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The Impact Of Flipped Classroom Combined With Problem Based Learning On Learning Motivation And Learning Independent

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Abstract

This research to investigate the impact of flipped classroom combined with problem based learning on student's learning motivation. This study used a quasi-experiment with research subjects consisting of sixty-five students at Islamic junior high school who were not randomly selected. The study was conducted by dividing the subjects into two study groups. The study was conducted during 4 meetings in each group to determine the extent of the development of student's motivation and independent learning. Data collection was carried out using questionnaires, data analysis using normality tests of Kolmogorov-Spirnov tests, homogeneity tests of Levene tests and hypothesis tests using independent sample t-test. The findings in this study showed that the experimental group namely the flipped classroom combined with problem-based learning obtained a higher learning motivation score as well as learning independent one compared to the control group. It is concluded that there is a significant effect of the application of flipped classroom combined with problem-based learning on student's learning motivation and learning independent at subject of fiqih in Islamic state junior high school 1 Jombang.

Key words: *Flipped Classroom, Problem Based Learning, Learning Motivation.*

INTRODUCTION

All learning process activities have been integrated with the existence of information and communication technology, various infrastructure facilities are also assisted by their existence, teaching materials and literacy resources are easily accessible online by students, group rooms become wider, learning time becomes more free and many others. that there is a shift in the learning process with the development of information and communication technology, including: from teaching to training, assignment and appearance, from group rooms to anywhere and anytime, from paper devices to channels or online, physical facilities to network facilities, from time to real time cycles (Huda, 2020).

Fiqih is an Islamic education, which is not only learning the theory given, but training and familiarizing students to be able to know and understand the ways of implementing the pillars of Islam or other worship. Subject matter of Fiqih invites students to carry out or respond to something according to the provisions of Islamic teachings, with the aim that students are able to understand[1] and apply laws according to Islamic teachings in their daily lives (Lutfi & Usamah, 2019). Thus, most of Fiqih (subject matter) must be well delivered to students so that learning becomes meaningful, well noted in their hearts in order that all things they do in their daily lives lead to a concept that everything has provisions based on Islamic law.

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Based on factual condition, it could be described that students are still less both enthusiastic and active in understanding teaching material if there is no connection between the material and phenomena related to their daily lives. Their learning motivation is totally unstable. It could go up and down depends on the subject matter. Once the students are tested, the provided answers do not match the question. Furthermore, when given a test requiring their independent learning, they don't learn at all unless in class meeting. Other studies invented that Fiqih teachers still teach conventionally (through lecture techniques, questions and answers) and the learning process is still teacher-centered, this shows that conventional teaching results in ineffective and unvaried learning that ends up making students as passive objects (Hidayah & Langkat, 2022). This phenomenon shows that styudent's learning motivation is still uncertain when understanding the presented material and they are not set to conduct independent learning. Further, the learning model used by teachers is still dominated by lectures and demonstrations, in other words, learning process is still teacher-oriented, not students.

Motivation is basic drive which stimulates person to do something (Azrai et al., 2018). Learning is a mental activity that occurs in active interaction between a person and his environment, which results in changes in the form of knowledge, understanding, skills, values that are relatively constant, impactful and meaningful as well (Wandini & Sinaga, 2018). Motivation and learning are two things that cannot be separated because learning requires motivation to support learning itself. Learning motivation is a set of efforts to condition a certain atmosphere so that someone wants to do something in their learning process. Learning motivation refers to a desire that arises within students or from outside to be involved in the learning process so that the goal is totally achieved(Efendi et al., 2023). The learning objectives are based on ambitions, needs, expectations, appreciation, desires, and learning environments (Farisi et al., 2023). If it feels inappropriate then it will eliminate that sense of incompatibility to be transformed into a sense of appropriateness, with learning motivation will improve the quality of learning and learning outcomes of students. Learning motivation is a non-intelectual factor inner the students (psychic) who has a distinctive role in fostering interest, pleasure and enthusiasm for learning (Mayasari et al., 2021). It is necessary to choose a learning model so that learning motivation can be increased in Fiqih subject and solves existing problems. There is a learning model that is integrated with the current development of information and communication technology, namely a combination of flipped classroom models and problem-based learning.

The concept of independence is based on a sense of self-independence or a person's point of view about the level of skill in handling a problem. Independence is a desired competency, but it cannot appear suddenly, it requires a relatively long to practice. It needs effort to create a conducive and effective atmosphere to help accelerating the development of student's independence. Students are considered having true learning independence if they consistently maximize their skills in learning (Fitriasari et al., 2018). The concept of learning independence refers from the word of "independent", that means to stand alone, or a state where the individual arranges or directs himself to do something according to his will(Sholeh, 2023). Learning independence is the process of learning in individuals and their efforts to achieve learning objectives, actively behave and do not depend on others, including their teachers (Ningsih & Nurrahmah, 2016). Learning independence is a learning activity carried out by an individual with his freedom in managing, sorting and determining his own needs starting from teaching materials, places, times and learning resources needed (Aulia et al., 2019). The existance of student's learning independence drives them toward a couple of skills. for instance, it can encourage more active learning, higher motivation and individual's independent so that no need to lean on others. Further, Students are able to analyze things carefully and evaluate their learning outcomes as well. So, an individual with high learning independence, most likely able to manage his learning activities, such as preparation, implementation till evaluation.

Flipped classroom is part of the rotation model because it rotates learning activities that were originally carried out in groups and then rotated (reversed) carried out outside the group anywhere and anytime without limits, and vice versa. Flipped Classroom is based on

the process of implementing groups at home and doing homework at school (Günbatar, 2021). Flipped classroom is a transformation of the teaching process from traditional learning as its main reference to be defined as a new model and process. Students can review and understand the subject matter through electronic teaching materials before entering the group, they can learn independently, can learn together with their friends (Zhang et al., 2021). Problem-based learning is learning based on the principle that problems can be used as a starting point to acquire or combine new knowledge (Febiani Musyadad et al., 2019).

Problem-based learning is effective teaching involving learners to learn from a problem (Chang et al., 2022). Problem-based learning is learning which is characterized with providing real problem for students to encourage them to think critically and solve the problem as well as to gain knowledge (Susanto, 2020). The shortcomings and weaknesses of problem-based learning in its implementation can be maximized by combining it with a flipped classroom. Flipped classrooms can make up for the shortcomings of problem-based learning compared to traditional groups. Students in flipped classrooms consistently show more satisfaction and more positive academic outcomes, motivation and engagement during the learning process (Hu et al., 2019). Thus this learning combination will be very good if applied together in learning.

The application of a combination of flipped classroom and problem-based learning Fiqih subject will provide new learning innovations because of the integration of two learning situations, namely online and offline one. The online learning refers to carrying out the flipped classroom, meanwhile the offline one refers to carrying out the problem-based learning steps. The application of flipped classroom and problem-based learning comes with several advantages. (1) it is able to train students to learn independently, motivate students in their overall learning, (2) train students' skills in problem solving, (3) provide ease of learning for teachers and specially students regarding the freedom of time and place in understanding Fiqih Subject matter independently through teaching materials provided by teachers before class begins, (4) reduce problems in the process of teaching and learning such as boredom of students, (5) train problem-solving skills related to the material taught. By applying a combination of flipped classroom and problem-based learning in fiqih subject, it would provide new innovations in learning activities and become the right learning solution in solving problems, especially in Fiqih subject. The purpose of the study is to analyze the presence or absence of the effect of flipped classroom combined with problem-based learning on student's learning motivation in Fiqih subject.

METHOD

Research Design

This research variable is a combination of flipped classroom with problem based learning as the independent variable and learning motivation as the dependent variable. Quasi-experimental research is designed to determine the effect of the combination of flipped classroom with problem-based learning on student's motivation and learning independence in fiqih subject conducted in the experimental group and the conventional learning conducted in control group. The study was conducted for 4 meetings in each group to determine the extent of student's motivation in Fiqih subjects. The experimental group started the lesson before the group started (at home / outside the group) by being given material by the teacher through whatsapps groups, then they were given a test to find out their basic understanding. When in groups, they are divided into several sub groups where they discuss a problem given by the teacher and solve it. The results of group work are then presented accompanied by evaluation and reflection. The control group started learning in the group with delivered activities from the teacher, then a question and answer session regarding the material presented, then given a test to test their understanding, then followed by reflection and closing.

Population and Sample/ Study Group/Participants

The research was conducted at Islamic State Junior High School 1 Jombang, Indonesia. The fact that studies at this location cannot be randomly selected for experimental and control groups. Thus, the right choice is to use quasi-experiments with nonequivalent pre-test post-test group designs. Quasi-experimental research is research carried out to see a certain variable with other variables under certain conditions that have a control group but cannot function fully as a control because the sample is not randomly selected. The subjects of this study consisted of an experimental group of 65 people and a control group of 65 people.

Instruments

The instrument used in this study was a questionnaire with 14 questions about learning motivation. The learning motivation questionnaire instrument was adjusted to the indicators, namely: a. having the desire and willing to succeed, b. having the drive to learn, c. having future goals, d. providing rewards in learning, e. providing interesting learning activities, f. it is required a conducive learning atmosphere (Nasrah, 2020). The learning independence questionnaire instruments are consist of several points, namely: (a) self-concept as an effective learner, (b) openness to learning opportunities, (c) being initiative and independent in learning, (d) having sense of responsibility for independent learning, (e) loving the learning process, (f) having creativity, (g) having basic skills of learning and problem solving, (h) positively future oriented (Belawati et al., 2023). The hypotheses used in this study are:

Ho = There is no significant effect of the application of the combination of flipped classroom with problem-based learning on student learning motivation.

H_1 = There is a significant effect on the application of a combination of flipped classroom with problem-based learning on student motivation.

Data Collection and Data Analysis

Data related to student learning motivation were obtained through questionnaires. Data collection using this questionnaire aims to measure a person's ability. Previously, the questionnaire question items had been validated by expert validators and declared valid. Data from pre-test and post-test questionnaires in experimental and control groups were then given prerequisite tests, namely normality tests and homogeneity tests in each group. Furthermore, it was tested using an independent sample t test to see the comparison of results before and after treatment from both groups. This aims to assess whether there is a statistically significant difference in student's learning motivation and independence.

FINDING AND DISCUSSION

Validity and Reliability

After obtaining data on the validity and reliability of the questionnaire items, data collection is then carried out. Before the data is analyzed using the t-test, a prerequisite test is carried out first by performing a normality and homogeneity test. The preparation of questionnaires to measure student learning motivation was adjusted to 14 indicators and the preparation of questionnaires to measure student independent was adjusted to 16 indicators. Before being given to students, the questionnaire is first tested for validity and reliability. The validity test of the learning motivation questionnaire items using the product moment correlation test which then the r-count results are associated with the r-table with a significant level of 0.05 or 5%. The overall validity test results can be declared valid based on the following data:

Table 1. Result of validity test of learning motivation questionnaire items

Item Number	r-count	r-table	Remark
1	0.4369	0.2441	Valid
2	0.5136	0.2441	Valid
3	0.3794	0.2441	Valid
4	0.3565	0.2441	Valid
5	0.4097	0.2441	Valid
6	0.3769	0.2441	Valid
7	0.4164	0.2441	Valid
8	0.4093	0.2441	Valid
9	0.5013	0.2441	Valid
10	0.3560	0.2441	Valid
11	0.4066	0.2441	Valid
12	0.4950	0.2441	Valid
13	0.3769	0.2441	Valid
14	0.3971	0.2441	Valid

After testing the validity of the questionnaire items in table 1 and the data in the table showed that 14 items were declared valid in total, so that all items could be used in data collection. Furthermore, reliability tests were carried out, to determine the reliability of all these items as presented in table 2:

Table 2. Results of reliability test items of learning motivation questionnaire

Cronbach's Alpha	N of Items
.639	14

The results of the reliability test with Cronbach's Alpha on the learning motivation questionnaire item obtained a score of 0.639 > 0.050. This shows that the questionnaire items are declared reliable

Table 3. Result of validity test of learning independent questionnaire items

Item Number	r-count	r-table	Remark
1	0.4534	0. 2441	Valid
2	0.4812	0. 2441	Valid
3	0.3157	0. 2441	Valid
4	0.3920	0. 2441	Valid
5	0.4125	0. 2441	Valid
6	0.3387	0. 2441	Valid
7	0.3835	0. 2441	Valid
8	0.4588	0. 2441	Valid
9	0.5090	0. 2441	Valid
10	0.3676	0. 2441	Valid
11	0.4166	0. 2441	Valid
12	0.4819	0. 2441	Valid
13	0.3863	0. 2441	Valid
14	0.4151	0. 2441	Valid
15	0.3387	0. 2441	Valid
16	0.3835	0. 2441	Valid

After testing the validity of the questionnaire items in table 3 and the data in the table showed that 16 items were declared valid in total, so that all items could be used in data collection. Furthermore, reliability tests were carried out, to determine the reliability of all these items as presented in table 4

Table 4. Results of reliability test items of learning motivation questionnaire

Cronbach's Alpha	N of Items
.678	16

The results of the reliability test with Cronbach's Alpha on the learning motivation questionnaire item obtained a score of 0.678 > 0.050. This shows that the questionnaire items are declared reliable

Prerequisite Test

Looking at table 5, the average pretest score for the experimental and control groups is obtained. On average, the experimental group got a score of 38.05, while the control group got a score of 37.88. And shows that the experimental group got a mean score of 50.02 and the control group got a score of 45.69.

Tabel 5. Pre-test and Posttest learning motivation score descriptive statistics

Pretest		Posttest	
Group	**Average**	**Group**	**Average**
Exp	38.05	Exp	50.02
Ctrl	37.88	Ctrl	45.69

After collecting the research data, then the data were given prerequisite tests to determine normality and homogenity as presented in table 6 & 7 before the data was analyzed using an independent sample t-test.

Table 6. Normality test for post-test scores

		Experiment	Control
N		65	65
Normal Parameters[a,,b]	Mean	50.02	45.69
	Std. Deviation	5.719	5.318
Most Extreme Differences	Absolute	.122	.095
	Positive	.082	.095
	Negative	-.122	-.074
Kolmogorov-Smirnov Z		.985	.764
Asymp. Sig. (2-tailed)		.286	.604

Table 7. Homogenity test for post-test scores

Levene Statistic	df1	df2	Sig.
1.229	1	128	.270

The normality test results using the Kolmogorov-Smirnov test in table 6 showed a score of 0.286 > 0.050 in the experimental group and a score of 0.604 > 0.050 in the control group. The homogeneity test using the Levene test in table 7 showed a significance gain of 0.270. The data that has been collected is normally distributed and homogeneous for further analysis using an independent sample t-test

Table 8. Independent samples t-test for post-test scores

			Posttest Questionnaire	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances		F	.272	
		Sig.	.603	
t-test for Equality of Means		t	4.463	4.463
		df	128	127.330
		Sig. (2-tailed)	.000	.000
		Mean Difference	4.323	4.323
		Std. Error Difference	.969	.969
	95% Confidence Interval of the Difference	Lower	2.407	2.406
		Upper	6.240	6.240

Based on the results of the independent sample t-test presented in table 8 shows that the t value for the two groups is 4.4 > 1.6 which shows a statistically significant difference. The significance value / p value obtained 0.000 < 0.05 which indicates a significant difference in learning motivation between groups learned using a combination of flipped classroom with problem-based learning compared to groups without the model.
Looking at table 9, the average pretest score for the experimental and control groups is obtained. On average, the experimental group got a score of 42.95, while the control group got a score of 41.06. And shows that the experimental group got a mean score of 53.26 and the control group got a score of 51.35.

Tabel 9. Pre-test and Posttest learning independent score descriptive statistics

Pretest		**Posttest**	
Group	**Average**	**Group**	**Average**
Exp	42.95	Exp	53.26
Ctrl	41.06	Ctrl	49.18

After collecting the research data, then the data were given prerequisite tests to determine normality and homogenity as presented in table 6 & 7 before the data was analyzed using an independent sample t-test.

Table 10. Normality test for post-test scores

Levene Statistic	df1	df2	Sig.
1.718	1	128	.192

Table 11. Homogenity test for post-test scores

		Experiment	Control
N		65	65
Normal Parameters[a,,b]	Mean	53.26	49.18
	Std. Deviation	6.127	7.161
Most Extreme Differences	Absolute	.119	.084
	Positive	.082	.074
	Negative	-.119	-.084
Kolmogorov-Smirnov Z		.963	.677
Asymp. Sig. (2-tailed)		.312	.749

The normality test results using the Kolmogorov-Smirnov test in table 10 showed a score of 0.312 > 0.050 in the experimental group and a score of 0.749 > 0.050 in the control group. The homogeneity test using the Levene test in table 11 showed a significance gain of 0. 192. The data that has been collected is normally distributed and homogeneous for further analysis using an independent sample t-test

Independent Samples Test

Table 12. Independent samples t-test for post-test scores

			Angket_Posttest	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances		F	1.718	
		Sig.	.192	
t-test for Equality of Means		t	3.488	3.488
		df	128	125.009
		Sig. (2-tailed)	.001	.001
		Mean Difference	4.077	4.077
		Std. Error Difference	1.169	1.169
	95% Confidence Interval of the Difference	Lower	1.764	1.763
		Upper	6.390	6.390

Based on the results of the independent sample t-test presented in table 8 shows that the t value for the two groups is 3.4 > 1.6 which shows a statistically significant difference. The significance value / p value obtained 0.001 < 0.05 which indicates a significant difference in learning independent between groups learned using a combination of flipped classroom with problem-based learning compared to groups without the model

DISCUSSION

The study was conducted in 4 meetings in each group. The experimental group started the lesson before the group (home / outside the group) with the lesson material given by the teacher through whatsapps groups, then they were given a test to find out their initial understanding. When in the group, they are divided into several subgroups which then discuss and solve problems given by the teacher. The results of group work are presented and followed up with evaluation and reflection. The control group started learning in the group with the delivery of learning from the teacher, then a question and answer session about the material presented, followed by a test to know their understanding, and ended up with reflection and closing. At the 1st meeting, the experimental and control groups were given the first learning motivation and learning independence questionnaire to determine the initial ability of students. In 2nd and 3rd, it remains to conduct the same learning in each group. At 4th meeting, a second learning motivation questionnaire was given to determine whether there was an effect on student's learning motivation and learning independence.

The results of student's learning motivation pretest data obtained an average experimental group of 38.05 and a control group of 37.88. This shows that both groups of abilities were originally still low. The results of the posttest analysis obtained an average of 50.02 in experimental groups and 45.69 in control groups. This showed an average increase in both groups, but higher in the experimental group than in the control one after the treatment given.

Prerequisite test results; The normality test using the Kolmogorov-Spirnov on the student's learning motivation obtained significance scores in the experimental group 0.286 and the control group 0.604. This shows that both scores exceed 0.05, thus both score group data are normally distributed. The homogeneity test results using the Levene test obtained significance scores in the experimental group and the control group was 0.270. This shows that both scores exceed 0.05, thus both score data are homogeneous. With data that is normally distributed and statistically homogeneous, it can be proceeded to the hypothesis test using the Independent Sample T-Test.

The results of the independent sample t test showed that the H0 hypothesis was rejected and H1 was accepted. In other words, there is a significant effect on the application of a combination of flipped classroom with problem-based learning on student learning motivation. This is supported by previous research showing that flipped classrooms with problem-based learning have an effect on interaction with learning motivation (Sinmas et al., 2019). Not only learning motivation is affected, but in general learning outcomes increase and create a new atmosphere that makes learning more innovated and fun. This is supported by research that shows that the combination of flipped classroom and problem-based learning is effective as it increases students' knowledge and provide fun learning (Chis et al., 2018). Other studies have shown that the combination of flipped classroom and problem-based learning is effective in improving learning skills (Wang et al., 2022).

The advantage of flipped classrooms with problem-based learning is that it provides opportunities for students to discuss with their peers regarding problems that must be solved, but with a note that teachers send teaching materials to students as learning resources long before attending class (Damayanti et al., 2020). Based on the advantages offered, it is expected that students can get concepts that can be used for problem solving. Learning independently through teaching materials that have been sent before class meetings can increase student motivation.

The Increase of student's motivation in the application of flipped classroom with problem-based learning is due to advantages of these two learnings. Problem-based learning has an effect on building strong learning motivation. Students are included in a reality which does not mean getting out of the theory discussed. They also learn social and communicative skills and verbal interaction within group (Berkel & Henk, 1999). Problem-based learning sees "problems" as material to motivate learning. Students follow the framework of the problem to learn and explore as well as to build their knowledge. Learners are actively guided in problem solving. The teacher guides them to form a discussion group to explore the problems given and find relevant solutions (Chang et al., 2022). From the point of

application of flipped classrooms have succeeded in combining a more flexible learning atmosphere, student-centered approach and learning independent atmosphere that suits students' skills (Safitri et al., 2022). The explanation above provides information that flipped classroom and problem-based learning can hugely affect student's motivation.

The results of data analysis of learning independence in the pretest obtained an average in experimental group of 42.95 and a control group of 41.06. It states that the two groups of initial abilities are still low. The results of the posttest analysis obtained an average of 53.26 experimental groups and 49.18 control groups. This showed an average improvement in both groups but was higher in the experimental group than in the control group after treatment.

The results of the prerequisite test, namely the normality test using the Kolmogorov-Spirnov test on the learning independence questionnaire, obtained significance scores in the experimental group 0.312 and the control group 0.749. This shows that both scores exceed 0.05, thus both score group data are normally distributed. The results of the homogenity test using the Levene test obtained significance scores both in the experimental group and the control group was 0.192. It indicates that both scores exceed 0.05, thus both score data are homogeneous. By being normally distributed and statistically homogeneous, it can proceed to the hypothesis test stage using the Independent Sample T-Test.

The results of the independent sample t test showed that the H0 hypothesis was rejected and H1 was accepted. In other words, there is a significant influence of the application of a combination between flipped classroom with problem-based learning on student learning independence. The results showed that problem-based learning combined with flipped classrooms can improve learning independence skills, collaborative communication, critical thinking and increase academic achievement as well (Chi et al., 2022). Another study shows that there is an influence of problem-based learning on the learning independence of grade VII students at junior high school Widiatmika by obtaining a significance value of 0.046 with a significance value of 0.05 (Astikawati et al., 2020). The results of the studies above provide information that the application of flipped classrooms and problem-based learning has a significant impact on student's learning independence. The influence of flipped classrooms with problem-based learning on learning independence is due to the use of information and communication technology around students that can overcome the location and learning time issue that is very useful to support learning independent of students anywhere. Supported by the explanation that flipped classroom learning is not only carried out in the classroom, but there is the use of technology which is a solution to limited time and space that supports learning independent and learning speed in children (Tawfik & Lilly, 2015).

Increased learning independence in the application of flipped classroom is due to its characteristics which has been very helpful to support children's learning independent activities. here are some handy characteristics that stated above: (a) students are active in their learning, (b) technology facilitates the learning independent process, (c) online material is provided before the class meeting, (d) real-world problems are assigned to students, (e) time allocation is given for direct instruction and still accompanied by the teacher's guidance (Davies et al., 2013).

The increasing independence of learning in the application of problem-based learning is due to activities that invite students to think deeply in analyzing problems and continue to find out various sources of information then process the data which then maps suitable answers to solve the problems. In addition, students are also actively involved in the learning process so that it causes fun learning. Problem-based learning focuses students by directing and guiding them to become independent individuals and actively involved directly in groups. Flipped classroom with problem-based learning also develops students' thinking skills in finding solutions to solve problems rationally and authentically, so that they are able to train and develop learning independence accompanied by learning together with their groups (Wulandari, 2015).

CONCLUSION

The application of a combination between flipped classroom and problem-based learning in fiqih subject in Islamic State Junior High School 1 Jombang showed a significant effect on student's learning motivation and learning independent in the experimental group compared to the control group that applied the conventional learning model

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