ANALYSIS OF LEARNING INTEREST OF VOCATIONAL SCHOOL STUDENTS ON THE TOPIC OF DERIVATIVE FUNCTIONS IN THE ERA OF DIGITAL DISTORTION

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Abstract
The purpose of this study was to describe (1) students' interest in learning in mathematics and (2) the factors that influence student interest in mathematics in vocational schools. This research is a quantitative descriptive study. The number of samples used to obtain data on student interest in learning in the study were 9 classes consisting of 3 majors, namely TKJ 1, TKJ 2, TKJ3, DPIB 1, DPIB 2, DPIB 3 and TBSM 1, TBSM 2, TBSM 3, students. Class XII while the number of samples used to obtain data on the factors that influence interest in learning is 36 students who were taken by purposive sampling technique. The results showed that the profile of students' interest in learning mathematics in class XII was 35% high, 38% of students who were classified as moderate, and 27% of students who were low. Students' interest in learning mathematics in vocational schools is influenced by two factors, namely internal and external factors. Internal factors that influence interest in learning chemistry are curiosity, ideals, motivation, and intelligence, while external factors that influence are the family environment, the way teachers teach, peers, learning media and learning materials.

Keywords: Learning interest, Mathematics, Covid-19 Pandemic

INTRODUCTION

At this time, Indonesia is one of the countries affected by Covid 19. To date, around 1.5 million people have been infected with Covid 19. There are various types of infected individuals ranging from OTG and individuals who experience symptoms of infection. The government seeks vaccination for people who have high mobility, one of which is teachers and lecturers, but still the spread of Covid 19 cannot be controlled optimally. Currently, the Cirebon City and Regency area alone has been designated a red zone and PSBB. This indicates that the spread of Covid 19 is very fast, especially spreading to crowds of people who organize various kinds of activities. Therefore, with the current pandemic conditions, the government under the auspices of the Ministry of Education and Culture instructs that teaching and learning activities for students, especially vocational schools, should study at home online. Of course, learning problems and obstacles experienced by teachers and students can occur and are complex in nature. This is a new challenge and problem facing education in Indonesia today, where for centuries, learning has always been done face-to-face, but with the current pandemic situation, all teaching and learning processes have changed drastically and are carried out online. Actually, the basic problem in online learning activities is changing habit patterns, (Pramuditya SA, Sulaiman H & Wahyudin, 2019). Because it is necessary to know that learning currently only relies on stationery and is done

manually. The use of digital technology by teachers and students is still limited. However, things have changed since the pandemic occurred and all teaching and learning activities are carried out online. Teachers and students are required to be able to use digital technology which is actually available on various existing learning platforms. This is the challenge and has actually become an obstacle and problem of online learning in Indonesia. On the one hand, teachers are not well versed in digital-based learning technology, so that online learning seems monotonous and ordinary. On the other hand, the obstacle faced by students is the quality of the signal which is often faced by those whose homes do not support internet connection. Not to mention the inadequate online learning tools such as the availability of laptops and mobile phones that are sometimes shared with family members, so of course it can interfere with their focus and motivation in learning. Problems and obstacles like this can affect the quality of online learning in the current Covid 19 pandemic situation.

When researchers conducted a situation analysis or initial observation, teachers experienced problems in terms of learning activities as described above. The majority of them experienced confusion and did not know much about the existing learning platforms. They only rely on whatsaap group and google classroom to support online learning activities. They can download learning videos from the internet and share them to whatsaap group or google classroom. So, students only listen and learn from YouTube videos that the teacher shares, without being explained again by the teacher. Furthermore, the teacher gives assignments or projects from the videos that have been shared, and students work on these assignments with a predetermined collection duration. Evaluation tools in the form of portfolios held by teachers to assess the abilities of their students, (Pramuditya SA & Sulaiman H, 2019) . Actually, there have been many trainings or workshops that explain and introduce various learning platforms that are easy to use and effective and efficient. However, the habit factor makes the majority of teachers reluctant to use the platform. Therefore, it is because of this cause that online learning problems during the Covid 19 pandemic can occur and tend to be complex. The government should not remain silent, must be able to solve this problem and make a surefire strategy so that teachers can change their habits in teaching, one of which is to have skills in the use of digital technology as a supporter of their competence and of course have creative and innovative thinking. So current online learning activities can run optimally, and students can also learn according to their needs.

Talking about Mathematics, of course, is closely related to the cognitive abilities that students must have, (Firmasari S & Sulaiman H, 2020). Whatever the level of education, from kindergarten to university, mathematics has become a subject that must be studied and trained by students, (Firmasari S & Sulaiman H, 2019). The cognitive abilities in Mathematics are very complex, in fact almost all abilities are contained in Mathematics, (Firmasari S, Sulaiman H, Hartono W & Noto MS, 2019). It is not surprising that the marker or characteristic of a person said to be smart or clever is seen from his Mathematics ability, (Khodaria S, Maharani A & Sulaiman H, 2019). The nature of Mathematics which is rule-abiding, systematic, dynamic process, manipulative, abstract relational, imagination, rigorous and critical thinking, to modeling Mathematics is an inseparable part when students learn Mathematics, (Irmawan W, Sundawan MD & Sulaiman H, 2019). This is the reason why it is very difficult for students to comprehensively understand and explore Mathematics, (Maharani A, Sulaiman H, Aminah N & et al, 2019). Unlike other subjects, Mathematics tends to have knowledge that is used as a basis or prerequisite for learning the next topics, (Putri DP, Sulaiman H, Wahyuni I & Raharjo JF, 2017). If students are weak in mastering the prerequisite material, it is certain that they will be confused or do not understand the topics of the next material, (Raharjo JF, Sulaiman H & Wahyuni I, 2017). Usually, they tend

to be silent and do not try to understand the prerequisite material and let the incomprehension expand. So that many of them do not understand and are ignorant when learning Mathematics at school, which results in the influence of very low learning outcomes, (Yunita DR, Maharani A & Sulaiman H, 2019). Online learning today, of course, affects students learning Mathematics. Including the way the teacher teaches, or the platform used during online learning also triggers students' weak enthusiasm. Therefore, the researcher wishes to find out how students' interest in learning Mathematics and what factors influence students' interest in learning, (Santi DPD, Sulaiman H & Kurnia MD, 2019). This research was conducted in class XII of vocational schools for TKJ 1, TKJ 2, TKJ3, DPIB 1, DPIB 2, DPIB 3 and TBSM 1, TBSM 2, TBSM 3. This research is very important because it can find out the learning interests of students in vocational schools towards learning Mathematics and what factors influence it when learning is done online. So that by finding the profile of this learning interest and the factors that influence it, it can be used as a reference for teachers to further improve the quality of their learning online. And must be able to increase learning motivation amid the limitations that students have through efforts in the form of creative and innovative learning strategies and tactics. So that in the future students will be more enthusiastic and enthusiastic in learning Mathematics, (Santi DPD, Sulaiman H & Kurnia MD, 2020).

Actually, there have been many journals or articles that thoroughly explore the learning interests of students. Such as an article entitled "Analysis of Learning Interest of MTS Class VII Students in Mathematics Learning Algebraic Material Based on Gender" written by Badriyatur, et al in 2019. This article reveals that the analysis of learning interests of male and female students tends to have similarities. Students' curiosity about the topic of algebra generally has the same score. This indicates that students' learning needs to learn Mathematics in depth tend to be the same. In addition, research written by Suci, et al in 2019 with the title "Analysis of Learning Interest of MA Al-Mubarok Students Through a Scientific Approach Assisted by Geogebra Application on Basic Statistics Material". In essence, this study tells that interest in learning is very influential on learning outcomes. Therefore, interest in learning is very important to develop in oneself, in order to have the awareness to learn in order to get the expected learning outcomes. The difference and novelty of this research is that the research time was conducted during the Covid 19 pandemic, where the variables that determine learning interest are very different from the offline learning atmosphere. In addition, the platform used as a learning facility for students also influences how interest in learning during the current pandemic.

METHODS

This research is a quantitative study with data collection using questionnaire instruments and interviews. The subjects of class XII vocational school students with majors in TKJ 1, TKJ 2, TKJ3, DPIB 1, DPIB 2, DPIB 3 and TBSM 1, TBSM 2, TBSM 3 were 280 people. Data collection techniques are interviews with students and math teachers. Interviews are used to obtain data related to factors that influence interest in learning mathematics when learning Mathematics in the current Covid 19 Pandemic situation. Questionnaires were used to obtain data related to students' interest in learning Mathematics. Data analysis in this study used interpretative descriptive, questionnaire data analysis analyzed by qualitative descriptive, and data analysis of interview results analyzed by interpretative descriptive.

RESULTS AND DISCUSSION

a) Student Learning Interest in Mathematics Subject

Students' learning interest in learning Mathematics can be seen from five aspects, namely attention, feelings of pleasure, interest, participation, and satisfaction. Student learning interest is collected through an interest questionnaire. The acquisition of student learning interest scores through questionnaires is categorized into five, namely very high, high, medium, low, and very low. The learning interests of class XII students for all majors in vocational schools can be presented in table below.

Table 1. Results of Class XII Students' Learning Interest

No.	Category	Score Percentage
1.	High	35 %
2.	Medium	38 %
3.	Low	27 %

From the table above it can be seen that student interest in learning from the questionnaire that has been distributed shows a moderate category with a percentage score of 38%. Actually, if the mathematics teacher provides creative tactics and strategies, then students' interest in learning Mathematics is also in a high position. Then, the following presents the results of the analysis of the five aspects of learning interest in the table below.

Table 2. Results of Student Learning Interest Indicators

No.	Learning Interest Indicator	Percentage of Highest Score	Category
1.	Attention	47 %	Medium
2.	Enjoyment	60 %	medium
3.	Interest	38 %	medium
4.	Participation	60 %	high
5.	Satisfaction	39 %	high

The table above explains the highest score in each aspect of students' interest in learning. Each aspect shows moderate to high criteria. The participation aspect is in the high criteria because students are active in answering or expressing ideas or ideas from the teacher's explanation or the questions given. Students' comfort with the teacher also influences their participation in learning and understanding mathematics concepts. Likewise with satisfaction, it is also in a high position because after practicing or working on Mathematics problems and discussing with the teacher, if the answer they present is correct then there is a sense of satisfaction in their hearts and more motivation to study Mathematics outside of school hours.

b) Factors that can Affect Student Learning Interest

Learning interest is a very influential factor in teaching and learning activities. With learning interest, students can focus on understanding, understanding and exercising their logical and reasoning power optimally when learning Mathematics, (Sulaiman H, Hapsari T, Tonah & Nasir F, 2020). Learning interest is one of the determining factors in order to get good and satisfying learning results, (Sulaiman H, 2019). Actually, teachers try to increase their students' interest in learning through learning activities that are fun and easy to understand, (Sulaiman H & Nasir F, 2020). All that remains is for the students to review the results of Mathematics learning that has been taught during school hours and learn to further develop

their ability to understand Mathematics outside of school hours, (Sundawan MD, Irmawan W & Sulaiman H, 2019).

It should be noted that interest in learning mathematics for vocational school students can be influenced by two factors, namely internal and external factors. Internal factors consist of ideals, motivation, and intelligence. In this factor, students have aspirations to be able to develop the potential that exists within themselves and strive to realize what their hope is by learning, while intelligence is developed in order to realize what their goal is. External factors arise from outside themselves such as topics in school subjects, family, teachers, and peers that can affect their interest in learning. In addition, the nature of curiosity is one of the factors that influence students' interest in learning Mathematics, here the role of the teacher is very decisive in increasing curiosity by providing creative and fun Mathematics learning tactics and strategies. According to (Sulaiman H, Shabrina F & Sumarni S, 2021) states that the emergence of interest in students can in principle be divided into two types, namely: 1) interest that grows within 2) interest that grows due to external influences. Interest that grows from within students is influenced by heredity or natural talent. This means that with the presence of genes as an inheritance of traits from parents, the student's interest in learning remains in him. Meanwhile, the interest that arises because of external influences comes from the surrounding environment whether it supports or not in the formation of students' interest in learning. According to (Irmawan W, Sulaiman H & Santi DPD, 2021) revealed that there are two types of causes of interest in students, namely spontaneous interest and patterned interest. Spontaneous interest arises when students learn and think that the activity being carried out is very favorable and there is an interest in learning more focused. Meanwhile, patterned interest arises due to the influence of planned activities, for example when the teacher explains that there will be certain Mathematics topics routinely and learning activities carried out by students which gradually create a sense of liking from within students to learn more deeply.

In this study, it was found that students who had a high interest in learning were influenced by high curiosity when learning Mathematics. All vocational class XII students with cross majors who have great curiosity when learning Mathematics are due to the teacher's good ability to teach online by providing appropriate learning tactics and strategies during online learning during this Pandemic. In addition, the teacher's proficiency in using online learning applications contributes the most in developing students' curiosity. Online learning that is attractively packaged and creative teaching strategies and tactics make students feel served by their learning needs. Furthermore, the demand to realize their dreams supported by their parents at home also contributes to students' interest in learning Mathematics. Students understand that when they master Mathematics, it can facilitate their steps to realize their dreams in the future. They realize that hard work and an unyielding spirit are the basic capital to realize what their hope is, of course, coupled with prayers and blessings from both parents. This is the basis for their awareness to be more active and develop an interest in learning Mathematics (Anggara B & Iman S, 2019).

Motivation is one of the internal factors that affect students' interest in learning. In class XII students there are around 27% who have low interest in learning. One of them is caused by the weak motivation of students. Motivation is closely related to interest in learning. The low motivation is because students prefer practical work compared to theory such as Mathematics. Cross-majors also dominate this low student motivation. Students assume that after graduating from vocational training, they will immediately work according to their majors. In addition, intelligence has a great influence on student interest in learning. (Awliyah W & Yusnita AF, 2018) states that a person who has good intelligence is generally

easy to learn and his learning results tend to be good. on the other hand, people with low intelligence tend to experience difficulties in learning, slow thinking, so that student achievement becomes low. External factors that influence class XII students' interest in learning mathematics subjects are teaching materials, which have actually become an obstacle when learning online. In this study, it was found that some students have low interest in Mathematics because they think that the topics in Mathematics are very difficult to digest and understand. The availability of teaching materials does not adequately serve their learning needs. The spearhead of increasing students' interest in Mathematics is the teacher. In this case, the teacher acts as a facilitator and guide for students to direct them to understand Mathematics topics comprehensively.

Environmental influences can affect students' interest in learning Mathematics. Parents are the main factor in determining whether students have a good interest in learning Mathematics or not. Parental support at home such as controlling their children to study at home or participating in accompanying their children in doing assignments or reviewing the results of discussions or teacher explanations when studying online greatly determines students' interest in learning (Jumiati Y, Chronika, Manalu AS & Siti C, 2019). Because students feel accompanied and monitored by their parents simultaneously, motivation will arise from within them to try to understand the essential concepts of Mathematics lessons to the fullest. Constructive advice and suggestions from parents are also important in developing enthusiasm, motivation and interest in Mathematics. Online learning conducted in the current Covid 19 Pandemic situation requires students to have good internet access to support all their learning activities and needs, including online learning media such as mobile phones and laptops. So, complete and adequate online learning support facilities are also one of the determining factors for students' interest in learning Mathematics. Peers also influence students' interest in learning Mathematics. A classroom environment that has a sportive and positive competition pattern also has a positive impact on the growth of interest in learning Mathematics. Mutual support between friends, discussing together in groups, or learning together makes students more enthusiastic in learning Mathematics. The unified frequency among peers can bring a positive flow in their minds and make motivation and interest in learning increase. Finally, there is the role of the teacher when teaching online. Creative and innovative teachers are expected by students when learning Mathematics on a particular topic. Students look forward to the video explanation of the material that the teacher delivers through the latest application and students understand the material delivered by the teacher. The discussion sessions that are conducted also add to student activity and participation as they try to understand Mathematics concepts through virtual video conferencing. The teacher's tactics and strategies in each minute are adjusted to the lesson plan that has been designed to make students feel satisfied when learning Mathematics. Their curiosity increases, and they have the opportunity to repeat the material that has been delivered by the teacher. Thus, from the explanation above, the influences that cause students' interest in learning to be good when learning online include ideals, intelligence, motivation, parents, advice and suggestions, peers, teaching materials and the way teachers teach. These influences result in high indicators of learning interest, namely attention, pleasure, interest, participation and satisfaction.

CONCLUSION

Based on the findings obtained during the research and the previous discussion, it can be concluded as follows: (1) the profile of learning interest of all XII grade students is 35% of students who are classified as having a high interest in learning mathematics, students who are classified as having a moderate interest in learning mathematics are 38%, and students

who are classified as having a low interest in learning are 27%. So the learning interest of all class XII students in mathematics is categorized as moderate, (2) the interest in learning mathematics of class XII students at vocational schools are influenced by two factors, namely internal factors and external factors. Internal factors that influence students' interest in learning mathematics are curiosity, ideals, motivation, and intelligence while external factors that influence students' interest in learning mathematics are family environment, teachers, peers, learning materials and learning media.

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