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Development of Electronic Module Uniform Layer Haircut on Hair Cutting and Coloring Subjects at SMK Negeri 7 Tangerang Selatan

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ABSTRACT

In preparing human resources who master the field of cosmetology, SMK 7 Tangerang Selatan has a vocational program for hair and skin cosmetology. Learning media is one of the most focal components in the teaching and learning process, but due to the limited learning media, the learning process has been interrupted and caused the students to not learn properly. This research was conducted to develop uniform layer haircut electronic modules to complete students' needs and improve student learning motivations. The method used is Research and Development (R&D) with 4D Thiagarajan (Define, Design, Development, Dissemination) method. The finished product will be developed using ReactJs. The electronic module uniform layer haircut is suitable for use in learning with results of the assessment by the media expert on the display aspect showed 81,2% with very feasible qualifications, and on the material aspect provided assessment was 82,25% with very feasible qualifications.

Keywords: *Development, Uniform Layer Haircut, Electronic Module.*

1. INTRODUCTION

Education plays a role in teaching various categories of knowledge, skills, and expertise to prepare students for particular jobs. Vocational High School is one of the authorized education units that focuses on preparing skilled Human Resources (HR) whom adjusting to the world of work and industry [1].

SMK Negeri 7 Tangerang Selatan is one of the schools that has a program that prepares human resources in the hair and skin cosmetology department. SMK Negeri 7 Tangerang Selatan implements the curriculum 2013 revised in their learning process. The revised 2013 curriculum aims to enable students to obtain information and knowledge independently. It aligns with one of the Ministry of Education and Culture's programs Merdeka Belajar, which frees students to learn demands anytime and anywhere.

Despite having a leading hair and skin cosmetology program, based on the results of direct observations on February 3, 2023, the students have not been competent in hair cutting and coloring materials. Especially with more challenging practice materials such as Uniform Layer haircuts. Uniform Layer haircut is an action to reduce hair length using trimming equipment and methods/techniques with a 90° trimming angle elevation that follows the shape of the head [2].

The low competence is worsened by the deficient selection of learning media. Based on data and results of interviews with the Head of Hair and Skin Cosmetology of SMK Negeri 7 Tangerang Selatan on February 3, 2023, this program relies on books from the government as the principal learning resources. The government only provides ten books each year for students to use in 2 to 3 classes where each class has 35 students. This amount is restricted, and impossible to support the learning process.

Learning media is an important thing in learning. Learning media is a form of communication that disclose the contents of learning to students. Learning media is all the physical tools that present the message and stimulate students to learn.

The selection of learning media must be adjusted to the curriculum material, the price is not exorbitant, and easy to use[3]. The development of learning media by utilizing technological one of them is the development of print modules into electronic-based or better known as electronic modules [4].

One of the media resources that students can use for independent study and according to technological developments is the form of an electronic module. An electronic module is a form of presentation of independent learning material that is systematically arranged into compact learning units to achieve specific

learning objectives presented in an electronic format in which there is animation, audio, and navigation so that it makes users more interactive, can be done anytime and anywhere and can improve the quality of learning [5].

The use of electronic modules can make it easier for students to learn independently while using technology to access, such as computers, laptops, tablets, and phones. The use of electronic modules is expected to be able to increase understanding of learning concepts, directing students to Conduct learning independently and better help students constrained when digesting and understanding learning [6].

An electronic module is a tool that can help students increase their self-regulated learning [7]. Several relevant studies support it by Kirana [8] and Ikhwan [9], who revealed the enrichment electronic module could increase students' self-regulated learning achievement.

One program that is used to create learning media in the form of an electronic module is ReactJs. ReactJs is a web library easy to use in developing web products. ReactJs was constructed by Facebook in 2011 and released in 2013. ReactJs is a user interface library developed at Facebook to facilitate the creation of interactive, stateful, and reusable user interface components. It is best for rendering complex user faces with high performance [10].

The use of ReactJs makes it easy for developers with the support of 3 things. ReactJs excels at being declarative, component-based, and learn Once, and write anywhere. Using ReactJs will generate an electronic module in the form of a web that can be used on various devices such as good devices Android or IOS, tablets, desktops, and PCs connected with an internet connection

Compared to other similar applications or web development sites, ReactJs is superior because we can utilize ReactJS in building a more complex web so that the final product can have higher quality [11]. The final consequence of ReactJs will be a stand-alone and adjust to the developers' imaginations.

Based on the explanation above, the research was conducted on the advancement of the electronic module Uniform Layer Haircut by utilizing ReactJs. Application for haircut and coloring learning on second-grade hair and skin cosmetology, SMKN 7 Tangerang Selatan.

2. RELATED WORK

Research on electronic module development has been executed repeatedly with different materials or methods. The fundamental purpose of this research is to make suitable learning media for students to use. One of the research relevant to this research is the development of an electronic module to increase student learning motivation, where the main objective is to develop and validate that learning media can elevate student learning motivation. Research reveals that it helps teachers deliver material and is functional in increasing student motivation [8]. Another study was entitled "Development of Electronic Module (E-Module) on Metabolic Materials Lipid Using PDF Professional". The assessment in this study shows that electronic modules get a good response from lecturers and students [12]. Research on the development of other electronic modules is development uses the ADDIE method. The results of the assessment show that there is an improvement in learning outcomes for students after using the electronics module [13]. Another study was entitled "Development of E-Module on Problem-Based Learning to Improve Critical Thinking in History Subject in Class XI High School with 4D Model". The assessment in this study shows that electronic modules are able to improve the ability to think learners [14]]

3. METHODOLOGY

The methodology used in this study is the method of research and development (R&D). R&D is one method that can be used in research aimed at validating and developing products. validate the product, meaning it already exists, and researchers only test for the effectiveness or validity of such products. Developing a product in a broader sense can be in the form of updating existing products so that they become more practical and efficient or creating new products that did not previously exist[15].

In the field of education, R&D methods are used in the process of development and evaluation of products used in world education, such as training materials for teachers, learning materials, to media learning designed, developed, and evaluated by fulfilling criteria of validity, practicality, and effectiveness so that product development become beneficial to all elements related in the field of education.

The purpose of this study is to produce electronic module products using ReactJs The electronic module development model used in this study is the development model 4D of Thiagarajan. This development model is simple but complete, systematic, and appropriate steps to develop electronic module learning.

The Thiagarajan model comprises four phases. The stages are Define, Design, Develop and Disseminate. The dissemination phase is not done because the research objective is only up to the electronic module validation. This study used data collection methods in the form of interviews and observations. The data collection was conducted to answer the problems of the quality of the development result of the electronic module.

This development research used quantitative and qualitative descriptive analysis techniques. Qualitative descriptive analysis is a technique to analyze the data obtained in order to get a true overview of the situation.

Quantitative descriptive analysis is a way of data processing by systematically arranging in the form of numbers or percentages, regarding an object studied so that it is obtained a general conclusion. In this study, the quantitative descriptive analysis technique was used to process data in the form of scores obtained through the questionnaire.

The data collection instruments in this study such as questionnaires, sheets validation, and the observation

sheet. An instrument is a tool or facility used by researchers to collect data in order to better results in terms of more accurate, complete, and systematic so more easily processed [15].

Data gathering related to the user's validity electronic module uniform layer haircut was obtained in the validation phase. research instrument in the form of a validation sheet prepared by one media validator and one material validator. The validation sheet is used to determine the value of the product to be developed according to the Likert scale presented in Table 1.

Table 1. Likert Scale.

Statement	Score
Invalid	1
Less valid	2
Quite Valid	3
Valid	4
Very Valid	5

The data collected is then analyzed by specific analytical techniques. Analysis of validity using the formulation by Rohmad, Suhandini, & Sriyanto [16].

$$P = \frac{n}{N} \times 100\%$$

Explanation:

P = Percentage of respondents score (%)

n = Number of scores obtained

N = Maximum score

The percentage result obtained in the score criteria is presented in Table 2.

Table 2. Validity Criteria.

Percentage score (%)	Validity criteria
81-100	Very Feasible
61-80	Feasible
41-60	Enough
21-40	Not Feasible
0-20	Very Bad

4. RESULT AND DISCUSSION

The result of research and development is an electronic module Uniform Layer Haircut for improving student motivation. Assessment of learning is developed by the curriculum in 2013 revision at KD 3.4 and 4.4 to implement and perform uniform layer haircuts.

This research used a 4D development model which consists of 3 stages.

Define, the define stage, 5 main steps are taken, including: (1) front-end analysis, to analyze the problems that underlie the development of interactive electronic modules; (2) student analysis (learner analysis), to analyze the characteristics of students such as learning abilities and skills; (3) concept analysis, by compiling the material design of the uniform layer haircut; (4) task analysis, determining the learning indicators used in accordance with applicable basic competencies; (5) analysis of learning objectives (specifying instructional objectives), to summarize the results of the concept analysis and analysis of tasks used to compile tests and design an electronic module.

At this stage, researchers direct observations and interviews to find problems and analyze students' needs. The observation was on February 3, 2023, at SMK Negeri 7 Tangerang Selatan. Based on the results that have been, it was found the main learning resources were only the books from the government which are very limited. The minimum variety of learning resources, limited time in the classroom, and the incompatibility of the teachers of science on hair cutting and coloring subjects make students less competent in uniform layer haircuts.

Design, the work Log in this stage is Create a module design, create a cover, introduction, content module, and design a matrix-based electronic module. At this stage, researchers design an electronic module that will be developed based on needs analysis and previously obtained specifications. This stage must be considered as the basic competence (KD) and the way of presenting material in the electronic module to develop. Starting from the selection of media relevant to the characteristics of learning. Researchers chose ReactJs as developed because it is able to produce interactive electronic module. The researcher makes a storyboard to serve as a reference for making the entire electronic module (including visuals, making covers, prefaces, table of contents, introductions, material descriptions, exercises, Bibliography, choosing formats and icons in writing, and systematically designing electronic module writing).

Develop, the work log: Produce an electronic module, determine the level of effectiveness in the learning module, apply electronic module, and determine the sheet of the student's motivation. At this stage, the researcher realizes the framework into a product. The researchers collect the relevant sources of material, collect images, and videos to complete the electronic module. The researcher writes a code to ReactJs to develop an electronic module.

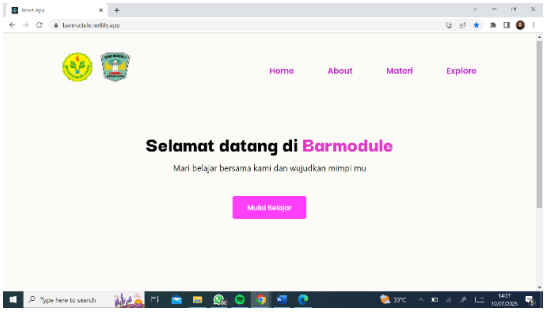

Figure 1. Homepage electronic module uniform layer haircut.

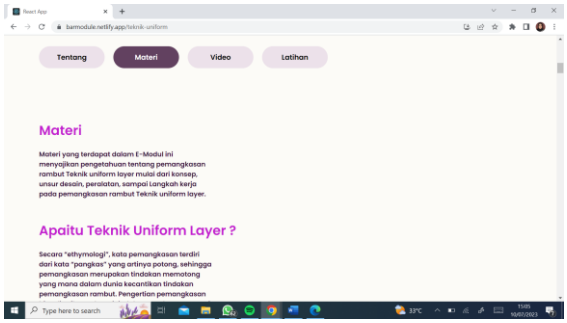

Figure 2. Content of electronic module uniform layer haircut.

After the electronic module was developed, the electronic module was validated by media experts and material experts. The validation process begins with creating a validation instrument containing content and constructs validation [17].

Data results from the media experts are presented in Table 3.

Table 3. Result from Media Validation.

Aspect Assessment	Percentage of the initial
Visual display	81%
Usage of letters	77%
Physical criteria	80%
Sound	85%
Easiness of the usage	83%
Average	81,2%

Based on the acquisition of design experts, the results of the uniform layer haircut electronic module based on a scientific approach by media design experts, namely (1) The average visual display aspect score of 81%, (2) The use aspect gets an average of 77%, (3) The physical criteria get an average of 80%, (4) The average sound aspect score of 85%, (5) The easiness to use get an average of 83%. The average score obtained is 81,2%. Meaning that the overall assessment of media design experts exceeds the minimum score determined. So it can be concluded that developing products based on a scientific approach is "'very feasible" to be used with revisions according to the advice given by media experts.

Data results from the media validator are presented in Table 4.

Table 4. Result from material validation.

Aspect Assessment	Percentage of the initial
Presentations	84%
Contents	82%
Language	80%
Scientific approach	83%
Average	82,25%

From the material expert, validators obtained the results of the assessment of the uniform layer haircut electronic module. The material expert, namely (1) the presentation aspect gets an average score of 84%, (2) the content aspect gets an average score of 82%, (3) the language aspect gets an average score of 84%, (4) the scientific approach gets an average score of 83%. The average score obtained is 82,25%. The overall assessment of material experts exceeds the minimum score determined. In addition, uniform layer haircut electronic module products based on a scientific approach is very feasible to use.

5. CONCLUSION

Based on the identification of the problem, the results of data analysis, and the discussion in this study, then the conclusion can be taken as follows (1) the development of uniform layer electronic module products for haircut and coloring learning on second-grade hair and skin cosmetology at SMK Negeri 7 Tangerang Selatan has been through several stages in accordance with the 4D development model which consists definition stage, design stage, and development stage. (2) Based on the assessment of media design experts, the average assessment obtained is 81,2% which means that the Product development of uniform layer haircut electronic module based on a scientific approach is "'very feasible" and the average assessment of material experts obtained is 82,25% which means the development of uniform layer haircut products "very feasible".

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