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Implementation of Flipped Classroom as an Innovative Learning Strategy to Increase Independence and Concept Understanding of MPI Study Program Students

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Abstract: This study aims to examine the effectiveness of the Flipped Classroom learning model in improving learning independence and concept understanding of students of the Islamic Education Management (MPI) Study Program. The research used a quantitative approach with a pseudo-experimental method through a pretest-posttest control group design. The sample consisted of 50 students who were divided into two groups, 25 students in the experimental group and 25 students in the control group. The research instruments were concept understanding test and learning independence questionnaire. Data analysis used independent sample t-test, Wilcoxon, Mann-Whitney, and N-Gain analysis. The results showed a significant increase in students' concept understanding in the experimental group with an average posttest of 81.10 and an N-Gain score of 0.5269, compared to the control group which had an average value of 67.78 and N-Gain 0.2887. The t-test produced a p value = 0.000, indicating a significant difference. In terms of learning independence, there was an increase in indicators of initiative, time management, and independent responsibility. As many as 92% of experimental group students were in the medium category and 8% in the high category. These results confirm that Flipped Classroom is effective in the context of MPI learning which demands a reflective, independent, and technology-based approach.
***Keywords**:* Flipped Classroom, MPI, learning independence, concept understanding, Islamic higher education

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Introduction

The development of digital technology has driven a major transformation in the world of higher education, demanding the implementation of learning strategies that are more innovative, active, and adaptive to the needs of 21st century learners (Purwitha, 2020). One approach that has received widespread attention is the Flipped Classroom model, which reverses the traditional role of learning activities between inside and outside the classroom. In this approach, students first learn the material through learning videos, digital modules, or reading materials independently before face-to-face sessions. Class meeting time is then used for interactive activities, such as discussions, problem solving, or group work that deepens concept understanding (Kharis et al., 2023; Wijaya et al., 2021).

The Flipped Classroom approach is considered effective in improving students' concept understanding because it allows for more flexible and in-depth exploration of the material (Alfad & Susanto, 2022; Hidayat & Ningsih, 2022; Rahman & Saparuddin, 2022). On the other hand, this model also fosters learning independence, as students are required to be responsible for their own learning process. These aspects are very important for students of the Islamic Education Management (MPI) Study Program, who are not only required to master educational and managerial theories, but also be able to think critically, reflectively, and become lifelong learners.

Various previous studies have shown that Flipped Classroom has a positive impact on learning outcomes and student competency development. (D. Latifah et al., 2023) found that this approach supports the concept of Merdeka Belajar and encourages increased student independence in elementary schools. (Putra, 2021) showed that this model is effective in improving critical thinking skills through differentiation strategies, while (Suci et al., 2022) proved that the integration of Project Based Learning with Flipped Classroom resulted in a significant increase in students' critical thinking skills. In addition, (Muhammad Fajar B et al., 2023) noted an increase in student effectiveness and learning outcomes through the integration of technology in Flipped Classroom, and (Rusnawati, 2020) reported that this model contributed to student learning outcomes and motivation at the vocational level. The research by (Rachmawati, 2022) and (Yakob et al., 2023) also showed that Flipped Classroom can significantly improve students' speaking skills.

Although a number of studies have proven the advantages of Flipped Classroom in various contexts, research gaps are still found in the context of MPI Study Program students. Most of the previous studies focused on primary and secondary education, or on exact and vocational fields. Until now, not many studies have explicitly evaluated the application of Flipped Classroom in the context of Islamic and managerial learning in higher education, especially for MPI students who have unique challenges in integrating conceptual aspects, religious values, and educational practices.

This research specifically highlights the integration of the Flipped Classroom model in the context of the MPI Study Program, focusing on two main indicators, namely concept understanding and learning independence. This research not only makes a theoretical contribution to the development of innovative learning models in Islamic higher education, but also a response to the direction of Merdeka Belajar policy which emphasizes flexibility, independence, and the use of technology in the learning process.

Based on this description, this study aims to analyze the implementation of Flipped Classroom as an innovative learning strategy in increasing the independence and concept understanding of students of the Islamic Education Management Study Program. The results of this study are expected to make a real contribution to improving the quality of learning in Islamic universities and become a reference in developing more adaptive and transformative learning policies and practices.

Method

This research used a quantitative approach with a quasi-experimental design. The research design used was pretest-posttest control group design, which involved two groups, namely the experimental group that followed the learning using the Flipped Classroom model, and the control group that followed the learning with the conventional model. Each group consisted of 25 students of the Islamic Education Management Study Program (MPI) in one of the Islamic universities. The determination of subjects was done by purposive sampling technique, considering the equality of initial abilities and the availability of students to follow the entire series of research.

The instruments used in this study include concept understanding tests, learning independence questionnaires, and classroom activity observation sheets. Concept understanding test, which was developed based on specific course learning outcomes in the MPI curriculum. This test contains questions based on understanding, application, and analysis of core concepts. Learning independence questionnaire, which uses a Likert scale (1–5), including indicators such as learning initiative, time management, academic responsibility, and perseverance in completing tasks independently. Classroom activity observation sheet, which is used to record students' involvement in discussion activities, group work, and lecturer-student interaction during the learning process. The instruments used in this study include concept understanding test, learning independence questionnaire, and classroom activity observation sheet.

The research procedure was carried out in four main stages. First, the preparation stage included the preparation of Flipped Classroom-based learning tools, development of digital videos and modules, making research instruments, and coordination with lecturers and students. Second, the pretest stage was conducted to measure the initial level of concept understanding and student learning independence in both groups. Third, the intervention stage where the experimental group followed learning using Flipped Classroom, which began with independent learning through videos and reading materials before class sessions, followed by discussion and problem-solving activities during face-to-face lectures. Meanwhile, the control group carried out conventional learning without prior self-learning activities. Fourth, the posttest stage was conducted to measure changes in concept understanding and learning independence after the intervention, complemented by classroom observations to support quantitative findings.

The data obtained were analyzed with descriptive and inferential statistics. Descriptive statistics were used to present the mean value, standard deviation, and data distribution. To test hypotheses related to concept understanding, independent sample t-test was used to compare posttest results between experimental and control groups, as well as NGain analysis to measure the effectiveness of improvement in each group. Meanwhile, for data on learning independence, the Wilcoxon Signed-Rank Test was used to determine changes in one group and the Mann-Whitney U Test to compare changes between two groups. The entire analysis process was carried out with the help of statistical software such as SPSS to ensure the accuracy and validity of the research results.

Results and Discussion

This study aims to analyze the effectiveness of the Flipped Classroom learning model in improving learning independence and concept understanding of students of the Islamic Education Management (MPI) Study Program. Data were obtained from two groups of students, namely the experimental group who received treatment with the Flipped Classroom model, and the control group who received conventional learning. The following table shows the results of descriptive statistical analysis for data obtained from a sample of 50 respondents, 25 in each group. Descriptive statistics provide an overview of the results and classes, including the mean, standard deviation, and minimum and maximum values.

Table 1. Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Results	50	45	92	67,78	10,712
Class	50	1	4	2,50	1,124
Valid N (listwise)	50				

Table 1 shows that the results of descriptive analysis indicate that the average value of students' overall concept understanding is 67.78 with a standard deviation of 10.712, a minimum value of 45, and a maximum of 92. This reflects a fairly high variation in student learning outcomes. Meanwhile, the distribution of students in class categories showed an average of 2.50 with a standard deviation of 1.124, indicating an even distribution of respondents between the two groups.

Before conducting the difference test between the groups, the data were first tested for normality and homogeneity. The normality test results showed that the data from both groups were normally distributed. The homogeneity test using Levene's Test resulted in a significance value of 0.075 ($p > 0.05$), which means that the variance of the two groups is homogeneous. Thus, the analysis continued using the Independent Samples t-test which is presented in Table 2 below.

Table 2. Independent Samples t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil	Equal variances assumed	3,307	,075	10,085	48	,000	13,320	1,321	15,976	10,664
	Equal variances not assumed			10,085	42,903	,000	13,320	1,321	15,984	10,656

The t-test results show that there is a significant difference in the average learning outcomes between the experimental and control groups. The t value is 10.085 with a significance of 0.000 ($p < 0.05$), as well as an average difference of 13.320 points with a 95% confidence interval between 10.664 and 15.976 which indicates that the treatment in the experimental group has a positive effect on the understanding of the concepts tested. This indicates that learning with the Flipped Classroom model has a more positive impact on student concept understanding compared to conventional learning. This shows that MPI students who take part in learning with the Flipped Classroom approach have a better understanding of the concept, because they have explored the material first before participating in discussions and direct applications in class. Furthermore, the N-Gain test will be conducted to see the effectiveness of increasing concept understanding in each group.

Table 3. Descriptive N-Gain Test

Descriptives

	Kelas			**Statistic**	**Std. Error**
N_Gain	Control	Mean		,2887	,01298
		95% Confidence Interval for Mean	Lower Bound	,2620	
			Upper Bound	,3155	
		5% Trimmed Mean		,2937	
		Median		,3000	
		Variance		,004	
		Std. Deviation		,06489	
		Minimum		,08	
		Maximum		,39	
		Range		,31	
		Interquartile Range		,06	
		Skewness		-1,386	,464
		Kurtosis		3,666	,902
	Experiment	Mean		,5269	,02013
		95% Confidence Interval for Mean	Lower Bound	,4854	
			Upper Bound	,5684	
		5% Trimmed Mean		,5238	
		Median		,5000	
		Variance		,010	
		Std. Deviation		,10063	
		Minimum		,39	
		Maximum		,71	
		Range		,32	
		Interquartile Range		,14	
		Skewness		,825	,464
		Kurtosis		-,602	,902

To measure the effectiveness of increasing concept understanding, N-Gain analysis was conducted. The average N-Gain in the control group was 0.2887, while in the experimental group was 0.5269. This shows that the increase in concept understanding in students who follow the Flipped

Classroom is classified in the medium-high category, while the control group is only in the low-medium category. The variation of values in the experimental group is also greater, which reflects that some students experience a significant increase.

Table 4. Comparison of Percentage of Students by Ability Level between Control and Experimental Classes

Control Class		Experimental Class	
Low	48%	Low	0%
Medium	52%	Medium	92%
High	0%	High	8%

Table 4 shows the distribution of student achievement levels also shown in the ability category based on N-Gain. In the control group, 48% of students were in the low ability category, 52% were in the medium category, and no students reached the high category. Meanwhile, in the experimental group, all students managed to get out of the low category, with 92% in the medium category, and 8% reaching the high category. This difference strengthens the evidence that the Flipped Classroom approach is able to encourage a more even and meaningful increase in MPI student learning outcomes.

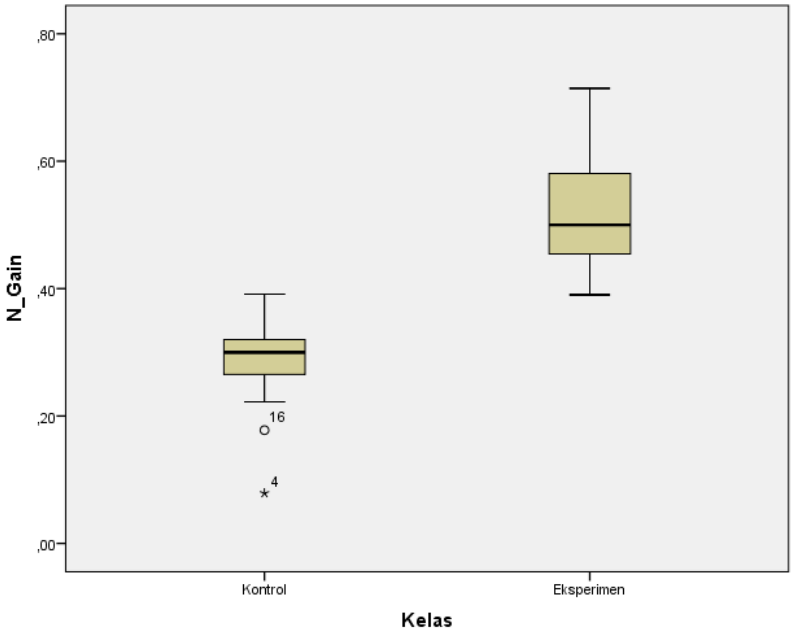

Figure 1. Comparison Range of N-Gain Values Between Control and Experimental Classes

Figure 1 shows the range of comparison of N-Gain values between the control group and the experimental group. N-Gain is used to measure the effectiveness of improving students' abilities, especially in understanding core concepts in the Islamic Education Management (MPI) study program, by comparing posttest and pretest scores. Based on the visualization, it can be seen that the experimental group experienced a much more significant increase than the control group. This is reflected in the higher and more even distribution of N-Gain values in the experimental group, indicating that the application of the Flipped Classroom model contributes significantly to improving the conceptual understanding of MPI students.

This finding is in line with the research of (Amalia et al., 2023; Ramadhan & Iriani, 2022; Walidah et al., 2020), which shows that Flipped Classroom contributes positively to academic achievement and student learning attitudes. These results are also reinforced by findings from (U. Latifah & Rindaningsih, 2023), which state that this model is able to encourage learning

independence, initiative, and independent time management, important competencies for MPI students who are directed to become prospective managers and leaders of Islamic education.

Thus, the implementation of Flipped Classroom is proven to be an innovative learning strategy that not only improves students' concept understanding, but also strengthens aspects of learning independence which are two key elements in Islamic higher education based on active, participatory, and contextual learning. The integration of digital technology with collaborative learning in the classroom makes MPI students better prepared to face the challenges of the 21st century education world, while supporting Merdeka Belajar policy which emphasizes flexibility, creativity, and the development of their full potential.

Discussion

The results showed that the application of the Flipped Classroom model significantly had a positive impact on increasing concept understanding and learning independence of students in the Islamic Education Management (MPI) Study Program. This is reflected in the average value of the posttest and the N-Gain score which is higher in the experimental group compared to the control group. This increase indicates that students who take part in learning with the Flipped Classroom model have a better ability to understand the material in depth and are able to relate it to the practical context in the world of Islamic education management.

Conceptually, Flipped Classroom allows students to first explore the material independently before the face-to-face session. This process provides flexibility in managing learning time and deepening understanding according to each individual's pace. In the context of MPI students, this approach is very relevant because it supports reflective and critical learning, and allows students to internalize Islamic values and managerial principles in a more applicable context.

From the aspect of learning independence, the questionnaire results show a significant increase in indicators such as learning initiative, ability to manage time, and confidence in completing academic tasks. This is in line with the objectives of Islamic higher education which emphasizes the formation of lifelong learner characters, as well as the development of leadership and managerial competencies based on Islamic values.

This finding strengthens the results of previous studies, such as those conducted by (Amalia et al., 2023; Ramadhan & Iriani, 2022; Walidah et al., 2020), which show that the Flipped Classroom model is able to encourage learning autonomy and metacognitive skills. In addition, (U. Latifah & Rindaningsih, 2023) also stated that this model provides space for students to more actively participate in the learning process, increase learning motivation, and strengthen conceptual understanding.

However, the successful implementation of Flipped Classroom also depends on the readiness of lecturers and students, especially in terms of mastery of technology and adaptation to new learning patterns. Some of the challenges that may be faced include limited access to technological devices, lack of digital literacy, and resistance to changes in unconventional learning methods. Therefore, it is important for higher education institutions to provide adequate support, such as lecturer training, digital learning content development, and technology infrastructure strengthening.

Overall, Flipped Classroom-based learning not only contributes to improving learning outcomes, but also encourages a paradigm shift in education from teacher-centered to student-centered. This approach is very much in line with the spirit of Merdeka Belajar and the transformation of Islamic education in the digital era, where students are expected to be independent, adaptive, and have a strong conceptual understanding to manage Islamic education institutions professionally.

Conclusion

Based on the research results, the implementation of the Flipped Classroom model is proven to be effective in improving the concept understanding of students in the Islamic Education Management

(MPI) Study Program. This can be seen from the average posttest score of the experimental group of 81.10, which is higher than the control group of 67.78. In addition, the average N-Gain of the experimental group reached 0.5269 (medium - high category), while the control group was only 0.2887 (low - medium category). The t-test produced a significance value of p = 0.000, indicating that the difference was statistically significant.

In terms of learning independence, improvements occurred in the indicators of initiative, time management, and academic responsibility, as evidenced by the comparison of questionnaire scores and the results of the Wilcoxon and Mann-Whitney tests. A total of 92% of students in the experimental group were in the medium category, and 8% in the high category in the N-Gain achievement, while no students in the control group reached the high category. This finding indicates that Flipped Classroom not only strengthens concept understanding, but also contributes to the development of self-learning attitudes that are important for future 21st century Islamic education managers.

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