Development of Product Based Learning Models on Multimedia Learning Materials in SMK N 2 Padang

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Abstract—This study aims to develop learning models in the form of product-based learning models in Multimedia subjects in SMK N 2 Padang. The Product-Based Learning Model is designed to be able to improve student learning outcomes that are more creative in the learning process for the creation of a product so that it is suitable for sale. This study uses Research and Development (R and D) research methods, and the development procedures for Borg and Gall. The data analysis technique used is descriptive data analysis technique by describing the validity, practicality and effectiveness of product-based learning models. The results obtained from this study are in the form of product-based learning model books and learning modules for multimedia courses.

Keywords—product-based learning models; validity; practicality; effectiveness; multimedia

I. INTRODUCTION

Multimedia subjects is one of the subjects that requires students to be active and creative in the learning process, and should be supported by resources and appropriate learning model so that the creativity of students in practical activities that could be improved. These subjects, aimed to equip students in multimedia science that can produce a product. But in fact, the learning model used today have not been able to facilitate students in developing the potential and creativity in the creation of a product that has a use value and meet the standard of competence specified subjects. Not entirely in the form of exercises that do not produce a product that is marketable and marketed in the community. So that the implementation of science in practice has not been done perfectly. Based on the survey that has been conducted, one of the causes is the practice of multimedia, the learning model used is not very clear and has no steps (syntax) that can guide students to develop the potential and creativity to create a product in the learning process, so that the activities carried out in this learning process only focus on the use of Toll and the menus in the software that are used which result in less interesting, tedious, and not practical practice learning activities for students to create products. and the learning process carried out still focuses on providing non-comprehensive skills in the form of exercises that do not produce a product that is suitable for sale and marketed in the community. So that the implementation of science in practice has not been carried out perfectly. Based on evaluations conducted in various learning opportunities, it was seen that the average student did not understand the use of Toll and its Menu Software, when asked students about their understanding of Multimedia subjects, it turned out that they were unable to express it clearly. Then in the learning process that is applied also shows that the learning model has not been oriented to the skills in the world of work. Based on observations, almost all learning processes are carried out routinely, where students come, are given modules and instructed to work on the exercises in the module.

II. METHODS

This type of research that will be done is research development or Research and Development (R & D). According to Sugiyono, research development is "to produce specific products that are used research needs analysis and to test the effectiveness of these products in order in function in society at large, the necessary research to test the effectiveness of these products [1]". The model of development used at this study is a model Borg and Gall. According to Gall, Borg, & Gall, the development stage is composed of: 1) Research and information, the step is carried out by formulating the problem to be studied, by carrying out a needs analysis, based on the results of a needs analysis and then do the mapping. 2) Planning, the second phase is to carry out planning, designing learning model, 3) Develop preliminary. Develop an early form of models and requirements necessary devices in model development. At this stage will perform a validation process to the design of the model along with the particular instrument. Validation is done by some experts who are experts in their fields. 4) Preliminary field testing. Limited test models of learning, at this stage the action taken is to validate the syntax constructs-based learning products developed through the stages of validation. Stages validation is done through discussions or interviews with experts. 5) Main product revision. Revise the learning model in a limited test result. 6) Main field testing. Large-scale field test [2].
III. RESULTS AND DISCUSSION

The process of developing this model was performed with 10 stages of like the Borg and Gall's development model consisting of: 1) Research and information, 2) Planning, 3) Develop Preliminary from product, 4) Preliminary field testing, 5) Main product revision, 6) Main field testing, 7) Operational product revision, 8) Operational field testing, 9) Final product revision, 10) Dissemination and implementation. Forms-based learning model the resulting product is a structured learning model from the beginning to the end of learning is an active learning model because this model provides an opportunity for learners to be able to develop the skills and ability to think and work together. Interest-based learning model is the product as a guideline for teachers to facilitate learners to actively learn, participate and interact with competence and oriented to produce a product in the learning process.

A. Planning

Phase planning is the first step to define the design of the product-based learning model is applied to the learning lab. Based learning model developed products tailored to the subjects of multimedia at SMK N 2 Padang. Steps to be done is to determine the key concepts contained in the multimedia and determine the parties involved in the design process-based learning products like the experts in learning model, an expert in the field of research and development, an expert in the field of learning vocational as well as the parties more involved. The next step, determine which parties will be involved in the development of products-based learning model. The parties will be involved first is to validate learning model developed, will be obtained from experts consisting of 2 multimedia experts. Furthermore, to the practicalities of learning model developed obtained from the multimedia lab teacher and students consisting of 25 students.

B. Develop Preliminary from Product

At this stage, the steps are arranged the / an earlier draft of the model and the need for devices that are required in the development of the model. Devices supporting the need for this development there are several forms, including: manual application of the model, media supporting device such as a module based products and Job sheet based products, means of collecting data such as instrument validation for specialists, the instruments practicalities to see the response of faculty and students about learning model tested, the instrument to test the effectiveness of the test in the form of early and late, and some instruments are needed in the development of the model. Early drafts syntax learning models are designed with components that learning syntax, the social system, the principle of the reaction and support systems.

C. Preliminary Field Testing (Trial Limited)

At this stage the action taken is to validate the instrument (questionnaire), syntax constructs, content, presentation and module-based learning model developed product. Stages validation is done through discussions or interviews with experts on the improvements to be done that is by design-based learning products prior consultation to the specialist or expert and counselor, then the draft is considered by validators who have understood the principle of the development of learning models.

D. Main Product Revision

At this stage, the steps are revising the learning model in a limited test result. The findings in this limited test is in the form of suggestions for product improvements-based learning model obtained from two experts. Revisions were made in accordance advice obtained from experts. As for suggestions that are given expert for repair or revision of product-based learning model is as follows: 1) Validate the instrument, the validator recommends that more attention Grammar, the clarity of each grain item on the instrument and adjust the EYD; 2) aspects of the construct, the validator advised to further reinforce the steps (syntax) and the product-based learning model more detail the activities performed at each point syntax; 3) aspects of the content / materials, validator suggested to revise the formulation of objectives to be more specific and measurable, in the manufacturing step should be no continuity assessment and product assessment described learning outcomes over again; 4) aspects of the presentation, the validator recommends the writing of the purpose of using objective instructional objectives and consider the use of foreign words; 5) validator suggested that complement learning resources and further clarify the plan of activities performed during the study.

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<td>7</td>
<td>the effectiveness of the learning model</td>
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</table>
E. Main Field Testing

In this stage, the field test in small groups and large groups to determine the level of the practicalities (usage) model developed. Product-based learning model is said to have a high practicality when practical, and easy to use. The collection of data at this stage is done with the questionnaire responses of faculty and students about learning model-based product that is applied. This stage also included discussions and interviews to the teachers and students in the practice of power electronics-based learning model and products to students. Experiments conducted to the small group of 8 people who came to interview students about the ease of use of products-based learning model. From interviews obtained shortcomings of a product-based learning model and then revised in accordance with the findings obtained. After the revised product-based learning model back tested on a large group of students consisting of 25 students and is also accompanied by an interview about the model applied.

F. Field Operational Testing and Product Final Revision

In this stage test of effectiveness with comprehensive scope that all students who follow the practice of power electronics with product-based learning model. Test the effectiveness seen from the results of learning through pretest and posttest and increased activity of students. From the analysis of the observation sheet was obtained that the achievement of student activity is 80.30% and it is in the active category. Thus, we can say learning model based on the subjects of multimedia products can enable students.

IV. CONCLUSION

Based on the results, it can be concluded that: 1) In this study has developed a learning model-based product which is in the process of development has been through the stages of the validation test, the practicalities and effectiveness. This learning model developed for multimedia in vocational subjects N 2 Padang. Learning model developed is an active learning model. The learning model is also equipped with supporting components such as modules, job sheet practicum and usage guidelines and usage guidelines models. 2) Model-based learning products developed include the category construct a valid component model of learning, the contents of components / materials, presentation and modules with an average assessment of the validity of 0.833, 0.818, 0.850 and 0.8722; 3) Model-based learning products developed include the practical category. This is evident from the response of the teacher / practitioner with an average percentage of 85.70%, and the results of student responses with an average percentage of 80.30%; 4) The effectiveness of product-based learning model is effective in improving student learning outcomes and activities.

REFERENCES