Results are in the Very Practical qualification. The implication is that Android-based learning media is valid and practical for participants educate Class X so can applied in learning economy .

Keywords: Media Development, Learning Media, Android, Basic Education

INTRODUCTION

Education is one of the most important things every country needs. Advanced education allows a country to grow and optimize its knowledge for effective progress. Education is the creation of a directed and organized learning environment and process that allows students to actively increase their potential, spiritual faith, discipline with intellectual abilities, noble character, and the necessary abilities needed by themselves, society and the nation.Clear instructions on how to take charge of the information that the media presents are supplied by media literacy. An individual's ability to distinguish between the worlds created by the media and the real one increases with their level of media literacy(Sanusi et al., 2023).

This is closely related to the field of education, which requires the use of technology for teaching and learning activities. The rapid increase in science and technology encourages faster educational progress (Rahmadani & Setiawan, 2019). The use of digital technology in the classroom can increase student involvement and make learning material more known, empowering them to get what they want (Pamungkas and Ghofur, 2021). To raise a generation that is intelligent, competent, autonomous and responsible, developed countries must have a strong education system and innovative and creative learning techniques. According to Law Number 20 of 2003, education according to the national education system is a deliberate and planned effort to create an educational environment and learning process for students to develop their potential in order to have religious spiritual power, control self, personality, intelligence, morals noble, and

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the skills needed by himself, society, nation and state. So, education must be provided from birth and planned well through an innovative and creative learning process so that national education can be achieved in accordance with educational goals.

Education has developed rapidly along with advances in science and technology. As progress in the 4.0 era, differences have contributed to supporting students in learning activities (Widyasari et al., 2021).Education and the learning process are interconnected and cannot be separated. Learning occurs when students, teachers and learning resources interact interactively in a positive learning atmosphere. Therefore, the success of the educational process determined by three aspects main that is participant students, teachers, and learning resources (books/media). To improve the quality of teaching, teachers need to pay attention to several elements, including the use of teaching aids.

In order to control the quality of education, an educator must be able to innovate in organizing it. If learning is face-to-face, an educator must be able to create an interesting atmosphere so that students feel interested in the moment they carry out the educational process (Setiawan et al., 2019) . However, in reality, what is happening in Indonesia is that it still faces a number of problems related to the process of providing education, including the problem of low quality of education. The causes of these problems are limited educational facilities and infrastructure, low interest in reading among students, learning methods that are still *teacher-centered,* and a lack of use of learning media (Rakib & Yunus, 2016).

Teachers use learning media as a tool or platform to tell students about what they need to learn. Because it consists of mutual components related to work the same for reach objective specific, learning considered as something system. These elements consist of: objectives, materials, methods, media, and evaluation. Each component is related to the others and functions as a cohesive whole.

Optimal education is an activity where students actively participate in the course of learning in order to obtain the expected learning outcomes. Ideal learning is also influenced by the instructor or teacher involved. There are two parts to the quality of learning: educational methods and outcomes. (Husain & C., 2014)The teacher is the main leader in the success of the learning process. In implementing learning, teachers need to understand the goals and benefits of the learning

Technology in education benefits both educators and students. The positive influence of technology is the rapid availability of educational resources and the development of systems that process information for assessment results, so that the learning process becomes more realistic. Thanks to the use of technological advances in the field of education , there has also been progress in learning media, which now not only utilizes conventional learning forms and tools, but can also apply communication and information technology which is also called *Information and Communication Technology* (ICT) (Rakib, 2023)

One of them is shown by the emergence of applications that teachers can use as learning media assisted by computer technology and internet access. The use of technology in the world of education is needed at this time because the use of technology is effective, efficient, interesting, and can stimulate students' creativity, and in the learning process it can change the learning situation to "from the classroom to anywhere, from virtual time to real time and from facilities to work networks. This aims to ensure that the learning process can be carried out without regard to time limits, as long as the students themselves want to learn.

One example is the emergence of programs that teachers can use as learning resources with the help of laptop technology and internet connectivity. The use of technological devices in all fields of education is necessary at this time because they are efficient, effective, interesting and can encourage student creativity, as well as changing the learning situation from " from the classroom to anywhere, from virtual time to real time and from facilities to work networks ". This ensures that the learning process can be carried out even though there is a time limit, as long as students really want to learn (Wicaksono et al., 2018).Therefore, technology-based learning media is very important to increase the effectiveness and efficiency of the learning process. The

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teacher's digital learning media must of course be more exciting and relevant to students' habits so that students are enthusiastic about learning both independently and under teacher supervision. In the digital era, students receive a broad education.

Android -based learning media can maximize the learning process through the use of more innovative technology. If students can understand the material provided in the application well, then students can be more confident when carrying out any assignment. They don't need to cheat to get good grades. The use of Android which is more interactive with students can be an alternative to increase students' self-confidence. If students can enjoy the learning process, students will avoid feelings of pressure and will more easily accept the learning material. So far, there are still many students who have cellphones or laptops but they are still not using them as fully as possible in the learning process. Laptops or cell phones are still often used by students to access games, YouTube, social media and so on. They only use it to access lessons if there are instructions from the teacher.The use of learning media in the material on basic human economic problems is expected to foster student motivation in carrying out learning and familiarize students with using and operating media with technology.

Initial observation results in Economics subjects at MA Nurul Azis DDI Barobbo, There are factors that influence the learning process in students, namely those related to learning economics subjects. Previously, economics learning was only based on textbooks, lecture methods, group discussions and examples of writing on the blackboard .So we need more efficient and interesting tools such as Android media, so that students don't quickly get bored when it comes to learning. This is due toBecauseTeacherusing the same teaching and learning processwithout any changein the classroom.

The connection between learning characteristics and the learning media that will be created is able to help students understand information and achieve learning goals in a more exciting and enjoyable manner. Students can determine suitable topics and material through Game Based Learning. This is intended to facilitate student interaction and collaboration . So far, throughout the education process, teachers often implement Teacher-Centered Learning, (Rohmah et al., 2020). Therefore, the creation of learning media is very important in the field of education, with the aim of increasing desirestudents understand the content of learning while having fun, so that they feel happy, happy and not boring.

In order to facilitate learning, educators must be able to grow more. Nonetheless, there are still a lot of issues with learning methods that need to be fixed. Because today's educators are underdeveloped and continue to employ antiquated techniques, kids are not accustomed to thinking critically or making more innovative selections. Therefore, educators need to be able to grow further in order to have effective learning methodologies and be able to teach students how to be creative and innovative(Sanusi, 2015).

Based on the results of the author's observations at MA Nurul Azis DDI Barobbo, as a sample used as initial data, it was found that there are still several problems such as, learning by students is considered boring and less interesting, learning activities carried out by educators in terms of media are still not varied enough, there is no use of them. digital-based learning media. Not a few students do not pay attention to the teacher's explanation. Teachers sometimes ask students to read books but the students have fun playing with their classmates.

Based on problem that, then study This aim For produce product and test validity product as well as practicality of Learning Media Based on Android in Class X at Madrasah Aliyah Nurul Azis DDI Barobbo**.**

METHOD

This research is categorized as development research which will produce a product and test the product's feasibility and practicality in class X economics subjects at Madrasah Aliyah Nurul Azis DDI Barobbo. Learning media development process economy Android based namely Planning, Design and Development.

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The test subjects were 2 (two) experts, namely media experts and content/material experts and all Class X students, namely 30 people, consisting of 10 female students and 20 male students. Testing activities carried out include product validation tests, small group trials, and large group trials. The data collection technique uses a trial instrument in the form of a questionnaire which has been designed to measure the level of suitability of android-based economic learning media. The data analysis technique used is descriptive statistical analysis.

RESULTS AND DISCUSSIONS

Results

The process of developing learning media in this research it was developed through several stages in accordance with the Alessi and Trolip Model development procedures own three stages namely: Standards, On Going evaluation and Project management. The Alessi and Trolip development procedure has three important stages that is Planning is stage beginning in study this, stage This done need For obtain related information with what participants need educate so that participant educate more interested or not bored in matter Study. Design Stage that is designing draft product. What must be done in this design is to create *a Storyboard* which is an outline of the contents of the product to be designed, generally containing templates and materials. Stage Development, namely before start produce something product, it is necessary to prepare documents that can be used as discussion material, based on facts obtained from various sources by researchers (Fadhillah et al., 2023) Next, product validation; at this stage validity is shared into two stages that is validity content/material and validity design/media (Fadilla et al., 2023). Material experts will test the validity of the content/material in order to obtain an assessment of the main economic problems. Meanwhile, design/media validation is carried out by design experts with a purpose accept input from design to applications that have been generated (Rakib & Yunus, 2016).

Product Trial Results

Validation Test Product

Product validation tests are carried out to test the feasibility of the application. In general, this validation includes validation by media experts and validation by material experts. The results obtained are related to the results of product trials validated by media experts and material experts.

Table 1. Validation Test of Android-Based Economic Learning Media from Media Experts

No	Criteria	Validation Assessment	Category
1.	The application is easy to operate	5	Very easy
2.	Ease of use of the application	5	Very easy
3.	Installing the application on an Android device is very easy	5	Very good
4.	Select the appropriate font size	5	Very suitable
5.	Various menu choices are available	5	Very good
6.	The media displays the final score obtained by students	4	Good
7.	Place the buttons on the application correctly	4	Good
8.	Appropriateness of color in learning media	5	Very good
9.	The application design gives a positive impression	5	Very good
10.	The question instruments in the application are appropriate	5	Very suitable

	to the students' level of thinking		
Total		**48**	
Maximum Score		**50**	
Achievement Percentage Rate (%)		**96.00**	**Very Worth It**

Source: Media Expert Validation Questionnaire Results

Table 1 shows that the level of suitability of Android-based economic learning media is in the very feasible category or 96.00 percent. Thus, it can be stated that Android-based economic learning media is very suitable in terms of the ease of operating the application, the ease of logging in for users, the ease of installing the application on an Android device, the appropriateness of font size selection, the clarity of instructions for working on test questions, the clarity of displaying the final score obtained by students, the correct location of the buttons on the application, the suitability of the colors in the learning media, the positive impression of the application design, and the suitability of the assessment instruments (questions) to the students' level of thinking in the application.

Table 2. Validation Test of Android-Based Economic Learning Media from Experts

No	**Criteria**	**Research from content experts**	**Information**
1.	Clarity of the purpose of the application	5	Very suitable
2.	Completion of materials with core competency and basic competency	5	Very suitable
3.	Suitability of material to teaching needs	5	Very suitable
4.	Suitability of learning materials with indicators that students will achieve	4	In accordance
5.	The benefits of the material are to increase students' knowledge insight	4	In accordance
6.	Ease of understanding learning material	5	Very easy
7.	The sentences used to explain the material are easy to understand	5	Very easy
8.	Appropriateness of the application theme from start to finish	4	In accordance
9.	The language used is appropriate to the level of development of students' thinking	5	Very suitable
10.	Image suitability to the material in the application	5	Very suitable
Total		**47**	
Maximum Score		**50**	
Achievement percentage level %		**94.00**	**Very suitable**

Source: Material Validation Questionnaire Results have been processed, 2024.

Table 2 shows that the results of the content/material expert validation test obtained a value with a percentage level of 94% or the Very Appropriate category and does not need to be revised. This matter supported with statement (Nurjannah, 2022)that The results of material trials do not need to be revised if they obtain a minimum assessment of adequate or 70.00 percent from material experts. This means that the

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material in the learning media has met the requirements such as: clarity objective from application. In line with study (Riananda et al., 2023)that if the learning media has clear objectives for the application, it can be declared to have met the requirements so that there is no need for revision.

Thus, it can be concluded that the results of the content/material expert validation show that the Android-based economics learning media has met the requirements, namely clarity of the purpose of the application, suitability of the material to core competencies and basic competencies, suitability of the material to teaching needs, suitability of the learning material to indicators. what students will achieve, the benefits of the material to increase students' knowledge, ease of understanding the learning material, the sentences used to explain the material are easy to understand, suitability of the application theme from beginning to end, suitability of the application theme from beginning to end, language used according to the level of development of students' thinking, and the suitability of the image to the material in the application.

Small Group Trials

The results obtained regarding the results of small group product trials can be seen in the following table.

Table 3.Results of Android-Based Economic Learning Media in Small Group

No	Criteria	Number of Values	Average value	Percentage (%)	Information
1.	The application is easy to operate	24	4.8	96.00	Very easy
2.	Ease of use of the application	21	4.2	84.00	Very easy
3.	Installing the application on an Android device is very easy	23	4.6	92.00	Very easy
4.	Select the appropriate font size	20	4	80.00	Very suitable
5.	Various menu choices are available	23	4.6	92.00	Very clear
6.	The media displays the final score obtained by students	25	5	100.00	Very clear
7.	Place the buttons on the application correctly	22	4.4	88.00	Very precise
8.	Appropriateness of color in learning media	22	4.4	88.00	Very suitable
9.	The application design gives a positive impression	25	5	100.00	Very positive
10.	The question instruments in the application are appropriate to the students' level of thinking	24	4.8	96.00	Very suitable
Total		**225**			
Achievement percentage level %		**91.60**			**Very Practical**

Source: Product Trial Instrument Results, processed, 2024.

Table 3 shows learning media trial results economy Android based which has beendeveloped in groups small. Trials group small class involving 5 class X students of Madrasah Aliyah Nurul Azis DDI Barobbo. The trial was carried out to determine the response of the test subjects to the product being developed. Based on test results group small obtained evaluation amounting to 91.60 percentor categorythe level of practicality is very practical and does not need to be revised.

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Large Group Trials

Table 4. Test Results of Android-Based Economic Learning Media in Large Groups

No	Criteria	Number of Values	Average value	Percentage (%)	Information
1.	The application is easy to operate	136	4.5	90.67	Very easy
2.	Ease of use of the application	134	4.5	89.33	Very easy
3.	Installing the application on an Android device is very easy	149	5.0	99.33	Very easy
4.	Select the appropriate font size	127	4.2	84.67	Very suitable
5.	Various menu choices are available	143	4.8	95.33	Very clear
6.	The media displays the final score obtained by students	131	4.4	87.33	Very clear
7.	Place the buttons on the application correctly	129	4.3	86.00	Very precise
8.	Appropriateness of color in learning media	131	4.4	87.33	Very suitable
9.	The application design gives a positive impression	137	4.6	91.33	Very positive
10.	The question instruments in the application are appropriate to the students' level of thinking	133	4.4	88.67	Very suitable
Total		**1350**			
Achievement percentage level %		**90.00**			**Very Practical**

Source: Product Trial Instrument Results, processed, 2024.

Products that have been tested in validation trials and small groups are then tested in large groups. This trial involved 30 class X students at Madrasah Aliyah Nurul Azis DDI Barobbo. Based on the test results, it shows that this Android-based learning media is very practical to use in economics learning, seen from the ease of operating the application, ease of logging in for users, ease of installing the application on Android devices, appropriateness of font size selection, clarity of instructions for working on test questions, clarity of display. the final score obtained by students, the accuracy of the location of the buttons on the application, the suitability of the colors on the learning media, the positive impression of the application design, and the suitability of the assessment instrument (questions) with the students' level of thinking in the application.

DISCUSSIONS

Making learning media economy Android based for class X Madrasah Aliyah Nurul Azis DDI Barobbo using the Alessi and Trollip development model consists over 3 stages namely Planning, Design and Development which must be done in a way systematically to give convenience researcher in developing learning media in a good and productive manner valid product.

The first stage is the planning stage. In this planning stage there are three steps that must be taken. First step that is analysis problem, researcher look for potency problem with dointerview with participant educate class X Madrasah Aliyah Nurul Azis DDI Barobbo. The next step after problem analysis is needs analysis. From the problem analysis that has been carried out, students are bored and less interesting, the learning activities carried out by educators are seen from the perspective of conventional methods. So interesting media is

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needed that can encourage students to actively study. Then the next step is collecting materials, at this stage the researcher collects all the materials needed to make learning media.

The second stage, namely design, includes creating an initial description of the product's physical appearances that will be determined to be included in the learning media that will be developed. Next, create *a flowchart.* At this stage, a draft image of the program to be created is created. The program flow must be clear to simplify the learning media production process. After making a flowchart,the next step is to make *a storyboard. This storyboard* is useful for creating designs regarding the stages and parts contained in the media production process. Making this *storyboard* refers with *flowchart* that has been created, and the third stage is stage development. The development stage is the last stage carried out by researchers. Stage development This is implementation from media plans that have been created.

Furthermore, researcher do stage testing including, Content/Material Expert Test, Media Expert Test. At the content expert test stage, the results of the content expert test get percentage of 94.00% stated that from development of learning media based on Android already made Already fulfil required criteria student class X Madrasah Aliyah Nurul Azis DDI Barobbo. Research result This supported with opinion Riananda et al. (2023) that's good media is the media that has criteria like; Clarity objective from application , suitability theme from beginning until end, Conformity picture with material in the application. Likewise said by Nur et al. (2020) that's good media own criteria Suitability material with core competency, Conformity Indicator with Basic Competency, accuracy Use language that is easy to understand.

At the Media Expert Test stage, results from media expert test analysis also get percentage of 96.00% stating that learning media economy Android based already fulfil criteria and easy used. Research resultthis supported with opinion Riananda et al. (2023) that's good media is the media that has criteria such as: Suitability of layout buttons and writing, Ease in use application, Accuracy size, color, and selection type of writing. Likewise said by Nur et al. (2020) convenience operation, size letter easy readable, Typeface easy read, Conformity use color.

CONCLUSIONS AND RECOMMENDATIONS

Study This produce learning media products Android-based material problems principal economics, with features that can controlled by students themselves like quiz in form games, furnished materials with video and animation features, as well evaluation successful learning the score can direct see. Learning media products Android -based is stated to be very practical and capable used in the learning process after through stage validation media expert or design learning, validation by experts' content/material and responses by participants educate.

Expected can So supporter in help teachers in implementing learning programs, as well as expected in research furthermore can developing learning media This stage furthermore that is known effectiveness or results study student.

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