Effectiveness of the Student Inductive Thinking Learning Model Through the Help of Google Classroom Media in Learning Economic Mathematics

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Abstract. Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan is one of the private universities that has used google classroom as a learning medium during the covid-19 pandemic. To activate students in these learning activities, a certain method is needed to make learning more lively, one of which is an inductive thinking learning model. In this inductive activity under the guidance and direction of the lecturer through google classroom, students actively learn mathematics individually. This research is a descriptive study that is used to describe the effectiveness of inductive thinking learning assisted by Google Classroom in the Development Economics Study Program of the Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan in terms of 3 aspects, namely student activities, student learning outcomes, and student responses. The research design used is One Shot Case Study. The instruments used were student activity observation sheets, learning outcomes test sheets, and student response questionnaire sheets. Based on data analysis, it was found that (1) student activities during inductive thinking learning assisted by active google classroom were shown by 85,15% of students doing activities as desired by researchers; (2) classically complete student learning mastery which is shown by 86,96% of students meeting the standard; and (3) positive student responses. So it can be concluded that the inductive thinking learning model assisted by Google Classroom in economic mathematics learning is said to be effective.

INTRODUCTION

The COVID-19 pandemic is the beginning of the current educational changes, where central and regional governments have devised policies covering all educational institutions to break the chain of transmission of the virus. COVID-19. The policies adopted force the government and related organizations to put in place alternative educational processes for students who are unable to complete their education in educational institutions, one of which is practice implement the policy of teaching and learning remotely or by online conferencing. Teachers or instructors must have unique skills and competencies for the material to reach students in order to achieve educational goals. This agrees with that (1) the teacher's ability to master the classroom is balanced with the ability to evaluate student competency planning which is very decisive in the context of next planning, or the treatment policy towards students related to the concept of complete learning. Therefore, the teacher is an important component that acts as the person in charge in the learning process and is responsible for the process of absorbing learning materials.

According to (2) a difference can be seen between the conventional method of learning conducted by the teacher and the online learning method. Conventional learning is a learning process achieved by combining one or more learning methods and teachers have an important role to play in this approach, while methods are used in the form of direct explanations. exercises, and questions and answers, while online learning can be defined as technology-based learning in which learning materials are sent electronically to remote students using a computer network. Thus, it can be said that teachers and lecturers are the decisive factor in the main cause of problems in the application of distance learning.

Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan, is one of the private universities that has utilized online learning before this pandemic as a learning medium. These learning activities utilize the Google Classroom application. Google Classroom can be a way to distribute assignments, submit assignments, and even evaluate collected assignments (3) Indeed, students and teachers can collect assignments, distribute assignments, give grades at home or anywhere without being bound by time limits, class hours. During the learning process, students receive materials and assignments from their teachers and send the results of their reports to the Google Classroom application. However, in its implementation there are some lecturers who still have not optimized google classroom media in their learning because they only send material files and assignments to the google classroom. In fact, to activate students in these learning activities, a certain method is needed so that learning is more lively, one of which is the learning model. The learning model serves as a guide for teaching designers and teachers in carrying out learning. The selection of the learning model is greatly influenced by the nature of the material to be taught, the objectives to be achieved in the learning, as well as the level of ability of the learners (4). The learning model that will be developed in this study is the inductive thinking learning model. According to (5) the inductive learning model has the meaning of how a learning model can be developed and created to improve the ability of students to process information and think creatively. Where learners learn to organize facts.

Marpaung is referred to in (6) learning by involving an effective inductive mindset to teach a mathematical concept, and give students the opportunity to understand the concept or acquire generalizations in a more meaningful way. Concept formation is a complex thought process that includes comparing, analyzing and classifying and inductive reasoning and the results of an understanding (7). Students gain experience when making careful direct observations of special cases given by the teacher, in constructing this mathematics students are involved with the process of adaptation and organization, so that learning mathematical concepts in this way is seen as more meaningful than just memorizing them. It is also expressed by that (8) inductive thinking models are used to increase students' effectiveness in shaping and using concepts, and develop skills to complete tasks.

This inductive thinking learning model is an inductive learning model pioneered by Hilda Taba (9). Taba developed this inductive learning model by being based on the concept of students' mental processes by paying attention to students' thought processes to handle information and complete it. Learning begins with giving examples or special cases towards concepts or generalizations. Students make a number of observations that then build up in a concept or generalization. Students do not have to have the main knowledge in the form of abstractions, but arrive at those abstractions after observing and analyzing what is observed. In this inductive activity under the guidance and direction of lecturers, students actively learn mathematics individually. Nevertheless, students are given the opportunity to interact with their friends, for example exchanging opinions with their deskmates or with friends nearby.

Therefore, the aim of this study is to describe the inductive thinking learning model of students assisted by google classroom media in the Development Economics Study Program, College of Economics, Jambatan Bulan.

RESEARCH METHOD

Research Design

The type of research used is descriptive research. This research was used to describe the effectiveness of google classroom assisted learning with an inductive thinking learning model in the Development Economics study program of the Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan which was reviewed from 3 aspects, namely student activities, student learning outcomes, and student responses.

The study design used was a One Shot case study, in which subjects received a certain treatment followed by observations at the time of application of the treatment and performance of the treatments. measure the effects of treatment. The design in this study can be seen in Table 1 below

Table 1. Eksperimental Research Design

Treatment	***Posttes***
X	O

Information:
X : Learning the google classroom-assisted inductive thinking model in the economics mathematics course
O : Final test (posttest) after learning

Population and Sample

This research was carried out from May to December 2022 located at the College of Economics, Jambatan Bulan. The subjects in this study are 2nd semester students of the Development Economics Study Program, Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan, for the 2021/2022 academic year.

Research Instruments

The instruments that will be used in this study are in the form of student activity observation sheets, student learning outcomes tests and student response questionnaire sheets. The three research instruments are first validated which will then be used in the implementation of the research.

Data Collection and Analysis

In this study, the data collection techniques used were test and non-test techniques. This type of test technique is used as a test of learning outcomes, that is, a test to measure a person's achievement after learning something. This learning outcomes test is obtained from the results of student posttests. The type of non-test used is a questionnaire of student responses regarding the use of inductive thinking learning models assisted by google classroom media and student activity data during the learning process.

Data on student learning outcomes, student responses and student activity data to the use of inductive thinking learning models assisted by google classroom media were analyzed descriptively. The completeness of the student's learning is fulfilled if the classical completeness is fulfilled. Meanwhile, a class is said to be classically complete if the Classical Completion in the class ≥ 80% of students. Student activity issaid to be active if the percentage of activity is > 80%. And the student's response is said to be positive if the percentage of student responses who answer "yes" to positive questions and answer "no" to negative questions is > 70% then students have a positive response to the statement.

RESULT AND DISCUSSION

After conducting a research that lasted for 1 month and filling out a response questionnaire to Development Economics students, the researcher has obtained the data to be analyzed. The data obtained are learning outcomes, student responses and student activities. Data on student learning outcomes are analyzed by calculating the average learning outcomes obtained by students after learning. And the data on the results of student responses and their activities are analyzed by calculating and describing their percentages in each statement item.

Student Learning Outcomes

In this study, student learning outcomes were obtained from students after taking the learning outcomes test at the fourth meeting. The learning outcomes test was attended by 23 students of the Development Economics Study Program, Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan.

The results showed that out of 23 students, as many as 20 students had met the minimum completion standard and the other 3 studentsdid not meet. So it can be said that the inductive thinking learning model assisted by Google Classroom on the material of the two-variable linear equation system as many as 86,96% of students completed learning while the remaining 13,04% did not complete learning. So, completeness is classically fulfilled.

Student Response

Data on student response results were analyzed by calculating and describing the percentage of student response scores after being taught using a google classroom-assisted inductive thinking learning model. The following are the results of the recapitulation of statistical analysis obtained by students.

Table 2. Recapitulation of Student Response Percentage

No.	Statement	Percentage **(%)**	
		S	**TS**
1.	I am very happy and enthusiastic about participating in learning economic mathematics through the media *of google classroom*	93,3	6,7
2.	Google classroom-assisted inductive *learning* makes it easy for me to understand economics math courses	86,7	13,3
3.	Google classroom-assisted inductive *learning* limits me from expressing ideas	40	60
4.	Using Google's classroom media can be used to teach concepts by generalizing	100	0
5.	Because being able to interact well with friends and lecturers without feeling reluctant makes me enthusiastic in participating in learning through *google classroom* media.	86,7	13,3
6.	With the use of *google classroom* media learning becomes more fun and I am more active	73,3	26,7
7.	*Google Classroom* lets me get feedback faster	80	20
8.	With learning through *google classroom* media I can find new knowledge that I have not yet gained from learning in the classroom	86,7	13,3
9.	Assignments and activities in learning economic mathematics through *google classroom* media given by lecturers arouse my creative ideas	93,3	6,7
10.	With *google classroom*, obtaining announcements, materials and collecting economic mathematics assignments becomes more flexible	100	0
11.	Using Google Classroom to learning economic mathematics can motivate and build my confidence	80	20
12.	By using *google classroom* , I am able to develop thinking skills in learning at any time	100	0
13.	I am more courageous to issue ideas or opinions during the learning process by using the help of *google classroom* media	86,7	13,3
14.	Through learning economic mathematics with thehelp of *google classroom* media made me realize to appreciate the ideas and ideas of others.	100	0
15.	After doing learning activities, I am more proficient in concluding concepts taught through *google classroom* media	93,3	6,7

From table 2 above, it is known that most students have a positive response to the inductive thinking learning model assisted by Google Classroom. This is because the inductive thinking learning model assisted by Google Classroom is a new learning model for students and has never been applied before. In addition, with this kind of learning, students are more enthusiastic in participating in learning without feeling shy either with friends or lecturers, this can be seen in statement number 5 with a percentage of 86.7%.

For statement number 3, it can be seen that the percentage of student responses who feel limited in expressing ideas in the inductive thinking learning process assisted by Google Classroom is 40% for positive statements and 60% for negative statements. That means 60% of students feel free to express their ideas with this kind of learning model. This is also supported by student statements which say that they are able to develop thinking skills in learning at any time with a percentage of 100%. This research is also supported by (5) that the inductive learning model requires a learning environment in which students feel free and free from the risk of fear and embarrassment when giving opinions, asking questions, presenting conclusions and answers. They must be free from sharp criticism that can discourage learning.

Statement number (2) regarding students' responses to the economics mathematics course after participating in the lesson stated that 13.3% of economics mathematics was difficult and 86.7% of students considered economic mathematics to be an easy subject. This means that 86.7% of students find it more helpful to understand the mathematical concepts of economics by using the inductive thinking learning model assisted by Google Classroom. Moreover, student responses through the use of these media can be used to teach concepts by generalizing with a percentage of 100%. This is similar to the statement by Marpaung referred to in (6) learning by involving an effective inductive mindset to teach a mathematical concept, and providing opportunities for students to understand the concept or obtain generalizations in a more meaningful way. Students gain experience when making direct observations carefully on special cases given by lecturers, in constructing this material students are involved with adaptation and organization processes, so that learning mathematical concepts in this way is seen as more meaningful than just memorizing them. It can be seen that the percentage of student responses in statement number 12 that by using google classroom, students are able to develop thinking skills in learning at any time by 100%.

In statement number 7 also agrees with (1) that the teacher's ability to master the class is balanced with the ability to evaluate student competency planning which is very decisive in the context of subsequent planning, or the policy of treatment of students related to the concept of complete learning. It can be seen that the percentage of students getting feedback quickly is 80%. Thus, the sooner students submit their assignment reports, the faster the evaluation results from the lecturer will be sent to students. Thus, it can spur students to be more motivated in learning.

Furthermore, statement 10, in accordance with the research of 3that Google Classroom is an application that allows the creation of classrooms in cyberspace. In addition, Google Classroom can be a means of distributing assignments, submitting assignments and even assessing submitted assignments. This can be seen from the percentage of student responses that strongly agree (100%) which says that through Google Classroom, announcements, materials and collection of economic mathematics assignments become more flexible.

Based on the category of student responses, it can be concluded that student responses are very positive towards the inductive thinking learning model assisted by Google Classroom with a percentage of 88%.

Student Activities

From the results of observations of student activities, it can be seen that student activities that have the highest percentage in a row, namely (1) Able to write down mathematical sentences according to problem problems 34,78%, (2) Making conclusions from the concepts / data given 34,78%, (3) Doing assignments given 34,78%, (4) Identifying and grouping data in similar categories 30,43%, (5) Identifying interconnected data and explaining them 26,08%, (6) Activeness in asking and/or answering questions 26,08%, and (7) Able to give suggestions or opinions in group discussions 13,04%.

CONCLUSION

Based on the results of the research data analysis, it can be concluded that the inductive thinking model is supported by google in the economics mathematics course of the Development Economics Research program, Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan, responding to aspects (1) Student activities in Google-assisted inductive learning in the classroom in the Econometrics course are classified as activities. (2) The completion of studies for a student of the Development Economics Research Program, Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan, classically after undergoing inductive learning with the assistance of Google Classroom in economics mathematics course, graded as completed. And (3) Students' responses after participating in google-supported inductive thinking learning in

econometrics courses are evaluated as positive. Based on the above 3 aspects, it can be concluded that the inductive learning model supported by Google Classroom in the economics mathematics course of the Development Economics curriculum, Sekolah Tinggi Ilmu Ekonomi Jambatan Bulan, is the most effective. fruit

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