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Implementation of peer instruction flipped classroom to improve self-efficacy of underprivileged students

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Abstract

This study aims to examine the improvement of self-efficacy of underprivileged students. The design of this study is a non-equivalent control group involving two classes. The first class obtained learning using Flipped Classroom type Peer Instruction Flipped and the second class obtained conventional learning. The instrument used in this study is a self-efficacy questionnaire. This research was conducted in Class XI in one of the Vocational Schools in Ciamis. Data analysis using the Mann-Whitney test. The results showed that learning using Flipped Classroom type Flipped Peer Instruction had an influence on increasing the self-efficacy of underprivileged students.

Keywords: *underprivilige students; flipped classroom type peer instruction flipped; self-efficacy*

Introduction

In general, children from well-off families get sufficient care and upbringing from their parents, while children from poor families lack adequate care and upbringing from their parents because their parents are more focused on how to meet their needs, so that the ability of pre-prosperous students is not maximal, including self-efficacy.

Self-efficacy is not a general belief about oneself but a specific belief that leads to a particular task (Widiatmojo, 2004). Self-efficacy can be seen as an individual's perception of his ability to organize and carry out actions in certain uncertain situations. More specifically, Wood (Widiatmojo, 2004) states that self-efficacy leads to confidence in fostering enthusiasm, cognitive resources and various steps needed to deal with various conditions. Maddux (Sudrajat, 2008) describes some of the meanings and characteristics of self-efficacy, including self-efficacy is a belief that is believed by someone to solve something with their skills, self-efficacy does not describe the motives, motivations or needs that are controlled, self -efficacy is a person's belief in his ability to mobilize all his skills and abilities to deal with challenging situations, and self-efficacy will develop over time based on the experience gained. One of the learning models that is expected to improve self-efficacy is flipped classroom type flipped classroom instruction.

Learning with Flipped Classroom is done so that classroom learning is more effective. Conventional learning generally spends more time explaining material, but the time used for students to discuss, understand and solve various problems regarding the material

being studied is minimal, so students are less active. Flipped instruction is also known as Flipped classroom which is to change learning in traditional classes by using time in class to discuss various questions or difficulties regarding the material to be studied, this is in line with Bergman and Sams (2012) research comparing conventional models with Flipped Classroom models that in conventional learning, students usually come to class with various unanswered questions from the assignments given at the previous meeting. Usually for 30 minutes the teacher discusses assignments that have not been understood by students. For 30 to 45 minutes the teacher explains about the material to be learned and students learning time is used to practice individually or in groups. But in the classroom flipped learning model, at the beginning of learning students are given the opportunity to ask if there is material that has not been understood from the video that has been sent, so the teacher answers the question in the first minute in class. This is done so that student misconceptions can be completed before students work on the questions about the material being studied. The time used by students to work on problems and discuss more than conventional learning.

Previous studies reported that the positive result of flipped classroom. The students responded positively (Nanclares & Rodríguez, 2016; Roach, 2014). They learned the given subject actively (Arnold-Garza, 2014; Danker, 2015; Jensen, Kummer, & Godoy, 2015; Nanclares & Rodríguez, 2016), moreover by implementing team based learning (Wallace, Walker, Braseby, & Sweet, 2014). Flipped classroom also helped the student to understand a difficult subject (Fautch, 2013; Touchton, 2015), improved self-efficacy and learning outcomes (Kurt, 2017), and facilitated high order thinking (Roehl, Reddy, & Shannon, 2013).

Flipped classroom learning model has several types, one of which is flipped peer instruction. In this model, students learn the basic material before starting the class through video. When in class students answer conceptual questions individually, students are given the opportunity to argue with each other about the questions given to ensure the answers to their friends and at the end are given tests of understanding (Stelee, 2016). In this study, flipped classroom peer instruction type was applied with the aim of increasing self-efficacy in pre-prosperous students.

Materials and Methods

This study is an experimental study with a non-equivalent control group design part of Quasi-Experiments. Subjects were not randomly grouped but accepted as is by using two classes, namely classes that use Flipped Classroom learning type Peer Instruction Flipped and classes that use Conventional learning.

This research was carried out in Vocational Schools in Ciamis in class XI students. The sampling technique used in this study was purposive sampling technique. Samples were taken by purposive method to obtain classes that had no different initial abilities of self-efficacy. The instruments used in this study were non-test. non-test instruments consist of a self-efficacy scale questionnaire. Questionnaires are used to measure the affective aspects of students, namely Self-efficacy. Questionnaires were given to the experimental class students at the time before the treatment and after all learning ended, that is after the posttest. In this study we used a self-efficacy scale response format adapted from the response scale used by Compeau & Higgins (1995) and referred to the response scale proposed by Bandura (2006). To see the difference in increasing self-efficacy, N-gain was also analyzed.

To find out the initial abilities of self-efficacy of students, a statistical test was performed by the Mann-Whitney test. The hypothesis is as follows:

H_0: There is no difference in the initial self-efficacy of pre-prosperous students between those who get learning using Flipped Classroom Peer Instruction Type Flipped and those who get conventional learning.

H_1: There are differences in the initial self-efficacy of pre-prosperous students between those who get learning using Flipped Classroom Type Peer Instruction Flipped and those who get conventional learning.

Results and Discussion

The results obtained from the value of Asymp. sig. (2.tailed) = 0.219> 0.05 (Table 1). This shows that H0 is accepted, meaning that there is no difference in initial self-efficacy between classes that get learning using Flipped Classroom Peer Instruction Type Flipped with classes that use conventional, in other words the initial self-efficacy of the experimental class and control class is no different.

Table 1. Test of Mann-Whitney on initial questionnaire

	Value
Mann-Whitney U	138.500
Wilcoxon W	328.500
Z	-1.230
Asymp. Sig. (2-tailed)	.219

To find out the increase in students 'self-efficacy using data n-gain and to find out whether there are differences in the improvement of underprivileged students' self-efficacy between those who use the Flipped Classroom learning model Peer Instruction Flipped type and underprivileged students who use conventional testing, differences should be done with Mann Test -Whitney. The research hypotheses tested are:

H_0: Increased self-efficacy of underprivileged students who get Flipped Classroom learning Peer Instruction Flipped Type is the same as increasing the self-efficacy of pre-prosperous students who get conventional learning.

H_1: Increased self-efficacy of underprivileged students who get Flipped Classroom learning Type Peer Instruction Flipped is better than the increase in self-efficacy of pre-prosperous students who get conventional learning.

Table 2**.** N-Gain test of s*elf-efficacy*

	Value
Mann-Whitney U	76.000
Wilcoxon W	266.000
Z	-3.053
Asymp. Sig. (2-tailed)	.002

From Table 2 it can be seen that the significance value is 0.002 <α = 0.05, H1 is accepted and H0 is rejected, meaning that the increase in self-efficacy of pre-prosperous students who get learning using Flipped Classroom Peer Instruction Type Flipped is better than the increase in self-efficacy of pre-prosperous students obtain conventional learning.

Self-efficacy in the class that gets learning with Flipped Classroom Type of Peer Instruction Flipped as many as 6 people or 31.58% in high category and 13 people or 68.42% in moderate category. In the class that received conventional learning, 13 people or 68.42% were in the moderate category and as many as 6 people or 31.58% were categorized as low.

Conclusion

The increase in self-efficacy of underprivileged students using Flipped Classroom Peer Instruction Flipped Type is better than the increase in self-efficacy of pre-prosperous students who use conventional. Based on the findings obtained in this study, suggestions that can be conveyed that learning using the Flipped Classroom approach Type Peer Instruction Flipped can be used as an alternative to improve self-efficacy.

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