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The Effect of Flipped Classroom Model through Handout and Virtual Approaches on Learning Outcomes for the Students of Universitas Terbuka Who Have Different Level of Motivation and Learning

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Abstract

The main purposes of this research are: 1) to determine the effectiveness of Flipped Classroom learning model implementation by using handouts and virtual approaches on learning outcomes for practicum course of basic science concepts for Universitas Terbuka students, 2) to determine differences in learning outcomes for practicum course of basic science concepts for Universitas Terbuka students who have high motivation and who have a low learning motivation and 3) the interaction model of Flipped Classroom learning model implementation by using handouts and virtual approaches on learning outcomes for practicum course of basic science concepts for Universitas Terbuka students. The research design used in this study is quasi-experimental research design version of nonequivalent control group design 2x2 factorial analysis technique used Analysis of Variance (ANOVA). The results showed that there is a significant difference of on learning outcomes for basic science concept practicum course for Universitas Terbuka students who join the Flipped Classroom learning model by using handouts and virtual approaches. There are significant differences of learning outcomes basic science concept practicum course for Universitas Terbuka students who join the Flipped Classroom learning Model by using handouts and virtual approaches. There is interaction between the Flipped Classroom learning model and learning motivation on the students' learning outcomes on learning outcomes for basic science concept practicum course for Universitas Terbuka.

Keywords: Flipped Classroom Learning Model, Learning Motivation and Learning Outcome

I. INTRODUCTION

The program study of Primary School Teacher Education at Universitas Terbuka (UT) implements a system of open and long-distance learning. The term long-distance learning means there is no such a face to face lecturing activity, but rather using the media, both printed (module) and non-printed (audio / video, computer / internet, radio and television). The learning process is carried out at Universitas Terbuka by using e-learning program to reach out and to communicate between students and lecturers. Students are given a module that has been designed by the tutor. The module is designed in such a way to be easily understood by students. Students can learn the modules that have been uploaded to the UT website independently, but if the students still have difficulties to understand the material contained in the module, UT provide assistance in the form of a face-to-face tutorial and online tutorials. Face-To-face tutorials held for eight (8) times in one semester.

Another factor that determines the success of learning at the Universitas Terbuka is the achievement of cognitive abilities. In lessons, determined a learning objective. The learning objectives include three aspects: cognitive, affective, and psychomotor (Bloom, 1982: 54). Nasreen and Naz (2013) revealed that factors affecting low learning outcomes include learning model. The use of a less precise model of learning in the learning process can lead to boredom or burnout, lack of understanding of the concept, and monotonous so that students are less motivated to learn. Joyce, et al (2003: 28) argues, learning model has a broader meaning of strategies and procedures. Selection of learning models should be adapted to the classroom situation resulting from the cooperation between teachers and students. One trend that is in the field of education is a model of "Flipped Classroom". According to Johnson (2013), Flipped classroom is a learning model that can be given by educators in ways that minimize the amount of direct instruction in their teaching practices while maximizing interactions with each other.

Some of the results of empirical studies, conducted by Yujing (2015) showed that there were significant differences empowering students in the experimental class and control class while using the Flipped Classroom learning model. Osman, et al (2014) showed that there are differences in student achievement in traditional classroom and classroom Flipped Classroom. Basal (2015) concluded that an English professor had a positive perception of Flipped Classroom, where it has four benefits of Flipped Classroom that is the students to learn by themselves, face their preparation, can overcome the limitations of class time and increase participation in the classroom. Kadry and Hami (2014) that the application of the Flipped Classroom model as a positive experience, and to make students perform better than with conventional learning. Moreover, Flipped Classroom models were well received by female students than male. Different results shown by Brooks (2015) in her study concludes that there are no differences were found between the groups in the pre and post test analysis for Flipped Classroom learning models with conventional methods.

Based on the results of previous studies, it shows that the diversity of the research results, so it is interesting to do a study on Flipped Classroom learning by testing students who have high levels of motivation to learn. Motivation is very important in

determining how much interest students in learning activities. According to Sardiman (2011: 75) motivation is a series of efforts to provide certain conditions, so someone willing and wanting to do something, and if do not like it will seek to eliminate or circumvent the feeling did not like it. Students are motivated to learn allowing them to get the results of learning is also high, meaning that the higher the motivation, the stronger the efforts made, the higher the learning results obtained. The lower the students' motivation then the lower the students' learning outcomes.

According to Bugge and Wikan (2013), the motivation is very influential on improving the learning outcomes of students. Learning conditions which include facilities and infrastructure are essential substances that affect the motivation to learn. Mr. Chin, Tsai, and Cheng. (2005) suggest that the learning model varying able to increase student motivation than traditional learning. Mr. Chin, Tsai, and Cheng. (2005) found evidence that student motivation is high, medium and low did not show a significant difference in the total score students' motivation toward science learning (SMTSL).

Abeyssekera and Dawson (2015) found an evidence that the Flipped Classroom is able to increase students' motivation and cognitive. Halili and Zainuddin (2015) concluded that the Flipped Classroom learning has some advantages that students become more motivated and confident when discussing the material in class because they have put up with watching videos before coming to class, classroom activities become more student-centered and not centered on teachers because teachers only act as a facilitator. However, some weaknesses of Flipped Classroom learning is not all the teachers and students are ready to implement it. Roehl, Amy and Shweta Linga (2013) concluded that the activity of learning and flipped classroom model of learning using technology, students will develop their creative thinking abilities higher. Pierce, Richard and Jeremy Fox (2012) concluded that applying the model flipped classroom resulted in increasing student performance.

Based on the facts and ideas that have been described, the gap in the learning process and learning outcomes that occur is a critical problem and need to be addressed wisely. As an alternative to the solution of problems that occur, the purpose of this research is: 1) determine the effectiveness of the implementation of learning model of Flipped Classroom approach handouts and virtual on learning outcomes practicum courses basic concepts of science in students the Universitas Terbuka, 2) to determine differences in learning outcomes practicum courses concept basic science at the Universitas Terbuka for students who has a high motivation and that has a low learning motivation and 3) the interaction model of Flipped Classroom handouts approaches and virtual learning motivation for learning outcomes practicum courses basic science concepts at the Universitas Terbuka students

II. LITERATURE REVIEW

2.1 Flipped Classroom

According to Johnson (2013: 14), flipped classroom is a way which can be given by educators to minimize the amount of direct instruction in their teaching practices while maximizing interactions with each other. It utilizes technologies that provide additional support for students learning materials that can be accessed online. This frees up class time that has previously been used for learning. Model is not just learning to use instructional video, but more emphasis on the use of the time in the classroom so that learning can have higher quality and enhance students' knowledge.

Meanwhile, according to Brent (2013), flipped classroom as a strategy that can be given by educators in ways that minimize the amount of direct instruction in their teaching practices while maximizing interactions with each other. This strategy utilizes technology that provides extra support for students learning materials that can be accessed online. This frees up time class that has previously been used for learning as a means to discuss the material learned.

In preparation for learning in class, students are required to view the instructional video, website or specific tutorial to dikaskses through the internet at home. According to Amy Roehl (2013) students spend time in class to work to solve the problem, concept development, and engage in collaborative learning. Meanwhile, according to Natalie (2012). Strategy flipped classroom support many benefits. Most seem to be a reasonable profit (ie increase instruction time more interesting), especially to teach them in setting a mixture consisting of some combination of face-to-face and online instruction. However, this strategy also has its limitations which are: (1) video quality may be very bad; (2) given that students can see the video lectures on their own computers, the conditions under which they may view the video lectures be learning ineffective; (3) students do not watch or understand the video because they are not ready or are not quite ready for face-to-face activities; (4) Students may need a lot of the support to make sure they understand the material presented in the video; and (5) students are not able to ask questions to the instructor or their peers when watching video alone.

2.2 Learning Motivation

Huitt, W. (2001) stated that motivation is a condition or an internal status (sometimes interpreted as the needs, wants, or desires) that directs the behavior of people to actively act in order to achieve a goal. So there are three key words on the definition of motivation according to Huitt, namely: 1) the conditions or internal status that activate and give directions on a person's behavior; 2) the desire that energizes and directs a person's behavior to achieve a goal; 3) the level of needs and desires will influence the intensity of a person's behavior.

Motivation to learn in the beginning is a natural tendency in human beings, but then formed in such a way and gradually, not just a cause and a mediator of learning but also as a result of learning itself (Woldkowski & Jaynes 2004). Thursan Judge (2000:

26) suggested the notion of motivation is an urge that will cause a person to perform an act in order to achieve certain goals. In learning, student persistence rate is determined by the strength of their motives and motivation to learn posed such motives.

Uno (2012: 23) stated that motivation and learning are the two things that are mutually exclusive. Learning is a change in behavior that is relatively permanent and potentially occur as a result of the practice or reinforcement (reinforced practice) that is based on the aim to achieve certain goals. Motivation to learn can arise due to intrinsic factors, such as desires and wishes success and the drive needs learning (Slavin, 1991), in hopes of ideals. Whereas extrinsic factor is the factor of appreciation, a conducive learning environment, and engaging learning activities. Both factors caused by stimulation (Wodkowski, 1985) specific, so one wishes to learn more vigorous activity and spirit.

According to Paulina Pannen, et.all (1999, p: 184) motivation is something that drives and directs the individual to do something. Students who have low learning motivation generally lagged lesson, often also have errors in learning. Instead of students who have high motivation will have plenty of energy for learning activities.

2.3 Learning Outcomes

Learning outcomes are often referred to as "scholastic achievement" or "academic achievement" is the whole efficiency and results achieved through the learning process in schools that expressed by numbers or values based on tests of learning outcomes (Briggs, 1979: 147). According to Gagne and Driscoll (1988: 36) is the result of learning abilities of the students as a result of the act of learning and can be observed through the performance of the students (learner's performance).

Reigeluth (1983) clasified taxonomy of learning into three variables that are: the condition variable, the variable methods, and outcome variables. Learning outcome variable is defined as all effects which can be an indicator of the value of the use of learning strategies under different conditions (Degeng, 1989). While according to Gagne and Briggs (1979: 49-50), there are five categories of capability of learning outcomes, namely: (1) intellectual skills, (2) cognitive strategies, (3) verbal information, (4) motoric skills, and (5) the attitude.

While Reigeluth (1983: 15) argued that learning outcomes or learning can also be regarded as an effect that gives a measure of the value of the methods (strategies) alternatives under different conditions, there is a real and desirable results. Furthermore Riegeluth (1983: 94) say specifically, learning outcomes is a performance (performance) is indicated as a capability (capabilities) that have been obtained. The study results are always expressed in terms of goals (special) behavior (performance). Furthermore, according to the learning outcomes Degeng (1989) includes all the effects that can be used as an indicator of the value of learning method under different learning conditions. At a very general level. Learning outcomes can be classified into high namely: (1) the effectiveness, (2) efficiency, and the appeal.

III. METHODOLOGY

3.1 Research Design

The design of the research is experimental method with factorial design 2×2 , where the Flipped Classroom model by using handouts and virtual approach and conventional learning as an independent variable, while the motivation to learn as a moderator variable, learning outcomes as the dependent variable by design "posttest only Control Group Design" since both groups of the experimental class and control class group taken randomly.

3.2 Population and Sample Research

The population in this study is the Universitas Terbuka student practicum courses that cover basic concepts of science. Determination of the experimental class and control class using cluster sampling technique. Students were selected as research subjects by random sampling was taken by 60 students and 60 students were divided into two groups that will receive the model treatment approach Flipped Classroom handouts and the group would be treated with the strategy of Flipped Classroom virtual approach

3.3 Data Analysis

Data analysis technique used in this study is the Analysis of Variance (ANOVA). Factorial ANOVA patterns is analyzed by using computer software Statistical Package for Social Science (SPSS) 20.0 for Windows. This ANOVA was also used to determine the interaction of the two independent variables. Decisions that used to express the influence of independent variables on the dependent variable is based on a significance level $\alpha = 0.05$ (standard error of 5%) or 95% confidence level.

IV. RESULTS AND DISCUSSIONS

All the data were analyzed using Analysis of Variance (ANOVA) and a 2×2 factorial testing is done at significance level of 0.05. Based on the analysis of data, test results of the influence of individual variables are presented in Table 1 below.

Table 1. Descriptive Statistic

| Descriptive Statistics | | | | |
|---------------------------------------|------------|-------|----------------|----|
| Dependent Variable: Learning Outcomes | | | | |
| Flipped Classroom | Motivation | Mean | Std. Deviation | N |
| handout | low | 67.25 | 2.517 | 16 |
| | high | 63.64 | 4.396 | 14 |
| | Total | 65.57 | 3.910 | 30 |
| virtual | low | 81.43 | 7.187 | 14 |
| | high | 92.19 | 3.146 | 16 |
| | Total | 87.17 | 7.621 | 30 |
| Total | low | 73.87 | 8.842 | 30 |
| | high | 78.87 | 14.952 | 30 |
| | Total | 76.37 | 12.437 | 60 |

Based on Table 1, it can be explained that the Flipped Classroom model by using handout approach for students who have low learning motivation generate an average value of 67.25 and for students who have high motivation to learn the value of an average yield of 63.64 with an average total score of 65.57. These results indicate that there are differences in the students who have low learning motivation and high with the Flipped Classroom model by using handout approach.

Flipped Classroom Model virtual approach for students who have low learning motivation generate an average value of 81.43 and for students who have high motivation to learn the value of an average yield of 92.19 with an average total score of 87.17. These results indicate that there are different students who have high and low learning motivation to the treatment model of Flipped Classroom virtual approach.

Table 2. The Effect of Test Results Between Variables

Tests of Between-Subjects Effects

Dependent Variable: Learning_Outcomes

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|--------------------------------|-------------------------|----|-------------|-----------|------|
| Corrected Model | 7959.853 ^a | 3 | 2653.284 | 127.422 | .000 |
| Intercept | 346175.900 | 1 | 346175.900 | 16624.798 | .000 |
| Flipped_Classroom | 6814.353 | 1 | 6814.353 | 327.253 | .000 |
| Motivation | 190.953 | 1 | 190.953 | 9.170 | .004 |
| Flipped_Classroom * Motivation | 770.500 | 1 | 770.500 | 37.003 | .000 |
| Error | 1166.080 | 56 | 20.823 | | |
| Total | 359038.000 | 60 | | | |
| Corrected Total | 9125.933 | 59 | | | |

a. R Squared = .872 (Adjusted R Squared = .865)

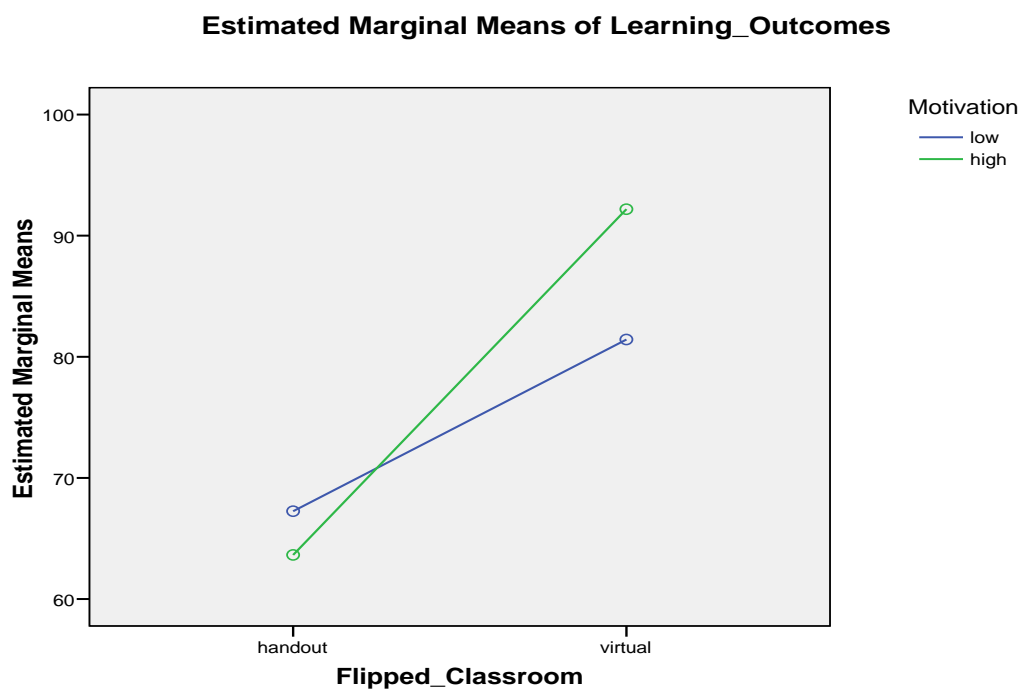
Based on Table 1, it can be explained that the corrected value of 28 159 models with a probability value or significance $0.000 < \text{significance level } \alpha = 0.05$. These results indicate that there is simultaneously a model of the effect of Flipped Classroom and learning motivation on learning outcomes practicum courses basic science concepts at the Universitas Terbuka student. These results can be concluded that the model we tested had a high level of validity.

F-count value obtained from Flipped Classroom models amounted to 327.253 with a probability value or significance $0.000 < \text{significance level } \alpha = 0.05$. This means that there are significant differences for practicum courses on the learning outcome of basic science concepts for Universitas Terbuka students who join Flipped Classroom learning Model by using handout and virtual approaches.

Fcount value obtained through learning motivation is at 9.170 with a probability value or significance $0.004 < \text{significance level } \alpha = 0.05$. This means that there are significant differences practicum courses of basic science concepts on the learning outcome at the Universitas Terbuka students between students who have high motivation to learn with students who have low learning motivation.

Fcount value for the learning model with learning motivation on learning outcomes at Universitas Terbuka is 37 003 with a probability value or significance of $0.023 < \alpha = 0.05$ significance level. This means that there are significant interaction between the learning model with learning motivation practicum courses Science basic concept learning outcomes at the Universitas Terbuka.

The interaction between the learning model with learning motivation for learning outcomes practicum courses basic science concept of the Universitas Terbuka students can be seen in Figure 1 below:



In Figure 1 above, it indicates that the two curves are not parallel but intersect. This means there is an interaction between the Model Flipped Classroom learning motivation for learning outcomes practicum courses basic concept of the Universitas Terbuka Science Students. It can be concluded that the hypothesis "There is interaction between the Flipped Classroom Model on the learning motivation for practicum courses of basic science concept learning outcomes at the Universitas Terbuka can be accepted.

V. DISCUSSION

The Differences of Flipped Classroom Model by Using Handout Approach and Virtual Approach on the Learning Outcomes for Practicum Course of Basic Science Concepts at Universitas Terbuka.

This study has revealed that there are differences in learning outcomes at Universitas Terbuka, who taught using Flipped Classroom method by using handouts and virtual approach. The application of the model Flipped Classroom virtual approach

significantly student creativity can be generated as well as the students' attention to the problem and provided excellent learning. This finding is consistent with research results Yujing (2015) showed that there were significant differences empowering students in the experimental class and control the learning model Flipped Classroom. Osman, et al (2014) shows that there are differences in student achievement in traditional classroom by classroom Flipped Classroom. Basal (2015) concluded that English teachers have a positive perception of Flipped Classroom, where it has four benefits for Flipped Classroom such as students to learn by themselves, face their preparation, can overcome the limitations of class time and increase participation in the classroom. Kadry and Hami (2014) that the implementation of the Flipped Classroom model has a positive experience, and make students perform better than with conventional learning. Roehl and Linga (2013) concluded that as the instructor who will use the new strategy, it is very important in education which is reflected in effective learning. Activity of learning and flipped classroom learning strategy that uses technology, students will develop their creative thinking abilities in higher level.

Learning Motivation In Achieving Learning Outcomes

This study has revealed that there are differences in learning outcomes for students at Universitas Terbuka, which has a high learning motivation and who have low learning motivation. Learning outcomes achieved by the student is reflected by cognitive ability of students to understand the lessons, but many psychological factors that also affect learning outcomes. One factor in student self psychology that affect learning outcomes is learning motivation. Students who have the cognitive ability is quite high if the learning motivation is less then the learning outcome obtained will not be maximized. Learning motivation can present itself of the student or it could also be generated by the environment or the people around them. People who are around students are parents, family, friends and teachers when providing learning class.

Learning motivation to learn be a very important factor for the learning motivation in self-learners will accelerate the achievement of objectives. The teacher was absolutely obliged to always try to raise student motivation to learn. In behaviorism theory stated that motivation to keep learning is driven by external incentives, so that in the learning process teachers should be able to provide appreciation and incentive nature as external motivation for learners.

Students who are motivated to learn will appear always active in class and the courage to express opinions, and be able to respond to the problems that it faces. This finding is consistent with results of previous studies conducted by Ali, (2011) showed a significant relationship between learning motivation and achievement that is in the group of higher learning motivation of students obtained average value 64.05 and a low learning motivation group obtained average value 52, 78. Research conducted by Lee, (2010) about the learning motivation, quality of teaching and peer learning on learning achievement. This study provides the results of their significant influence between learning motivation and achievement. Bugge and Wikan (2013) stated the motivation is very influential on improving the learning outcomes of students. Learning conditions which include facilities and infrastructure are essential

substances that affect the motivation to learn. Mr. Chin, Tsai, and Cheng. (2005) suggested that the learning model varying able to increase student motivation than traditional learning. Mr. Chin, Tsai, and Cheng. (2005) found evidence that student motivation is high, medium and low did not show a significant difference in the total score students' motivation toward science learning (SMTSL).

The Interaction between Flipped Classroom Method and Learning Motivation on Learning Achievement

Based on the analysis, it can be known that there are significant interaction between Flipped Classroom method with learning motivation for the learning outcomes of practicum courses of basic science concept at Universitas Terbuka. Nowadays, lots of practice of learning model application that are not included with the thought that spychologis factors has enough effect on the success in the classroom. Innovative learning models can be effectively implemented if the students also have the passion and drive to follow all of the learning process. Lecturers are now much more refers to the idea that the learning process goes well when all the indicators that have been compiled reached. Therefore, students just proceed to learn when you are on campus. Once the students are outside the campus, they have no passion for learning, so that the lecturer are expected to provide learning motivation during the lecturing is conducted.

This finding is consistent with results of previous studies conducted by Abeysekera and Dawson (2015) that the Flipped Classroom is able to increase students' motivation and cognitive. Halili and Zainuddin (2015) concluded that the method of Flipped Classroom students become more motivated and confident when discussing the material in class because they have put up with watching videos before coming to class, classroom activities become more student-centered rather than teacher-centered because teachers only act as a facilitator. Roehl, Amy and Shweta Linga (2013) concluded that the flipped classroom learning students can develop higher thinking skills. Pierce, Richard and Jeremy Fox (2012) concluded that applying the model flipped classroom resulted in increasing students' performance.

VI. CONCLUSION

Based on the research that has been carried out, it can be concluded that there are differences in students' learning outcomes at Universitas Terbuka, who are taught using Flipped Classroom Model by using handouts and virtual approach, there are differences in students' learning outcomes at Universitas Terbuka that are highly motivated and who have a low learning motivation and there is interaction of Flipped Classroom Model with learning motivation for the students' learning outcomes at Universitas Terbuka. The lecturer of practicum basic science concept should design a good learning methods and accordingly, starting from preparation to evaluation. Lecturers of practicum basic science concept are suggested that basic concept can be applied by using Flipped Classroom as one of the methods that can be used in

teaching practicum courses basic science concepts to enhance learning motivation and learning outcomes for practicum courses of basic science concepts. At last, the campus should give more motivation and facilitating university lecturers in teaching so that they can be creative in using a variety of learning methods are creative and innovative and are expected to improve the quality of learning, especially in increasing the motivation and learning outcomes.

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