



# The Effectiveness of Project-Based Learning Injection Skill Towards Self-confidence of First Level Students at Stikes Hang Tuah Surabaya

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**Abstract. Background:** Self-confidence in nursing students is very necessary for conducting learning and practicum so learning methods are needed that can require students to do a practicum, one of which is the project-based learning method.

**Aim:** The purpose of this study is to analyze the effectiveness of learning the project-based learning method of skill injection with the self-confidence of level 1 students at STIKES Hang Tuah Surabaya.

**Methods:** The design of this study is Quasi-experimental with a two-group pretest-posttest design method. Held on 9 – 12 July 2022. The population used was 111 people, with a sample of 1st-level students at STIKES Hang Tuah Surabaya using a simple random sampling technique with a total sample of 40 people. Independent variables Learning Method Project Based Learning Injection Skill measured using Injection SOPs, Dependent variables Self Confidence measured using questionnaires. The data were analyzed using the Wilcoxon test and the Mann-Whitney test.

**Results:** The results of this study show that the learning of Project Based Learning method is effective in increasing the self-confidence of level 1 students at STIKES Hang Tuah Surabaya with a  $p$ -value of 0.000.

**Conclusion:** The Project Based Learning learning method is one of the effective learning methods in increasing student Self Confidence so that it can be used as a reference in providing a more optimal learning process.

**Keywords:** Project-Based Learning · Self-Confidence · Students

## 1 Introduction

Project Based Learning is a learning model that uses projects or activities as its goal, so students are required to make a product from the results of practical activities [1]. Observations of researchers at STIKES Hang Tuah Surabaya, not all students can do self-study, so that student's readiness to take exams varies. This makes students experience a decrease in self-confidence during practical exams [2].

The survey shows students have difficulty concentrating on learning about 86% and lack social skills reaching 73%. In research conducted by on self-confidence, it is stated that 15.38% of students are in the less category, 75% of students are in the sufficient category, and 9.62% are in the high category. Research conducted states that self-confidence contributes 0,991 to learning outcomes [3]. The results of the researchers' observations carried out on 10 level 1 student at STIKES Hang Tuah Surabaya showed that 60% were not confident, especially when the lecturer asked them to come forward in front of the class, one of the things that made them not confident was skilled during practicum because the results obtained were 60% of students are not confident in their abilities in doing a practicum.

According to one of the causes of the low self-confidence of students is learning methods that do not motivate students in learning and a lack of confidence to express opinions. The learning process requires interaction between teachers and students, this can affect the understanding and confidence that students get [4]. Lecturers or educators explain the theory in class or material related to skills in the laboratory. This requires a demonstration method in the laboratory to improve students' understanding and abilities, especially in the nursing department. In addition, students are also required to do self-study to practice their skills for action, because, with frequent practice, students' understanding of a prasat will increase. One of the basic skills needed by nursing students is skill injection [5].

One way to overcome these problems is to provide learning with Project Based Learning (PBL) media or video projects [2, 4, 6]. Learning by using these media can further improve students' abilities and knowledge. Research conducted by states that the Project Based Learning (PBL) or video project method can be used as an effective approach to link teacher professional development and achievement. learn students. When the teacher will explain a material then students can immediately practice their understanding of the material that has been explained earlier with the Project Based Learning (PBL) or video project method. Because the population of students who experience self-confidence problems is not small, and the Project Based Learning (PBL) or Video Project learning methods are still few and rarely used today, therefore researchers are interested in researching the Effectiveness of Project Based Learning (PBL) Methods [6]. Skill Injection Against Self Confidence Level 1 Students at STIKES Hang Tuah Surabaya.

## 2 Methods

This research uses Quasi-experimental research. The two-group pretest-posttest design method, this method was carried out on two groups with a control or comparison group. In this study, there is a pretest before being given treatment, and the results of the second/posttest measurement can be compared with the situation before being treated. The population in this study were all level 1 students at STIKES.

Hang Tuah Surabaya, totaling 111 people. The number of samples taken was elderly families who met the inclusion and exclusion criteria as many as 40 respondents. This study uses a probability sampling technique that uses an approach with a simple random sampling technique, where the entire population has the same opportunity to be selected

as a sample. The research instruments used in this study were demographic data sheets, questionnaires, and SOPs. The demographic data sheet Contains data on general respondent data including name, class, gender, and practice experience of skill injection during the self-study. The questionnaire used in this study was adapted from the research of which refers to the theory of the self-confidence aspect according to Lauster. The questionnaire in this study is closed, and there are favorable and unfavorable questions. Four answer options have been provided, namely Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS) so respondents cannot write answers other than the four choices. Validity testing was conducted on 20 respondents with a significant level of 5% (0.423). The results obtained are 43 questions or all questions are declared valid. The reliability test obtained a Cronbach-a value of 0.954 so the questionnaire was declared reliable.

Another instrument used is the Skill Injection SOP, which will be used in providing interventions in the form of Project Based Learning (PBL) to respondents. The SOP consists of IM, IC, SC, and IV injection SOPs.

Ethics approval and consent to participate

Research Ethics Commission (KEP) STIKES Hang Tuah Surabaya with the number: PE/78/VII/2022/KEP/SHT.

### 3 Results

See Tables 1, 2, 3, 4, 5 and 6.

**Table 1.** Characteristics of respondents by gender (n = 40)

Gender	Treatment		Control	
	(f)	Percentage (%)	Frequency (f)	Percentage (%)
Female	18	95%	20	100%
Male	2	5%	0	0%
Total	20	100%	20	100%

**Table 2.** Characteristics of respondents by class (n = 40)

Class	Frequency (f)	Percentage (%)
S1-1A	20	50%
S1-1B	20	50%
Total	40	100%

**Table 3.** Characteristics of respondents based on the experience of skill injection practice during the self-study (n = 40)

Practical Experience	Treatment		Control	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Never	17	85%	16	80%
Ever been	3	15%	4	20%
Total	20	100%	20	100%

**Table 4.** Categories of Self Confidence level for level 1 students at STIKES Hang Tuah Surabaya before and after learning the Project Based Learning (PBL) method for the treatment group (n = 40)

Category Level SC	Pre PBL		Post PBL	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Very high	0	0%	13	65%
Tall	9	45%	6	30%
Currently	11	55%	1	5%
Total	20	100%	20	100%
<b><i><math>\rho</math>-value</i></b>	<b>0,000</b>			

**Table 5.** Categories of Self Confidence level for level 1 students at STIKES Hang Tuah Surabaya before and after learning the Project Based Learning (PBL) method to the control group (n = 40)

Category Level SC	Pretest		Posttest	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Very high	1	5%	2	10%
Tall	8	40%	12	60%
Currently	9	45%	6	30%
Low	2	10%	0	0%
Total	20	100%	20	100%
<b><i><math>\rho</math>-value</i></b>	<b>0,654</b>			

**Table 6.** Effect of Project-Based Learning (PBL) learning method on Self-Confidence of level 1 students at STIKES Hang Tuah Surabaya (n = 40)

Category Level SC	Post Kontrol		Post-Perlakuan	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Very high	2	10%	13	65%
Tall	12	60%	6	30%
Currently	6	30%	1	5%
Low	0	0%	0	0%
Very low	0	0%	0	0%
<b><i>p-value</i> Mann Whitney</b>	<b>0.000</b>			

## 4 Discussion

The results of the research conducted on 20 respondents who were members of the treatment group, it is known that before the intervention was given in the form of the Project Based Learning (PBL) method, as many as 11 people (55%) were in the moderate level of self-confidence, while after being given the intervention there was a significant increase, as many as 13 people (65%) were in the very high level of self-confidence category. The results of this study can illustrate that the Project Based Learning (PBL) learning method can increase the level of student self-confidence. The increase in self-confidence experienced by students will of course also be able to increase their understanding of the skill injection material [7]. Because by using this method, students will inevitably be involved and play an active role, so they will review the material again to be poured into the form of a project or video project. This is in line with what was stated that because each individual's way of learning is different, the Project Based Learning (PBL) learning method can provide opportunities for students to explore content or material using various ways that can deepen their understanding of the material [8, 9].

The results of this study can be strengthened by the Wilcoxon statistical test with  $p\text{-value} = 0.000$  ( $<\alpha = 0.05$ ), which indicates that the self-confidence of level 1 students has changed/increased, which means that the intervention in the form of Project Based Learning (PBL) method is effective against self-confidence level. Researchers believe that learning the Project Based Learning (PBL) method is effective on student self-confidence because this method can make students review the material that has been given, can also hone students' soft skills, especially on injection material, and can also hone students' creativity in making video project assignments that have been given. This is in line with (1) that there is an increase in problem-solving abilities using the Project Based Learning (PBL) learning method [10]. In this study, the problem that must be solved is the ability of students to perform skill injections appropriately according to the SOP. In addition, according Project Based Learning (PBL) or commonly known as Video Project is stated as project-based learning which is an innovative learning approach, which emphasizes contextual learning. through complex activities. This Project

Based Learning learning method is centered on students carrying out an in-depth investigation of a topic, and using this learning method can encourage the growth of creativity, independence, responsibility, self-confidence, and critical and analytical thinking in students [11]. From the results of the study, it was found that the level of self-confidence in 20 students of class S1-1A who were treated, it was known that before the intervention was given in the form of Project Based Learning (PBL) learning methods as many as 11 people (55%) were included in the medium category, where everything had never happened. practice skill injection while self-study. And, as many as 9 people (45%) were included in the high category, of which 6 people had never practiced skill injection during the self-study, and 3 other people had practiced skill injection during the self-study. The researcher argues that the level of student self-confidence can be influenced by practical experiences that have been carried out during the independent study. This is due to the factors that influence self-confidence, namely self-concept, self-esteem, experience, and education. Self-concept can affect a person's self-confidence because the formation of self-confidence begins with the development of interactions obtained from the surrounding environment. The level of self-esteem can also affect self-confidence because if someone has a negative self-concept, of course, it can form self-esteem as well, and vice versa. Experience of course can also affect a person's self-confidence because he feels he knows about doing things (in this study, namely doing an injection skill) and has done it so that he feels experienced, and can have positive thoughts in himself, so he feels more confident. A person's education can also affect the level of self-confidence of a person with a low level of education or knowledge level will make a person feel inferior to someone who has a higher level of education or knowledge level than him.

From the results of the researchers' observations when they were about to carry out Project Based Learning (PBL) interventions, most of the respondents were still confused about the procedure for doing injections. Respondents said that the explanation of the injection SOP that was given previously through google meet and only by using PPT and verbally without seeing the demo skills directly, and not being able to directly participate in practicing it can make them confused and feel unsure and not confident when asked to practice it themselves. When the Project Based Learning (PBL) intervention was carried out, the observation results found that almost all respondents in the intervention/treatment group were able to practice skill injection properly and correctly according to the SOP, and looked confident and confident when carrying out the injection action. The researcher argues that the respondent's sense of confidence and confidence when taking action arises because all respondents have seen the injection skill demo, and also all respondents have practiced skill injection individually. And, by using the Project Based Learning (PBL) learning method, respondents will repeat the injection several times to provide the best results for the content or video they are working on. This is in line with the adaptation theory of Miller's Pyramid, 1990 which states the level of ability of nursing students, namely Knows (knowing and explaining) that students can know and explain the procedures for implementing nursing actions, Knows How (have seen or demonstrated) ie students have seen demonstrations of nursing actions, one of which is the injection, Shows (skilled doing under supervision) that is students can perform injection actions under team coordination, Does (skilled doing independently) that is students can practice skill injection independently or individually [12].

The programs owned by STIKES Hang Tuah Surabaya can also support students' soft skills which can also have an impact on the self-confidence of the students themselves, these programs include OSCE / lab practice which requires students to be able to take an action, a clinical practice that can train students' adaptability to the hospital environment and train students' interaction skills and actions with patients directly, structured assignments, a self-study that can provide additional opportunities for students to learn about action, motivational webinars, communication webinars that can train students' communication skills towards patients, discipline, and the Student Activity Unit (UKM), one of which is KSR which is one of the SMEs engaged in special fields of social and humanitarian interest. These programs can help students to increase self-confidence in performing nursing skills because most of these activities can make students practice their skills more often in carrying out nursing actions and can also improve their ability to communicate with patients. Socialization within the scope of STIKES Hang Tuah Surabaya, both with classmates and friends in UKM can be said to be quite good, because they often encourage each other between friends, and often share knowledge with others. Researchers believe that good relationships within the scope of STIKES Hang Tuah Surabaya can increase students' self-confidence because positive relationships and sharing knowledge will increase students' knowledge and motivation and the programs owned by STIKES Hang Tuah Surabaya can increase students' self-confidence because it can help students to better understand and increase their experience of nursing action. This is in line with the theory expressed regarding factors that can affect self-confidence, including self-concept and experience [1, 12]. Because the formation of self-confidence begins with the development of self-concept obtained from the association in a group. And the formation of this self-concept can affect a person's lifestyle, mindset, emotions, and behavior. The experience gained by a person can also affect his confidence. Because when someone feels experienced and has understood and has done action, then he will feel more confident.

The level of self-confidence in 20 level 1 student of STIKES Hang Tuah Surabaya class S1-1B who became the control group, it is known that when the pretest was conducted, as many as 8 people (40%) were included in the high category, of which 6 people answered that they had never practiced skill injection. During the self-study, while 2 others answered that they had practiced skill injection during the self-study. And, as many as 2 people (10%) were in a low category, where all of them answered that they had never practiced skill injection during the self-study. From this study, it is known that students who have done skill injection during self-study have a higher level of self-confidence than students who have never done it, so the researcher believes that experience can affect a person's self-confidence. This is supported by the theory put forward that one of the factors that influence self-confidence is experience. The experience that a person gets will certainly make him feel more experienced, so he will feel more confident.

After conducting the pretest, the researcher held an online meeting via google meet with the respondents. The researcher explained the SOP for skill injection to the respondents and also created a class atmosphere like online lectures in general. At the time of the pretest, it was found that 9 people (45%) were in the medium category, and at the posttest, the results were that 12 people (60%) were in the high category. The researcher argues that there was no significant increase in the control group, or an increase in the

level of self-confidence in some students because the material they received about skill injection increased after being explained the online skill injection SOP. This is reinforced by the results of the Wilcoxon test with  $-value = 0.654 (>\alpha = 0.05)$  which indicates that there is no change/increase in student self-confidence, which means that it does not affect the control group because there is no intervention in the form of Project Based learning methods. Learning (PBL). In addition, this is also in line who explained that one of the processes in forming self-confidence is an experience of undergoing various kinds of things and using all the advantages in him. Lack of one of the processes that build self-confidence can allow a person to experience obstacles to gaining self-confidence [5, 6, 13]. Students in the control group were not given intervention in the form of Project Based Learning (PBL) methods so there was no practical experience of skill injection that could add to their experience and make significant changes.

According to the results of the study, from a total of 20 respondents in the control group, the lowest average was obtained from the statement that students felt insecure when asked by the lecturer to come forward. The researcher argues that most students are not confident when asked to appear in front, namely because students are not confident in their abilities. This is supported by the theory of which states that several factors affect self-confidence, one of which is self-esteem. Where the level of self-esteem of a person will affect the level of self-confidence as well. If the self-concept is negative, it will form negative self-esteem as well, and that can lead to a crisis of self-confidence. On the other hand, if the self-esteem is positive, there will also be positive self-confidence.

The self-confidence level of a total of 20 level 1 student at STIKES Hang Tuah Surabaya who was included in the treatment group, it is known that before the intervention, 11 people (55%) were in the medium category, and 9 people (45%) were in the high category.. And after the intervention, it was found that 13 people (65%) were in the very high category, 6 people (30%) were in the high category, and 1 person (5%) was in the medium category.

Based on the results of research conducted with a total of 20 respondents in the treatment/intervention group, from the test results obtained by the Wilcoxon test, it shows the results of  $-value = 0.000 (<\alpha = 0.05)$ , then  $H_1$  is accepted and  $H_0$  is rejected, which means there is a significant effect on students' self-confidence between before and after being given an intervention in the form of Project Based Learning (PBL) method learning. The results of the Mann-Whitney test showed that  $-value = 0.000 (<\alpha = 0.05)$  which indicated that there was a difference in effectiveness in the control and treatment group self-confidence, in which the intervention in the form of Project Based Learning (PBL) influenced the treatment group that had been given. The intervention was compared with a control group that was not given a similar intervention.

The level of self-confidence can be influenced by several factors, including self-concept obtained from the association and the surrounding environment, self-esteem that should be positive because if self-esteem is positive, positive self-confidence will arise as well, experiences that can make a person feel knowing and experienced about something that can make the person more confident, and the level of education or level of knowledge a person has will also affect self-confidence, because people with a low level of education or knowledge level will make that person inferior to other people who have a level of education or level of knowledge higher than himself [14–16]. The aspects



possessed by someone who has good self-confidence are confidence in one's abilities that he can succeed in doing something well, optimism about various things, objective in looking at everything, and responsible for carrying out everything. Consequences for what has been done, rational and realistic in analyzing something.

Factors that can affect a person's self-confidence are of course not only internal but also external. Low self-confidence can also be due to the way each individual learns differently so during the teaching and learning process, as usual, some individuals do not understand or do not fully understand the material being taught. Thus, learning using the Project Based Learning (PBL) method can provide opportunities for students to explore content or material using various ways that can deepen their understanding of the material. In this study, more than 50% of students in the intervention group experienced an increase in their level of self-confidence. From the results of video observations that have been made by respondents, most of the respondents have done skill injection properly and correctly according to the SOP that has been given. Judging from the results of the questionnaire and observation, the researcher assumes that the Project Based Learning (PBL) method has a significant influence in increasing students' self-confidence.

## 5 Conclusion

The level of self-confidence of students of level 1 STIKES Hang Tuah Surabaya in the treatment/intervention group there was changed or increased after being given intervention in the form of the Project Based Learning (PBL) method. The level of self-confidence of students at level 1 STIKES Hang Tuah Surabaya in the control group did not change or increase because they were not given intervention in the form of the Project Based Learning (PBL) method. There is an effect of learning the Project Based Learning (PBL) method on the level of self-confidence of students at level 1 STIKES Hang Tuah Surabaya. The learning model that is expected to be a solution to these problems is the PBL (Problem Based Learning) model, which is a problem-based learning model.

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