



## Developing Learning Model “Project-Based Learning in Improving the Handcrafting Subject for Junior High School”

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### Abstract

The objective of the study was to analyse the validity of the project-based learning model in the handcrafting subject learning in Junior High School and analyze the effectiveness of the project-based learning model in improving the creativity of students. The method used in this study was research and development (R&D), using ADDIE with product developed is handcrafting project-based learning. This research produces an assessment instrument in the form of a test used for measuring cognitive domains, while non-performance tests (performance tests) are used to measure the affective domains (creativity) and psychomotor (skills). Product validity is done by using the CVR validity test with the results of 0.736 kappa reliability results with 2 expert tests 0.7 with Kappa reliability test and the effectiveness of the competency test model using T Test analysis. The results of the Project Based Learning development model for handcrafting subject addressed for VII grader students of Junior High School showed three assessments involving cognitive, affective and psychomotor assessments. The effectiveness of the competency test model showed that knowledge 20%, attitude 35%, and skills 85% which resulted that this development model is able to assess students effectively and objectively. The benefits of this research can be a motivation for students in learning and can be made a guideline for educators in assessing students.

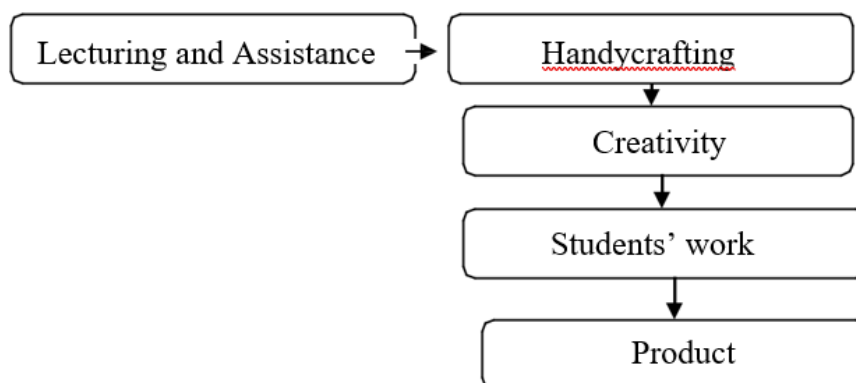
## INTRODUCTION

One of the learning at junior high level is the subject of handcrafting, the learning of handcrafting is synonymous with learning life skills or life skills. The subject of handcrafting is very sustainable with vocational or vocational training because it provides a student's skills, and teaches to acquire skills, as well as entrepreneurship. Dina Novita (2015) concluded that learning using project-based learning can increase the creativity of students in their work, as well as increase the positive power for students. Biological. Abriyanti et al. (2015) showed that the application of project-based learning in craft materials could improve student learning outcomes, student activities, and the ability of teachers to manage learning. Culture-based craft subjects are expected to foster the value of "local wisdom and identity", so as to grow the spirit of independence, entrepreneurship and at the same time a willingness to preserve the potential and value of local wisdom. The purpose of the craft subjects, including developing creativity through creating, designing, commodifying (changing), and reconstructing while at the same time appreciating local wisdom technology to gain knowledge, skills and provisions to face the various advances and challenges of the times. Along with the progress of the age, learning theories also develop. This learning theory, can be used as a provision by teachers to improve the learning process carried out so that it will create a pleasant learning climate. This learning directs students to be able to increase creativity and in accordance with passion. The purpose of this research is to analyze the validity of the project-based learning model as developed for the learning of the handicraft of junior high school students, analyzing the improvement of students 'creativity in learning for junior high school students' workshops. Project Based Learning is a learning method that is student-centered

According to Patton (2012), Project-based learning must involve students in making projects or products that will be exhibited to the community. Project-based learning is generally associated with the discussion of real-world problems. Nur Hikmah (2015), Development of student sheets (LKS) material on human exclusion systems based on Problem Based Learning in SMP.Saidun Hutasuhut (2016), increased motivation and learning outcomes of introductory economic development courses in the management department of FE UNIMED. Satoto Endar (2015), One of the main competencies of graduates majoring in Civil Engineering Education and Planning at the UNY Faculty of Engineering is being able to plant buildings. CAD courses aim to train students to be able to put their planning concepts into pictures.

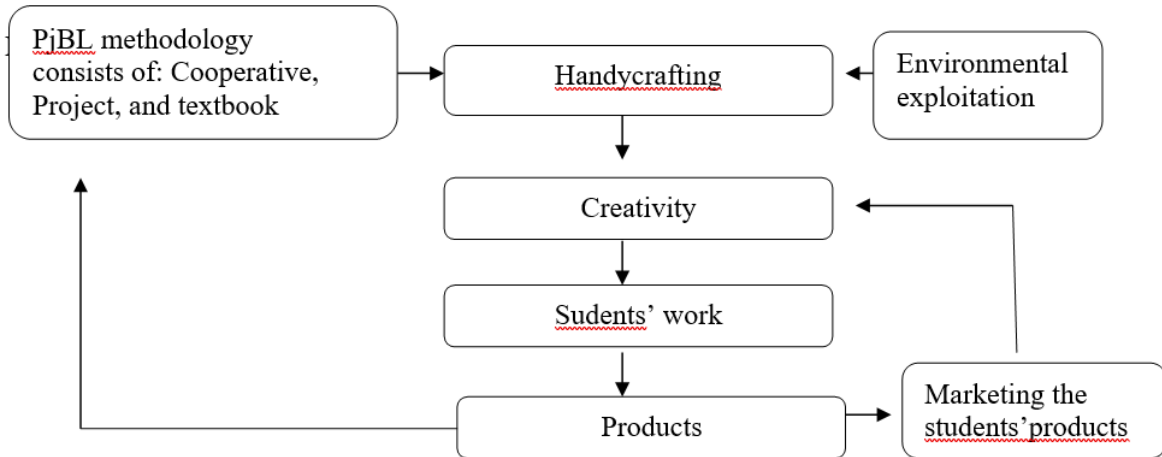
Project Based Learning (PjBL) can be defined as a learning with long-term activities that involve students in designing, making, and displaying products to overcome real-world problems. The product specifications developed in this research are the development of project-based learning models to support effectiveness, creativity and attractiveness or limited testing of this learning model, as well as this learning invites students to be able to market products that have been created in the learning materials of the craft.

Below is the Learning Model before it is developed:



**Figure 1.** Learning Model before Development

In the learning model above is a learning model that has not yet been developed, there are models of lectures and mentoring, craftsmanship, creativity, student work and the final product. The concepts in development in this study, namely:



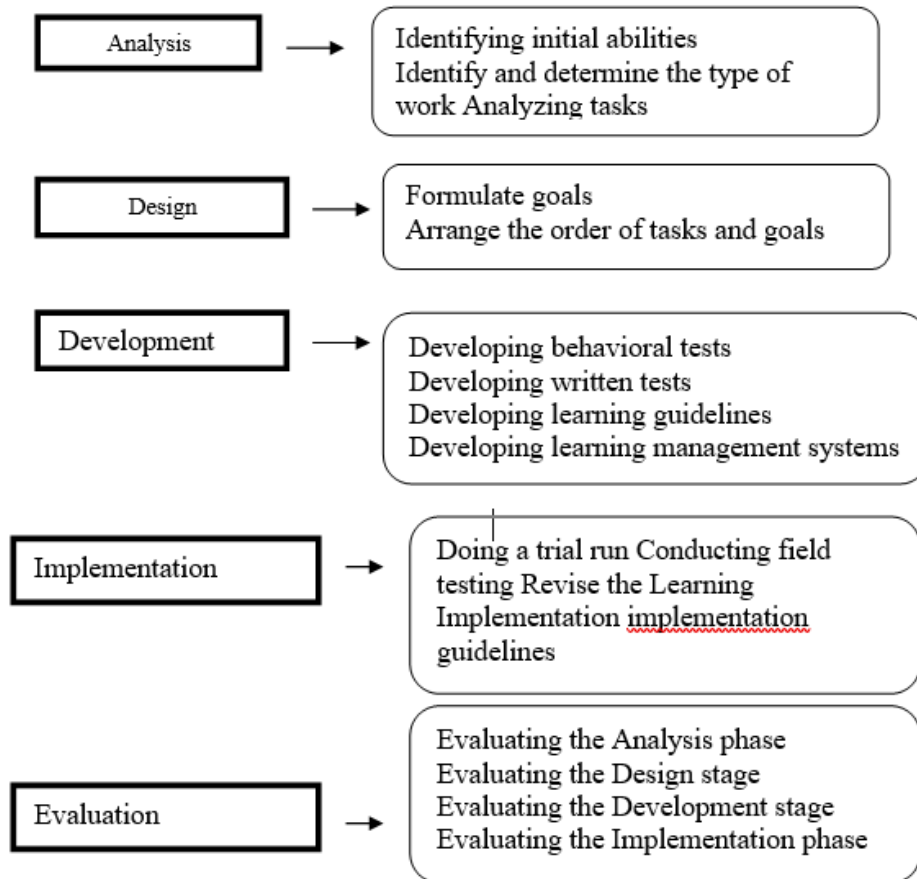
**Figure 2.** Project-based learning development model for Handycrafting subject

The development of the PjBL learning model was developed into, PjBL (Cooperative, Project and Textbook), Craft, Creativity, Student work, products. That this study illustrates the increase in creativity of students of SMPN 1 Bodeh, Pematang. The purpose of this development is to increase the creativity of students in the subject of handycrafting.

## METHODOLOGY

This research uses research and development or Research and Development (R&D). Research and Development is a research method used to produce certain products and assess the effectiveness of these products ", (Sugiyono, 2014).

The design of PjBL learning model development uses ADDIE which consists of five stages of development namely Analysis, Design, Development, Implementation, Evaluation, from several other models such as the Dick and Carey model, the Kemp model, the Assure model and the Smith Ragan model (Santoso, 2010: 17) . The steps for developing the ADDIE model with the learning model is explained in the following figure:



**Figure 3.** Steps in Module Development Using ADDIE

The data source used is primary data obtained through observation activities, interviews, documentation to research. This research was conducted at the junior high school level of the subjects of handicraft in Class VII at SMPN 1 Bodeh Pematang in the academic year 2019-2020 as many as 32 people.

The research instrument was tested by competent experts, namely material experts and media experts. In this case the material expert is the person who validates the contents of the material from the instrument to be researched, while the media expert is the person who sees and knows the media used is feasible or not. This validity test uses the calculation of the CVR method, and reliability using the Kappa inter-rater method while in the T-Test to determine the effectiveness of the learning model in student creativity.

**RESULT AND DISCUSSIONS**

The objective of the study was to analyse the validity of the project-based learning model in the handicrafting subject learning in Junior High School and analyze the effectiveness of the project based learning model in improving the creativity of students. Analyzing validators in this study to produce a product that is 4 types of validators, 2 material experts and 2 media experts. The material expert is to know the material content of the instrument that has been made, while the media expert is to know in terms of the feasibility of the learning model. The validation results from 4 validators are:

**Table 1.** Results of Media Expert Validation PjBL Learning Model "Dried Flower Art" Craft

Aspect	Validator 1	Validator 2	Mean	Criteria
Identity includes title, subject, class, semester and competency standard.	3	4	3.3	Valid
The order is based on the concept of scientific discipline and the level of difficulty.	4	3	3.67	Valid
The relationship between competency standards and basic competencies.	3	4	3.67	Valid
Achievement of competencies is developed according to the characteristics of students.	4	3	3.33	Valid
Achievement of competencies is adjusted to the characteristics of the subjects of the art of dried flowers.	3	3	3.33	Valid
Achievement of competencies is formulated with operational verbs that can be measured and observed.	4	3	3	Valid
Consider the potential of students.	3	4	3.3	Valid
Consider the scientific structure.	3	3	3.3	Valid
Consider the actualist, depth and breadth of the learning material.	3	3	3.3	Valid
Learning activities are developed with a scientific approach.	2	3	3	Valid
Learning activities are developed with a student center pattern.	3	4	3.33	Valid
Evaluation is based on material and content carried out.	4	3	3.33	Valid
Measured evaluation based on students' abilities and the processes implemented	4	2	3.3	Valid

**Table 2.** Expert Material Validation Results PjBL Learning Model "Dried Flower Art" Craft

Aspect	Validator 1	Validator 2	Mean	Criteria
The relationship between competency standards and basic competencies.	3	4	3.3	Valid
Material connection with RPP (lesson plan)	4	3	3.87	Valid
The relationship between material and syllabus	3	4	3.67	Valid
Relevant Material to the Competencies of students	4	3	3.33	Valid
Completeness of the material in accordance with the level of development of students	3	3	3.33	Valid
The material presented in accordance with developments	4	3	3	Valid
Packaging the material in the learning model in accordance with the scientific approach in question	3	4	3.3	Valid
Conformity of Concepts.	3	3	3.3	Valid
Means of all aspects			3.40	Valid

In the calculation of reliability using 2 experts, 1 media expert and 1 material expert. Reliability is calculated using Kappa, with inter-rater calculation results for reliability, namely:

**Table 3.** Reliability test Symmetric Measures

	Value	Asymptotic Standard Error <sup>a</sup>	Approximate $\tau_b$	Approximate Significance
Measure of Agreement	0.36	0.175	2.26	.023
N of Valid Cases	35			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Based on the test, a value of 0.364 is obtained so that it can be stated that the rater agreed in assessing the fair category. Approx. sig gets a value of 0.023 with a significant level of 5% then  $H_0$  is rejected and there is no agreement between expert 2 and expert 2, while  $H_a$  is accepted if there is an agreement between the two experts.

Analyze the effectiveness of the roject-based learning model in improving the creativity of students. Analyzing this research students are assessed from the creativity pre-test and creativity post-test, using the gain test and T test to find out how much the increase in students' creativity in the subjects of the craft. Below is a summary table of students' results:

**Table 4.** The Result og Students Creativity

Class	Aspect	Score		Gain Test	T Test
		Pre-Test	Post-Test		
VIIA	Cognitive	3.05	3.75	0.70	1.61
	Affective	3.10	3.57	0.47	1.52
	Psycomotoric	2.94	3.45	0.51	1.85
VIID	Cognitive	2.96	3.53	0.57	1.50
	Affective	2.94	3.43	0.49	2.50
	Psycomotoric	2.96	3.86	0.90	2.85

Source: Research result 2019

Based on the T Test analysis the difference between the pre-test and post-test results is significant, because  $T_{\text{arithmic}} > T_{\text{table}}$ , the different test presented in table 5, above class VII shows an increase in student creativity before and after obtaining the PjBL Craft learning model. In the aspect of knowledge the value or score with a range of 0-100 is then converted to a value of 4 scale, with the aim of facilitating the presentation and analysis of data combined with psychomotor and affective aspects. In this research, the work of VIIA and VIID students after using PjBL with SBK Module Products (Art of Dried Flowers), products produced by students.

This study states there is an increase in students' creativity, with the existence of textbooks as a development model of the PjBL as well as the existence of a validity and reliability test before being tested on students. According to Satoto Endar (2015) entitled "Development of Project Based Learning learning models" in Computer Aided Design courses concluded that one of the main competencies of graduates majoring in Civil Engineering Education and Planning at the Faculty of Engineering of YSU was being able to plan buildings. CAD courses aim to train students to be able to put their planning concepts into pictures. Cut Marina Zubainur (2017) entitled "The ability to think creatively and problem solving students through the application of the Project Based Learning model" which concluded this study aims to determine the ability of creative thinking and problem solving students after applying the Project based learning model compared to before the application of the model and the correlation between the ability to think creatively and problem solving. The results of the improvement of students' creativity in the subjects of the craft, seen from the pre-test by obtaining an average score of 2.05 while while doing the post-test there was a significant increase of 3.57.

## CONCLUSION

The PjBL model developed in this study has the results of the PjBL method and the craft is valid. The model developed by this research is effective, in this research is significant, because there one significant different before and after the implementation of th PjBL model learning.

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