Can the Discovery Learning Model Increase Student Activity in Distance Learning?

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ABSTRAK

Pelaksanaan pembelajaran daring yang dilakukan dalam satu tahun terakhir ini membuat aktivitas mahasiswa dalam belajar menjadi berkurang sehingga banyak mahasiswa yang kurang fokus dalam proses pembelajaran. Penelitian ini bertujuan untuk meningkatkan keaktifan belajar mahasiswa dalam pembelajaran daring menggunakan model Discovery Learning. Penelitian ini menggunakan penelitian tindakan kelas kolaboratif model Kemmis dan Mc Taggart. Subjek penelitian adalah mahasiswa kelas B semester 2 yang terdiri dari 32 orang. Pengumpulan data menggunakan teknik wawancara dan observasi. Data kuantitatif dianalisis menggunakan statistik deskriptif dengan mencari rata-rata. Data kualitatif dianalisis menggunakan deskriptif kualitatif. Proses pembelajaran yang dilakukan secara daring untuk meningkatkan keaktifan belajar mahasiswa menggunakan model Discovery Learning. Hasil penelitian menunjukkan bahwa penggunaan model ini dalam pembelajaran dapat meningkatkan proses pembelajaran mahassiwa. Khususnya pada proses pembelajaran daring. Hal ini dibuktikan dengan meningkatnya keaktifan belajar tersebut yang pada siklus I mencapai persentase klasikal 37,5% menjadi 84,3% pada siklus II. Peneilitian ini menimplikasikan bahwa model Discovery Learning dapat meningkatkan keaktifan mahasiswa dalam pembelajaran daring pada mata kuliah IPS Dasar.

ABSTRACT

The implementation of online learning carried out in the past year has reduced student activity in learning so that many students are less focused in the learning process. This study aims to improve student learning activity in online learning using the Discovery Learning model. This study uses a collaborative classroom action research model of Kemmis and Mc Taggart. The research subjects were students of class B which consisted of 32 people. Data collection uses interview, observation, test, and documentation techniques as supporting data. Quantitative data were analyzed using descriptive statistics by looking for the mean. Qualitative data were analyzed using qualitative descriptive. The learning process is carried out online to increase student learning activity using the Discovery Learning model. The results showed that the use of this model in learning can improve the student learning process, especially in the online learning process. This is evidenced by the increase in learning activity which in the first cycle reached the classical percentage of 37.5% to 84.3% in the second cycle. This research implies that the Docovery Learning model can increase student activity in online learning in the Basic Social Studies course.

1. INTRODUCTION

Changes in the dynamics of the learning system in Indonesia have resulted in gaps in the process, this is due to the lack of preparation of educators in dealing with changes in all aspects of the learning process. The compulsion to face this change will lead to adaptation from both educators and students (Cicha et al., 2021; Nurlaily et al., 2019). A quick step taken by the government through the Ministry of Education and Culture is to implement learning from home policy, especially for education units located in the yellow, orange and red zones, this policy was decided to prevent and reduce the spread of the virus covid-19 (Kusumaningrum et al., 2020; Onyema et al., 2020; Sadikin & Hamidah, 2020). Distance Learning is an educational process in which students are separated from educators and learning uses various

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learning resources through communication technology, information and other media (Asmuni, 2020; Rayuwati, 2020). Distance learning is one solution that must be applied considering that this learning process is not new but there are other educational institutions that have implemented it for a long time so that this is an alternative that will always be used for the future which can be the foundation of an education system (Ismaili, 2020; Al Salman et al., 2021; Cicha et al., 2021) . Flexible learning is one of the systems in distance learning which is characterized by that learning can be done anywhere and anytime, the learning resources used are available through various websites, teachers have many opportunities in determining the implementation of learning such as online discussions, tutoring, asynchronous videos, and so on (Abdul Latip, 2020; Abidin et al., 2020). In this case, it is necessary to improve various aspects of distance learning skills, including training programs in the use of information and communication technology. For fluency in distance learning, it is not enough for lecturers to have basic technology skills such as using computers with various applications. Ability in using and operate software, methods for delivering lessons without face-to-face interaction (asynchronous learning videos). These skills will be required when using online learning platforms.

In practice, there are several important factors that must be considered so that the distance learning system can run well, namely attention, care, educator confidence, experience, proficient in using technological equipment, creative, and always interacting with various applications so that this becomes an innovation education in responding to the challenges of the availability of varied learning resources (Prawiyogi et al., 2020; Fadhilaturrahmi et al., 2021). Distance learning in this case provides convenience for its users because it can be used anywhere with the condition that there is an internet network in the area. However, in terms of ease of use the gap between training scenarios and execution in the field needs to be minimized (Basar, 2021; Fatimah et al., 2020). Distance learning is indeed not fully maximized because there are still many obstacles experienced by students during the lecture process. This is due to differences in geographical location, different internet speed levels in each region. The learning model is defined as a plan that has been designed in the delivery of learning. It means that the learning model is a pattern that has been planned and used in curriculum preparation, teacher guidelines in conveying the process of teaching and learning activities (Jalinus et al., 2019; Lefudin, 2017). It can be concluded that the learning model provides activities for the learning process to increase student activity in distance learning where this is an adaptation activity for lecturers and students to respond to changes in the education system. However, currently the use of learning models is still not maximized due to various limitations in distance learning so it is necessary to choose the right learning model to be used in the current situation in order to avoid gaps in the learning process. As well as basic social studies courses, this course is motivated by the provision to prepare themselves to face more severe challenges in the future along with the rapid development of the times. Therefore, a learning process is needed that prioritizes the discovery of his own knowledge and then can be applied to his social life. This is in line with previous study explaining that the purpose of social studies in elementary schools is one of them so that students understand social problems that exist in society (N. Puspitasari, 2020). Meanwhile, social studies at the tertiary level are a selection of social science disciplines and humanities, and basic human activities are packaged scientifically and psychologically for educational purposes.

Based on the results of observations and interviews with lecturers who support Basic Social Studies courses at the State Islamic University of Sunan Kalijaga, it is known that students are very passive in attending lectures, especially in current conditions, where lectures are only conducted virtually or online through learning media platforms that allow students not to focus their attention on the material explained by the lecturer. Most students just wait for an explanation from the lecturer without taking the initiative to look for topics or problems that need to be discussed. The methods used by lecturers in online lectures tend to be monotonous so that students are reluctant to express their opinions if they are not given reinforcement first from their lecturers. One solution to solve this problem is by applying the discovery learning model (Fatimah et al., 2020; Jannah et al., 2020). Discovery learning can help teachers in processing the learning process to be more efficient and effective, especially providing the ability of students to build collaboratively and have a high commitment to value in learning activities (Kurniati & Rismawati, 2018; Ariani & Wachidi, 2019; Parmin et al., 2020). This is also emphasized by previous researcher stating that the Discovery Learning learning model will help students improve their critical thinking skills and provide opportunities for students to discover their own knowledge (Fransiska et al., 2018; Y. Puspitasari & Nurhayati, 2019; Setyaningrum, 2020). The advantages of the Discovery learning model in distance learning are that it helps students to improve skills and cognitive processes(Sirait, 2017; Melinia et al., 2021), increases students' ability to work together to solve problems and encourage students to think critically (Salmi, 2019; Putra & Sujana, 2020; Windrati, 2022). Previous research conducted by other previous researcher stated that learning outcomes can be improved with the discovery learning model (Tausih & Marno, 2021), this is also in line with the research results that stating

that the discovery learning model can be implemented in the online learning process (Distance Learning) (Setyaningrum, 2020). So, base on previous study discovery learning model has a positive impact on the learning process. With this learning model, students can explore their own knowledge through simple discoveries. Discovery learning will be one solution that can be collaborated with online learning. The researchers feel the need to take action to increase students' online learning activities by using the Discovery Learning model. The aim of this study is improving student learning activity in online learning using the Discovery Learning model.

2. METHOD

The type of research used is classroom action research (Classroom Action Research) conducted by teachers to improve the quality of learning in the classroom. Classroom action research (CAR) is research that begins with observing the learning that occurs in the classroom. The action research design chosen in this study is the Kemmis & McTaggart model. This model explains that the actions taken are divided into several cycles, and each cycle of action consists of four stages, namely planning (plan), action (act), observation (observer), and reflection (reflect) (Hien, 2009; Mustafa et al., 2020). Action research is carried out up to two cycles. If in the first cycle the target of action has not been achieved, then reflection is carried out so that the next cycle can be carried out with the hope of further improving learning in accordance with the results of the reflection in the first cycle. In the implementation of this research, the researcher acts as a lecturer who teaches. Researchers collaborate with other lecturers as collaborators. Lecturers and collaborators are tasked with observing and recording various situations that occur in the teaching and learning process. In this study, the Discovery Learning model is applied as a solution to increase activeness in online learning. The subjects of this study were second semester students with a total of 32 students. The research place is in class B class of 2020 PGMI UIN Sunan Kalijaga, Yogyakarta. The research instruments used were observation sheets and interviews. Observations were made by lecturers and colleagues to observe student learning activities and the implementation of the Discovery Learning model during the online learning process. The following interview guidelines were used. An interview guideline is show in Table 1. and guidelines for observing student learning activities is show in Table 2.

Table 1. Interview Guidelines

No	Question Items	Question Details
1	How has distance learning been implemented so far?	This question aims to explain the implementation of distance learning that has been carried out.
2	What learning strategies are implemented during distance learning?	This question aims to find out the explanation of the strategies that have been carried out in distance learning
3	What difficulties do you experience in implementing distance learning?	This question aims to find out the difficulties or problems when distance learning is carried out
4	What solutions or alternatives can you use to overcome these difficulties?	This question aims to find out the solutions that have been used to solve the problem
5	What methods or models are commonly used in distance learning?	This question is to find out the methods or models commonly used during distance learning
6	How are the lecturers' perceptions regarding the use of learning models during distance learning?	This question is to find out an explanation regarding the use of learning models in distance learning
7	Do you think the learning model is effective for distance learning?	This question is to find out how effective the use of learning models in distance learning is

Table 2. Table of Guidelines for Observing Student Learning Activities

No	Variable	Indicator
1	Stimulation	Students are asked to analyze the problem
2	Problem Statement	Students identify the causes of the problem
3	Data Collection	Students collect information.
4	Data Processing	Students process information
5	Verification	Students prove the truth of the statement
6	Generalization	Students draw conclusions

Data analysis techniques in this study are divided into two techniques, namely qualitative and quantitative. Qualitative descriptive technique through several steps, namely categorization, data presentation, and inference (meaning and inference) which are used to describe the results of observations of the implementation of learning and the results of interviews. The data is used in consideration of reflection materials to make decisions about what things are good and need to be maintained, things that need to be reduced and improved, and other things that have not emerged but are very much needed in the learning process at the next meeting or cycle. The research data were examined through triangulation. Subject activities in online learning are other observational data obtained in addition to data from observation sheets, supported from video recording data during the learning process. Quantitative techniques to determine the effectiveness of an approach and learning model used. This study uses quantitative analysis techniques, which is a research method that describes reality or facts in accordance with the data obtained with the aim of knowing student learning activities after learning to get treatment through the Discovery Learning model. Researchers conducted an analysis of student learning activity by adding up the scores obtained by students from each aspect studied based on the rubric of the assessment. It consists of 6 aspects studied in student learning activities with a maximum score of 3 in each aspect and a minimum score of 1. So the score range is 1 – 3. All of them are added up and divided by the total number of students to get the average learning activity of all students. Category of measurement results using normal distribution table. The range of scores for each aspect is calculated according to the formula as show in Table 3.

Table 3. Categorizing Formula

No.	Score Range	Category
1.	X > (M + 1.50 S)	Very active
2.	(M + 0.50 S) < X (M + 1.50 S)	Active
3.	(M – 0.50 S) < X (M + 0.50 S)	Active Enough
4.	(M – 1.50 S) < X (M – 0.50 S)	Less Active
5.	X (M – 1.50 S)	Very less

3. RESULT AND DISCUSSION

Result

In research conducted by interviewing lecturers related to questions that reveal the distance learning process that produces the following answers first, distance learning is carried out fully online using social media platforms such as Google Classroom and WhatsApp Group, lecturers reveal that they rarely do this online. learning through video conferencing due to the limited facilities provided by the institution. Second, there is no specific strategy in implementing distance learning where the lecturer only provides direction to students via WhatsApp Group, which is then continued in Google Classroom. Third, the difficulty is that there are not many students who actively participate in the learning process because they cannot monitor directly whether the student is really taking part in the lesson or just a presence writing his name, only a small number of students are still active in the learning process. Fourth, the recommended solution is to use a video conferencing platform such as zoom in order to be able to monitor online the presence of students in participating in learning so that students who actively participate in learning can be well monitored but this is still not enough if it is not accompanied by learning activities that can attract attention. Fifth, it is very rare to use various learning models, which are usually used only in the lecture and question and answer methods. Sixth, the use of learning models in distance learning can be said to be quite difficult because this is usually done during face-to-face learning but does not rule out the possibility of bias because the steps in the learning model can be adjusted to the circumstances so that lecturers as much as possible design the use of this model so that can be applied properly. Other than that, the use of this model will be useful for causing student activity during learning so that it raises critical questions related to the material provided. Seventh, it is effective to use with a note that students must pay attention to the conditions and conditions of students during distance learning so that students are not burdened with conditions if the internet network in their area does not allow video conferencing. The implement learning model of course it will be easy if it is done with video conferencing to carry out each step of the learning model. Students must pay attention to the circumstances and conditions of students during distance learning so that students are not burdened with conditions if the internet network in their area does not allow using video conferencing. It will be easy if it is done with video conferencing to carry out each step of the learning model. The results of observing the learning activities of Class B students in Semester 2 of PGMI UIN Sunan Kalijaga for the academic year 2020/2021 in the first cycle are presented in the frequency distribution table as show in Table 4.

Table 4. List of Observation Results of Cycle I Student Learning Activities

No.	Frequency	Percentage	Category
1.	4	12.5%	Very active
2.	8	25%	Active

Based on the Table 4, it can be concluded that the percentage of student learning activity is still quite active with a percentage of 40.6%. So from the results of the data in the first cycle, reflection is carried out in the learning process by directing students clearly and asking students to study the material first before learning begins which will later be asked by researchers during the apperception process. In cycle II, the results of observing the learning activities of Class B students in Semester 2 of PGMI UIN Sunan Kalijaga for the 2020/2021 academic year are presented in Table 5.

Table 5. List of Observation Results of Cycle II Student Learning Activities

No.	Frequency	Percentage	Category
1.	13	40.6%	Very active
2.	14	43.7%	Active

Based on the Table 5, it can be concluded that student learning activity has entered the active category with a percentage of 43.7%. The results of the research have been carried out show that there are differences in results with some of the actions given. Initial conditions indicate that there are problems regarding student learning activities with class conditions and Basic Social Studies courses. The implementation of the Discovery Learning model in learning has a positive effect on increasing student learning activities. This was obtained from the results of increasing student activity from cycle I and cycle II. The results of increasing student learning activities can be presented in the frequency distribution table as show in Table 5.

Table 5. Table of Cycles 1&2 Improving Student Learning Activity Score

No	Action	Percentage	Category
1	Cycle I	37.5%	Active Enough
2	Cycle II	84.3%	Very active

Base on Table 5, the score and percentage scores showed an increase starting from the first cycle which was 37.5% then increased in the second cycle to 84.3%. This proves that the Discovery Learning model in the Basic Social Studies course in class B, semester 2 students of PGMI UIN Sunan Kalijaga academic year 2020/2021 was declared successful, because classically it showed an increase in the score up to > 80%, which means that it has reached the set success indicators. . From the explanation above, it can be described in the form of a diagram of increasing student learning activity from cycle I and cycle II as show in Figure 1.
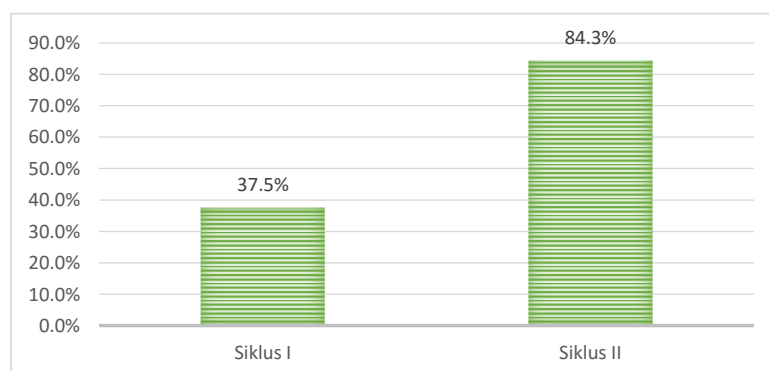

Figure 1. Student Learning Activity Improvement Diagram

Discussion

In research conducted by researchers related to increasing student activity in distance learning using the discovery learning model. The Discovery Learning model is a model that starts from a problem and then finds a solution that is considered very suitable to involve students in the learning process. In

this study the discovery learning model is able to increase student activity where student activity during the teaching and learning process is one indicator of the student's desire to learn so that this model is student-centered (Indarti, 2019; Yunita et al., 2020). If someone has learned, it will be seen that there is a change in one or several aspects of the behavior. Learning is a process of interaction between humans and their environment which may be personal, facts, concepts or theories. In this interaction process, there are two purposes, namely: the process of internalizing something into the learner's self and this process is carried out actively with all the five senses playing a role (Hartika & Saputri, 2019; Festiawan et al., 2021). Discovery learning model is a series of learning activities that involve maximally all students' abilities to search and investigate systematically, critically, logically, and analytically so that they can formulate their own findings. It can be concluded that discovery learning is a learning process that is not given as a whole but involves students to organize and develop knowledge and skills for problem solving (Nugrahaeni et al., 2017; Jayadiningrat et al., 2019; Putra et al., 2020). Distance learning is one of the learning solutions in the midst of the Covid-19 outbreak. Distance learning provides opportunities for students to learn more flexibly without any time and place limits. The use of an online learning system is one of the efforts that can be made to overcome problems and make it easier for students to access learning materials (Anugrahana, 2020; Yunitasari & Hanifah, 2020). In line with this opinion, the implementation of distance learning requires supporting facilities, such as smartphones, laptops, or tablets that can be used to access information anywhere and anytime (Handarini & Wulandari, 2020).

This has also been proven by the existence of this study which has implemented the Discovery Learning model for student learning activities in online learning and has resulted in a success rate of more than 80%. Although online learning is a learning solution in the midst of Covid, this learning has a weakness, namely online learning is only effective for assignments, while making students understand online learning materials is considered difficult (Maulana & Iswari, 2020). As for previous research, it is found that the discovery learning model in distance learning can increase students' learning independence (Amalia & Hidayat, 2021). This study also obtained results that students have independent learning initiatives, are able to prepare learning needs. Based on some of the studies above, there are various similarities and differences between the studies that have been studied at this time. The equation of this research is more to the learning model used in distance learning. Meanwhile, the differences in the research are in the material studied so that it is not possible to have similarities in the results of this study. The results of this study become one of the considerations in the use of learning models in distance learning. This is because the learning model so far has only been effectively used face-to-face, so this study presents data results that can strengthen that the discovery learning model can be used in distance learning with the help of video conferencing applications to increase student activity in learning. Learning activities are processes that involve lecturers and students to achieve a goal in education. Lecturers play an important role in teaching and learning activities. Lecturers are not only limited to delivering material, but also have a role in planning learning, implementing learning. This research produces theories and practices that have been researched so that they can be used by other educators in implementing discovery learning models in distance learning, especially in Basic Social Sciences material to increase student activity. Many problems have been solved so that it becomes a solution to overcome problems in the education system which is quite new because it is carried out simultaneously with conditions that force distance learning to take place. This is because education is dynamic, so educators must adapt to existing novelties to meet the needs of students in the future.

The implications of the discovery learning model can be done by adjusting the existing learning materials. This is because the model is based on problems to find the best solution and answer. In its implementation, students will think critically for solving problems presented by the lecturer. Basic Social Studies is one of the courses that learn the basic concepts of Social Sciences in SD/MI. In this course, students are asked to be able to find out materials related to social knowledge in elementary schools. One of the skills that exist in the 21st century is the skill of being able to solve problems so that through this model students are able to apply the basic concepts of social studies to various social phenomena in society later. As now, especially in the field of education, learning is carried out only through the internet network without direct face-to-face so that many teachers or lecturers are not ready to adapt to technology, especially those who already have an old age. In this case, educators are still obliged to find appropriate learning strategies to be applied in distance learning.

During the learning process, of course there were obstacles that researchers felt, such as students' indiscipline to join the zoom room that had been distributed so that the start of the learning process was too late. However, this has been discussed together so that in the second cycle, students begin to show their punctuality in joining room zoom. Apart from that, internet network access in various areas that are still inadequate greatly hampers the learning process where students can suddenly lose the network and then leave the zoom room which causes students to miss the material explained by the lecturer. This can

be an input for the government so that it can equalize the entire internet network in the territory of Indonesia. The limitation in this study is that it only focuses on the basic concepts of social studies so that in other subjects the researcher cannot fully state that it can increase student activity in the learning process. Therefore, the researcher provides suggestions for other researchers to try to apply the discovery learning model to the focus of other materials in distance learning and can also be accompanied by the use of information and technology-based learning media.

4. CONCLUSION

Distance learning that is applied today is a sudden novelty in the world of Indonesian education, this is because the Indonesian government has not maximized the curriculum and strategies in distance learning. Therefore, it is necessary to have a strategy in learning with the application of learning models in distance learning. However, based on the results of research by implementing the discovery learning model on students, it was found that the discovery learning model was able to increase student activity in distance learning, especially in basic social studies courses.

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