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Android-Based Learning Media for Vocational High School Students

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Abstrak

Pembelajaran secara daring memberikan dampak pada penurunan minat dan hasil belajar siswa, sehingga siswa membutuhkan sebuah media yang mampu membantu proses belajar. Adapun tujuan dari penelitian ini yakni untuk menghasilkan aplikasi pembelajaran berbasis android untuk siswa SMK. Penelitian ini tergolong kedalam penelitian pengembangan yang dikembangkan dengan menggunakan model ADDIE (analysis, desain, development, implementation, dan evaluation). Subjek yang terlibat dalam penelitian ini yakni 2 orang ahli media, 1 orang guru, dan siswa SMK. Pengumpulan data dalam penelitian dilakukan dengan menggunakan metode wawancara dan penyebaran angket. Dengan intrumen berupa angket pengujian validitas produk. Analisis data hasil penelitian dilakukan dengan menggunakan skor dari setiap validator dengan cara menjumlahkan setiap skor pada masing masing indikator, dan terakhir Memberikan penilaian valid menggunakan prosedur penilaian persentase. Adapun hasil penelitian menunjukkan bahwa media aplikasi pembelajaran yang dikembangkan memiliki nilai validitas yang tinggi, sehingga sangat layak untuk dikembangkan dan dibelajarkan kepada siswa Sekolah Menengah Kejuruan. Selain memiliki nilai validitas yang tinggi media aplikasi pembelajaran telah mampu meningkatkan motivasi dan hasil belajar peserta didik.

***Keywords*:** *Aplikasi Pembelajaran, Android*

Abstract

Online learning impacts decreasing student interest and learning outcomes, so students need media that can help the learning process. This research aims to produce an android-based learning application for vocational students. This research is classified as developed using the ADDIE model (analysis, design, development, implementation, and evaluation). The subjects involved in this study were two media experts, one teacher, and vocational students. Data collection in the study was carried out using the interview method and distributing questionnaires with an instrument in a product validity test questionnaire. The research data was analyzed using scores from each validator by adding up each score on each indicator and finally providing a valid assessment using the percentage assessment procedure. The study results indicate that the developed learning application media has a high validity score, so developing and teaching vocational high school students. In addition to having a high validity score, the learning application media has increased students' motivation and learning outcomes.

Keywords: learning application, android

1. INTRODUCTION

Qualified individuals are educated individuals so that the quality of their resources can be seen through the level of education (Pane & Dasopang, 2017). It is in line with the statement that the higher the quality of education in a country, the higher the quality of its human resources (Mukminin et al., 2019; Nursita et al., 2022). In Indonesia, the implementation of education is carried out through 9-year compulsory education activities (Iskandar & Anam, 2018; Ningsih, 2021). The implementation of learning is carried out using the 2013 curriculum by prioritizing the active role of students during the learning process (Magdalena et al., 2021; Sholekah & Zulyan, 2021; Sukarni et al., 2021). In learning the 2013 curriculum, the teacher only acts as a facilitator who accompanies and assists the student learning process (Zahrawati & Nurhayati, 2021).

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In general, the learning process is carried out through direct face-to-face activities between teachers and students in a learning environment (Halik & Aini, 2020; Kurniasari et al., 2020; Nurmaya et al., 2022). The learning process is carried out by inviting students to understand material and concepts with the help of various learning facilities (Yuanta, 2020). It's just that the learning process cannot normally run during the current pandemic due to the implementation of *social distancing* (Indrawati, 2020). This policy requires the entire community to limit activities outside the home, including teaching and learning activities (Simanjuntak & Kismartini, 2020). With this policy, all schools are closed, and learning is carried out through an online learning model (Firdaus, 2020; Susanty, 2020). Online learning is one of the learning methods carried out using technology (Herlina, 2020; Jayul & Irwanto, 2020; Salsabila et al., 2020; Zhafira et al., 2020). Through online learning, teachers and students do not have to meet face to face. The online learning process can be carried out with the help of various *platforms* such as google classroom, google meet, zoom, qiuziz, etc. (Sari et al., 2021). The benefits that teachers and students most feel during the online learning process are where learning activities become more flexible so that students have more time to develop skills in non-academic fields, that online learning can also increase the ability of teachers and students to master technology (Asmuni, 2020; Dewi, 2020; Syarifudin, 2020).

It's just that in the implementation process, it cannot be denied that online learning has many obstacles, such as the lack of learning facilities such as *cellphones* and laptops owned by students and the number of students who do not understand the subject matter well (Fikri et al., 2021; Khasanah et al., 2020; Surahman et al., 2020). The lack of understanding of the material during the online learning process will decrease student learning outcomes. It is in line with the results of observations that have been carried out at SMK Negeri 1 Bawolato, Nias Regency. Observation results show that the most felt obstacle during the online learning process is the lack of understanding of the students' material. It is due to low learning motivation and the teacher's lack of ability to carry out a meaningful learning process for students. If allowed to continue, this will certainly impact the decline in the quality of education in these schools.

One of the efforts that can be done to overcome these problems is by using learning media. Learning media is a tool used to convey messages or information from educators to students to stimulate students' attention and interest in learning (Ahdan et al., 2020; Astuti et al., 2018; Rahmatullah et al., 2020). Teachers will also visualize abstract learning concepts (Megawaty et al., 2021). One of the media that can be used in the online learning process is media in the form of an Android-based learning application. Android is an operating system for smartphones and tablets (Astuti et al., 2018; Kuswanto & Radiansah, 2018). The operating system can be illustrated as a 'bridge' between the device (device) and its users to interact and run applications available on the device (Tahel & Ginting, 2019). Android is included in the mobile operating system. Android does not distinguish between core and third-party applications (Kharisma, 2020). The Application Programming Interface (API) provided offers access to hardware, even mobile phone data, or system data itself (Aditama et al., 2018). Android is an operating system for mobile phones based on Linux and provides various open platforms for developers to create their applications for use by various mobile devices (Khairul et al., 2018).

Several studies that have been conducted previously revealed that android-based learning applications can be adequately developed as one of the media for learning mathematics, especially in the material of Straight Line Equations (Makmuri et al., 2021). The results of other studies also reveal that android-based learning applications can significantly improve students' problem-solving and reasoning abilities in mathematics subjects (Qurohman et al., 2019). Further research revealed that the android application

learning media obtained a usability score of 85.95%, a content validity score of 96.3%, and an application validity score of 83%. I indicate that an android-based application learning media is very feasible to develop and use. as a learning medium for the concept of electrolyte and nonelectrolyte solutions at the college or university level (Nazar et al., 2020). Based on some of the results of these studies, it can be said that the android-based learning application media has a high enough validity score, so it is very feasible to be developed and taught to students and students. In addition, this media can also be used to improve mathematics learning outcomes and improve students' critical thinking skills. Previous research has shown no study on developing android-based learning applications for Vocational High School students. So this research is focused on this study to produce an Android-based learning application for vocational students.

2. METHOD

This research belongs to the type of development research, learning media development for vocational students. This development research was conducted using the ADDIE development model, which consisted of the *analysis, design, development, implementation,* and *evaluation*. The *analysis* is carried out to determine the initial needs in developing learning media. The analysis phase analyzes usage requirements, content analysis, and *hardware* and *software*. Furthermore, the learning application design process is carried out at the design stage and determines the elements needed in educational applications, such as preparing application requirements designs and application frameworks. The third stage is the development stage, the product realization process, and media product validity tests. The fourth development stage, namely the implementation stage, is limited to schools designated as research sites. After the implementation stage is complete, the development continues at the evaluation stage by revising the final product of the application developed based on the input obtained from the response questionnaire or field notes on the observation sheet.

This research was conducted at SMK Negeri 1 Bawlato, Nias Regency. The subjects involved in this study were two media experts, one teacher, and vocational students. Data collection in the study was carried out using the interview method and distributing questionnaires with an instrument in a product validity test questionnaire. The research data was analyzed using scores from each validator by adding up each score on each indicator and finally providing a valid assessment using the percentage assessment procedure.

3. RESULT AND DISCUSSION

Result

development of android-based learning applications was carried out in 5 stages of development. The results of each stage of development are as follows. First, the needs analysis stage results show that the learning media needed are media that can display videos related to subject information, display pictures and descriptions of meta lessons, play sounds from each subject, and provide a button to end the current sound. Videos are not required to autoplay when the page is active. After knowing the needs of students, the research continued in the second, namely the product design stage. Product designs are made as attractive as possible and adapted to the needs of students. The application presents seven learning content: Indonesian, English, history, PJOK, cultural arts, mathematics, and Pancasila.

The third stage is the media development stage, adjusted to the designed design. The development of learning media is based on hybrid programming using the Smart App Creator; the platform is done by compiling a block puzzle of each component paired with each method and its attributes; puzzle block is available automatically when the developer

puts an element on the application design page, the arrangement of puzzle blocks is carried out on each screen by drag and drop to the blockwork area, there are lots of block options ranging from control, logic, blocks to mathematical functions and so on. The use of this block function replaces the existing programming functions in programming in general. A puzzle block makes it easier for new developers who don't understand programming to create applications easily without learning to program. The media that has been developed is then tested for validity. The validity test results indicate that the developed media has a high validity score.

The fourth development stage is the media implementation stage. Implementation of the media is done by teaching the media to several students. The implementation results show increased student learning activities after being taught using android-based learning application media. Besides that, this media can also attract students' interest to increase student outcomes in various learning content. After knowing the advantages and disadvantages of the media, the research was continued in the fifth stage, namely the product evaluation stage. Media products that have been designed are then revised according to expert input and observations. The final android-based learning application media can be seen in Figure 1, Figure 2, Figure 3, Figure 4, and Figure 5.

Figure 1. Main Display

Figure 2. Display of the subject menu

Figure 3. Material Display

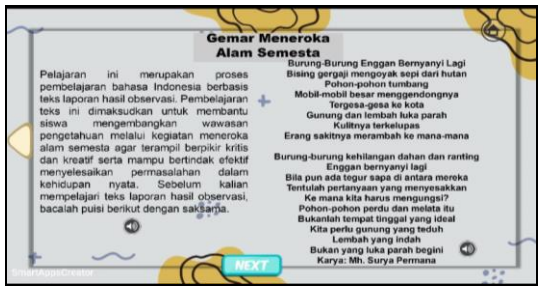

Figure 4. Display of Contents

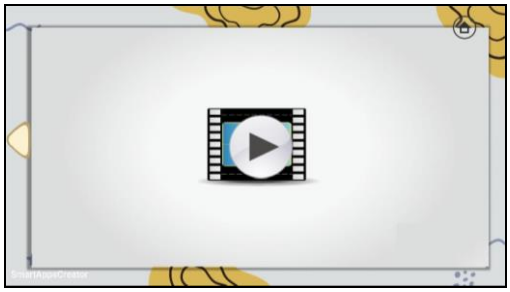

Figure 5. Display of Contents

Discussion

The research and development results of android-based learning application media indicate that the developed media has a high validity score, so it is feasible to develop and teach vocational students. Several factors support the success of developing learning application media, including the first factor, namely the media developed, has been by the needs of students. As is well known, the implementation of online learning has had an unfavorable impact on the student learning process (Asmuni, 2020; Syarifudin, 2020). Teaching and learning activities become less effective, so teachers cannot optimally fulfill learning objectives (Mansyur, 2020). The use of android-based learning application media is proven to meet the online learning needs of students. The application allows teachers and students to carry out the learning process (Astuti et al., 2018; Kuswanto, 2020; Nazar et al., 2020). Learning application media is one of the media that is easy to use anywhere and anytime, so that through this media, students can repeat the material that has been learned (Habibah et al., 2020; Tahel & Ginting, 2019).

The second factor, the media developed following the characteristics of vocational students. Vocational high school students are students who are in their teens. At this age, students generally get bored more quickly, are less interested in learning activities, and are lazy to study (Citra & Rosy, 2020; Jannah et al., 2019). It's just that at this age, students like new things, especially those related to the use of technology, so this learning application is in great demand by students (Arief et al., 2018; Arlen et al., 2020). The third factor is that the media developed can increase students' motivation and learning outcomes. Learning motivation is an impulse in students to carry out learning activities (Kabunggul et al., 2020; Rahman et al., 2020). Learning motivation is directly proportional to student learning outcomes, where if student learning motivation is high, the learning outcomes are also increased, and vice versa (Hamzah et al., 2019). Learning application media is said to increase students' learning motivation because the media can display new things in the learning process (Rahman et al., 2020). Especially in the boring online learning process, learning application media can increase students' learning desire and facilitate learning.

The fourth factor is that the media developed as an attractive application design. Design is an important component in preparing media (Kuswanto, 2020). Media with an attractive appearance, easy-to-read, and easy-to-understand will certainly increase students' interest in learning (Ramdani et al., 2020). Good media is media that has the appropriate appearance, color, and writing style. Besides that, good media is also a medium to meet learning objectives and help students' learning processes (Batubara, 2017).

The results obtained in this study are in line with previous studies, which also revealed that android-based learning applications could be appropriately developed as one of the media for learning mathematics, especially in Straight Line Equations' material (Makmuri et al., 2021). The results of other studies also reveal that android-based learning applications can significantly improve students' problem-solving and reasoning abilities in mathematics (Qurohman et al., 2019). Further research revealed that the android application learning media obtained a usability score of 85.95%, a content validity score of 96.3%, and an application validity score of 83%. I indicate that an android-based application learning media is very feasible to develop and use. as a learning medium for the concept of electrolyte and nonelectrolyte solutions at the college or university level (Nazar et al., 2020). So based on these results, the Android-based learning application media has a high enough validity score, so it is feasible to be developed and taught to students and students. In addition, this media can also be used to improve mathematics learning outcomes and improve students' critical thinking skills.

4. CONCLUSION

The conclusions that can be drawn from the results of this study are that the learning application media has a high validity score, so it is very feasible to be developed and taught to Vocational High School students. In addition to having a high validity score, the learning application media has increased students' motivation and learning outcomes.

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