Project Based Learning Module Development On Design Curling Competency In SMK

Titi Pratitis¹, Jalius Jama²
Pendidikan Teknologi Kejuruan, Fakultas Teknik, Universitas Negeri Padang¹, Jurusan Teknik Otomatif, Fakultas Teknik, Universitas Negeri Padang²
titipratitis@gmail.com, jaliusjama@ft.unp.ac.id

Article History
Received : Dec 7th 2019
Revision : Febr 11th 2020
Publication : March 30th 2020

Abstract
Creativity activities and time in the process of learning curling hair design is not balanced with the achievement of learning so it is necessary learning media in the form of modules. The purpose of this research is to produce a print module based on Project Based Learning that can help students learn independently in an effort to improve the creativity of learning outcomes and practices. The research method used is Research and Development (R&D) with Four-D development model. Research subjects of students in grade XI Beauty System Smk Swasta PAB 12 school year 2020/2021. The results of the development research obtained are: (1) Project Based Learning-based modules, (2) The validity of Project Based Learning-based modules is declared valid with a value of 0.84 > 0.67, (3) Project Based Learning-based module practicality based on two lecturer responses is declared very practical with an average score of 88 and based on 18 student responses expressed very practical with an average score of 84, (4) Project Based Learning-based modules are declared effective, can improve aspects of student knowledge viewed from the resulting practice results. Based on the results of this research, it can be concluded that project based learning modules are valid, practical and effective as a learning resource on the competency of curling hair design.

Keywords: PJBL Based Module, Curling Hair Design

INTRODUCTION
The advancement of the 21st century world is characterized by the increasingly sophisticated use of communication information technology in all aspects of life including in the educational process. One of the focuses of improving education in Indonesia is improving students’ learning creativity. Creativity has become an important part of the discourse on improving the quality of learning, until now creativity has been accepted as a competency inherent in learning processes and outcomes. The essence of creativity is to produce something better or something new (De Graff & Lawrence, 2002).
A learning process in order to improve the atability of the results of learning theory and practice needs to be supported by the right learning guide. This is because the face-to-face time in front of the class is very limited when compared to the volume of material that must be completed. Therefore, it requires a learning guide that is able to activate learners in learning. Among the learning guides that make it possible to improve student learning outcomes by prioritizing student self-reliance and active creativity are Project Based Learning-based modules.

Module is a learning device in the form of teaching materials that are prepared with the aim of providing teaching materials for learning in accordance with the applicable curriculum demands. Modules in the form of printed media composed of systematic, operational, and have complete components containing learning materials from the material to be studied and their use directed (Sabri, 2007).

Kejuaruan Secondary School (SMK) is one of the formal educational institutions aimed at preparing students to master certain skills to enter the work program and at the same time provide provisions to continue higher vocational education, including private vocational vocational school PAB 12 which consists of several Skills Study Programs, one of which is the Beauty System Study Program.

Based on observations made in class XI smk Swasta PAB 12 obtained most of the grades of students’ learning outcomes are below the standard assessment that has been set, the value of learning results can be seen from the value of midterm test I in the subjects of Hair Curling Design grade XI Beauty System Year 2020/2021 SMK Swasta PAB 12 as follows;

| Class  | Average | Students |
|--------|---------|----------|
| XI 3   | 55      | 32       |

| Grades          | |
|-----------------|---------|
| Grade < 65      | 19      |
| Grade≥ 65       | 13      |

Based on the table above, it can be known that there are some students who do not achieve KKM score which is as much as 55% Grade XI Beauty 3. Among other factors that influence student practice outcomes are the lack of creativity of students towards the materials taught and the lack of time of student learning hours so that students do not concentrate by finding ideas and ideas.

Learning media is everything that is a messenger in the purpose of learning, learning media also facilitates communication between students and teachers, improves learning and fosters student learning motivation because using learning media makes learning more interesting is considered to help students in understanding the learning materials delivered by teachers. Newby, J Timoty (2000) argues "Instructional media when they carry messages with an instructional purpose. The purpose of instructional media is to facilitate communication and enhance learning", which means that the benefit of learning media is as a means of messenger in the achievement of learning objectives.
where learning media also facilitates communication between students and teachers and improves learning. The printed teaching module developed must be in accordance with the 2013 curriculum and at the same time made efforts to increase student motivation in order to effectively achieve the expected competencies in accordance with their complexity. Module development must be able to make students' abilities grow more through appropriate learning methods. In the teaching and learning process, teachers must be creative in using the correct methods in order to realize efficient defense (Daryanto, 2014).

Project-based learning is a learning model that uses projects/activities as its medium. Students research, evaluate, interpret, synthesize and inform to achieve various forms of learning outcomes. Project-based learning is a learning model that uses problems as a first step in gathering and integrating new knowledge based on experience in real-world activities (Kemdikbud, 2013). Project-based learning is a student-centered learning model for in-depth study of a topic. It is concluded that project-based learning is learning that focuses on student activities to understand a concept by conducting in-depth study of a problem and finding solutions by creating concepts for the formation of a project.

*Project Based Learning* is a learning-centered learning to create and implement the concept of a project produced by independently exploring and solving real-world problems (Jaka, 2015). Project-based learners are effective educational approaches that focus on creative thinking, problem solving, and interaction between students and colleagues to create and use new knowledge (Kadek, 2016). At the heart of PJBL's learning model is the learning that produces projects (Permendikbud, 2014).

Project-based learning enables learners to process learning activities and shapes the habits of learners to interact with the environment (Blumenenfeld et al., 1991). So the purpose of *project based learning* is to improve the skills and activeness of learners in problem solving and able to provide product solutions from problems alone and ingroups. That way students are increasingly active in solving problems that exist in the competency of curling hair design so that it can produce a curling design that is suitable for the character of the client.

Some opinions from the definition described, it can be concluded that *project based learning* is a model of student-centered learning, making students more active and with the learning process students are able to produce a final project. The resulting project can be done in groups or individually, with a specified period of time. Looking at the characteristics of the Project Based *Learning* model, it can be concluded that, learning from students with planning, problem solving, and final results in the form of projects such as manuals. This also educates students to check the problem before it is resolved so that there are no mistakes in the workmanship. So for the final result of curling hair design is less likely to make mistakes, because there is a careful planning according to the guidelines.
The PJBL-based learning module has six learning syntax with details; (a) fundamental question determination syntax, (b) project design syntax, (c) project schedule preparation syntax, (d) project progress supervisory syntax, (e) hasil testing syntax, and (f) experience evaluation syntax.

Simply put competence means ability. Competence is rational behavior to achieve the necessary goals in the conditions required as well. In other words competence can be interpreted as ability (Rusman, 2012). Curling is the process of maintaining regular hair disulfide ties into irregular new positions. By using a cold solution (solution) as a process of restraint, and natralizer solution as a process of reconnecting new bonds.

Furthermore, curling of hair is distinguished in 2 types, namely basic hair curling and hair painting design. Basic curling aims to simply turn straight hair into curls, while the curling design aims to turn straight hair into curls, with waves of hair that can be determined according to desire (Kusumadewi, 1999).

Curling hair design is a curling technique that has several curling techniques and the use of curling solutions of different strengths in addition to the selection in the use of rotto is also a fundamental thing that must be considered in order to create a specified design (Rostamis, 2008). Curling hair design is a curling process that requires analysis ranging from face shape, hair shape condition, and hair thickness whose results can be adjusted by the wearer/client curling (Notoadhisuryo, 2009).

So in conclusion, curling hair design is a curling technique whose process of workmanship does not have to do partingan hair so it must require thoroughness to the operator by looking at the advantages and disadvantages of the client, in order to create expected hair waves with the aim to accentuate the excess and cover the client's shortcomings.

**METHOD**

![Figure 1. Research Procedure for Development of Four-D Model](image-url)
This research uses a 4-D (four D) development model that has simple, systematic, and detailed procedures covering all aspects that must be analyzed so that the 4-D model is appropriately used to develop learning devices. Trianto (2012) stated that there are 4 stages 4-D, namely: Define Stage (definition) is an analysis of students' needs in accordance with the objectives of learning. The design stage (design) is to determine the standard test, choosing the media, and how the initial design. The development stage is the validation of media and materials by experts, practicality test that is by observation of students and teachers, effectiveness test obtained from the test of learning results. The disseminate stage (disseminate) is carried out by means of introduced products for use by anyone both individuals and groups.

The type of data is secondary data obtained from observations, curriculum analysis, and student data while primary data are primary data obtained from validation results from experts, prakti test results based on teacher and student response and effectiveness test results from improving student learning outcomes.

Data collection instruments used in this study are: (1) Validity questionnaire instrument, (2) Practicality questionnaire instrument, (3) Instrument on effectiveness.

Data analysis techniques are descriptive by describing the validity, practicality and effectiveness test results from improving student learning outcomes. The type of data is secondary data obtained from observations, curriculum analysis, and student data while primary data are primary data obtained from validation results from experts, prakti test results based on teacher and student response and effectiveness test results from improving student learning outcomes.

Validity test data with Aiken's V formula

\[ V : \frac{\sum s}{n(n-1)} \]  

(1)

Analysis of Practicality with the formula:

\[ NA : \frac{s}{M} \times 100\% \]  

(2)

Effectiveness analysis are:

Test validity test

Effectiveness analysis

\[\text{achievement level} = \frac{\sum \text{score obtained}}{\sum \text{maximum score}} \times 100\% \]  

(8)

RESULTS AND DISCUSSION

Research produces project based learning media based on Project Based Learning on The Competency of Hair Curling Design through the stages of development of Project Based Learning-based modules, namely the definition stage (requirement analysis, curriculum analysis / syllabus, student characteristic analysis, material analysis), design stage (module creation), development stage (content validation, module format validation, module presentation validation).

Validity test data with Aiken's V :
Validity test results obtained 0.84 > 0.67 categorized as valid.

Practicality test data:

Table 2. Practicality Test Results

| No. | Internship module PJBL                  | Percentage | Category |
|-----|----------------------------------------|------------|----------|
| 1.  | Results of teacher practicality        | 84%        | Practical|
| 2.  | Results of learner practicality        | 88%        | Practical|

The results of the teacher response practicality test using Project Based Learning-based modules were obtained by an average of 84% with practical categories and student responses to the use of Project Based Learning-based modules were obtained by an average of 88% with practical categories.

Effectiveness test data:
Test validity test

Table 3. Effectiveness Test Results

| No. | Activities | Percentage | Completedness | Description |
|-----|------------|------------|---------------|-------------|
| 1   | Pretest    | 48%        | ≤85%          | TT          |
|     | Posttest   | 96%        | ≥85%          | T           |

The results of the test of effectiveness of the grades showed that the student’s learning results showed that the posttest value achieved a minimum of 96%.

Project Based Learning based module development on Design Hair Curling competency is a series of processes or activities carried out to produce Project Based Learning-based modules based on development theory. The purpose of developing this Project Based Learning based module is to produce a valid, practical and effective Project Based Learning-based module.

In the first stage, define, implemented needs analysis, analysis of learners, and curriculum. This needs analysis is carried out to find out the problems and obstacles faced in the learning process, the aim is to create solutions that are in accordance with the circumstances and conditions in the school. Curriculum analysis is carried out to see
the suitability of teaching materials discussed with the core competencies of subjects, learning objectives, reviewing syllabuses, and suitable learning strategies, as well as reviewing literature related to modules, so that modules are developed in accordance with the demands of competencies learned by learners. The analysis of learners aims to see the ability of learners, the background of knowledge to the thinking ability of learners.

Furthermore, in the second stage, namely design, module design is carried out by paying attention to the appropriate subject KI, KD, materials as well as the purpose of learning hair curling design. The main activities of this stage are writing, studying, and editing modules designed with attention to language, phrasing, objectives, evaluation and images. Module design is tailored to the results of needs analysis, curriculum analysis, and student analysis. So that the module developed in the form of an application used through android so that it is easy to use by students anywhere and anytime.

The third stage is develop, module development is carried out in accordance with revisions and validator suggestions, so as to obtain a valid module and worth the trial. In the third phase, the validity, practicality and effectiveness of the module are carried out. A module can be said to be valid, if the validity result processed using aiken’s V formula indicates a value that is within the range of valid interpretation according to the determination. Based on validity testing by validators, obtained material validity test results with valid categories, it is an average of three aspects, namely the aspect of display, programming aspects, and aspects of utilization. Furthermore, the results of the material expert validity test obtained modules in valid categories based on an average of three aspects namely aspects of content, learning and summary.

After the define, design and develop stages, the last stage that researchers do is disseminate stage. At this stage, the deployment of modules that have been developed. Terms are carried out deployment if the module developed is valid, practical and effective from the validator and trials carried out.

The deployment stage by distributing Project Based Learning-based hair curling printing modules to students and teachers at SMK Swasta PAB 12. Terms are carried out spread after the module that has been developed is declared valid practically and effectively from the validator and trials conducted.

CONCLUSION
The research resulted in a Project Based Learning-based module on design curling competencies. The contents of the Project Based Learning-based module developed consist of text, images, and work steps. Project Based Learning-based modules are printed and can be used by learners at any time. The module development process uses a 4D development model. Research produces Project Based Learning-based modules that are valid, practical, and effective. Module validity results based on media expert responses, and material experts in valid categories. Practical modules are viewed based on the response of the subject teacher with practical categories and based on the
response of learners with practical categories. The effectiveness of the module is seen based on the results of cognitive learning and psychomotor learners categorized as effective. The results of cognitive learning of learners are viewed based on classical completion value with the percentage categorized as effective. Based on the difference in pretest and posttest results obtained a significant low value so that it was declared effective. Based on the large impact of using Project Based Learning-based modules gives high effect value results. Based on the psychomotor value of the student’s practice achieved the value of completedness. This means that Project Based Learning-based modules are said to be effectively assessed from the psychomotor aspect.

Advice for teachers, teachers should use Project Based Learning-based modules as teaching materials that can support the improvement of learners' learning outcomes, especially in the eyes of hair curling competency design because the module is proven to improve the creativity of student practice results. Bagi learners, after using a module based on Project Based Learning On Hair Curling Competency Design can be more active so as to encourage self-potential in improving creativity of practical results. Pthere is a private vocational school PAB 12 to have and suggest the use of modules based on Project Based Learning On Hair Curling Competency Design as a learning material for learners so that the learning process can run optimally. Kepada other researchers to be able to develop other learning modules / media based on Project Based Learning because it effectively improves the ability of learners in the cognitive and psychomotor aspects of learners.

**Author Biodata**

**Titi Pratstitis, born** February 15, 1990 in Medan, North Sumatra. Bachelor of Makeup Education majoring in Family Welfare Education, Faculty of Engineering Medan State University 2013. He is now a Graduate student of Master’s program in Technology and Vocational Education study program, Faculty of Engineering Padang State University.

**Prof. Drs. Jalius Jama, M.Ed, Ph.D, born** February 5, 1942 in Bukittinggi, West Sumatra, he is a retired lecturer in the department of Otomatif Engineering, he is also an outstanding lecturer in the Master program of Vocational Technology Education, Faculty of Engineering Padang State University.

**REFERENCES**

Afriana, Jaka. (2015) Project Based Learning (PJBL). Bandung: Universitas Pendidikan Indonesia.

ARPIN, R. (2017). Pengembangan Model Pembelajaran Project Based Learning untuk Meningkatkan Kreativitas Peserta Didik pada Mata Pelajaran Kewirausahaan di Sekolah Menengah Kejuruan.

Daryanto. (2013) Menyusun Modul. Yogyakarta: Gava Media.
Departemen Pendidikan Nasional. (2006). Kurikulum Tingkat Satuan Pendidikan. Jakarta: Depdiknas.

Departemen Pendidikan Nasional. (2008). Pengembangan Bahan Ajar. Depdiknas Jakarta: Direktorat Dikmenum.

Departemen Pendidikan Nasional. (2008). Penulisan Modul. Depdiknas Jakarta; Direktorat Jendral PMPTK.

Kusumadewi dkk. (1999). Seni dan Tata Kecantikan Rambut Modern. Jakarta: Meutia Cipta Sarana.

Maya Sari. (2011). Diktat Perawatan Rambut. Medan. Universitas Negeri Medan.

Marten, D., & Syah, N. (2019). Efektivitas Pengembangan Modul Berbasis Proyek pada Mata Kuliah Teknik Las Lanjut Akademi Komunitas Negeri Pesisir Selatan. Jurnal Imiah Pendidikan dan Pembelajaran, 3(3), 394-405.

Mulyasa, H, E. (2014). Guru dalam Implementasi Kurikulum 2013 SMK. Bandung: Remaja Rosdakarya.

Newby, J Timoty. (2000). A Reveiw of Research on Project Based Learning. California: The Autodesk Foundation.

Notoadhisuryo Langkir. (2009). Jenis Penataan. (http://langkir-notoadhisuryo.blogspot.co.id)

Perdirjen Dikdasmen. (2018). Peraturan Direktorat Jendral Pendidikan Dasar dan Menengah Nomor 6 Tahun 2018 tentang Spektrum Keahlian Sekolah Menengah Kejuruan.

Perdirjen Dikdasmen. (2018). Peraturan Direktorat Jendral Pendidikan Dasar dan Menengah Nomor 6 Tahun 2018 tentang Kompetensi Inti dan Kompetensi Dasar Mata Pelajaran.

Permendikbud. (2013). Model Pembelajaran Project Based Learning. Hand out Pelatihan Teknologi Pembelajaran (edt). Jakarta: Depdiknas.

Rostamailis dkk. (2008). Tata Kecantikan Rambut Jilid 3. Jakarta: Depdiknas, Direktorat Pembinaan Sekolah Menengah Kejuruan.

Sabri, Ahmad. (2007). Strategi Belajar Mengajar Micro Teaching. Ciputat: Quantum Teaching.

Suhardita, Kadek. (2016). Efektivitas Penggunaan Permainan dalam Bimbingan Kelompok Untuk Meningkatkan Percaya Diri Siswa. Jurnal Edisi Khusus. Volume 1 No. 1.

Suharsimi, Arikunto. (2007). Dasar-dasar Evaluasi Pendidikan. Jakarta: Bumi Susiliana Rudi, Riyana Cepi. (2007). Media Pembelajaran. Bandung: Wacana Prima.

Universitas Negeri Padang. (2015). Pedoman Penyusunan Tesis dan Disertasi. Padang: UNP Press.