

Exploratory Sequential Study in the Implementation of Moodle-Based Flipped Classroom on Microteaching Class

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Abstract: The Covid-19 pandemic has had a significant impact on the process of teaching and learning activities, one of which is social distancing. The flipped classroom learning method is a solution. The research objectives are: Knowing the process of implementing a Moodle-based flipped classroom on microteaching class, Testing and describing the effect of implementing a Moodle-based flipped classroom on microteaching on student achievement at IAIN Pekalongan, and Knowing student responses to the implementation of flipped classroom-based Moodle. This research approach is mixed methods research. The sampling technique used in this research is purposive sampling. The results showed: 1) The implementation of the Moodle-based flipped classroom was carried out in several steps including: a) Making video tutorials about microteaching, b) Uploading videos on LMS Moodle, c) Giving assignments, and d) When in class, the lecturer focuses on deepening the results of student assignments; 2) The effect of the flipped classroom implementation based on Moodle based on the results of the t-test that the calculated T value = [-44,338] or 44,338 and the significance value (2-tailed) is 0.000. So, there is an effect of the implementation of the Moodle-based flipped classroom in the microteaching class on student achievement at IAIN Pekalongan; 3) Student responses to a) Microteaching class is included in the very positive category with an average of 89.17%, b) LMS Moodle is included in the positive category with an average student response of 81.14%, and c) flipped classroom included in the positive category with an average student response of 83.70%.

Keywords: Exploratory sequential; flipped classroom; moodle; microteaching.

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INTRODUCTION

The Covid-19 pandemic has had a significant impact on the process of teaching and learning activities, one of which is social distancing (Collado-Valero et al., 2021; El-Guebaly, 2020; Pedersen & Favero, 2020; Venkatesh & Edirappuli, 2020). This results in a lack of intensity of meetings between lecturers and students and demands the use of the latest educational technology that is adaptive (Setiawan et al., 2019). Offline learning is more desirable, but circumstances say otherwise because the pandemic is not over yet. In the initial research by researchers on IAIN Pekalongan students, 63% stated that they wanted offline learning and only 37% of students stated that they were willing to learn online, as follows:

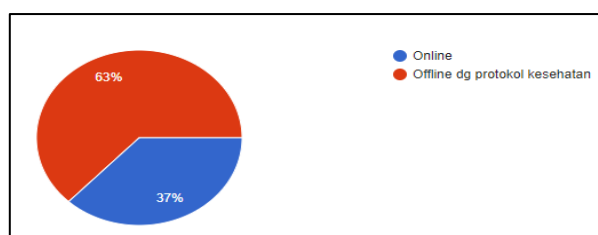


Figure 1: IAIN Pekalongan student poll results

Learning scenarios should be manifested by minimal physical contact between students and lecturers (F. N. Hasanah & Setiawan, 2020), one of them is by utilizing Whatsapp, Learning Houses, Smart Classes, Quipper Schools, Teacher Rooms, and Zenius (F. N. Hasanah et al., n.d.), and also using a chromebook as a workaround (F. Hasanah et al., 2022). All of these efforts were carried out with the aim of minimizing the increase in Covid-19 cases. The reverse classroom learning method (flipped classroom) is a solution, where at home students do conventional learning which is usually done in the classroom and deepening and trouble solving (problem solving) can be carried out in the classroom. The description of the use of the flipped classroom is that warming activities (aperception) are carried out for ± 5 minutes, discussion/question sessions for ± 10 minutes, and laboratory and/or practicum activities for ± 75 minutes (Bergmann & Sams, 2012), of course this duration is different from conventional learning which focuses on explaining the material in the classroom.

So that, flipped classroom method with moodle is the solution. Moodle is a learning platform that can convert instructional media into a website format. The Learning Management System (LMS) can be downloaded for free because it is open source. Building and developing a distance learning system can be done with Moodle. The combination of the Flipped Classroom and LMS Moodle method is an interesting method and an answer to offline problems during the Covid-19 pandemic.

Another problem at this time is that IAIN Pekalongan students show another thing when learning online in the 2020/2021 school year, namely 83% of students do not want online learning. As for the feelings of students when learning online during the pandemic, 64% said they were sad, 22% said they hated it, 7% said they were afraid, and 7% said they were happy (F. N. Hasanah & Setiawan, 2020). The results of preliminary research in the field show that student achievement has also decreased during online learning during the Covid-19 pandemic, from the data collected by researchers that only 60% of students passed the microteaching course and the remaining 40% did not pass.

An exploratory sequential study is the right effort in researching the application of the Moodle-based flipped classroom method, because in fact exploratory sequential is included in mixed method research (mixed research) by prioritizing qualitative methods to reveal the implementation of the flipped classroom and then conducting further studies using quantitative methods, so that the research results not only qualitative data but also strengthened by quantitative data with careful calculations using statistics.

The use of the flipped classroom will be more useful if it is applied to courses that contain practice or there are laboratory activities in it. The microteaching course is a course with a longer practical duration than theory. In the microteaching course, there are several sciences that are studied and require practice in a learning activity that cannot be simply theorized. Another reason is that the microteaching course is the spirit of FTIK which is a special feature and distinguishes it from other faculties at IAIN Pekalongan.

Blended learning is an approach which is broadly implemented in this pandemic era of Corona Virus Diseases 2019 (Harida et al., 2022). The other method besides that is flipped classroom, it can be interpreted as an instructional (learning) model that reverses the teaching and learning process at home with in class, teaching and learning process in class is done at home and when in class time is used to do assignments and deepen material and trouble solving. Minimizing the frequency of direct learning and maximizing interaction between class components is a concept promoted by the flipped classroom.

Utilization of information technology has become a fundamental thing for educators, especially lecturers, meaningful experiences when teaching and learning can be created by using technology, this can be obtained through the implementation of the flipped classroom method (inverted class). Flipped classroom method is included in an innovative pedagogic approach that focuses on student-centered instruction through the process of reversing the traditional classroom learning system that has been carried out by teachers (educators/lecturers) (Bergmann & Sams, 2012).

One technology that provides additional supporting learning materials for students that can be obtained by students online is Moodle. Moodle provides free time for classes that were previously used for studying (Shoufan, 2020). The flipped classroom model does not only contain instructions using video tutorials, but emphasizes the use of class time so that learning is of higher quality and can increase knowledge (Zainuddin, 2015).

Learning Management System (LMS) is a software/platform-based media designed for creating, distributing, and managing the delivery of instructional content (learning). The most popular LMS in the world is Moodle (modular object-oriented dynamic learning environment) (Simanullang & Rajagukguk, 2020), familiar to the public because it dynamically uses an object-oriented model by converting learning materials into websites. Moodle is open-source software that supports learning operations. Important features that support learning include assignments, quizzes, discussion forums, collaboration, and the mainstay feature of being able to upload all formats of instructional materials. Moodle allows students to enter digital classrooms to access online learning resources freely and adaptively (Morze et al., 2021).

However, with the myriad benefits of the Moodle LMS offered, there are still some shortcomings in it, the weakness of the Moodle platform is the slow access speed, meaning that a high enough internet speed is needed to be able to access the Moodle platform smoothly (Divayana, 2019). The next drawback is the lack of an individual approach; failure to test communication skills; and a lack of practical language training. The Moodle LMS that functions as a research medium is the Learning Management System belonging to IAIN Pekalongan with an access page <http://learning.iainpekalongan.ac.id/>.

Micro-teaching or micro-learning is a basic performance training model or teacher training method used since the 1960s and is based on a micro or simplified basis such as time, teaching materials (Koross, 2016). Micro education is usually carried out by prospective teachers, who exchange roles to acquire basic teaching skills, conduct learning activities and discuss problems encountered in class. Microteaching is designed to enhance the educational skills of future teachers and develop them by simplifying or minimizing the professional experience of teachers, especially aspects of learning such as student numbers. Time, textbook orientation. Microteaching limits the application of certain teaching skills to help teachers understand their strengths and weaknesses accurately.

Achievement or learning outcomes are obtained by means of evaluation. Evaluation is a systematic and continuous process to determine the efficiency of teaching and learning activities and the effectiveness of achieving predetermined learning objectives. Evaluation is a process to determine the value of everything related to learning. Evaluation is a process of measurement and assessment to determine the learning outcomes that have been achieved by someone (Aslan et al., 2019).

METHOD

The approach in this research is mixed methods research or better known as mixed research methods. Creswell (2012) states that "The design of mixed methods research is a guideline to collect, analyze, and mix quantitative and qualitative approaches in one study or series of studies to understand a research problem". As stated by Creswell (2012) that, "Mixed methods research is a research approach that combines or associates qualitative and quantitative forms." In this study, researchers used a sequential mixed methods strategy. This strategy has three parts, namely (1) sequential exploratory strategy, (2) sequential explanatory strategy, (3) sequential transformative strategy.

The exploratory sequential research design is a mixed method research design which is the result of the first (qualitative) research method that can help develop or inform the second (quantitative) method. The fundamental approach of this research design is that exploration is needed for one of several reasons, namely: 1) measuring instruments that are not available, 2) unknown variables because there is no guidance framework or theory. Therefore, this research design begins with qualitative, so this research design is suitable for revealing phenomena. The following is an overview of the exploratory sequential research design:

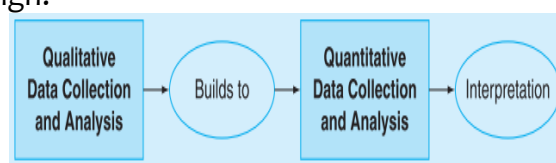


Figure 2. Exploratory Sequential Design
(Source: John W. Creswell, 2012: 541)

In this study, researchers used sequential mixed methods. Mixed methods research in this study is to mix quantitative and qualitative approaches in one study or series of studies to understand a research problem.

RESULT AND DISCUSSION

Moodle-Based Flipped Classroom Implementation Process

Government Regulation Number 17 of 2010 chapter 48 and 59 concerning Management and Implementation of Education implies the development of a technology-based educational information system. The development of science and technology (science and technology) today has influenced various fields of human life, not least in the field of education, especially at the university level, both public and private. One of the technology-based educational information systems that can be used is the Moodle LMS.

LMS Moodle is an asynchronous web-based educational package that allows people to learn without being limited by space and time. The learning model commonly used in the teaching and learning process is the conventional learning model with the lecture method. The weakness of the lecture method model is that learning is only centered on the lecturer, where the lecturer will play an active role in learning activities to deliver the discussion material, while students only listen and take notes and then do homework.

The level of understanding of different students is one factor that needs to be considered, some are quick to respond and understand the material presented in one study and some require repeated explanations to understand the material. Lack of understanding of the material presented can make students have difficulty in completing

the tasks given by the lecturer, so that the learning process is less effective and ultimately learning objectives are not achieved.

It cannot be denied that in reality the teaching and learning process with conventional models is always limited by space and time and also minimal learning resources. Technological developments try to answer all these problems by offering a variety of learning media that can be combined with learning methods. One way that can be taken by lecturers is to make changes to the teaching and learning process, such as applying more interesting learning methods, one of which is the flipped classroom method.

Learning itself means the process, method, act of making people or living things learn. According to Driscoll, learning is defined as "continuous change in abilities that stems from the learner's experience and the learner's interaction with the world". Furthermore, Smaldino & Lowther (2012) suggests that learning is the development of new knowledge, learning outcomes, or attitudes when a person interacts with information and the environment. The term learning in education is often referred to as teaching or the teaching and learning process. Article 1 point 20 of Law Number 20 of 2003 concerning the National Education System states that "learning is a process of interaction between students and educators and learning resources in a learning environment". Learning is a process of changing behavior as a result of the interaction of individuals with their environment. Learning is a process of behavior change related to four main domains, namely: cognitive, affective, psychomotor, and interpersonal (Alannasir, 2020).

The learning carried out must be more active and meaningful, the lecturer not only conveys material to students but involves students actively in the learning activities carried out. So that the learning messages conveyed can be received and understood well by students. LMS Moodle media tries to answer this problem. By utilizing existing technology, the learning process that was previously carried out using a conventional model was changed by using a flipped classroom learning model approach combined with LMS Moodle. Flipped classroom is a reverse classroom learning, where conventional learning which is usually done in class is reversed to be carried out at home, and what is usually carried out at home as homework in conventional learning is carried out in class in a flipped classroom. Flipped classroom is a way that can be provided by educators by minimizing the amount of direct instruction in teaching practice while maximizing interaction with one another.

Implementation is the actual conversion of plans into results through daily activities. For every action taken to implement a plan, there must be a reciprocal controlling action to judge effectiveness (Rudd et al., 2008). Reviewing the process of implementing the Moodle-based flipped classroom in the microteaching course, which means to implement or apply. Implementation is an action of a plan that has been carefully prepared beforehand, in other words implementation is an action taken to implement or carry out a plan that has been carefully prepared to achieve certain goals. The implementation in question is the application of the Flipped Classroom learning method based on the Moodle LMS in the Microteaching course at the Islamic Religious Education Study Program IAIN Pekalongan.

The steps for implementing a moodle-based flipped classroom include: a. Making video tutorials/learning about microteaching, b. Upload videos on the Moodle LMS at the link <http://learning.iainpekalongan.ac.id/>, c. The assignment is accompanied by an explanation of what to do according to the material in the video (eg students make a recording of the demonstration of apperception skills and then submit it to e-learning), and

d. When meeting in class, lecturers focus on deepening the video of student assignments. The data analysis used is Miles and Huberman interactive data analysis, namely data reduction, data presentation, conclusion drawing/verification, with the following explanation:

Data collection

The data collection referred to in this study is the collection of qualitative data about the implementation of the Moodle-based flipped classroom in the microteaching course at IAIN Pekalongan. In the analysis of this first model, data collected from interviews, observations, and various documents based on categorization in accordance with the research problem was carried out which was then developed to sharpen data through further data searches. The data collected in this study is the result of in-depth observations about the use of the Moodle LMS at IAIN Pekalongan, especially in the microteaching course.

Data reduction

Data reduction is a form of analysis that sharpens, categorizes, directs, discards unnecessary data and organizes data in such a way that final conclusions can be drawn and verified. Data reduction takes place continuously as long as the research has not been ended. The product of data reduction is in the form of a summary of field notes, both from initial notes, expansions, and additions. The result of data reduction in this study is to eliminate data that is considered unnecessary, for example, the duration of students using the internet every day in terms of social media and games because the data taken is the duration of students' internet use for lecture purposes only.

Data Presentation

A data presentation is a set of organizational information that allows research conclusions to be made. Data presentation is intended to find meaningful patterns and provide the possibility of drawing conclusions and providing action. Presentation of data in the form of narrative sentences, pictures/schemas, networks and tables as narratives. The data presented in this study are in the form of tables and diagrams as shown in the discussion chapter.

Withdrawal of Conclusion

Drawing conclusions is part of a complete configuration activity. Conclusions were also verified during the study. Conclusions were drawn since the researcher compiled notes, patterns, statements, configurations, causal directions, and various propositions. The conclusion of this research, especially on the implementation of a moodle-based flipped classroom in microteaching courses at IAIN Pekalongan, is that the implementation of a moodle-based LMS flipped classroom is the application of a learning method applied by lecturers to students, where students can freely study outside the classroom using the learning resources provided by the teacher. lecturers with the help of Moodle LMS media. The goal is that each student can understand the concept of the material to be taught and gain knowledge as a provision before participating in class learning. If students have obtained initial knowledge through videos from the lecturer, the lecturer will act as a class facilitator to guide students to be more active and interactive in the learning process and become a trouble solver on the problems faced by students, besides that students are also

expected to be able to solve problems. problems found so that the learning process will be more effective, efficient and flexible.

The Effect of Moodle-Based Flipped Classroom Implementation Especially on Student Achievement

Research design

The research design that will be used is a one-group-pretest-posttest type of pre-experimental research, namely giving certain treatment only to one class without a control class and previously held an initial test (pre-test) and at the end of the session a final test (post-test) was carried out. tests). The specific treatment in question is the application of flipped classroom learning to determine the effectiveness of student learning. The researcher chose this research design with the consideration that what the researcher did was only to apply a learning model to determine the increase in student achievement. At the time of learning, students were given a student response questionnaire to the learning process using the flipped classroom learning model. The research design can be presented as follows:

Table 1. Experimental Design

Group	Pre-Test	Treatment	Post-Test
Experiment	O ₁	X	O ₂

Information:

O₁ : Pre-Test for microteaching course.

X : The treatment is in the form of applying the flipped classroom learning model based on the Moodle LMS

O₂ : Post-Test for microteaching course.

Population and Research Sample

The population is the whole of the research subjects, while the sample is part of the population. Values that are calculated and obtained from this population are called parameters. The population is the total number of subjects to be studied by a researcher. The population in this study were all students participating in the Microteaching course in the Islamic Religious Education department of IAIN Pekalongan, totaling 157 students. The sample is considered as representative of the population whose results represent the overall observed symptoms. Referring to the research design, namely one-group-pretest-posttest, the sampling technique used in this study was purposive sampling. This sampling technique is based on the reason that at the time of data collection the situation in Indonesia, especially during the COVID-19 pandemic. The sample used in this study was class F students, totaling 38 students.

Data Collection and Data Analysis Techniques

This study uses an exploratory sequential research design with data collection techniques through tests. The data taken is student achievement in microteaching courses. Analysis of the data used is the t test (paired sample test).

Research Instruments

Research instruments are tools that are needed or used to collect data. The instrument used in this study to explore student achievement data is a test instrument. The

test is the giving of an assignment or a series of tasks in the form of questions or orders that must be done by students. The results of the implementation of these tasks are used to draw certain conclusions for students in relation to student achievement in microteaching courses. The tests used are in the form of theory tests and teaching practices.

Table 2. Test Output

		Paired Samples Test					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre_Test - Post_Test	-5.316	.739	.120	-5.559	-5.073	-44.338	37	.000

Based on the results of the t test (paired sample test) that the calculated T value = $[-44,338]$ or 44,338 while the T table value = 2.028 so that $44,338 > 2.028$, and the significance value (2-tailed) is 0.000 so $0.000 < 0.05$, then H_0 is rejected and H_1 is accepted. There is an effect of the implementation of the Moodle-based flipped classroom in microteaching courses on student achievement at IAIN Pekalongan.

Student Response to Moodle-Based Flipped Classroom Implementation

Researchers in digging data about student responses to the implementation of the Moodle-based flipped classroom using a questionnaire. The data retrieval is done online via google form. Data analysis in this study used quantitative descriptive analysis. Research instruments are tools that are needed or used to collect data. The questionnaire instrument used refers to the VISUALS questionnaire instrument to explore data about the LMS moodle media used, while to explore data about the flipped classroom the researcher refers to the questionnaire instrument The DeLone and McLean Model of Information Systems Success.

In this study, the measurement scale used in the questionnaire is a Likert scale with modifications, namely 4 assessment ranges, namely 1-2-3-4 with an interpretation of strongly agree/always for a score of 4, agree/often for a score of 3, less agree/rarely for score 2, and disagree/never for a score of 1. The measurement method is by giving a statement to the respondent then the respondent is asked to choose from the four alternative answers. After the data is collected and data tabulation is carried out, the next step is to calculate the percentage of respondents' answers with the following formula: After getting the percentage of the questionnaire results, the next step is to determine the percentage of students' perception scores with the following formula:

Table 3. Student Response Criteria

No.	Percentage of Student Response	Criteria
1.	$r \geq 85\%$	Very Positive
2.	$70\% \leq r < 85\%$	Positive
3.	$50\% \leq r < 70\%$	Less Positive
4.	$r < 50\%$	Not Positive

The following are the results of student responses to the implementation of the Moodle-based flipped classroom:

Table 4. Response Student to *Microteaching* Course

No.	Statement	Response (%)
1	I have information about the <i>Microteaching</i> course	91.4
2	I have information about flipped classroom learning.	82.2
3	I have information about e-learning (<i>moodle</i> http://learning.iainpekalongan.ac.id/ or google classroom).	86.8
4	I am ready to attend lectures using a flipped classroom based on e-learning (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom).	81.6
5	Through the practice of micro teaching, I have known the general picture of teaching and learning activities in the classroom.	94.1
6	Through the practice of micro teaching, I gain more knowledge about how to teach	94.7
7	Through learning the practice of <i>microteaching</i> I get examples of how to teach the right way.	94.1
8	I practice teaching activities directly in front of my colleagues and supervisors.	94.7
9	I carry out micro teaching practice learning activities repeatedly every week (more than once).	84.9
10	I have made learning tools (RPP and Learning Media) that will be used when teaching.	92.1
11	I have drafted a learning model that will be used when teaching.	89.5
12	I received an assessment from the supervisor on my teaching performance.	93.4
13	Colleagues and supervisors provide constructive suggestions for my appearance.	96.1
14	I received an evaluation from my supervisor after learning the micro teaching practice.	97.4
15	Through <i>microteaching practice</i> , I can identify the strengths and weaknesses of teaching.	95.4
16	I am able to face difficult challenges when teaching.	82.2
17	I tried to find a way out to overcome the teaching task that was considered difficult.	88.2
18	I am able to plan teaching assignments well, one of which is preparing material to be delivered in class.	89.5
19	I still try to complete my teaching assignments as best as I can even though there are many difficulties.	89.5
20	I am able to prepare learning tools before the teaching process begins.	85.5
21	I am able to teach well even though the learning method used is not my choice.	78.9
22	I can still solve problems in teaching even though these problems have never been experienced before.	79.6
Average Category		89.17 Very Positive

Table 5. Response Student to *LMS Moodle*

No.	Statement	Response (%)
1	The e-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) is easy to see and visually comfortable.	78.3
2	The display of e-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) is interesting to use.	75.7
3	The e-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) is simple and practical to use.	80.3
4	Content on e-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) is useful or useful according to the content of the course.	83.6
5	E-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) can be a reference and can be accounted for.	84.2
6	The e-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) fulfills the sense of reasonable/legitimate use.	84.2
7	The design / arrangement of the e-learning media (<i>moodle</i> http://learning.iainpekalongan.ac.id/ / google classroom) is structured or well structured.	83.6
Average Category		81.14 Positive

Table 6. Response Student to *Flipped Classroom*

No.	Statement	Response (%)
1	Learning with the flipped classroom is easy to understand and adapt.	80.9
2	Learning with flipped classroom (reverse class) can be used at any time.	78.9
3	Learning with flipped classroom (reverse class) is reliable (reliable).	79.6
4	Learning with flipped classroom (reverse class) can respond in a short time.	78.9
5	Learning with the flipped classroom is easy to use.	82.2
6	Learning with the flipped classroom is complete according to needs.	78.9
7	Learning with the flipped classroom is easy to understand.	82.9
8	Learning with flipped classroom (reverse class) meets the principle of personalization (easy to change and modify to show certain personal characteristics)	85.5
9	Learning with flipped classroom (reverse class) is relevant today.	88.2
10	Learning with flipped classroom (reverse class) is safe to use today.	86.8
11	Learning with flipped classroom (reverse class) fulfills the element of guarantee.	84.2
12	Learning with flipped classroom (reverse class) has an empathetic nature.	83.6
13	Learning with the flipped classroom is responsive.	84.2
14	Learning with a flipped classroom is natural to use.	81.6
15	Learning with flipped classroom (reverse class) has a clear navigation pattern/guidance.	85.5
16	Learning with flipped classroom (reverse class) has a clear number of meetings.	83.6
17	Learning with flipped classroom (reverse class) minimizes the number of empty meetings.	82.2
18	Learning with flipped classroom (reverse class) can be used repeatedly.	86.8
19	Learning with flipped classroom (reverse class) can be used many times.	86.8
20	Learning with flipped classroom (reverse class) can be used to conduct user surveys.	84.9
21	Learning with a flipped classroom can save costs.	83.6
22	Learning with flipped classroom (reverse class) can be used in all courses.	83.6
23	Learning with flipped classroom (reverse class) has more usefulness value.	86.8
24	Learning with a flipped classroom (reverse class) can reduce student expenses.	84.2
25	Learning with a flipped classroom can save lecture time.	88.2
Average Category		83.70 Positive

Based on results discussion questionnaire about response student that is response student to subject *microteaching*, response student against Moodle 's LMS, and response student against flipped classroom then could depicted in bar chart following this:

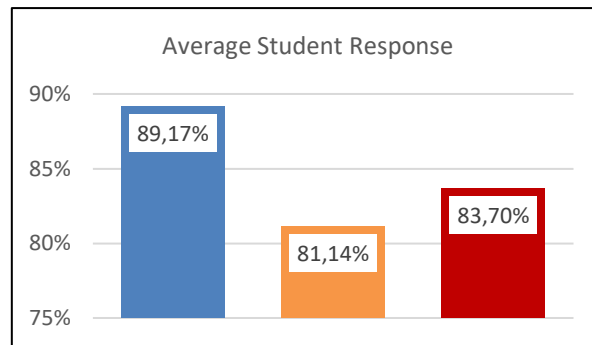


Figure 4. Average Response Bar Chart Student

CONCLUSION

Based on the results of the discussion in the previous chapter, several conclusions can be drawn in this study, including: First, The implementation of the Moodle-based flipped classroom on microteaching at IAIN Pekalongan is carried out in several steps including: 1) Making video tutorials/learning about microteaching; 2) Uploading videos on the Moodle LMS at the link <http://learning.iainpekalongan.ac.id/>. 3 Giving assignments accompanied by an explanation of what to do according to the material in the video (eg students making a recording of the demonstration of apperception skills and then submitting it to e-learning); 4) When meeting in class, the lecturer focuses on deepening the video of student assignments.

Second, The effect of the implementation of the Moodle-based flipped classroom on microteaching on student achievement at IAIN Pekalongan based on the results of the t-test (paired sample test) that the calculated T value = $[-44,338]$ or $44,338$ while the T table value = $2,028$ so $44,338 > 2,028$, and the significance value (2 -tailed) of 0.000 so $0.000 < 0.05$, then H_0 is rejected and H_1 is accepted. So that it can be concluded, there is an effect of the implementation of the Moodle-based flipped classroom in the microteaching course on student achievement at IAIN Pekalongan.

Third, Student responses to the implementation of the moodle-based flipped classroom on microteaching at IAIN Pekalongan by using a questionnaire that refers to the VISUALS questionnaire instrument to explore data about the moodle LMS media used and the The DeLone and McLean Model of Information Systems Success questionnaire to explore data about the flipped classroom are: 1) Student Responses to Microteaching Courses are included in the very positive category with an average student response of 89.17%; 2) Student Response to LMS Moodle is included in the positive category with an average student response of 81.14%; 3) Student Response to Flipped Classroom is included in the positive category with an average student response of 83.70%.

In addition to the conclusions in this study, the researchers also put forward several implications including: 1) The use of Moodle LMS is in great demand by students because it can accommodate student needs in terms of e-learning portals, however, there are still some students who are less familiar with Moodle LMS because only a few lecturers use it. 2) The application of Flipped Classroom has an effect on student achievement, especially in microteaching courses, but the lecturers cannot fulfill the need for interactive e-books because this research has certain limits and the creation of interactive e-books is not included in it. 3) Student responses are included in the positive category, but cannot be identified in other courses because this research is limited to microteaching courses.

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