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DEVELOPMENT OF ANDROID-BASED LEARNING MEDIA IN INFORMATICS SUBJECT IN PRIVATE VOCATIONAL SCHOOL 6 PADANG

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Abstract
The problems that exist in the Informatics subject are less varied in the use of learning media so that it has an impact on student learning outcomes, students still have difficulty understanding the material presented by the teacher, the need to develop android-based learning media in Informatics subjects at SMK Negeri 6 Padang. This study aims to determine the validity level of valid android-based learning media and to determine the practicality level of practical android-based learning media. This study uses the Research and Development (R&D) method with the development model used, namely the ADDIE development model. The research subjects were 17 people. Data collection techniques using a questionnaire with a Likert scale. The results of this study show that the average value of the media expert validity test is 0.90 and the material validity test is 0.97 with the valid category. The teacher's response practicality test showed a value of 91.94% and for the student's response practicality test showed a value of 93.06% with a very practical category

Keywords: *Media, Learning, Android, R&D, ADDIE, Valid, Practical.*

Introduction

The development of science and technology is growing rapidly and has an impact on learning media in the world of education. Advances in technology are also needed, especially in education. The use of technology will be able to improve the quality of learning in schools. Education is basically a process for developing one's own knowledge, skills, or character so that one is able to deal with any changes and problems faced. Education is a process carried out by a group of people in developing themselves either through teaching, learning, and research. In education, of course, it must have learning and learning components in schools, one of which is learning media. *Android*is a software or device that is utilized by a mobile device (a running process device) as an operating system, Linux, middleware, and core applications. According to(Yunus & Fransisca, 2020:120)Android is an operating system that is specifically designed for smartphones and tablets. This Android system has a Linux base which is used as the basic foundation of an Android operating system. Linux is an operating system specifically designed for computer use.

SMK Negeri 6 Padang is a vocational high school located on Jl. Suliki No.1 Jati Baru Village, East Padang District, Padang City, West Sumatra Province. Padang 6 State Vocational School was established on August 14, 1952 under the name Girls Skills Teacher School (SKGP). This school was formerly under the inspection of women's education at the Indonesian Ministry of Teaching, Education and Culture in Jakarta. On February 26, 1968 SKGP changed its name to Padang State Senior Family Welfare School (SKKA). Then on December 9, 1976 it changed its name back to Padang State Family Welfare Middle School (SMKK). On March 7, 1977 SMKK again changed its name to Padang 6 State Vocational School and this name is valid until now. SMK Negeri 6 Padang is the first SMK in the city of Padang to have international standard school (SBI) status in 2007. This school has a hotel called edotel which is used to conduct hospitality student internships at this SMK. Internship or industrial work practice is an educational, training or learning activity that is studied by SMK (Vocational High School) students in the business or industrial world related to the competence or ability of students in accordance with the field that the

student is in. SMK Negeri 6 Padang has 7 competency skills, namely Culinary, Beauty, Hospitality, Tourism, Fashion, and TJKT (Telecommunications Computer Network Engineering). This school has a hotel called edotel which is used to conduct hospitality student internships at this SMK. Internship or industrial work practice is an educational, training or learning activity that is studied by SMK (Vocational High School) students in the business or industrial world related to the competence or ability of students in accordance with the field that the student is in. SMK Negeri 6 Padang has 7 competency skills, namely Culinary, Beauty, Hospitality, Tourism, Fashion, and TJKT (Telecommunications Computer Network Engineering). This school has a hotel called edotel which is used to conduct hospitality student internships at this SMK. Internship or industrial work practice is an educational, training or learning activity that is studied by SMK (Vocational High School) students in the business or industrial world related to the competence or ability of students in accordance with the field that the student is in. SMK Negeri 6 Padang has 7 competency skills, namely Culinary, Beauty, Hospitality, Tourism, Fashion, and TJKT (Telecommunications Computer Network Engineering). or learning learned by SMK (Vocational High School) students conducted in the world of business or industry related to the competencies or abilities of students in accordance with the fields that these students are involved in. SMK Negeri 6 Padang has 7 competency skills, namely Culinary, Beauty, Hospitality, Tourism, Fashion, and TJKT (Telecommunications Computer Network Engineering). or learning learned by SMK (Vocational High School) students conducted in the world of business or industry related to the competencies or abilities of students in accordance with the fields that these students are involved in. SMK Negeri 6 Padang has 7 competency skills, namely Culinary, Beauty, Hospitality, Tourism, Fashion, and TJKT (Telecommunications Computer Network Engineering).

Based on the results of interview observations with one of the Informatics subject teachers at SMK Negeri 6 Padang that this Informatics subject was only studied by class X. In this Informatics subject still uses learning media. The learning media used is Microsoft Power Point. Microsoft Power Point is a software application or software that is used as a presentation developed by Microsoft for office applications. However, in the use of power point media the teacher is less varied in making an appearance of the media attractive. Like the theme used is too stiff, the material displayed is too much or too dense. This can have an impact on the results of the student learning process. After conducting interviews with the teacher, the researcher then conducted interviews with class X TJKT students at SMK Negeri 6 Padang, obtained data that the researcher found that many of the students did not understand the material being explained, so the teacher had to repeatedly explain the same material. This can take a long time for the learning process, and can affect students who already understand the material being explained.

An unattractive appearance in the use of learning media makes students feel bored quickly in the learning process. This also affects the delivery of material by the teacher does not reach the students. For example, the teacher only uses modules as teaching materials in learning. Not only modules, but the teacher also lacks communication with students in class. This tends to make the learning atmosphere stiff and less interesting, so that students become less active and not enthusiastic about participating in learning.

Method

1. Time and Place of Research

Time and place of research from the title "Development of Android-Based Learning Media in Informatics Subjects at SMK Negeri 6 Padang". The place of research will be conducted at SMK Negeri 6 Padang. This school is a vocational high school located on Jl. Suliki No. 1, Jati Baru, Kec. East Padang, Padang City, Prov. West Sumatra. This research will be carried out in the odd semester of the 2022/2023 academic year.

2. Research design

This study uses Research and Development (R&D) research and development methods. The R&D method stands for Research and Development. According to(Fransisca & Putri, 2019:73)said that Research and Development (R&D) development research is a research method used to produce certain products, and test the effectiveness of a product. Research and development or Research and Development is a process for developing new products, or improving existing products, which can be accounted for.

In this study will use the ADDIE development model. The ADDIE development model is one of the systematic learning design models and is programmed in a systematic order in an effort to solve problems in learning related to learning resources that suit the needs and characteristics of learning(Arthawan, Suyasa, & Wahyuni, 2020:174). The ADDIE development model is a development model consisting of 5 stages of Analysis, Design, Development, Implementation and Evaluation.

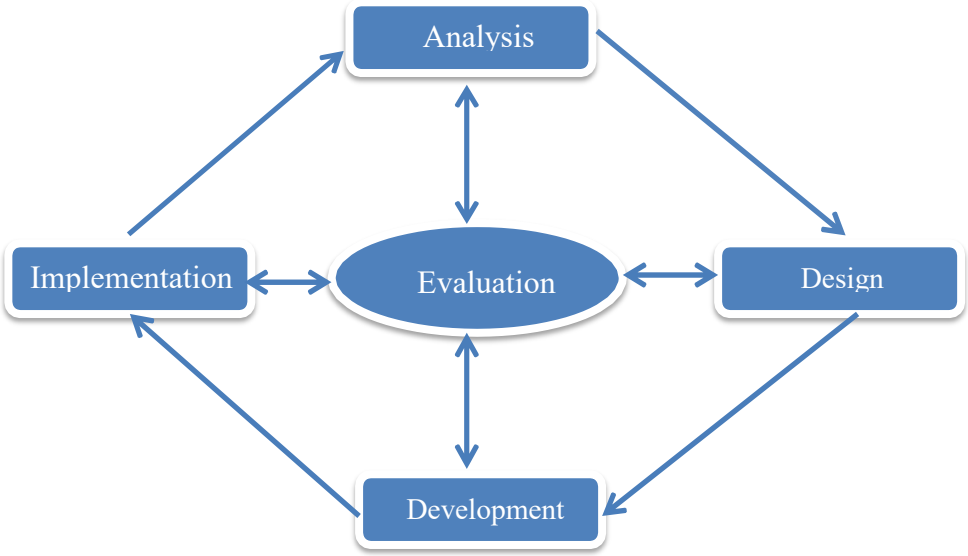

Figure 1. ADDIE Development Flow

a. Analysis Stage

1) Preliminary Analysis

Based on the observations made by the writer at SMK Negeri 6 Padang in class X TJKT Informatics subject using a questionnaire in the form of interviews given to teachers and students that this informatics subject already uses learning media such as power point. With the power point display displayed by the teacher, students get bored quickly because the media displayed by the teacher is less varied so that it has an impact on student learning processes and learning outcomes at school.

2) Needs Analysis

Based on interview observations that the author conducted with class X TJKT students that most students used smartphones, the learning media that already existed on students' smartphones only contained WPS Office in displaying documents such as modules provided by the teacher. Android-based learning media is currently not used by class X TJKT students, so it is necessary to develop android-based learning media so that it allows teachers to be more varied in delivering material, and students can be more active in participating in the learning process. The activities that will be carried out at this stage are formulating learning objectives, determining the discussion material to be studied, then determining learning strategies so that learning objectives are achieved. At this design stage later the learning media will display the main page which contains the learning flow, materials, videos, exercises, quizzes, and information about the application. In the learning flow section, it will be filled with existing learning paths as a guide in learning. Furthermore, the material will be filled with material to be studied, namely about mail merge or mass mailing. Likewise, the video will later show a video of the steps for making a mass letter. After that, the exercise section will be filled with questions in the form of objective questions. The quiz display will be filled with questions that stimulate students' thinking in learning. Information about the application will later display information on the use of the application that will be made.

Results and Discussion

This development and research was carried out in class X TKJT (Computer Network and Telecommunications Engineering) in the Informatics subject at SMK Negeri 6 Padang. The product produced in this study is an android-based learning media in Informatics subjects using Kodular software. This product is packaged in the form of software or in the form of an Android-based application which is given to students and used to assist the learning process either at school or at home. This development and research was carried out using the R & D (Research and Development) method. The results of this study are:

1. Development

At this stage it is carried out after designing, namely writing material that will be needed by students through teaching materials used by teachers in subjects according to the needs of students in learning activities.

a. Initial View

The initial display is the display on the first page that appears when opening Informatics learning media. When the start button is pressed, what will appear is the next page on the learning media.

Figure 2. Initial Display

In this view there are 2 pages, namely the developer profile page and the supervisor profile page. Each of these pages contains personal data from media developers and supervisors.

Figure 3. View of the Advisor's Profile Page

Information :

The display of some of the pictures above is the display of the profile menu page. This profile menu contains profiles of media developers and mentor profiles.

Table 1. Revision of Media and Material based on Validator's Suggestions

1	Validators 1	Customize the menu layout	Menu layout after fix
2	Validators 2	Add bottom navigation to make it easier to enter other menus, The background on the video is replaced and the application for recording is not shown, and the background music should be reduced so that the presentation of the material can be heard more clearly.	After repair and After replaced

2. Data analysis

a. Media Validity Results

The results of the validity of this media aim to find out the opinions of media experts regarding the feasibility of Android-based learning media. This validation is done by viewing Android-based learning media and submitting a validation questionnaire to the media. Where in the questionnaire there are 5 indicators, namely aspects of integration, aspects of balance, aspects of letterforms, aspects of color, and aspects of language.

The following are the results of media validation which can be seen in the table below:

Table 2. Media Validation Results

No	Assessment Aspects	Validators			Amount	Validity Results	Category
		V1	V2	V3			
1.	Aspects of Integration	2,5	3	2.75	8,25	0.916	Valid
2.	Aspects of Balance	2,5	3	3	8,5	0.944	Valid
3.	Aspects of Letter Forms	2,5	3	3	8,5	0.944	Valid
4.	Color Aspect	2,33	3	2,33	7,66	0.851	Valid
5.	Language Aspect	3	3	2	8	0.888	Valid
Total						4,543	-
Average						0.909	Valid

Source: Research Results, 2022 (Data processed)

Based on the results of data analysis of Android-based learning media, the five aspects assessed by the media expert validator are declared "valid" because the validity category in learning media ≥0.667 is declared "valid" while 0 - 0.666 is declared "invalid" from the table above which states the results media validation value of 0.909 is declared "valid" and suitable for use as a learning medium.

b. Material Validity Results

The results of this material validation aim to find out the opinions of material experts regarding the feasibility of Android-based learning media, this validation is done by viewing material on Android-based learning media and submitting a validation questionnaire on the material in the learning media. Where in the questionnaire there are 2 aspects, namely Aspects of Conformity of Content with Purpose, and Aspects of Learning Quality.

The following are the results of material validation which can be seen in the following table:

Table 3. Material Validation Results

No	Assessment	Validators	Amount	Validity	Category

	Aspects	V1	V2	V3		Results	
1.	Aspects of Compatibility of Content with Purpose	2,22	2.44	3	7,66	0.851	Valid
2.	Aspects of Learning Quality	2,33	2.66	2.83	7,83	0.870	Valid
Total						1,721	-
Average						0.978	Valid

Source: Research results, 2022 (Data processed)

Based on the results of the analysis of android-based learning media on the aspect of conformity of content with objectives and aspects of learning quality assessed by the material expert validator is declared "valid" because the validity category in learning media ≥0.667 is declared "valid" while 0 - 0.666 is declared "invalid". Based on the table above which states that the results of material validation of 0.978 are declared "valid" and suitable for use as learning media.

c. Results of Practicality of Android-Based Learning Media

This practicality test was carried out to find out whether this android-based learning media was practical or not for use in schools, this practicality test was carried out by informatics teachers and class X TJKT students. For the teacher's questionnaire there are several questions consisting of 6 indicators and for students there are several questions consisting of 5 indicators. The following are the results of teacher practicality and student practical results can be seen in the table below:

Table 4. Results of Teacher Response Practicalities

No	Practicality Aspect	(%)	Category
1.	User Ease	95	Very Practical
2.	Time efficiency	83.3	Very Practical
3.	Easy to Interpret	91.6	Very Practical
4.	Compatibility with the Material	90	Very Practical
5.	Attractiveness	91.6	Very Practical
6.	Can be used as self-learning	100	Very Practical
Average		91.94	Very Practical

Source: Research Results, 2022 (Data processed)

Table 5. Results of Student Response Practicality

No	Practicality Aspect	(%)	Category
1	Ease of Use of Media	92.5	Very Practical
2	Time efficiency	91.66	Very Practical
3	Compatibility with the Material	92	Very Practical
4	Attractiveness	89,17	Very Practical
5	Can be used as Independent Learning	100	Very Practical
Average		93.06	Very Practical

Source: Research Results, 2022 (Processed Data)

Based on the practicality table of the teacher's and student's responses it was concluded that the android-based learning media that had been made with an average score obtained in the teacher's practical response was 91.94% in the "very practical" category and the average value in students' practicality response was 93, 06% in the "very practical" category.

d. Discussion

This research aims to develop android-based learning media in Informatics subjects at SMKN 6 Padang. Testing the feasibility of android-based learning media presented in the form of a questionnaire. The questionnaire given consists of several aspects, namely aspects of integration, aspects of balance, aspects of letterforms, aspects of color, and aspects of language. The data obtained from the media validator will then be analyzed using Aiken'V statistics. Based on the results of media validation on Android-based learning media, it is known that the cohesiveness aspect shows a value of 0.916 with a valid category, the balance aspect shows a value of 0.944 with a valid category, the aspect of letter shape has the same value as the balance aspect, namely 0.944 with a valid category, as well as aspects color has a value of 0, Testing the feasibility of Android-based learning media material is presented in the form of a questionnaire. Testing the feasibility of the material in this learning media consists of several aspects, namely aspects of suitability of content with objectives and aspects of learning quality. The data obtained from the material validator will then be analyzed using Aiken'V statistics. Based on the results of material validation on Android-based learning media, it is known that the aspect of suitability of content with goals has a value of 0.851 in the valid category, and the aspect of learning quality has a value of 0.870 in the valid category.

Based on the results of the practicality of the teacher, it shows that the user-friendliness aspect has a value of 95% in the very practical category, the time efficiency aspect has a value of 83.3% in the very practical category, the easy-to-interpret aspect has a value of 91.6 in the very practical category, the suitability aspect with material having a value of 90% in the very practical category, in the attractiveness aspect it has a value of 91.6% in the very practical category, and aspects that can be used as independent learning media have a value of 100% in the very practical category.

Based on the results of practicality of students it is known that the aspect of ease of use has a value of 92.5% in the very practical category, the time efficiency aspect has a value of 91.66% in the very practical category, the suitability aspect with the material has a value of 92% in the very practical category, the attractiveness aspect has a value of 89.17% in the very practical category, and the aspect that can be used as independent learning has a value of 100% in the very practical category.

Conclusion

Based on the results of the research and discussion of the development of android-based learning media in the Informatics subject at SMKN 6 Padang, it can be concluded that the validity test of learning media was carried out by 3 validators consisting of media validators and material validators, for media validators it was carried out by 3 lecturers, while in The material validator was carried out by 1 lecturer and 2 Informatics teachers at SMKN 6 Padang. The validity for media experts is 0.909 with a valid category, material validity is 0.978 with a valid category. With this it can be concluded that from the results of the validation of media experts and material experts on Android-based learning media it was declared valid and the Practicality test of Android-based learning media from the teacher's practicality data was 91.94 in the very practical category, while for the practicality of students' responses, it was obtained at 93.06 in the very practical category. With this it can be concluded that the practical response of the teacher and the practical response of the students is that Android-based learning media is very practical to use in school learning.

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