Analysis of the Learning of Mathematics Education Students During the Online Mathematics Statistics Lecture Process

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Abstract. This study aims to analyze the learning of mathematics education students during the online course. The sample in this study were students of the 2019 batch of Mathematics Education FKIP UKI. This research is qualitative descriptive research. Data collection techniques in this study used a questionnaire, observation and interviews. From the sample, there were 20% who were active, 20% were moderately active and 60% were less active. Then the factors that affect the learning of students in taking online mathematics statistics lectures include internal factors including indicators: having intelligence, being ready to carry out learning activities, having inner talents, and having learning experiences. Then external factors include indicators: the existence of learning motivation and the learning materials used are interesting and easy to understand. As well as other factors include: willingness to learn, how to deliver the material, and the internet network.

Keywords: Qualitative descriptive research; Learning of Mathematics Students; Online Learning

1 Introduction

Active is an active action in carrying out an activity. According to Wikipedia, active is a general term that refers to something that is or can move, work, or perform its function. As in the world of education, students are said to be active if they are active in carrying out activities, both in terms of asking questions, questioning, solving problems, and submitting ideas in the learning process. Learning is a process of delivering information from educators to students. Learning activities are a long process that is carried out aiming to achieve a result to be better than before, so that appropriate learning strategies are needed [1].

According to law Undang-undang number 20 of 2003, learning is a process of interaction between students and educators and learning resources in a learning environment. Therefore, in a learning process, it is highly expected that the active interaction of students with educators and learning resources is expected. In a journal written by Aprida Pane and Muhammad Darwis Dasopang [2] with the title "Learning and Learning" states that a learning system consists of several components that interact with each other, namely: teachers, students, materials, methods, media, objectives, and also evaluation. They also said that "Learning cannot be carried out properly without interaction between the learning components, so between these types of learning components must work together so as to create efficient learning".

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By interacting, students will have the courage to communicate in their environment, students will also have the courage to explain something such as the material being studied, and students will be able to negotiate. Especially in the midst of learning online as it is today due to the pandemic Covid-19, where the learning process relies more on student interaction. As reported on the official WHO website, Jakarta, Thursday, March 12, 2020 [3] that the World Health Organization (WHO) in March 2020 designated Covid-19 as a global pandemic. The impact caused by this virus is very diverse, for example, on society, namely the implementation of social restrictions and 3M (Wearing masks, Keeping distance, Washing hands), on the economy, namely the decline in profits due to the outbreak Covid-19, on education, namely the implementation of a distance learning system on work, namely the implementation of a work from home system, and there are many more impacts. [4]

The spread of the virus Covid-19 in several countries including Indonesia still cannot be stopped. Every country is trying to minimize the spread of the virus and even trying to create a vaccine from the virus. As in Indonesia, the government has adopted a policy of enforcing health protocols such as maintaining cleanliness, wearing masks, keeping a distance, and it is not even recommended to leave the house. Like workers, they are recommended to work from home or what we often hear as Work From Home (WFH), as well as educators and students, they are encouraged to carry out the learning process from home or what is often referred to as Study From Home. Home (SFH). Almost all schools in Indonesia currently carry out the online learning process. Educators and students carry out the learning process from their respective homes using various types of applications such as Google meet, Zoom, WhatsApp, and so on.

With the implementation of distance learning, educators and students must become more active individuals, especially when the learning process is carried out online. Educators are strongly required to have various ways of creating appropriate learning strategies so that students are able to understand the material well and dare to interact, both in terms of asking questions, expressing opinions, recording material, and solving problems given by educators in the learning process. So that there will be interaction between educators and students, as well as between students in order to achieve goals learning. Because the lack of interaction can slow down the formation of assessment and reasoning in lessons in the learning and teaching process. [5].

The process of interaction in lectures occurs between lecturers and students as well as between students. Interaction will occur if lecturers and students give each other a two-way response related to lectures. If there is no interaction two-way, there will be a tendency for interaction that is only dominated by the lecturer during the lecture. While in the learning process, a good interaction is when the interaction is established both between lecturers and students as well as between students. Therefore, student interaction activities need to be increased to achieve learning objectives [6].

The success of a learning process is influenced by many things, including by lecturers and students themselves. According to Sani, [7] if students and lecturers contribute actively in a learning process, then the learning will run. effectively. Student activity will affect their own success in the teaching and learning process. When students are active in a learning process, the percentage of learning success will increase.

In a paper soft skill compiled by Mohammad Nawawi [8] with the title "The Importance of Interaction in the World of Education" explains that active interaction is one of the important points in learning activities because not only students benefit, but lecturers also get feedback. namely knowing whether the material that has been explained can be accepted and understood by students well. Therefore, interaction in the world of education, especially for educators and students, is very important so that the dynamics of education run well.

From some of the descriptions above, it can be concluded that active interaction in a learning process is very important, because: (1) Learning will not be carried out properly without interaction between learning components (teachers, students, objectives, materials, media, methods, and evaluation), by interacting students have the courage to communicate in their environment, students are brave and able to explain things, and are able to negotiate. (2) Lack of interaction can slow down the formation of assessment and reasoning in lessons, (3) If there is no interaction, there will be a tendency for interaction to be dominated only by lecturers during lectures, (4) Student interaction activity needs to be increased to achieve learning objectives, (5) When students are active in the learning process, the percentage of learning success will increase, (6) The lecturers also get feedback, namely knowing whether the material that has been delivered can be accepted and understood by students well, and lastly (7) Interaction in The world of education, especially for educators and students, is very important so that the dynamics of education run well.

In fact, the activeness of student interaction has not been fully maximized. This can be seen from the results of research conducted by Deci and Dewi with the research title "Identification of Student Learning Difficulties in Statistics Courses During the Pandemic Covid-19" conducted at the Indragiri High School of Economics (STIE) which shows that there is still a lack of student activity during lectures. take place. The data collection instrument developed in this study was a combination of closed and open questionnaires regarding student learning difficulties in statistics courses with 4 indicators, namely factors from themselves (students), factors from lecturers, environmental factors/parents, and infrastructure factors. On the self-factor, there is a DS 4 indicator which is a statement about the low activity of students during lectures. The average score and the percentage of Respondent Achievement Level (TCR) were 2.28 and 57%, respectively. This means that the DS 4 indicator is included in the fairly large category. From these results, it can be said that the activeness of student interaction in the lecture process during the pandemic is Covid-19 still low. [9]

In a study conducted by Ruina Nur Fitria and friends with the title "Level of Student Activity in Learning Mathematics Using E-Learning and Platforms Online", the respondents involved were 10 students, namely 3 students from SMAN 2 Madiun, 2 students from SMAN 5 Madiun , 2 students from SMKN 1 Jiwan, and 3 students from SMKN 1 Madiun. The results also show that when online learning is active, student interaction decreases and even worsens compared to face-to-face learning. [10]

In this study, researchers have conducted preliminary research in the form of questionnaires distributed to students from several study programs, namely the Mathematics Education study program class 2018 to class 2020, English Education study program class 2020, and also Communication Studies class 2020, especially for students who have laptops that can be used as learning media in online lectures with a total of 52 students. Because, according to the experience conveyed by one of the Mathematics Education lecturers, students who have learning media in the form of laptops will be more certain in following the lecture process online when compared to learning media in the form of cellphones. So that the active interaction of these students will be analyzed.

The questionnaire distributed contained student self-data, a list of student courses, as well as statements containing indicators of student interaction activeness. Students just choose one of the columns that have been provided based on the answers that match the respondents. From the results of the questionnaire, it was found that the subjects most chosen by respondents based on the low level of active student interaction were mathematics statistics courses with the number and percentage of 8 students and 15.4% respectively.

Based on the findings of the problems described above, the researcher feels the need to conduct research on "Analysis of the Interaction Activity of Mathematics Education Students During the Online Mathematics Statistics Lecture Process" to evaluate the extent to which student interaction activities during the online mathematics statistics lecture process can be achieved in order to achieve learning objectives.

2 Research Methods

In this study, researchers used descriptive research methods with a qualitative approach. Descriptive method is a research method that describes the process from time to time in natural situations without researcher engineering, can also reveal a reasonable relationship between researchers and informants [11]. While the qualitative approach is a research approach that stems from an inductive mindset, which is based on participatory objective observations of a social phenomenon. [12]

The researcher chose the descriptive qualitative research method because the purpose of this study was to describe specifically the extent to which the active interaction of mathematics education students in mathematics statistics courses in a pandemic situation that required the use of technology in the lecture process was seen from the results of observations, questionnaires and interviews that had been designed previously.

In this study, the questionnaire will be measured using the Guttman scale. This scale is a scale that is firm and consistent by giving firm answers such as "Agree - Disagree" with the following values:

Agree (S) : Value 1
Disagree (TS) : Value 0

After the assessment, it will be calculated by way of percentage (%) of answers, namely:

$$P = \frac{a}{b} \times 100\% \quad (1)$$

Information:
P: Percentage
a: Number of statements agree
b: Total of all statements

Guidelines to determine the activeness of student interaction, researchers use the following percentage criteria: [13]

a. If 76-100% of the answers agree: Active
b. If 60-75% of the answers agree: Fairly Active
c. If 0-59% the answers agree : Less Active The data analysis technique used in this qualitative research has three stages, namely:
    1) Data Reduction
       The Objective of data reduction is to simplify the data obtained during data mining in the field. This data reduction process is carried out by researchers continuously when conducting research in order to produce a core record of the data obtained from the results of data mining.
    2) Presentation of Data
       Presentation of data is a set of structured information that gives the possibility of drawing conclusions. Data presentation is done to be able to see the overall picture or certain parts of the overall picture.

3) Drawing Conclusions
Drawing conclusions is the final stage in the data analysis process. In this section the researcher expresses conclusions from the data that has been obtained.

To test the validity of the data in this study, the researcher used a triangulation method. Triangulation method is a technique that explores the truth of certain information through various methods of data acquisition. The data obtained in this study were obtained from several methods, namely questionnaires, observations, and interviews. Therefore, in this study the researchers used the triangulation method. The purpose of this triangulation is to ensure the level of trust/validity and reliability of the data, by comparing the same thing obtained from various parties until a saturation point is reached.

3 Result and Discussion

In the questionnaire distributed during the preliminary research, it was found that the most widely chosen subject by students based on the low level of student interaction activity was the mathematical statistics course with the number of students and the percentages of 8 students and 15.4% respectively.

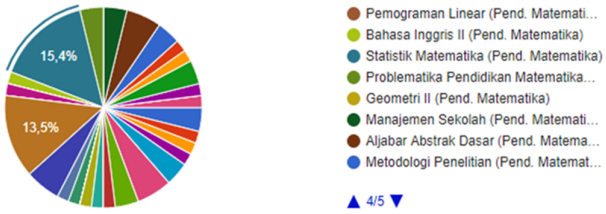

Fig.1 Diagram of Respondents to Selected Courses

In accordance with the number of students obtained, namely 8 students, the following is the presentation of the data for the eight students based on all questionnaire statements.

a. Respondents' responses (R1) to all questionnaire statements obtained the number of Agree answers as many as 28, then the percentage is 25%.
This condition is included in the category less active. This means that according to the results obtained, respondents have a low level of active interaction.
b. Respondents' responses (R2) to all questionnaire statements obtained the number of Agree answers as many as 16, then the percentage is 60,71%.
This condition is included in the category fairly active. This means that according to the results obtained, respondents have a fairly high level of active interaction.
c. Respondents' responses (R3) to all questionnaire statements obtained the number of Agree answers as many as 26, then the percentage is 53,57%.
This condition is included in the category less active. This means that according to the results obtained, respondents have a low level of active interaction.
d. Respondents' responses (R4) to all questionnaire statements obtained the number of Agree answers as many as 26, then the percentage is 50%
This condition is included in the category less active. This means that according to the results obtained, respondents have a low level of active interaction.

e. Respondents' responses (R5) to all questionnaire statements obtained the number of Agree answers as many as 21, then the percentage is 64.28%.
   This condition is included in the category fairly active. This means that according to the results obtained, respondents have a low level of active interaction.
f. Respondents' responses (R6) to all questionnaire statements obtained the number of Agree answers as many as 17, then the percentage is 39.28%.
   This condition is included in the category less active. This means that according to the results obtained, respondents have a low level of active interaction.
g. Respondents' responses (R7) to all questionnaire statements obtained the number of Agree answers as many as 23, then the percentage is 57,14%.
   This condition is included in the category less active. This means that according to the results obtained, respondents have a low level of active interaction.
h. Respondents' responses (R8) to all questionnaire statements obtained the number of Agree answers as many as 22, then the percentage is 42.85%.
   This condition is included in the category less active. This means that according to the results obtained, respondents have a low level of active interaction.

From the data obtained, the students selected to be respondents in the questionnaire which will be distributed further regarding the factors that affect the activeness of student interactions, as well as to conduct interviews are respondents (R1) and (R6) with a percentage of 25% and 39.28% represents the Less Active category, then respondents (R2) and (R5) with their respective percentages of 60.71% and 64.28% representing the Moderately Active category. Then, added two students who were suggested by one of the lecturers who teach in the class, namely students belonging to the Active category, namely respondents (R9) and (R10).

Then the student is given a questionnaire and the results are in accordance with the lecturer's recommendation that R9 and R10 belong to the Active category with the respective percentages being 92.85% and 96.42%. Thus, the total number of respondents selected to represent each criterion was 6 students, namely R1 and R6 representing the Less Active category, R2 and R5 representing the Moderately Active category, and R9 and R10 representing the Moderately Active category.

3.1 Triangulation Data

The following are the results of triangulation methods that have been carried out on research subjects, namely:

Less Active Categories

Table 1. Results of Triangulation Less Active Categories

Respondents	Questionnaire	Observation	Interview	Triangulation
R1 & R6	The level of active subject interaction is very low or less active. For example, they do not understand the material, do not want to ask questions, and the material is incomplete so they become lazy.	Students in the category **less active** almost never respond to calls from lecturers during lectures. If the lecturer calls them and wants to ask if they have understood the material or not, they almost never give a response.	Subjects do not always pay attention to the lecturer's explanation, pay attention to the lecturer's explanation according to the *mood* (mood) of learning; the subject rarely asks the lecturer; subjects were also unable to answer the questions posed to them; the subject also did not	Valid

			dare to interrupt something during the lecture; and not actively communicating	

Moderately Active Category

Table 2. Results of Triangulation Category Fairly Active

Respondents	Questionnaire	Observation	Interview	Triangulation
R2 & R5	The level of activeness of the subject's interaction is quite active. For example, discussing with classmates, doing assignments and responding when called by the lecturer.	Students with categories **fairly active** always respond to calls from lecturers during lectures. The subject is quite active in interacting if the lecturer points or calls first, such as being appointed to read the lecture material, as well as answering questions posed by the lecturer.	Subjects pay attention to the lecturer's explanation but not always due to an unstable network; the active subject asks if his name is called or appointed by the lecturer; subjects are also able to answer questions posed to them; and they are also actively communicating.	Valid

Active Category

Table 3. Results of Triangulation Active Category

Respondents	Questionnaire	Observation	Interview	Triangulation
R9 & R10	T level of active subject interaction active. For example, try to answer if the lecturer asks and ask the lecturer if there is material that you do not understand.	Students with categories **active** always respond to lecturer calls, always answer questions posed by lecturers, present the results or answers of completed assignments, and ask lecturers about material that is not understood.	The subject pays attention to the lecturer's explanation from beginning to end and keeps trying even though the network is unstable, the subject is also brave and active in asking the lecturer, the subject is brave and able to answer questions posed by the lecturer and friends, the subject dares to interrupt something; and actively communicate during the lecture.	Valid

3.2 Data Analysis

In this section, data have been obtained from the collection of the data will be analyzed as follows:

a. Analysis activeness Interaction Student Mathematics Education During the Process Class Mathematical Statistics Books Online

Based on the questionnaire that has been deployed at the time of preliminary research, the researchers were able to conclude that the activity of student interaction Mathematics education during the online mathematics statistics course is classified into the Less Active and Moderately Active categories. Most students have a relatively low level of interaction activity or are less active in interacting and a small number of students have a fairly high level of interaction

activity or are quite active in interacting. Then, there are also some students who have a high level of active interaction or are active in interacting, one of the lecturers who teaches in the class chooses two students with the Active category.

So, it can be concluded that the active interaction of mathematics education students during the online mathematics statistics course is classified into three categories, namely Less Active, Moderately Active and Active. This is in accordance with the results of the questionnaire on item 25 which asks “What do you think is the level of activeness of your interactions during online Mathematics Statistics lectures? Explain the example” then R1 answered that the level of active interaction was very low, for example, did not understand the material and did not want to ask questions; R6 answered that the level of active interaction was less active because the material was incomplete so that it became lazy, R2 answered that the level of active interaction was quite active, for example discussing with classmates and doing assignments; then R5 answered that the level of activeness of the interaction was not very active, only when called by the lecturer; R9 answered that the level of activeness of the interaction was good, for example trying to answer if the lecturer asked and asking the lecturer if there was material that he did not understand; and R10 answered that the level of activeness of the interaction was active.

This is evidenced by the results of observations which show that students with the Less Active category almost never respond to calls from lecturers during lectures. If the lecturer calls them and wants to ask if they have understood the material or not, they almost never give a response. Meanwhile, students in the Moderately Active category always respond to calls from lecturers during lectures. They are quite active in interacting if the lecturer points or calls first, such as being appointed to read lecture material, and answer questions posed by the lecturer. Then the results of observations also show that students with the Active category not only always respond to lecturer calls but also always answer questions posed by the lecturer, present the results or answers of the completed tasks, ask the lecturer about material that is not understood, and dare to ask permission from the lecturer. lecturers to request PPT containing lecture material.

This is also supported by the results of interviews from six student representatives from each category which showed that students in the Less Active category did not always pay attention to the lecturer's explanation, one of them answered that paying attention to the lecturer's explanation was in accordance with the mood (mood) of learning; they rarely asked questions, even one of them answered never asked the lecturer; nor are they able to answer the questions put to them; they also do not dare to interrupt anything during the lecture; and they are also not actively communicating. Meanwhile, students in the Moderately Active category paid attention to the lecturer's explanation but not always due to an unstable network; in terms of asking, one of them answered that actively asked if his name was called or appointed by the lecturer; they are also able to answer questions put to them; and they are also actively communicating.

Then the results of the interviews also showed that students in the Active category paid attention to the lecturer's explanation from beginning to end and kept trying even though the network was not stable; they are also brave and active in asking the lecturers; they are brave and able to answer questions posed by lecturers and friends; they also dare to interrupt something; and actively communicate during the lecture. From the data from the questionnaires, observations and interviews, it can be concluded that the level of active interaction of mathematics education students during the online mathematics statistics course is classified into the categories of Less Active, Moderately Active, and Active. From the 10 students measured, the following data were obtained:

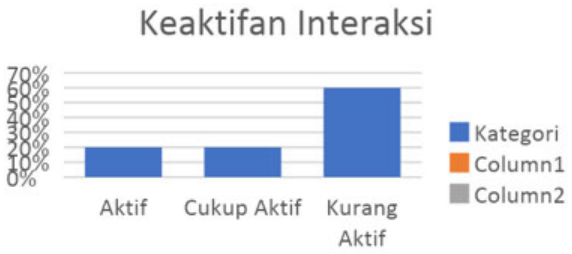

Fig. 2 Interaction Activity Diagram

b. Analysis of the Factors Affecting the Interaction Activity of Mathematics Education Students During the Online Mathematics Statistics Lecture Process

Based on the results of questionnaires distributed to six students from each answer category namely Less Active, Moderately Active and Active, it can be concluded that the factors that influence the active interaction of mathematics education students during the online mathematics statistics course are related to internal factors and external factors. The following is a discussion of each indicator of the internal and external factors.

Analysis the factors based on internal factors:

1) Have a healthy body

In a lecture process there are various interactions that occur between students and lecturers as well as between students. The interaction is carried out to deepen the discussion of the material being discussed. In interacting, good health is needed, such as having a healthy body. Having a healthy body will facilitate interactions that occur during lectures, because if there are students who are sick when the lecture activity process takes place, the student lacks concentration which results in non-optimal interactions because they endure the pain.

From the questionnaires that have been distributed, it is found that all respondents have a healthy body every time they take online mathematical statistics lectures, but one of six respondents, namely students with the Active category feel a little tired after lectures because the mathematics statistics course has 4 credit hours of lectures. This means that all respondents have the possibility to interact optimally during the lecture process, but in reality, not all students are active in interacting. So, it can be concluded that the inactivity of students in interacting is not caused by an unhealthy body.

2) Having intelligence

Students who have intelligence and ability to adapt quickly and precisely to their environment will be able to interact optimally during the process of lecture activities. From the questionnaire data, it shows that students with the Less Active category are less able to understand the material explained by the lecturer, while students with the Moderately Active category understand the material explained by the lecturer, then students with the Active category understand the material explained by the lecturer well. This means that each category has a different level of understanding ability.

The data from the questionnaire also showed that students in the Less Active and Moderately Active categories had problems in completing mathematics statistics lecture assignments because of some materials that were not understood, to complete the task in completion they tried to do it themselves first, but when there were difficulties then they using other alternatives, namely from the internet, YouTube or asking classmates. Meanwhile, students in the Active category have obstacles in completing lecture

assignments, namely it takes time to type assignments because they use equations in Microsoft Word that are used, and there are also constraints on the learning resources used because they are not suitable.

This means that all students have different obstacles in completing their study assignments. Students in the Less Active and Moderately Active categories have problems in terms of lack of understanding of the material, while students in the Active category have problems in terms of time for typing assignments and also learning resources that are not suitable. So, it can be concluded that the intelligence possessed by each student varies according to their respective categories and the good or bad intelligence possessed by students can affect the level of active student interaction.

Analysis the factors based on external factors, is:

a. Ready to carry out learning activities

Students who are ready to carry out learning activities by preparing all the equipment first before carrying out learning activities, these students will look more active when compared to students who do not or do not prepare all the equipment before the learning activities begin. This is evidenced by the results of a questionnaire which shows that before starting lectures, students in the Less Active category must first prepare a laptop/cell phone, and internet network, while students in the Moderately Active and Active category first prepare laptops and cellphones, internet quotas, networks, laptop batteries, opens Microsoft Teams, books, stationery, even mental.

Readiness to do learning is also seen from the focus of students on the explanation of the lecturer's material, from the questionnaire data it shows that students with the Less Active category focus on environmental conditions, even one of them answered that they often do not pay attention to the lecturer when explaining the material, then when the learning environment is less supportive than their focus distracted to do other activities. Then students in the Moderately Active category do not always focus on the lecturer's explanations due to boredom and when the learning environment is not supportive, they may become less focused, but one of them answered that they were able to stay focused if they understood the material.

Meanwhile, students in the Active category can focus on explaining the lecturer's material when the connection is smooth even though the learning environment is not supportive. So, it can be concluded that the preparations made by students in the Moderately Active and Active categories are more optimal than the preparations made by students in the Less Active category. That is, readiness in carrying out learning activities can affect the active interaction of mathematics education students during the online mathematics statistics lecture process.

b. Having talent in oneself

Talent in a student can be seen from the mastery of a particular field and also the difficulties experienced in that field. In this indicator, the results of the questionnaire show that students in the Less Active category have lower or less mastery of mathematical statistics than other fields, while students in the Moderately Active category have the same mastery of mathematical statistics as other fields.

Then students with the Active category have good mastery and develop and are the same as other fields. It can be concluded that students' mastery in the field of mathematical statistics varies according to their respective categories. That is, the talent that exists in a student can affect the level of active student interaction.

c. Having learning experience

The results of the questionnaire on this indicator show that almost all respondents have a good experience in learning mathematics statistics, but there are also those who feel bored and

tired because the number of credits is too many. The results of the questionnaire also showed that one out of six students had never had experience of studying mathematical statistics before, while the other five students had experience of studying mathematics statistics, namely during high school, junior high and high school, and there were also during the previous semester.

In the interview data, it is explained more specifically about the learning experience of each respondent in mathematical statistics lectures, which shows that there are differences in the learning experiences possessed by each category, including students with the Less Active category not always paying attention to the lecturer's explanation; they rarely asked questions, even one of them answered never asked the lecturer; nor are they able to answer the questions put to them; they also do not dare to interrupt anything during the lecture; and they are also not actively communicating.

Meanwhile, students in the Moderately Active category paid attention to the lecturer's explanation but not always due to an unstable network; they actively ask if their name is called or appointed by the lecturer; they are also able to answer questions put to them; and they are also actively communicating. Then students in the Active category said that they paid attention to the lecturer's explanation from beginning to end and kept trying even though the network was not stable; they are also brave and active in asking the lecturers; they are brave and able to answer questions posed by lecturers and friends; they also dare to interrupt something; and actively communicate during the lecture. This shows that having a learning experience affects the activeness of student interaction during the lecture process.

d. The existence of learning motivation

In this indicator, the results of the questionnaire show that two out of six students do not have self-motivation when taking online mathematics statistics lectures, namely students with the Less Active and Active categories. Furthermore, the results of the questionnaire also showed that students in the Less Active category did not get motivation from the lecturer during the mathematics statistics lecture, while students in the Moderately Active and Active category received motivation from the lecturer during the mathematics statistics lecture. So it can be concluded that the existence of learning motivation affects the active interaction of students during the mathematics statistics lecture process.

e. The learning materials used are interesting and easy to understand

The results obtained in the questionnaire show that the subject matter used in the mathematics statistics course is from the LKMD, PDF and PPT modules. Students in the Less Active category thought that the lesson materials used were not good because some used English and were also incomplete, then students in the Moderately Active category argued that the learning materials used were quite helpful, but one student answered that they did not fully understand the material. lessons used. Then, students in the Active category stated that the learning materials used were good and good because they required statistical thinking.

The data from the questionnaire also showed that according to students with the Less Active category, the learning materials used were less interesting because there were still some materials that were not so complete that they were difficult to understand. Meanwhile, one student in the Moderately Active category argued that the learning materials used were interesting and easy to understand because there were explanations and examples of questions. Then, students in the Active category thought that the learning materials used were easy to understand and quite interesting.

In the interview data, it was explained more specifically that five out of six students said that the way the lecturer delivered the material was monotonous. The results of the interview also explained that each material was equipped with sample questions. Then one of the students in the Less Active category said that the material used was abstract, as well as the opinion of

students in the Moderately Active category. However, it is different from students in the Active category who stated that the material used was not abstract because it was interconnected. Then four of the six students interviewed said that the mathematical statistics course requires creative ideas to make it easier to understand and not monotonous, and so that difficult material can be easy.

So, it can be concluded that if the learning materials used are interesting and easy to understand, it will affect the active interaction of mathematics education students during the lecture process.

f. The existence of learning media

In the questionnaire data obtained, it shows that the learning media used in mathematics statistics lectures is a laptop using the Teams application. Of all respondents stated that no one had difficulty in using the learning media, except in terms of networks and slow laptops. So it can be concluded that the inactivity of students in interacting is not caused by the learning media used in the lecture process.

g. Comfortable learning atmosphere

In accordance with the results of the questionnaire obtained, it shows that the learning environment of all respondents is good and supportive, but sometimes has obstacles such as a network that is not good and also the environment is sometimes quite noisy. The results of the questionnaire also show that three out of six students are not comfortable communicating online because sometimes miscommunication occurs.

Then the results of the questionnaire also showed that most of the respondents said that there were disturbances experienced during mathematics statistics lectures, namely the network and the environment were not conducive. Furthermore, regarding the availability of a good internet network, three out of six respondents answered that the internet network was quite good, two more students answered that sometimes it was good and sometimes not good, and another student answered that he had wifi but it was not good because it was often slow.

The interview data shows that on average the respondents answered that the learning atmosphere in mathematics statistics lectures was usually quiet, quietly. Then the results of the interview also showed that three of the six respondents did not have difficulties in communicating even though the environment was not conducive, the rest of the students had difficulties such as because they did not understand the material, as well as because of the network and busy friends. Furthermore, the results of the interview said that three of the six students, namely students in the Active category and one student in the Less Active category were enthusiastic in taking online lectures, the rest were not enthusiastic about taking online lectures.

Then the results of the interview also showed that the condition of the economic environment of one in six students, namely the Less Active category decreased because online lectures needed to buy internet packages. So, it can be concluded that each student from the three categories has almost the same learning atmosphere. That is, the inactivity of students in interacting is not caused by the learning atmosphere during the lecture process.

h. Exploring other factors

In addition to the factors above, there are several other factors that affect the activeness of the student interaction, namely:

1) Willingness to learn

Based on the answers from students with the Less Active category, namely R1 to the questionnaire question (item 26) "What do you think caused you to become active/quite active/inactive in online Statistics lectures? Please explain your answer and it is very possible to have more than one" the answer is that R1 does not understand the material

explained and does not want to ask. This means that students' willingness to learn can affect the activeness of their interactions, seen from the absence of R1's willingness to ask the lecturer for material that is not understood.

2) Method of delivering material

Based on the answers from students to the questionnaire (item 26) “What do you think causes you to be active/quite active/inactive in online Statistics lectures? Please explain your answer and it is very possible to have more than one” the answer was obtained from R6 that the lecturer was not very clear in explaining the material. R5 also answered that the lecturer explained the material was not interesting and boring. That is, the way the material is delivered by the lecturer can affect the activeness of student interaction.

3) Internet network

Based on one of the interview questions, "During the course of mathematics statistics lecture, did you pay attention to the explanation from the lecturer?" obtained an answer from R5 that sometimes the network is not stable so it does not fully pay attention from the beginning of learning. Then R9 replied that trying to pay attention even though the network was unstable. Then R10 replies that it pays attention, but if for example the network is unstable, it loses. This means that R10 cannot interact optimally if the network is unstable. This is supported by R10's answer to the interview question "During the mathematics statistics lecture, did you actively ask questions?" R10 replied that he was active because every lecture he always asked if the network was safe (stable). That is, if the network is unstable then most likely R10 is not actively asking. So it can be concluded that the network can affect the activeness of student interaction.

From several indicators of the factors that influence the active interaction of students described above, it can be concluded that the factors that influence the active interaction of mathematics education students during the online mathematics statistics course are internal factors and external factors. Internal factors include indicators: have intelligence, are ready to carry out learning activities, have inner talent, and have learning experiences. Then external factors include indicators: the existence of learning motivation and the learning materials used are interesting and easy to understand. As well as other factors include: willingness to learn, how to deliver the material, and the internet network.

4 Conclusion

Based on the results of research conducted by researchers, it can be concluded that of the 10 students whose level of interaction activity was measured, there were 20% who were active, 20% were moderately active and 60% were less active. The factors that cause student activity or inactivity are influenced by: Internal factors include indicators: have intelligence, are ready to carry out learning activities, have talent in themselves, and have learning experiences. Then external factors include indicators: the existence of learning motivation and the learning materials used are interesting and easy to understand. As well as other factors include: willingness to learn, how to deliver the material, and the internet network.

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