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Developing Android-Based Instructional Media of Economic Subject for Senior High School

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Abstract

This research aims at identifying the utilization of YouTube as an instructional media of Economic subject for senior high school students. This research employed a Research and Development approach (R&D). It involved the tenth grader students of SMA Trimurti 01 Pakisaji, Malang Regency. To validate the developed media, it performed product validation which was carried out by media and lesson content experts. In addition, a user test was also administered which involved teacher and students; it was conducted twice. The results confirmed that the media developed is feasible and acceptable to be used which obtained 83.01 percent of an average score.

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INTRODUCTION

Technological advances have assimilated the existing learning media. In developing technology-based instructional media, this increasingly rapid growth requires teachers to be more innovative. With the advancement of this technology, developing new and creative instructional media to increase the attractiveness of students in teaching can be a lucrative challenge for teachers. If we comprehend the position of technology, we use it as much as possible, in line with Yuberti (2015), hence if we understand the challenges, we will be ready for those challenges.

This facility might lessen the burden on teachers, such as duplicating test papers and manually correcting assessment results, which takes a substantial amount of time. The level of student comprehension of instructional material is easier to track its progress with the assessment in the learning application. This is in accordance with the Settlement (2010) that it is possible to use opportunities to communicate both by verbal and through written form through hypermarkets as an appraisal facility.

The use of Android smartphone is able to be designed as an attractive and enjoyable instructional media if the teacher understands how to develop and design the Android-based instructional media. The research conducted by Amirullah (2018) reported that an Android-based operating system that supports the development of its application is expected to produce representative mobile-based instructional media (m-learning). By integrating the instructional models used, the use of information technology and communication in instructional media will make it easier for teachers to develop learning innovations. In a study conducted by Husain (2014), it is mentioned that information and communication technology in learning acts as a connection in the implementation of knowledge transfer without fully removing the initial learning model that takes place in the classroom face-to - face.

With the use of technology as an attractive instructional media, teachers must pay attention to the syllabus and the quantity of the contents and material to be used. The results of Pane's research (2017) report that the instructional media or instrument used must be in accordance with the lesson content being taught. Thus, the presence of the instructional media and instrument it should be able to facilitate the teacher in delivering learning, accordingly the objectives of the lesson content delivered can be acquired by students.

This research aims at developing an instructional media based on a smartphone application called “Eco Edu App (Economics Education Application)” to be applied within Economics subject. The developed application was designed to present lesson contents and lesson practices in the form of quizzes to improve students’ learning outcomes and understanding. The developed application took Economic Growth and Development as its primary lesson content which is taught to the tenth grade of senior high school students. One student might only have one account within the application. The primary objective of this development is to generate an innovative instructional media as one available alternative media based on information technology. Therefore, through the application of this developed media, teachers are able to direct the students as well as monitoring students’ performance both individually and in groups.

METHOD

This research employed Research and Development approach. The entire development stages in this research aimed at developing and validating the product which specifically consisted of designing, development, and finalizing. The framework used in this research was an ADDIE development model. The following discussion explains the ADDIE development stages in this research.

Analysis Phase

During the analysis phase, it performed an analysis of needs which involved one class with a total of 20 students. It was conducted at SMA Trimurti 01 Pakisaji, Malang Regency. The needs analysis performed aimed at identifying the needs and characteristics of students as the research subject and the prospective users of the developed product. It also identified a basic competence and standard of competence which were included in the developed media.

Design Phase

Based on the results of the analysis, the researchers continued to the design phase. It aimed at designing the product which included: designing initial media (storyboard), applying material, preparing lesson practices, studying the content according to curriculum applied, and preparing any elements related to design of media such as backgrounds, fonts, and button designs.

Development Phase

Then, it was followed by the stage of development. After the requirement to create a media was completed, it was continued by developing the intended media. It also collected any sources and/or references required for media development.

Implementation Phase

After the media was developed, it was continued by the implementation phase. The implementation phase aimed at testing the developed media to the users to obtain an accurate data about product feasibility.

To obtain an accurate data about product feasibility, the developed product was validated and trialed. the validation process was carried out by content and media experts. The content expert was a lecturer of Economics Education from Faculty of Economics, State University of Malang. While the media expert was a lecturer of Educational Technology from Faculty of Education, State University of Malang. This research also involved Economics teachers at SMA Trimurti 01 as the practitioners and students as the subject of field trials. The field trials were conducted twice; small group (consisting of five students) and large group (consisting of 20 students).

Evaluation Phase

Then, it was continued to the evaluation phase as the last phase. The evaluation phase aimed at determining the feasibility of instructional media that have been developed in the previous stage. After evaluating the developed product, the researchers revised the product according to the suggestions given.

The data collected in this research was a quantitative and qualitative data. The data collection was used an instrument during field trials in the form of questionnaire and observation guidelines. The questionnaires used a Likert scale (five scales) comprised of Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD). After the data from the questionnaires were obtained, then it was calculated with the following formula.

$$P = \frac{x}{xi} \times 100\%$$

Annotation
P = Validity
x = Respondents' response in one item
xi = The ideal number of scores in one item
100% = constant

To process data as a whole the items are as follows:

$$P = \frac{\sum x}{\sum xi} \times 100\%$$

Annotation
P = Validity presentation
∑x = Total number of respondents' answers
∑xi = Total number of ideal values in an item
100% = Constant

After the results of questionnaires were calculated by the above formula, the calculation results were then categorized using the following criteria:

Table 1. Criteria of Feasibility

Score Range	Feasibility Criteria
81%-100%	Very feasible
61%-80%	Feasible
41%-60%	Less feasible
21%-40%	Not feasible
0%-20%	Very not feasible

Source: Akbar (2013)

RESULTS AND DISCUSSION

Based on the result of validation by the lesson content validator, it obtained an average percentage of 78.46. This result indicates that the developed instructional media for Economic Growth and Development topic is feasible to be used as instructional media. In addition, the validation result from the media expert obtained 97 percent. This result confirms that the developed media for Economic Growth and Development topic is feasible to be applied. Based on the results of practitioner's assessment, it obtained a percentage of 95. It further confirms that the media developed in this research is feasible to be used in the learning activities.

A field trial to students as the users was conducted twice in this research, a small group trial with five students and large group trial with 20 students. A small

group trial obtained a percentage of 65.2, while a large group trial obtained a percentage of 80.6. Thus, the overall average value obtained was 83.01 percent which further confirm that the media developed is feasible to be used.

Developing an instructional media based on advanced information technology these days is considered as an essential approach to improve the quality of learning and teaching process in the classroom. The rapid development of technology recently allows teacher to develop an alternative instructional media, for instance by developing an application in smartphone and this is in line with the argument stated by Duffy and Jonassesn (2013).

This research and development aimed at producing an instructional media based on the current information technology. This research was begun by conducting an observation. The observation aimed at identifying the problems occurred in the school. Based on the observation, the researchers discovered that most teachers only employed a power point slide as a supplementary media in delivering lesson content. However, they did not use some elements that attract students such as an animation. Whereas, students will pay attention to the lesson delivered by the teacher if the teacher employ an attractive media. Only some of the students will pay attention to what is being delivered by students. Students who do not attracted to the lesson delivery will be busy with other disadvantageous activities. Accordingly, the students could not acquire sufficient understanding about the lesson content in the classroom. Thus, simple power point slides are not sufficient to be applied as an instructional media in the classroom. The development of Eco Edu App, then, aimed at resolving these issues.

This research and development aimed at developing an instructional media for Economic Growth and Economic Development topics. The two topics were chosen since it comprises of complicated theories and calculation. In addition, these topics also deal with some essential up-to-date information to support students' comprehension. Considering how complicated these topics, an attractive instructional media is required to make students pay attention to the lesson. This is in line with the research conducted by Anjarwati et al. (2016) which reports that the application of attractive instructional media promotes students' interest in the learning process higher rather than only employing a conventional media. Furthermore, the media developed promotes a wider opportunity to improve students' understanding. The development of media also takes a consideration that the school implements the 2013 Curriculum which allows teachers to use varied types of media and technology within the learning process. In addition, considering the school rules that allow students to bring their own smartphone, it intrigued the researchers to develop media that can use the device which is close to the students.

The result of this research and development is an instructional media based on Android application called EcoEdu App to improve students' learning outcomes and understanding. The product has undergone several stages of validation, specifically content validation, media validation, practitioner's assessment, and field trials. During the content and media validations, the validators provided the evaluation score through the validation questionnaires. The obtained scores were then calculated to acquire an average percentage. Based on the calculation, it obtained an average percentage of 83.01. The number then affirmed that the media developed, EcoEdu App, is appropriate and feasible to be applied in the learning activities of Economics subject of senior high school students.

This is in line with the research that has been conducted by Ulfa et al., (2017) which report that the use of application based on advance technology such as Android application promotes greater opportunity for students to access a learning resource. Furthermore, this research is also in line with the research conducted by Risnawati (2015) which discover that digital module as an alternative instructional media is feasible to be used in Accounting subject with a percentage of 89.10. Therefore, it is clear that the development of instructional media based on the recent technology such as Android application is essential to support students' learning activities in the classroom. The use of instructional media, in addition, is suitable for teachers to improve the quality of teaching.

In the current situation, where everything is unpredictable, an alternative of instructional media should be available. All related stakeholders in the context of education should be able to discover and develop any media that support the learning activities in school, particularly when face-to-face meeting in the classroom is not possible to be conducted. For instance, recently, we are facing an unpredictable situation from the spread of Covid-19 worldwide which forces us to limit any face-to-face meeting directly. This situation indeed is difficult to be adjusted when all stakeholders related to educational context such as teachers and students are not prepared. Thus, it enforces every teacher in school to be able to understand the current development of technology as one approach to perform a learning activity. This approach of learning activity through technology is commonly called a distance learning. The media developed, EcoEdu App, in this study also support the notion of distance learning since the students and teachers are able to access the application anywhere and anytime. Consequently, any challenges that go unpredictable such as the spreading of Covid-19 nowadays could be managed easily through a distance learning approach. The implementation of Android-based media allows teacher to teach the students remotely without having to meet face-to-face.

CONCLUSION

Based on the results, this research and development produces an Android-based instructional media for Economics subject of senior high school students. The assessment from content validator, media validator, practitioner, and also users trial concluded that the media developed is feasible to be applied. Practically, the use of Android-based media allows teacher to conduct a teaching and learning activities remotely where a conventional face-to-face meeting is not possible. For the future research, it is expected to develop more alternative Android-based media to support distance learning for other subject and educational level. In addition, it is also important to develop more attractive instructional media which can be accessed in any kind of device platform to make it more accessible to students and teachers.

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