DEVELOPMENT OF ANDROID BASED LEARNING MEDIA "MODAKTIF (INTERACTIVE ACCOUNTING MODULE)" FOR JOB ORDER COSTING METHOD MATERIALS IN SMK NEGERI 1 DEPOK 2020/2021

By:

Rini Setyowati

Yogyakarta State University Accounting Education Study Program
rini.setyowati64@gmail.com

Endra Murti Sagoro, S.Pd., S.E., M.Sc.

Teaching Staff of the Department of Accounting Education, Yogyakarta State University
endra_ms@uny.ac.id

Abstract: Development of Android Based Learning Media. This study aims to 1) develop an Android-based interactive accounting module learning media for job order costing method, and 2) determine the feasibility level of "MODAKTIF" accounting learning media based on material expert assessment, assessment of media experts, assessment of Accounting teachers, and the students of class XII AKL 2 SMK Negeri 1 Depok. This study uses the 4D model Research and Development (R&D) method. The results showed 1) The assessment by the material expert obtained a score of 4.84 "Very Good" with a percentage of 97% included in the "Very Feasible" category, 2) The assessment by media experts obtained a score of 4.13 "Very Good" with a percentage of 83% including the category "Very Feasible", 3) The assessment by the learning practitioner (accounting teacher) obtained a score of 4.91 "Very Good" with a percentage of 98% "Very Feasible", 4) The media developed was tested to 31 students of grade XI AKL 2 to know the response of students. The development test result scored 128.66 with a percentage of 83% belonging to the category "Very Feasible". Based on the results of the assessment of the experts, the Android-based "MODAKTIF" learning media fulfills the criteria "Very Feasible" to be used as a learning medium for Accounting in the material for the cost of order method in SMK Negeri 1 Depok.

Keywords: Android, MODAKTIF, Accounting Learning Media

PRELIMINARY

The millennial era is an era where technology is growing rapidly. In this era, life can not be separated from technology. No wonder that humans have used technology to support their activities. According to Thamrin (2017) in the 21st century, the development of technology occurs very rapidly which has an impact on various fields, namely economic, political, social, and cultural. Technology can be a learning resource, so the learning process doesn't rely on teacher attendance and helps students learn anywhere, anytime, and with anyone. One of the technologies used in the time of distance learning is Gadget (Smartphone). According to Rohmah (2017), gadget (Smartphone) is an interesting device or mechanical tool because it is relatively new so it will provide a lot of new pleasure for its users. A smartphone or smartphone is a mobile phone that has a function resembling a computer. Based on Indonesia's population

of 272.1 million people, it means that 64% of Indonesians have access to the internet and can use smartphones. The facilities in smartphones are various such as social media applications, messaging, and games. However, students are more interested in using their smartphones to play around than to be used for learning. It became one of the problems in the world of education. This can be prepared by utilizing smartphones for learning media.

Based on interview conducted with teachers at SMK Negeri 1 Depok, it is known that the use of technology for learning media is still lacking. The results of the interview also showed that the material that requires learning media is the material of job order costing method. This material is complex and takes time to understand. Students must understand the material first to work on the problem correctly, therefore there needs to be a good learning medium for the material to be delivered to the maximum.

But in reality, the media used is only limited to package books and powerpoints shared through WhatsApp Group. The use of such media has not yet had an effective impact on the learning process. First, not all students get package books evenly because of the limitations of books owned by the school. Second, the use of PowerPoint media that is almost used in every subject makes students feel bored. Whereas the use

of smartphones can still be maximized again for example by utilizing android-based applications. The teacher also stated that in SMK Negeri 1 Depok there has been no use of android-based learning media application technology, especially modules on the subject matter of the basic price method of order.

Modules are learning tools that can be used by students to learn the materials taught by teachers. With the module, students will have learning references other than the explanations made by the teacher while in the classroom. Modules can be developed into multimedia that can be utilized by the user. Interactive modules can be defined as multimedia in the form of a combination of two or more media (audio, text, graphics, images, animations, and videos) presented in the form of compact disks (CDs) and interactions (reciprocal relationships / two-way communication or more) between the media and its users (Kurniawan, 2015).

Interactive modules have several advantages compared to regular modules. Interactive modules have a different look that uses technology that combines visual and audio as well as images according to related materials so that learning will feel more interesting and fun. In the current period of distance learning, the learning process is done online by utilizing a smartphone.

SMK Negeri 1 Depok is a school that has implemented smartphone-based distance learning. Related to the observations by spreading the questionnaire in class XII AKL, data obtained that all students have smartphones and have been used to follow online learning. The observations also showed that 20 out of 38 students or 52.63% of students do not yet know what is interactive module-based learning media. This is an opportunity for researchers to develop and introduce to students about android-based learning media in the form of interactive modules as learning media in the material of the base price method of order.

Android is an operating system that is free and open, so it can be used by anyone who wants to create or develop applications. Android's app products can also be downloaded through the play store to use them. Android and play store are certainly familiar to smartphone users. So the creation of this android-based learning media will be an interesting thing to implement and expected to facilitate the learning process, so it will attract students' attention.

Therefore, the material of the basic price method of the order will be easier to learn. Based on the description above encourages researchers to conduct research with the title "Development Of Android Based Learning Media "MODAKTIF (Interactive Accounting Module)" For Materials Job Order Costing Method In SMK Negeri 1 Depok 2020/2021".

LITERATURE REVIEW

1. Learning Media

Learning media is indispensable in the implementation of the learning process. With the learning media, the purpose of the learning process will be delivered more maximally. According to Sundayana (2015), media is a vehicle for learning information or messaging. In the learning process, learning media is defined as a container and message channel from the source of the message, namely a teacher to the recipient of the message. Miarso (2011, p. 457) explains that learning media is everything that can be used to stimulate the student's feelings, attention, and willingness to encourage the learning process in students.

Learning media is defined as everything that serves to bring and convey information from the source of information to the recipient (Yaumi, 2018). All kinds of equipment that serve as a distributor of information are referred to as a medium. Examples include videos, televisions, printed materials, laptops, and computers. According to Anshori (2018), learning media is a tool used in the learning process to make it easier for educators

to convey the materials they want to teach to students. In the process of learning media occupies a very important position. This is because, with the media, the learning objectives will be easier to convey. In the learning process, learning media has several functions. According to Wina Sanjaya (2014) the functions of learning media are as communicative function, motivation function, meaning function, perception equalization function, individuality function.

2. **Android Apps**

Android is a Linux-based operating system designed for touchscreen mobile devices such as smartphones and tablet computers (Wijayanto, 2017). Android, Inc., was the first to develop the system with financial support from Google. In 2005 google then bought this operating system. The system was officially released in 2007 and went on the market in October 2008. Hartati (2017) explained that android is an operating system on mobile phones that are open based on Linux. Android provides an open platform making it easy for developers to create their apps. Murya (2014) defines android as a collection of open-source software for various mobile devices and Linux-based open-source corresponding projects led by google.

Android application is equipped with several features, here are the features on android according to Wijayanto (2017). Firs, android is a device that comes with touch screen features. This feature makes it easier for users to use the app, so users can interact directly by touching the screen. Second, android device is also supported with GPS feature, this feature serves to know where the position of the user of the device. Third, The accelerometer is a feature that serves to measure speed when an android device experiences a certain condition. The last is SD Card, SD Card feature on android devices is as a space to store files in the phone.

3. **Relevant Research**

a. Joko Kuswanto (2019) in a study entitled Development of Interactive Modules in Integrated Science Subjects Class VIII. Similarities with the research conducted by the authors are both developing learning media in the form of interactive modules. The difference is the development model and learning materials used.

b. Herawati (2018) in a study entitled Development of Interactive Electronic Modules (E-Modules) in Chemistry Subjects Class XI SMA. Research using 4D models consists

of a definition, design, and development. The similarity with the research conducted by the author lies in the type of media and development model used that is the 4D model. The difference is that the material used to develop the media.

c. Batubara (2017) in a study entitled Development of Android-based Mathematical Learning Media for Elementary/MI Students. The similarity with the research conducted by the author lies in the development model that is 4D and the type of media developed is based on android. The difference lies in the subject of research and the materials developed.

d. Helna Satriawati (2015) in a study entitled Development of Interactive E-Module as a Source of Learning Basic Electronics Class X SMK N 3 Yogyakarta. Similarities with the research conducted by the authors are both developing learning media in the form of interactive modules. The difference is the development model and learning materials used.

e. Rosales (2018) in a study entitled Modelling the interaction levels in HCI using an intelligent hybrid system with interactive agents: a case study of an interactive museum exhibition module in Mexico. The

research uses hybrid interactive models. The similarities with the research conducted by the researchers are the same as developing interactive modules. The difference is the development model and the materials used in the module.

f. Cahyanti (2017) in a study entitled Development of Interactive Module Learning Media Based on Adobe Flash CS 6 On Competency Adjustment Journal for Students of Grade XI IPS SMA N 1 Tempel. The equation lies in the type of media developed i.e. interacted module. The difference lies in the development model and the materials developed.

In this era the development of technology is very rapid, almost all areas of life have used technology is no exception in the field of education. Technology has a big role in the development of the world of education, one of which is the utilization of technology used for the manufacture of learning media. Media has a very important role in the learning process. With the medium of achieving learning objectives will be easier to achieve. Various types of media can be developed and created using technology. In reality, there are still many educators who have not utilized the usefulness of this technology to the maximum. The development of accounting

learning media in the form of an android-based interactive module is expected to overcome the problems that occur.

SMK Negeri 1 Depok is one of the vocational high schools in Yogyakarta with a focus on business and management. Based on the results of interviews with accounting teachers the results of the interview show that there are still many teachers who have not utilized technology to the maximum. Most teachers use power points and package books as a medium in the learning process.

The research framework is described as follows:

Problems	Research Development	Expected results
1. Lack of utilization of technological variations in the learning process is only limited to power points and learning package books. 2. Utilization of smartphones that are not optimal in the learning process. 3. Lack of use of android-based interactive module learning media for the subject matter of the order price method. 4. There are still many students who do not know the media of interactive module learning which is 52.63% of 20 out of 38 students.	1. Development of accounting learning media "MODAKTIF (Interactive Accounting Module)" based on android material on the cost of order method.	1. Able to produce interactive learning media modules that are interesting and worth using in the learning process to help students understand the material about the method of the basic price of orders.

Figure 1. Research Framework

The use of more advanced technology has not been widely applied in this school. In addition, the existence of distance learning systems such as today that increasingly restrict teachers and provide more challenges to choose the right teaching methods.

Interactive module media should be developed as interesting as possible because the material delivered can be understood more easily. The media is also developed with features such as games and supporting videos with interesting animations. This interactive module learning media becomes one of the media that can be used as a supporting tool in the learning process for teachers and students. This media is organized and developed in such a way that it is really worth using in the learning process and also useful for its users.

RESEARCH METHODOLOGY

1. Type of Research

This research uses research type Research and Development (R&D). According to Sugiyono (2016, p. 297) development research or often referred to as R&D (Research and Development) research is a research method used to produce a product and test the effectiveness of the product. The development model used in this study is a 4D model consisting of four stages, namely Define, Design, Develop, and Disseminate

2. Place and Time of Research

This research was conducted at SMK Negeri 1 Depok which is located at Jalan Ring Road Utara, Maguwoharjo, Depok, Sleman, Yogyakarta 55281. The research was conducted within 6 months from September 2020 to February 2021 starting from planning, research, and reporting.

3. Subject of Research

The subjects in this study were material experts, media experts, learning practitioners (teachers), and grade XI students of AKL 2 SMK Negeri 1 Depok. The object in this study is the Accounting Learning Media "MODAKTIF (Interactive Accounting Module)" Material of The Job Order Costing Method.

4. Development Procedures

1) Define

a. Need Analysis

This analysis is done to find out the basic problems that are the cause of the need to develop learning media. The facts are collected for later analysis to determine the first steps that must be taken in developing learning media.

b. Concept Analysis

This analysis aims to determine the extent to which the material will be used in the development of interactive module

learning media. This process is done by consulting the teacher related to the material that will be contained in the development of learning media.

2) Design

a. Media Selection

The process of selecting media is adapted to the analysis of tasks, analysis of materials, and characteristics of learners. In learning the basic price method of this order is used media in the form of an interactive accounting module based on android.

b. Format Selection

Format selection is done by designing learning content, choosing learning resources, creating designs, layouts, drawings, and writings from learning media to be developed. The format selection is selected using audiovisual media operated through the android app.

c. Initial Design

This initial design or initial design is the result of a product design developed. The initial design of this media product is background creation, storyboard creation, and media creation.

3) Develop

a. Expert Validation

The expert validation stage is carried out to measure the feasibility of developing learning media before it is later tested on students. This validation is done by three experts, namely material experts, media experts, and practitioners (accounting teachers). The results of the validation process will be used to revise the learning media development product.

b. Development Test

The development test was conducted on students of class XII AKL 2 SMK Negeri 1 Depok. This trial is used to determine the response of learners to the feasibility of learning media interactive accounting module based on the android material method of the cost of goods orders.

4) Disseminate

The disseminate stage is the final stage in product development with 4D models. At this stage, the learning media products that have been developed will be used on a wider scale. The results of the development of android-based MODAKTIF learning media will be disseminated in the form of applications that can be used in the learning process. The decimation process can be done by distributing to other class students or in other schools on a wider scale.

5. **Data Collection Techniques**

1) Data Type

a. Qualitative data is data about the process of learning media development. This data is in the form of criticism and advice from material experts, media experts, practitioners, and students.

b. Quantitative data is data that contains the assessment of the feasibility of learning media by material experts, media experts, practitioners, and students.

2) Data Collection Instruments

This study uses questionnaires as data collection instruments. Questionnaires are used to measure the feasibility of learning media that will be assessed by three experts, namely material expert, media expert, and practitioners.

6. **Data Analysis Techniques**

The data consists of quantitative and qualitative data which obtained through trial activities. Qualitative data in this study in the form of suggestions and comments from material experts, media experts, learning practitioners, and students. Quantitative data obtained from the results of the questionnaire converted into qualitative data using a Likert scale

to know the feasibility of the media with the following steps:

$$x_i = \frac{\sum S}{S_{max}} \times 100\%$$

Description:

x_i = The feasibility value of each aspect of the questionnaire

$\sum S$ = Number of scores

S_{max} = Maximum Score

The average value of the total score of each component obtained converted into qualitative data in the form of media quality criteria.

Table 1. Scoring rules

Category	Score
SB (Very Good)	5
B (Good)	4
C (Enough)	3
K (Less)	2
SK (Very Less)	1

The percentage score obtained from the study is then interpreted in the following criteria:

Table 2. Learning Media Feasibility Scale

Presentase	Kriteria
81% - 100%	Very Feasible
61%-80%	Feasible
41%-60%	Feasible Enough
21%-40%	Less Feasible
0%-20%	Very Less Feasible

(Asyhari, 2016)

Based on the conversion table above, the standard of the feasibility of accounting learning media "MODAKTIF" that is the media is declared Very Worthy if obtained an average score with a percentage of 81 to 100%. Developed media is declared Eligible if it obtains an average score with a percentage of 61 to 80%. Developed media is declared Quite Feasible when obtaining an average score with a percentage of 41 to 60%. Developed media is declared Less Feasible when obtaining an average score of 21 to 40% and Very Less Feasible when obtaining an average of 0 to 20%.

RESULTS AND DISCUSSION

A. RESULTS

MODAKTIF learning media development follows a 4D model consisting of four stages, namely define, design, develop, and disseminate. The implementation of the overall stages of development in this study is described as follows:

1. Define

   a. Need Analysis

   Based on the interview process that has been conducted it was known that the use of learning media in SMK Negeri 1 Depok was still very minimal. The learning media used by most teachers is limited to WhatsApp

Group as well as PowerPoints. This results in the learning process becoming a little monotonous. The lack of utilization of technological variations in the learning process is due to the teacher's lack of understanding and ability to develop learning technology.

The results of the interview also showed that the material that requires the development of learning media is the material of the basic price method of order for class XII accounting. This material requires the development of learning media because the material of the basic price method of order is included in the aspects that will be included in the accounting cycle question at the time of the competency test of expertise. Then the material of the job order costing method is a material that requires more understanding so that with the learning media it is expected that this material will be easier to understand.

b. Concept Analysis

Concept analysis aims to determine the extent to which the material will be contained in the development of learning media. After conducting analysis and consulting with accounting learning teachers related to the scope of materials

required in the development of learning media MODAKTIF (Interactive Accounting Module). The scope of material contained in KI/KD is as follows:

Kompetensi Dasar	Kompetensi Dasar
3.30 Mengevaluasi hasil perhitungan harga pokok pesanan	4.30 Membuat kartu harga pokok pesanan
3.31 Mengevaluasi hasil perhitungan harga pokok proses produksi	4.31 Menyusun laporan harga pokok proses produksi

2. Design

a. Media Selection

Media becomes an important aspect of a learning process. The existence of good media will make it easier for students to understand the materials presented. The process of selecting learning media to be developed is carried out based on the results of the defined stage, namely the process of needs analysis and concept analysis. Based on the results of the analysis, the learning media that will be developed in this study is "MODAKTIF" (Interactive Accounting Module) based on android material on the job order costing method for Class XII SMK.

b. Media Design

1) Story Board Creation

Storyboard creation aimed to design the laying of content from the development of learning media. On the storyboard some icons symbolize the inside of the

media such as the media intro display, main page, main menu, KI/KD, profile, material, video, and quiz in "MODAKTIF", can be seen in the attachment.

2) Media Creation
   a) Preparation of material
   b) Background creation
   c) Back sound election
   d) Intro creation
   e) Main menu creation
   f) Creation a View of Each Material Content
   g) Learning video creation
   h) Quiz, KI/KD, and Profile View Creation

3) Android creation

The last step after preparing the media made is to turn the media into an android application so that it can be used and installed through a smartphone. The process of making it by selecting the publish target used, in adobe flash cs 6 is used "AIR 24.0.0.180 for Android" because the application will be installed on android. After that will appear the display "AIR for Android Setting" in this section select General in this section should be filled in starting from the name of the application, the position of the application landscape or portrait, and the screen of the full-screen application or not. Then the view is moved to the next view which is on "Deployment".

In the initial view, there is a command to create a certificate. In the creation of the certificate is asked to fill in the application data. After finishing filling in the data on the certificate then return to the Deployment view and fill in the password that has been created in the certificate, fill in the android type, and AIR run time of the application. Once the process is complete then go to the icon section. In the icon display here used icon size 72 x72 px so that later when the application is installed on android can be seen the application icon. The last step of making this android is at the bottom there is a publish menu. Select the publish menu and wait for the publishing process to finish and the application is ready to use.

3. Develop
   a. Expert validation

There are 3 experts used in the validation process of learning media development of this interactive

accounting module, namely material experts, media experts, and learning practitioners (accounting teachers). Each validator performs a validation process using a validated instrument that has been compiled by researchers. The questions in each instrument are tailored to the needs and fields of the experts.

The validation process is carried out by three parties, namely lecturers of material experts and media experts from the Department of Accounting Education FE UNY and teachers conducted by teachers class XII AKL SMK Negeri 1 Depok.

1) Material expert asessment results

Num	Aspects	Score	Percentage	Category
1	Material Content	4,67	93%	Very Feasible
2	Evaluation On Materials	5	100%	Very Feasible
Average		4,83	97%	Very Feasible

Source: processed primary data

Based on table it can be known that the average validation result by material experts on the development of accounting learning media "MODAKTIF" is 4.83 then belongs to the category of "Excellent". The percentage of media eligibility is 97% if converted into the category "Very Feasible". Thus, from the aspect of accounting learning media materials

"MODAKTIF" is considered worthy to be used as a learning medium in vocational schools.

2) Media expert assessment results

Num	Aspects	Score	Percentage	Category
1	Media engineering	4,25	85%	Very Feasible
2	Visual communication	4	80%	Very Feasible
Rata-Rata		4,13	83%	Very Feasible

Based on table it can be known that the average validation result by media experts on the development of accounting learning media "MODAKTIF" is 4.13 then falls into the category of "Excellent". The percentage of media eligibility is 83% if converted into the "Very Feasible" category. Thus from the media aspect, accounting learning media "MODAKTIF" is considered worthy to be used as a learning medium in vocational schools.

3) Assessment results of learning practitioners (teacher)

Num	Aspect	Score	Percentage	Category
1	Material Content	4,83	97%	Very Feasible
2	Material Evaluation	5	100%	Very Feasible
3	Rekayasa Media	5	100%	Very Feasible
4	Visual Communication	4,8	96%	Very Feasible
Average		4,91	98%	Very Feasible

Based on the table above it is known that the average validation result by teachers on the

development of accounting learning media "MODAKTIF" is 4.91 then it falls into the category of "Excellent". The percentage of media eligibility is 98% if converted into the "Highly Eligible" category. Thus from the aspect of learning practitioners (teachers), accounting learning media "MODAKTIF" is considered worthy to be used as a learning media in vocational schools.

4) Average Student Responses

Development tests are conducted to test the development of learning media before later use by users on a wider scale. Media "MODAKTIF" was tested to students of class XII AKL 2 SMK Negeri 1 Depok. The purpose of this trial is to determine the response of students to the development of "MODAKTIF" media. The results of the student trial can be seen in the table below.

Num	Aspect	Score	Percentage	Category
1	Material	128,44	83%	Very Feasible
2	Media	127,29	82%	Very Feasible
3	Learning	130,25	84%	Very Feasible
	Rata-Rata	128,66	83%	Very Feasible

Assessment of student response consists of three aspects, namely material aspects, media aspects, and learning aspects. Based on the table above it is known that the results of

the student response on the material aspect scored 128.44 with a percentage of 83% belonging to the category "Very Feasible".

The media aspect scored 127.29 with an 82% percentage fall under the "Very Feasible" category. The learning aspect scored 130.25 with an 84% percentage including the "Very Feasible" category. The average student response result showed a score of 128.66 with a percentage of 83%, therefore the accounting learning media "MODAKTIF" was declared "Very Feasible" to be used in the learning process of students in vocational schools.

5) Media display
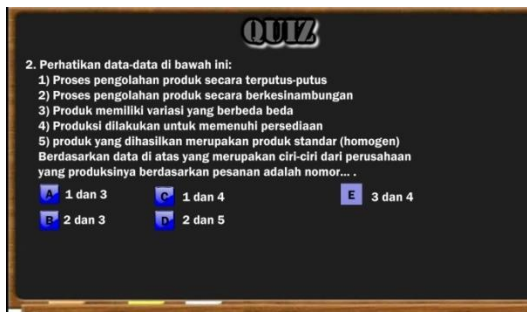

Figure 1. Home View

Figure 2. Main Menu View

Figure 3. Quiz View
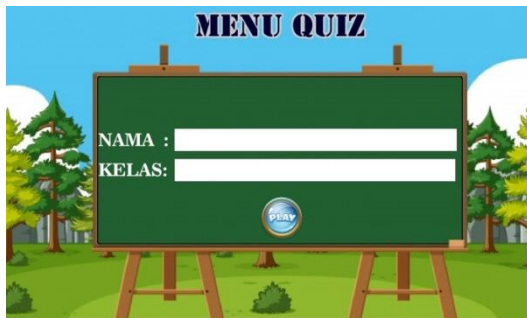

Figure 4. Quiz Menu View

4. Disseminate

The disseminate stage is done after the media is developed through the validation test stage and has been declared eligible for use. Because this research uses a 4D development model, the deployment process is the last step. The purpose of this dissemination process is the products of media development can be useful and used by parties on a wider scale. In this study, the process of disseminating media products was conducted to two schools, namely SMK YPKK 3 Sleman and SMK YAPEMDA 1 Sleman. The selection of the school was based on the needs of the learning media, besides that the two schools were chosen because the location are near with SMK 1 Depok.

B. DISCUSSION

1. Development of MODAKTIF

MODAKTIF is an interactive accounting module that is an android-based application. So the finalization of this media development is to change the format of the media that has been compiled into an application. The format change process is done by selecting the publish target used, in adobe flash cs 6 is used "AIR 24.0.0.180 for Android" because the application will be installed on android. Then done the settings assembled with the desired application format that is when the display appears "AIR for Android Setting" select General in this section should be filled in starting from the name of the application, the position of the application landscape or portrait, and the screen of the full-screen application or not. After the setup process is completed the last step is to publish to android.

The last stage in the 4D development model is the dissemination process. The dissemination process is done by disseminating the media "MODAKTIF" to other schools. SMK YPKK 3 Sleman and SMK YAPEMDA 1 Sleman are two

schools that are the object of media dissemination "MODAKTIF". The process of disseminating media is carried out through direct meetings with accounting teachers in each school. Then media products are sent by e-mail from each teacher to be given to students and used in the learning process.

2. **Media Feasibility**

    a. Expert validation

    The media validation process "MODAKTIF" involves three parties, namely material experts, media experts, and learning practitioners (teachers). The first validation was done by a material expert, namely Lecturer of the Accounting Education Department of Yogyakarta State University. Media experts to conduct assessments related to media aspects were conducted by Lecturers of the Accounting Education Department of Yogyakarta State University. Learning practitioners (teachers) to assess material and media aspects are carried out by accounting teachers of class XII SMK Negeri 1 Depok.

    In material validation, two aspects are assessed, namely

aspects of material content and evaluation aspects of the material. The results of the assessment by material experts can be seen in the following figure.
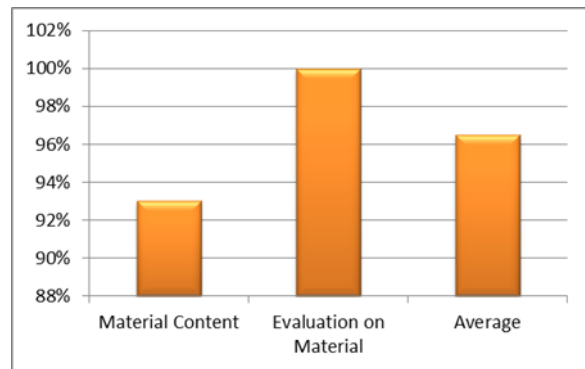

Figure 1. Material Expert Validation Results

Based on the picture above it is known that the average assessment by material experts related to the material aspect is 97% then it falls into the category of "Very Worthy". This means that the development of learning media "MODAKTIF" in terms of materials has implications that the material in the media is Very Feasible to be used in the learning process. It is also by previous research that before media development can be tested on students, it must first pass the validation stage from experts.

The second assessment was conducted by media experts consisting of two aspects,

namely media engineering aspects and visual communication aspects. The results of media validation can be seen in the following figure.
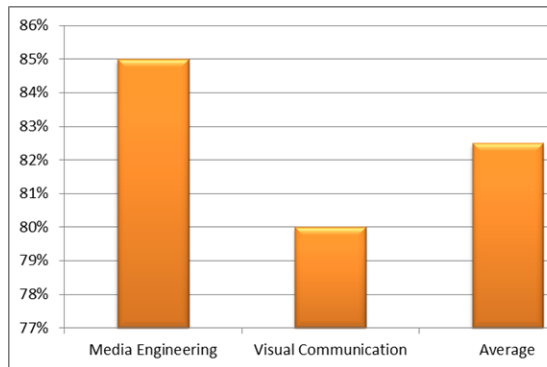

Figure 2. Media Expert Validation Results

Based on the picture above it is known that the average assessment by media experts related to the media aspect is 83% then it falls into the category of "Very Feasible". This means that the development of learning media "MODAKTIF" in terms of media has implications that the material in the media is very worthy to be used in the learning process. It is also by previous research that before media development can be tested on students, it must first pass the validation stage from media experts to get better media revision suggestions.

The third assessment is conducted by learning practitioners (teachers) consisting of four aspects, namely aspects of material content, evaluation of materials, media engineering, and aspects of visual communication. The results of teacher validation can be seen in the following figure.
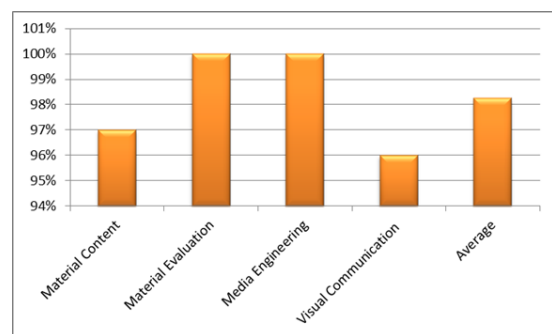

Figure 3. Validation Results by Teachers

of

ers

obtained an average of 98% fall into the category of "Very Worthy". This means that the development of learning media "MODAKTIF" in terms of practitioners gives implications that the material in the media is Very Worthy to be used in the learning process. It is also by previous research that before media development can be tested on students, it must first pass the validation stage from expert practitioners or teachers.

Based on the assessment of the three experts, namely material experts, media experts, and learning practitioners (teachers) namely the material aspects and media aspects all show the category "Very Worthy". This indicates that the media "MODAKTIF" is declared "Very Feasible" to be used as a learning medium for accounting materials of the basic price method of order for SMK.

b. Development Test

The development test process is conducted to determine the student's response to the media development that has been done. Development trials are conducted using learning media "MODAKTIF" that has gone through the revision stage. The subject of this development trial was a grade XII AKL 2 student at SMK Negeri 1 Depok. The instrument used in the development test is a student response questionnaire that contains three aspects of assessment, namely material aspects, media aspects, and learning aspects. The results of the development test can be seen in the following figure.
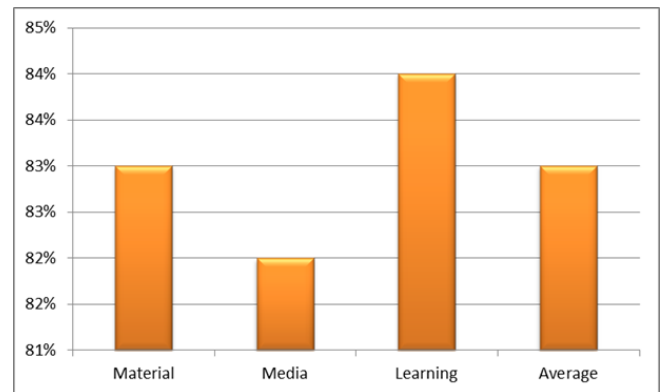

Figure 4. Student Response Results

Based on the results of the above development tests, it is known that the assessment of students on the material aspect is 83%, the media aspect is 82%, the learning aspect is 84%, and the average is 83%. These results fall under the category of "Highly Deserving". Students showed a positive response because they were enthusiastic about using this learning medium. Android-based "MODAKTIF" media becomes an attraction in itself because students tend to get tired of using manual module media.

CONCLUSION AND SUGGESTIONS

1. Conclusions

Based on the results of research and development that has been done can be obtained the following conclusions.

a. Android-based module as learning media on the material of job order costing method were developed by adopting the 4D development model through four stages, namely 1) Define 2) Design 3) Develop 4) Disseminate.

b. The Feasibility of MODAKTIF overall the assessment results from material experts obtained an average score of 4.84 "Excellent" and 97% "very feasible". the assessment results from media experts obtained an average score of 4.13 "Excellent" and 83% "Very Feasible". Assessment results by teachers earned an average score of 4.91 "Excellent" and 98% "Very Feasible" and overall student response results received an average score of 128.71 "Excellent" and 83% "Very Feasible".

2. **Suggestions**

Some suggestions that can be given based on the process and results of the research are as follows.

a. Based on the results of the questionnaire many students who provide advice that is so that the development of learning media "MODAKTIF" needs to be done for other subjects in addition to the material of the basic price method of order.

b. The preparation of media development "MODAKTIF" can be more complex and made in larger and complete module applications.

c. Further research and development are expected to be conducted in more depth so that it is known how effective the tools and features of this learning medium "MODAKTIF".

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