

The Development of Cost Accounting Learning Media based on Android

Haikal Rahman¹, Dedy Husrizal Syah², La Ane² and OK Sofyan Hidayat²

¹Department of Civil Engineering, Universitas Negeri Medan, Medan –Indonesia

²Department of Accounting, Universitas Negeri Medan, Medan –Indonesia

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Abstract: This study aims (1) to develop cost accounting learning media based on android; (2) to test the feasibility level of developed learning media based on validation/assessment from a team of experts and students; and (3) to test the effect of developed learning media towards academic performance. Validation was carried out by the Lecturer Team and tested to 50 students from the Department of Accounting - State University of Medan in 2018. The study results revealed that the validation aspect toward material and media are categorized as Very Good (VG) with values that are (80.56%) and (83,89%) respectively. The content enclosed in the learning media include: (1) cost accounting basic concept ; (2) order price content; (3) process cost content, (4) overhead & raw costs content, (5) standard price content, and (6) exercise and examinations content. Learning media products are in the form of an android application (apk). Validation and product trials result show that the learning media is suitable for use in cost accounting learning. The field trials results also showed that instructional media had an influence on improving academic performance, especially accounting courses in the form of learning motivation and cognitive learning outcomes.

1 INTRODUCTION

This study aims (1) to develop cost accounting learning media based on android; (2) to test the feasibility level of developed learning media based on validation/assessment from a team of experts and students; and (3) to test the effect of developed learning media towards academic performance. Validation was carried out by the Lecturer Team and tested to 50 students from the Department of

Accounting - State University of Medan in 2018. The study results revealed that the validation aspect toward material and media are categorized as Very Good (VG) with values that are (80.56%) and (83,89%) respectively. The content enclosed in the learning media include: (1) cost accounting basic concept ; (2) order price content; (3) process cost content, (4) overhead & raw costs content, (5) standard price content, and (6) exercise and examinations content. Learning media products are in the form of an android application (apk). Validation and product trials result show that the

learning media is suitable for use in cost accounting learning. The field trials results also showed that instructional media had an influence on improving academic performance, especially accounting courses in the form of learning motivation and cognitive learning outcomes.

2 THEORETICAL FRAMEWORK

2.1. Learning Media Concepts.

In terms of language, according to Arsyad (2013:3) media comes from the Latin is *medius*, which literally means 'middle', 'intermediary'. While according to Heinich, et al (1982) in Arsyad (2013:3) explained that the medium term as an intermediary that transmits information between source and receiver. The definition of the term emphasizes the media as an intermediary. The media serves to link information from one party to the other.

Sudjana and Rival (2013:2) said that the medium of learning can improve student learning outcomes, such as: (1) Learning process will attract more attention so as to motivate students to learn; (2) The study materials will be quite vague so that it can be understood by students, and allow students to master learning goals better; (3) The method of teaching will be more varied, not merely verbal narrative through the narrative of words by the teacher. So students do not get bored, and teachers do not run out of steam, especially when teachers teach for every lesson; (4) Students learn a lot more activities, because not only listen to the description of the teacher, but also other activities such as observing, doing, demonstrating, and others.

Hamalik (1986) in Arsyad (2013:19) argues that the use of instructional media in teaching and learning can stimulate desire and interest. It can escalate the motivation and stimulation of learning activities and even bring psychological effects on students. Furthermore, Levie & Lentz (1982) in Arsyad (2013:20) argues that there are four functions of instructional media : (1) the function of attention; (2) affective function; (3) cognitive function; (4) compensatory function. The function of attention is the media's ability to boost students' attention to learning. Affective function is the ability to be seen and enjoyed by students when studying. Cognitive function can be obtained throughout findings on information from the media. And compensatory functions provide context to help students understand the material.

2.2. Android Concepts

Sugeng Purwantoro, Heni Rahmawati and Achmad Thermizi (2013:177) say "Android is a software which is used in mobile devices that includes an operating system, middleware and core applications". Android according to Wikipedia (2018) is an operating system for smartphones and tablets. The operating system can be illustrated as a bridge between the device and the user, so the user can interact with his device and run applications that are available.

The Android operating system is open source so that programmers flocked to create applications or modify this system. The programmer has a huge opportunity to be involved in developing Android apps, hence its open source. Most of the applications available at the Google Play Store are free and some are paid.

3 RESEARCH METHOD

This study is a research and development that seeks to produce and test the effectiveness of the product (Sugiyono, 2010). The development model used in this study is an adaptation of the Borg and Gall model (1983, pp. 589-594). The results of the model adaptation region contribute to the five stages of development: (1) the collection of information; (2) the planning of products; (3) product development; (4) validation of the product and (5) evaluation of the product.

Time and Place

This study was conducted in the Department of Accounting, State University of Medan (UNIMED). All stages of evaluation, individual testing, limited testing, and field trials were conducted from July until November 2018.

The study consisted of media validation subjects and trial subjects. Media validation subjects include two experts: (1) content experts and (2) media experts. Product testing used field trials. Subject field trials are students who take courses in Cost Accounting that consist 50 students.

Procedures and Data Collection Techniques

This research was conducted with 5-step adaptation of the development model of the Borg and Gall (1983, pp. 589-594). Steps taken in this study, namely (1) the collection of information (literature studies, field surveys, needs analysis, curriculum analysis), (2) planning product (making flowchart, storyboard, script material, evaluation questions, as well as collecting images, sounds, and music), (3) product development, (4) validation of products (subject matter experts, media experts, and (5) evaluation of the product (field trial).

Collecting data in this study uses instrument validation of media and instrument testing. The media validation instrument consists of (1) sheet media validation for instructional media experts and (2) sheet material validation for subject matter experts.

Testing instruments is a sheet quality assessment of student learning media (used in field trials). Instrument validation and assessment instruments adapted from Anggraeni & Kustijono (2013, pp. 14-15).

4 ANALYSIS

The collection of information was done to collect the data as a first step in development. The information collection consists of literature studies, field surveys, needs analysis, and the analysis of the curriculum. Based on the results of literature study, it is known that an increase in academic performance can be helped with the use of media that attract and support learning. Learning media can be designed according to the latest information technology developments in order to be attractive and easier for educators and learners to access learning materials.

Based on the results of the field survey, it can be concluded that learning process with the use of Android Based learning media towards Cost Accounting subject can be implemented in the Department of Accounting-UNIMED. This type of media is expected to facilitate student learning. Learning media may contain explanations and evaluation materials are packaged in a form to boost attractiveness.

The material published in this media is about the basic concepts of accounting, order cost method, the method of main cost process, the standard main cost, variable costs and raw materials.

Product planning is done by making the design of products in the form of flowcharts and storyboards. The Flowchart illustrates the navigation flow in operating the learning media on Android devices. The storyboard describes the arrangement of images, text, effects, animation and other components on the screen display of instructional media.

Instructional media products are developed by using rapid application development (RAD) which was invented by the Massachusetts Institute of Technology. This RAD is called MIT App Inventor 2 with Thunkable. The graphic design process is assisted by Corel PhotoImpact. The output of products (apk) can be installed and opened on any Android device that is suitable for the minimum system requirement.

5 RESULTS AND DISCUSSIONS

The product of the development is the form of Cost Accounting instructional media that can be operated on Android devices. The application consist:(1). Menu I provide the Basic Concepts of Cost Accounting content;(2). Menu II provide the Main Cost of Goods Orders content; (3) Menu III

elaborate the Cost of Process content; (4) Menu IV elaborate the Overhead Cost & Raw Materials content; (5) Menu V elaborate the Standard Main Cost content; and (6) Menu VI cover the Exercise and Exam content. The main menu display can be seen in Figure 1 below.



Figure 1: The Main Menu Display

Exercise and Exam menu contains exercises that are packed in the form of multiple choice questions. Before users continue to follow the exercises, the user must log in first to enter the students' number and the name that will be used in this session. Test access menu displays can be seen in Figure 2 below.

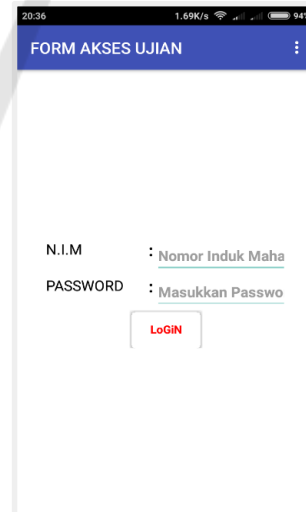


Figure 2:Test access menu displays

Product validation is done by two experts, material and media experts. The product validation is done by using a media assessment instrument that has been validated by a validator instrument of research

content and construction. The following tabulation is the results of the assessment of media experts.

Table 1: Tabulation Of Votes Material Experts

No	Aspect	Sum of each aspect	Max score	%	Criteria
1	Clarity of learning objectives	16	20	80	Good
2	Material relevance	87	100	87	Good
3	Evaluation/exercise	48	60	80	Good
Total					151
Maximal Score					180
Percentage					83,89
Criteria					Good

The material aspects developed in learning media were assessed at the validation phase consisted of the learning aspect and the aspect of learning materials were presented in Table 2.

Table 2: Tabulation Assessment Of Media Experts

No	Aspect	Sum of each aspect	Max score	%	Criteria
1	Software engineering	53	60	88,33	Good
2	Visual communication	92	120	76,77	Good
Total					145
Maximal Score					180
Percentage					80,56
Criteria					Good

6 CONCLUSIONS

Android-based instructional media development on the subject of Cost Accounting has successfully developed. With the use of MIT App Inventor 2 application, Thinkable and assisted by other programs such as Corel Photoimpact, it produced a more attractive multimedia display that can be operated on student android phones.

The feasibility of developing android based learning media, based on the assessment by media experts and content experts, revealed percentage scores from media experts with 80.56%, and 83.89% from content experts. These numbers are in a very feasible category. Therefore, the development of Android-based learning media is eligible to be media learning and resources for independent learning.

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