

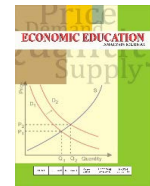


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Utilization of Interactive Multimedia Android-Based Archiving Towards Learning Independence

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Abstract

This research aims to find out the use of interactive multimedia archiving based on android and its effect on the learning independence of vocational learners. Research is a type of research and development (R & D). Research methods using experiments are pretend experiments (Quaisy experiment). The research was conducted at Vocational High School Surakarta City in April-June 2021. The population in this study is all students of class X Vocational High School Surakarta school year 2020/2021. The sample used was 1 control class and 1 randomly selected experimental class. All treatment will be given to the same control class and experimental class except on the use of interactive multimedia archival based on android. Interactive multimedia android-based archival was successfully applied in the learning of class X OTKP. There is a significant difference in the increase in learning independence between experimental classes that use interactive multimedia android-based archival and control classes that do not use interactive multimedia android-based archival in the archival learning class X OTKP in Vocational High School Surakarta City school year 2020/2021. Interactive multimedia android-based archiving can be used as one of the alternative learning media that can be used to increase the independence of learning learners.

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INTRODUCTION

Education as an important part in every individual and a major aspect of the creation of quality human resources. Education must be carried out as well as possible in order to benefit life. In article 1 of Law No. 20 of 2003 concerning the national education system affirms that: "Education is a conscious and planned effort to realize the learning literature and learning process so that learners actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals and skills necessary for themselves, society, nation and state".

The advancement of science and technology is expected to help improve the quality of human life, one of which is the field of education. Very rapid development causes almost all human activities can be controlled by the application of Science and Technology then a business is needed that can facilitate knowing these sciences (Wiyono et al, 2012); (Yektyastuti, 2015); (Baitullah, 2019). Digital marketing research institute Emarketer said that from 2016-2019 smartphone users in Indonesia have always increased (eMarketer, 2019).

The growth of smartphone users due to the covid-19 pandemic still hit many countries including Indonesia to date, as life changes from more at home, thus changing smartphone usage habits, especially at the time of application use. The increase in the use of this application is driven by social distancing and lockdown carried out in all parts of the world to reduce the spread of the covid-19 pandemic (App Annie, 2020).

Learning media that can be developed today is a learning media with Android-based. Android-based learning media that has advantages can be accessed by anyone and can be done anywhere becomes a driving factor in the development of learning media. The existence of Android learning process between teachers and learners can perform the learning process effectively and efficiently because it does not reduce effective hours of learning.

The development of Android-based learning media can provide a breath of fresh air for the world of education in Indonesia. The learning media has a practical, flexible, and personal nature that will increase the interest, motivation and creative data of learners in the learning process (Dolawattha, 2019). The popularity of Android is caused by several factors, namely speed factors that make it easier for users to access the required data, providing access to provide solutions to overcome the problems faced.

Android is a Linux-based operating system used for mobile devices. Android is the most in-demand operating system in the community because it has advantages such as the open source nature that encourages the freedom of developers to create applications (Anggraeni & Kustijono, 2013). According to Satyaputra & Aritonang (2016), Android is an operating system for smartphones and tablets. The operating system can be illustrated as a 'bridge' between the device (device) and its user, so that the user can extract with his device and run the applications available on the device.

Based on the circular letter from the Minister of Education in Indonesia Number 4 of 2020 on the Implementation of Education Policy in the Emergency Period of the Spread of Covid-19 states that the current learning process must have innovation and creativity of teachers in the learning process, one of which is by using learning media related to information technology, including the use of laptops and androids. In addition, learning is carried out online (online) or from home (remotely) for all learners in an effort to reduce the spread of covid-19.

Vocational High School is an education at the secondary education level that prioritizes the development of students' ability to be able to work in certain fields. The role of information technology in the global era cannot be separated from the world of education, especially vocational secondary education (Hardyanto, 2016). The use of interactive multimedia android-based archival can train the

independence of learners in learning, so that learners can easily understand the subject matter that has been delivered by the teacher. The results of the study are expected to provide an alternative use of learning media that are in accordance with the learning style of the 21st century and can improve the academic performance of learners, especially the independence of learning during the covid-19 pandemic.

Learning independence is a learning activity that students do without relying on the help of others both friends and teachers in achieving learning goals (Hendikawati, P., Zahid, M.Z. & Arifudin, R., 2019). This is in line with the research (Yektyastuti, R., 2015; Hidayat, K., 2019) There is a significant increase in the learning independence of learners who use learning media and learning processes more effectively. Learning independence can train learners to be more responsible and not always dependent on others so that their independence can foster confidence and faster in receiving and understanding the subject matter.

Based on the results of research observations in the field and Focus Group Discussion (FGD) in 2021 with MGMP Office Administration of Surakarta City that there are still many teachers who still use conventional methods or lecture methods that cause the material delivered less maximally so as to produce less maximal evaluation. In addition, the delivery of subject matter has not used learning media, causing learners to be less interested and the use of information technology is very limited causing wasted lesson time.

The use of interactive multimedia android-based archival that can train the independence of learners in learning so that learners can easily understand the subject matter that has been delivered by the teacher.

METHODS

Research is a type of research and development (R & D). Research methods using experiments are pretend experiments (Quaisy experiment).

According to Gall, Gall & Borg in Setyosari (2017) says that: "Research and development is an industry-based development, research findings are used to design new products and procedures, then conducted field tests systematically, evaluated and refined until the same effectiveness, quality, or standards are known from the specified criteria".

The resulting product of this research is android-based archiving interactive multimedia. Android-based learning media was developed with the reason that the use of smartphones in school environments can be utilized in the learning process oriented to teachers, learners, and the business or industry world.

The research was conducted at Vocational High School Surakarta city in April-June 2021. The population in this study is all students of class X numbering 285 students of Vocational School Surakarta school year 2020/2021. The sample of 95 learners used was 1 control class and 1 randomly selected experimental class. All treatment will be given to the same control class and experimental class except on the use of interactive multimedia archival based on android.

All statistical tests are conducted with the help of the SPSS Version 21 for windows program using a 95% confidence level: Independence Measurement Learners; Data Normality Test; Hypothesis Test; Category of Interpretation of Effectiveness of N-Gain. The hypotheses taken in this study are as follows: Ho: There was no significant difference in increased learning independence between control classes and experimental classes. Ha: There is a significant difference in increased learning independence between control classes and experimental classes.

RESULTS AND DISCUSSION

Archiving learning media is an interactive multimedia android-based archiving. Android-based archiving interactive multimedia that is generally developed contains: (a) Competency Menu: On the competency menu

contains related to Basic Competence (KD) material in the learning media; (b) Material Menu: The material menu contains incoming mail materials, outgoing letters, and electronic archives; (c) Simulation Video Menu: Simulation video is a menu that contains procedures for managing incoming mail, outgoing mail and electronic archives; (d) Evaluation Menu: Evaluation Menu contains related training or quiz questions made as evaluation materials with materials submitted by teachers; (e) About Apps Menu: This menu contains a brief description of android-based interactive learning media and app creators.

Here is an overview of android-based archival interactive multimedia:



Figure 1. Android-based Interactive Multimedia Initial Menu Display



Figure 2. Subject Matter Menu View



Figure 3. Simulation Video Menu View



Figure 4. Evaluation Menu View



Figure 5. About Apps Menu View

The term multimedia consists of two words: multi and media. Separately it can be interpreted that multi is a word from Latin which is a noun that means many. While

media is a Latin word derived from the word medium which means intermediary or something used to convey, convey, or carry something (Pan, 2019); (Untari, et al, 2020).

Based on the notion of two multi-word and media, we can interpret multimedia as a combination of various media such as text, animation, images, video, and others, united in the form of computer-aided digital files, which are useful for conveying information or messages (Munir, 2015); (Zaniyati, 2017). The development of technology is increasing, impacting on the change in the form of learning media turned into electronic-based learning media in the form of Multimedia Applications.

Multimedia applications today are numerous and diverse. The birth of multimedia technology is the result of advances in electronic technology, computers and software. In general, humans can remember messages delivered through writing by 10%, audio messages 10%, visual 30%, audio visual 50% and when coupled with doing, it will reach 80% (Erlansyah, D., 2015).

Multimedia is a learning medium that combines several media elements presented in android. Interactive multimedia is a solution in facilitating students to learn material compared to monotonous textbooks/ e-books. Multimedia interactive with the basics of animation developed according to the needs in the field (Liu, et al.2021); (Wiana, et al. 2020).

Multimedia as a combination of various media such as text, animation, images, video, etc., united in the form of digital files, which are useful for conveying information or messages (Munir, 2015); (Zaniyati, 2017). Technological developments are growing, impacting the changing form of learning media. Turned into an Android-based learning medium.

Interactive learning multimedia developed can be used for learning activities in the classroom and learning at home. The difference between interactive learning multimedia when compared to the development of interactive learning multimedia that exists before is in the interactive learning multimedia that

has been developed in accordance with what is needed by teachers and learners because it has been adapted to the conditions in school. It is known for the concept of multimedia that is adaptive meaning in accordance with the needs of the user (Surahman, 2017).

Interactive multimedia android-based archiving used as one of the innovations of learning media can increase the learning independence of learners. Android-based archiving learning media developed has a menu of simulation videos and evaluation questions. The simulation video contains videos that have been made by researchers to facilitate in understanding every step of acceptance and delivery of incoming mail. The simulation video can be opened when the device used there is an internet network while if there is no internet network (offline) then the simulation video cannot be played. In addition, this learning media is equipped with an evaluation menu facility that contains evaluation questions or quizzes that can be used as student evaluation material in understanding the material they learn.

The use of interactive multimedia is used as a supplement to archival learning, both in the classroom at the time of learning and outside the classroom (outside of lesson hours or outside school). At the time of classroom learning, learners are given time allocation to utilize interactive multimedia android-based archival, while for outside the classroom, learners are not limited to using learning media while still in the context of learning.

The independence of learning of learners is calculated from the questionnaire and validated in accordance with the results of observations. Increased learning independence is obtained from the value of independence of learning early and at the end of learning and expressed with normalized gain value. The analysis was conducted with the SPSS Version 21 for windows computer program at a 95% confidence level. The effect of the use of interactive multimedia android-based archival on the improvement of learning independence of class X learners Automation and Office Go-

Table 1. Results of Learning Independence Measurement Learners

No.	Class	Number of Learners	Average		
			Pretest	Posttest	Gain
1	Control	95	79.96	83.98	27.32
2	Experiment	95	77.77	89.76	59.84

Source: Primary data processed, 2021

Table 2. Data Normality Test

Number	Class	Kolmogorov-Smirnov			Conclusion
		Statistik	df	Sig.	
1	Control	0.089	95	0.061	Usual
2	Experiment	0.054	95	0.059	Usual

Source: Primary data processed, 2021

Table 3. Hypothesis Test

Test Data	Independence	Conclusion
Mann-Whitney U	0.001	Ho rejected (There is a difference that significant increase between increases Independence of learning learners in both groups)

Source: Primary data processed, 2021

vernance (OTKP) was analyzed by comparing the increase in learners' learning independence in experimental classes using learning media and in control classes that did not use developed learning media.

The average results of increased learners' learning independence in both classes, both experimental classes and control classes can be seen in Table 1. The assumption test is done first in order to see if the learning independence gain value data of learners in both distributed groups is normal and comes from a homogeneous population. The results of the normality test can be seen in Table 2. Data gains in control classes and normal distributed experimental classes. Thus, the assumption of the normality of the data to perform the t-test is met so that the analysis is continued using the Mann-Whitney U nonparametric test.

NGain data for experimental classes of 59.84%, then based on Table 4 categories of

Table 4. Category of Interpretation of Effectiveness of N-Gain

Percentage (%)	Interpretation
<40	Ineffective
40-55	Less Effective
56-75	Effective enough
>76	Effective

Source: Primary data processed, 2021

interpretation of the effectiveness of NGain values can be concluded that the percentage of 56-75% in the experimental class is declared effective enough to increase the independence of learning learners. While the NGain data for control classes amounted to 27.32%, so based on Table 4 categories of interpretation of the effectiveness of NGain values it can be concluded that the percentage of <40% in

control classes is not effective to increase the independence of learning learners. Furthermore, the significance value (2-tailed) is smaller than 0.05 (5%) which is 0.001. Thus, descriptive statistics say that there is a significant difference between the increase in learners' learning independence in both groups.

Mann-Whitney U's test results showed that there was a significant difference in learners increased learning independence between experimental classes that utilize interactive multimedia android-based archival and control classes that do not use android-based archival interactive multimedia. Based on the average results of gain values in both groups presented in table 1, it is known that the gain of the experiment class is higher than the gain of the control class. It can be concluded that interactive multimedia android-based archival can increase the learning independence of class X students Automation and Office Governance (OTKP) in Vocational High School Surakarta City.

Independence in the learning process as something of a necessity and demand in education today. On the other hand, the independence of learning learners is illustrated as a learning activity carried out by learners without relying on help from others, both friends and teachers in achieving their learning goals. In mastering optimal material or knowledge needs its own awareness and can apply its knowledge in solving problems in everyday life (Suhendri, 2011).

The formation of learners behavior that is an indicator of learning independence during the learning process includes: (1) Behavior of dependence on others, (2) Confident of himself in learning, (3) Trying to manage himself in his learning, (4) Trying to meet his learning needs, (5) Trying on the basis of self-initiative, and (6) Doing self-control (Kaselin, Sukestiyarno, & Waluya, 2013).

Based on previous research (Yektyastuti, R., 2015) stated that interactive multimedia can be used individually without the help of teachers, it makes students have the opportunity to be able to carry out independent

learning outside the classroom. Supported by research conducted (Hidayat, K., 2019) that there are other factors that can increase the independence of learning learners, namely the availability of media in the learning process to be more effective, such as package books, clean and comfortable classrooms, learning methods that can attract learners in the learning process. With the interactive multimedia of android-based archiving learners remain focused on learning, the role of teachers here as facilitators who direct learners during the learning process takes place. When the learning activity is completed, then the teacher can evaluate the learning process carried out so that it can know how far learners are in understanding the learning material.

Some literature is analyzed in order to give an idea of the advantages of information processing in interactive multimedia. Based on the creation of navigation features needed by information users, one of the platforms that can be utilized to create an interactive multimedia-based learning medium is Smart Apps Creator (SAC) as a combination of learning concepts with audio-visual technology that is able to produce new features that can be utilized in learning. The features in SAC are able to design animations that are more interesting, not monotonous and can facilitate in mater delivery innovation so as to help facilitate teachers in providing and making it easier for learners to understand archival materials.

CONCLUSION

Technology makes a positive effect not only on social life but also on education. School as an institution or educational institution Ideally, you should be able to do the process of education, socialization and transformation. Today, the role of educators as facilitators who help learners solve learning problems experienced proper learning media is expected to improve the skills of learners. These competencies are expected to increase the independence of learning learners. In learning activities, competence can be applied by

applying a scientific approach, such as observing, asking, presenting, reasoning and trying.

The use of interactive multimedia android-based archival can not only be used in Vocational High School Surakarta City, but the learning media created can be used wherever possible in some OTKP schools in Indonesia. In addition to being used as a learning medium, android-based interactive multimedia can also be used as a means or medium that can help learners in business and industrial internships because the learning media can be used in various gadgets that have android systems.

Interactive multimedia android-based archival was successfully applied in the learning of class X Automation and Office Governance (OTKP) in Vocational High School Surakarta City. There is a significant difference in the increase in the independence of learning learners between experimental classes that use interactive multimedia android-based archival and control classes that do not use interactive multimedia android-based archival in the archival learning class X OTKP in Vocational High School Kota Surakarta school year 2020/2021.

Interactive multimedia android-based archivation can be used as one of the alternative learning media that can be used to increase learning independence. However, there needs to be a more in-depth study of the material and problems raised in the application in order to further improve the ability to understand and explore the archival material of incoming mail, outgoing letters and e-archives.

Interactive multimedia android-based archivation can be implemented further in hard learning to see its effect on other variables besides the independence of learning learners. Improvements to android-based archiving interactive multimedia continue to improve the quality of learning media and its deep benefits for learning in vocational school.

Interactive multimedia-based archiving android is expected in the future not only used in archivist subjects only, but can be designed and it is created as a medium of learning in several other subjects. The existence of online learning at this time due to the Covid-19 outbreak, it is expected that android learning media can help learners, and teachers as a means of science transfer facilities.

Further research is expected to be carried out spread tests so as to be able to find out the effectiveness of interactive multimedia android-based archival. In addition, further research is directed so that researchers personalize android users so that users can use interactive multimedia android-based archiving by adjusting to the characteristics of the learning process on the ground.

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