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ANALYSIS OF STUDENTS' DIFFICULTIES IN UNDERSTANDING CONCEPTS IN THE SYSTEM OF LINEAR EQUATIONS OF THREE VARIABLES (SPLTV) CLASS X

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Abstrak

Dalam pembelajaran matematika, banyak siswa yang mengalami kesulitan dalam memahami konsep Sistem Persamaan Linear Tiga Variabel (SPLTV) terutama pada jenjang SMA. Hal ini terjadi karena siswa mengalami kesulitan dalam menghubungkan konsep-konsep dasar dalam matematika, seperti aljabar, geometri, dan logika yang dibutuhkan untuk memahami materi SPLTV. Kesulitan ini sering muncul ketika siswa mulai mempelajari materi yang lebih kompleks, seperti SPLTV yang membutuhkan pemahaman yang lebih mendalam. Jenis penelitian yang digunakan adalah penelitian kualitatif dengan menggunakan pendekatan deskriptif dan instrumen yang digunakan adalah tes deskriptif dan angket. Subjek penelitian ini adalah kelas X TKRO-2 SMK Negeri 5 Medan yang dipilih dari 12 kelas dengan menggunakan teknik simple random sampling dan objek penelitian ini adalah kesulitan dalam memahami konsep. Analisis data menggunakan reduksi data, penyajian data, dan penarikan simpulan. Maka dapat disimpulkan pada indikator menyatakan kembali suatu konsep, hasil jawaban siswa menunjukkan dapat dikatakan bahwa siswa belum mampu menyatakan kembali suatu konsep karena siswa tidak menuliskan apa yang diketahui dan yang ditanyakan pada soal tes yang diberikan, pada indikator menyajikan konsep dalam berbagai bentuk representasi matematika, hasil jawaban siswa menunjukkan dapat dikatakan bahwa siswa kurang mampu menyajikan suatu konsep ke dalam berbagai bentuk representasi matematika karena hanya sedikit siswa yang dapat membuat analogi dan model matematika pada soal tes yang diberikan, dan pada indikator menerapkan konsep atau algoritma pada pemecahan masalah, hasil jawaban siswa menunjukkan dapat dikatakan bahwa siswa mengalami kesulitan dalam menyelesaikan masalah pada Sistem Persamaan Linear Tiga Variabel (SPLTV) karena pada hasil tes siswa banyak yang tidak melakukan penyelesaian masalah sehingga siswa langsung melanjutkan ke soal berikutnya.

Kata Kunci : Kesulitan Siswa, Pemahaman Konsep

Abstract

In mathematics learning, many students have difficulty in understanding the concept of the System of Linear Equations in Three Variables (SPLTV), especially at the high school level. This happens because students have difficulty connecting basic concepts in mathematics, such as algebra, geometry, and logic which are needed to understand the SPLTV material. This difficulty often arises when students begin to learn more complex materials, such as SPLTV, which require in-depth understanding.The type of research used is qualitative research using a descriptive approach and the instruments used are descriptive tests and questionnaires. The subjects of this study were class X TKRO-2 SMK Negeri 5 Medan selected from 12 classes using simple random sampling techniques and the objects of this study were difficulties in understanding concepts. Data analysis used data reduction, data presentation, and drawing conclusions. So it can be concluded that on the indicator of restating a concept, the results of students' answers show that it can be said that the students have not been able to restate a concept because the students did not write down what was known and what was asked in the test questions given, on the indicator of presenting concepts in various forms of mathematical representation, the results of students' answers show that it can be said that the students are less able to present a concept into various forms of mathematical representation because only a few students can make analogies and mathematical models on the test questions given, and on the indicator of applying concepts or algorithms to problem solving, the results of students' answers show that it can be said that the students have difficulty solving problems on the Three Variable Linear Equation System (SPLTV) because in the

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test results, many students do not make problem solving so that students immediately continue to the next question.
Keywords: Student Difficulties, Concept Understanding

INTRODUCTION

Education is a structured process that aims to improve individual abilities and improve knowledge, skills, and attitudes. According to Government Regulation of the Republic of Indonesia No. 57 of 2021 concerning National Education Standards, it states that "Education is a conscious and planned effort to create a learning environment and learning process, so that students can actively develop their potential. According to Badriyah et al. in (Oktavianda et al., 2022) mathematics is a science that needs to be studied by every individual since elementary school. The objectives of learning mathematics according to the Ministry of Education and Culture 2013 are (1) to improve intellectual abilities, especially students' high-level abilities, (2) to form students' abilities in solving problems systematically, (3) to obtain high learning outcomes, (4) to train students in communicating ideas, especially in writing scientific papers, and (5) to develop students' character. Mathematics learning in schools aims to equip students with the ability to think logically, analytically, systematically, critically, creatively, solve problems, and generalize Somakim in (Sihombing 2021).

However, in reality, mathematics education in Indonesia is still problematic due to the low mathematics learning outcomes of students in Indonesia. This is reviewed from the results of a survey conducted by one of the international programs conducted to measure the level of educational success in a country, namely *the Program for International Student Assessment* (PISA) which is carried out every three years by *the Organization for Economic Cooperation and Development* (OECD), stating that in 2018 in the mathematics category, Indonesia was ranked 7th from the bottom (ranked 73 out of 79 countries) with an average score of 379, Hermaini and Nurdin in (Yuliati 2021) . The main problem in learning mathematics education is students' low understanding of mathematics Utomo et al. in (Retno Kuncoro and Martila Ruli 2022). Low student learning outcomes are due to low conceptual understanding possessed by students (Sibarani et al., 2021).

Based on the results of the PISA data and based on the researcher's communication with mathematics teachers during the implementation of PPL at SMK Negeri 5 Medan, students' conceptual understanding is still low, in mathematics learning many students have difficulty understanding the concepts of the material explained, even though conceptual understanding in mathematics learning is very necessary for students to be able to work on the questions given and can make it easier for students to understand the concept of the next material. In line with the results of the interviews conducted (Leby et al., 2023)

The difficulties faced by students are in 3 aspects, namely understanding concepts, skills and problem solving, including: Students do not understand the concept of learning mathematics because students do not understand the material presented, students do not have the ability to calculate when learning mathematics, students are less able to solve problems on the material presented by the teacher (Kumawat & Roy, 2021).

Setiani et al (2022) said that "Understanding concepts makes it easier for students to understand mathematics". According to Sari and Hayati in (Sengkey et al, 2023) that the ability to understand concepts is students' understanding of principles, concepts, and methods, which are then used as methods to solve the problems presented. According to Lase in (Meidianti et al, 2022) understanding concepts is an important aspect in the learning and problem-solving process, both in learning and in everyday life, not only memorizing concepts but students also need to find, build, and use these concepts to solve problems.

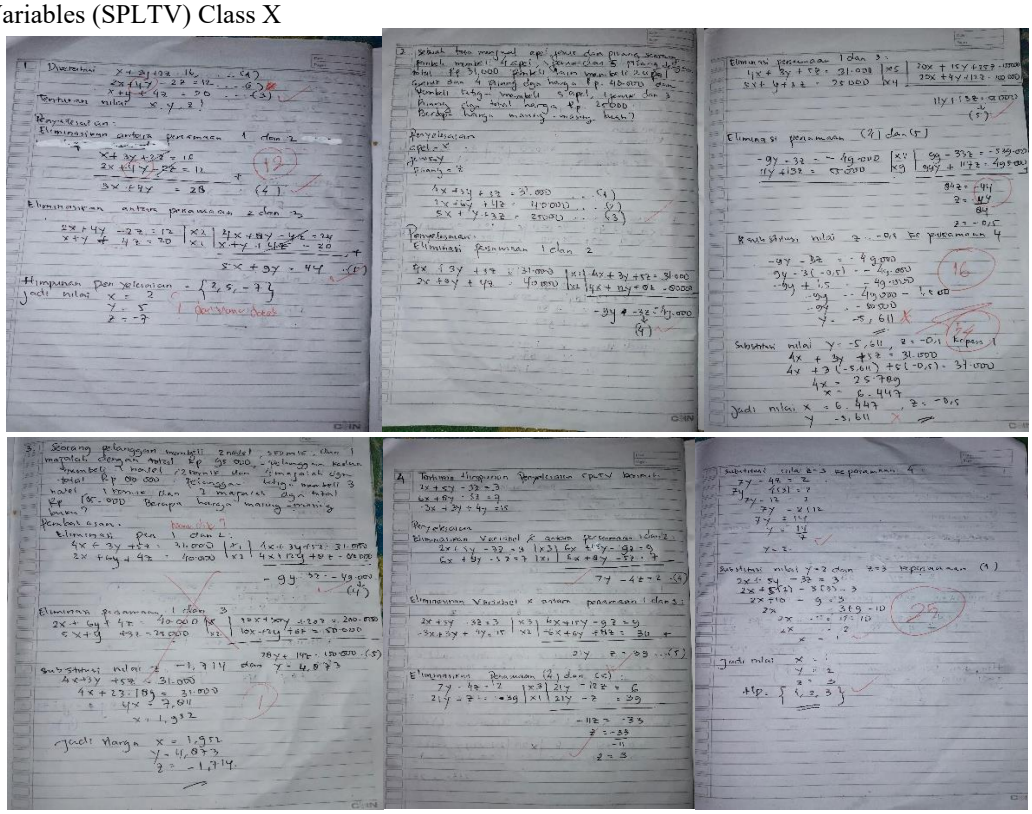


Figure 1. Student Scores in Conceptual Understanding Ability in the Three-Variable Linear Equation System Material

(Source: Results of assignments by class XI students of State Vocational School 5 Medan)

Student learning outcomes in the ability to understand concepts in the material of Three Variable Linear Equation Systems are still relatively low, showing unsatisfactory figures, there are still many student quiz scores below 70 as the Minimum Completion Criteria (KKM) standard. The questions given by the teacher include several story questions.

One of the materials taught at the Senior High School/Vocational High School level in Mathematics is the Three Variable Linear Equation System (SLS). Mathematics education, especially in the Three Variable Linear Equation System (SLS), is often a challenge for many students (Yuliana & Maharani, 2019). Difficulty in understanding concepts related to the Three Variable Linear Equation System (SLS) often occurs at the secondary education level, especially when students move from basic material to more complex concepts. This problem begins to arise when students are introduced to the Three Variable Linear Equation System (SLS) in grade X, where they are expected to be able to connect the concepts of algebra, geometry, and logic in one unit. The Three Variable Linear Equation System (SLS) is a linear equation that has three variables, for example variable x, variable y, and variable z. The Three Variable Linear Equation System (SLS) is closely related to story problems and in everyday life, but students have difficulty in understanding story problems in the Three Variable Linear Equation System (SLS). The material on the Three Variable Linear Equation System (SPLTV) is still considered difficult material for some students because the process of solving the three variable linear equation system (SPLTV) questions is long, complicated and requires a long time to work on the Three Variable Linear Equation System (SPLTV) questions, (Benyamin et al., 2021)

Based on the description above, the ability to understand concepts is an important thing that students must have to solve questions or problems in mathematics learning, so researchers are interested in conducting research with the title "Analysis of Students' Difficulties in Understanding

Concepts in Three-Variable Linear Equations (SPLTV) Material for Class X of SMK Negeri 5 Medan for the 2024/2025 Academic Year" .

METHOD

The type of research used is qualitative research using qualitative descriptive research methods. According to Anggito in (Septiani and Wardana, 2022) stated that qualitative research is research carried out in finding and describing an activity carried out. Descriptive research is research that aims to explain or describe a situation in more detail, by looking at data that can be explained both numerically and verbally Susilowati in (Tarigan et al., 2022) . The qualitative descriptive method is a method that describes, describes, and explains what the events of the object being studied are based on the situation and conditions when the research was conducted, Sugiyono in (Septiani and Wardana, 2022) .

This research will be conducted in class X of SMK Negeri 5 Medan located at Jl. Timor No. 36, Gaharu, Medan Timor District., Medan City. The research was conducted on February 14, 2025 to February 25, 2025 in the even semester of the 2024/2025 academic year.

Meleong in (Fahlevi and Dewi, 2019) describes the research subject as an informant, which means a person in the research setting who is used to provide information about the situation and conditions of the research setting. The research subject according to Suharsimi Arikonto in (IRG et al. 2023) is to limit the research subject as an object, thing or person where the data for the research variables are attached, and which is in the problem. In a study, the research subject has a very strategic role because in the research subject, that is the data about the variables that the research observes. The research subject in this study is one of the X classes of SMK Negeri 5 Medan which will be selected from 12 classes using the *simple random sampling technique* .

The object of research according to Sugiyono in Ilham Raka Guntara (Ilham Raka Guntara et al., 2023) is a scientific target to obtain data with certain goals and uses about something objective, valid and reliable about something. The object of research in this study is the difficulty in understanding the concept.

Research variables refer to the properties or characteristics obtained from a researcher related to a particular concept. According to Kerlinger in (Supriadi et al., 2020) that "variables are constructs or properties to be studied that have varying values". In this study, the variable is students' difficulty in understanding the concept (Rahmadani, 2024).

According to Purwanto in (Khan Mohmand, 2019) said that, "Research instruments are basically tools used to collect data in research". To see the difficulty of understanding concepts in students I use test instruments and questionnaires. According to Arikunto in (Anisa and Kresnadi, 2021) that "A test is a series of questions or exercises and other tools used to measure skills, intelligence knowledge, abilities or talents possessed by individuals or groups". The test used in this study is a test in the form of story questions that include the ability to understand concepts in the Three Variable Linear Equation System (SPLTV) material (Pebruariska & Fachrudin, 2018).

According to Suharsimi Arikunto in (Harsela 2023) "A questionnaire is a list of questions given to other people who are willing to provide responses according to user requests". In this study, the questionnaire used was a closed questionnaire designed to measure students' conceptual understanding of the Three Variable Linear Equation System (SPLTV) material. According to Bahrun, Alifah, & Mulyono in (Pranatawijaya et al. 2019) the Likert scale is a scale used to measure the perception, attitude or opinion of a person or group regarding a social event or phenomenon .

The data analysis technique used by researchers is descriptive statistics. Descriptive statistics are statistics used to analyze data by describing or depicting data that has been obtained from the results of the study, as it is without intending to make conclusions that apply to the public, Sugiyono

in (Alfianti and Kartikasari 2023) . The data obtained from the results of the study were then processed using descriptive statistical analysis techniques with a formula to calculate the number of student scores and the total score (Iswanti et al., 2016)

RESULT AND DISCUSSION

Time and Place of Research

This research was conducted on February 14, 2025 – February 25, 2024 in the even semester of the 2024/2025 Academic Year in class X TKRO-2 of SMK Negeri 5 Medan located at Jl. Timor No.36, Gaharu, Kec. Medan Timur., Medan City, North Sumatra 20235.

Research Instrument Trial Results

Before collecting data, the test and questionnaire were first tested in class XII TKRO-1. The purpose of the research instrument trial was to determine each test question's validity, test question reliability, question discriminating power, question difficulty level, questionnaire validity, and questionnaire reliability (Rahmawati & Permata, 2018). From the results of the research test trial, the calculation of test question validity, test question reliability, question discriminating power, question difficulty level, questionnaire validity, and questionnaire reliability were obtained as follows:

1. Validity Test Results

The validity test measurement was carried out by calculating all 30 respondents. The validity test that was tested was a descriptive test using the *Product Moment Correlation formula.* The descriptive test questions included 5 questions that were tested on 30 students (n) with r_{tabel}0.361. A question item is said to be valid if $r_{hitung} > r_{tabel}$it is at a significant level of 0.05%. To process the data, the researcher used *SPSS 30.0. for windows* which can be seen in appendix 4 page 76. The results of the data analysis are presented by the researcher in table 4.1 below.

Table 1. Results of the Validity Test

Question Number	r_{hitung}	r_{tabel}	Information
1	0.862	0.361	Valid
2	0,693	0,361	Valid
3	0,645	0,361	Valid
4	0,646	0,361	Valid
5	0,137	0,361	Tidak Valid

Based on the table, it can be seen that out of 5 test items whose validity was tested, 4 questions were declared valid and 1 question was declared invalid. The validity of the questions was stated based on their significance value. If the significance value is less than 0.05, the question is declared valid, but if the significance value is greater than 0.05, the question is declared invalid. Valid question items are questions number 1,2,3 and 4, while question number 5 is declared invalid. Valid questions are considered suitable for use as a tool to test students' conceptual understanding difficulties in SPLTV material, while invalid questions cannot be used for this purpose. In addition to using the significance value, the validity of the question items was also checked by comparing the values $r_{hitung}$and r_{tabel}. The results of the analysis showed that 4 question items had values r_{hitung}greater than the value r_{tabel}. Therefore, it can be concluded that the four items are valid and suitable for use in measuring students' conceptual understanding difficulties.

Reliability Test Results

After obtaining the Validity test result data, the next step is to test the level of stability and accuracy of the measuring instrument through a reliability test. To test the reliability, the tester uses the *Cronbach Alpha formula* with the help of *SPSS 30.0 for windows* which can be seen in appendix 6 page 79. The results of the analysis are presented by the researcher in the following table 4.3.

Table 2. Results of the Reliability Test Trial

Reliability Statistics	
Cronbach's Alpha	N of Items
.713	4

Based on the data results in the table, it is obtained $r_{11} = 0{,}713$for the reliability of the test with a critical price $r_{tabel}$for n =30 with $\alpha = 5\%$is 0.361. An instrument can be said to be reliable if $r_{11} > r_{tabel}$. In this case $r_{11} > r_{tabel}$or $0{,}713 > 0{,}60$. Thus, the instrument used is declared reliable with high criteria, which means that it meets good reliability standards so that it can be trusted as a data collection tool (Halim & Rasidah, 2019).

Data analysis

The data in this study were obtained through written tests and questionnaires. The informant collection in this study was carried out by conducting a test to measure students' conceptual understanding of the Three Variable Linear Equation System (SPLTV) material.

1. Analysis of Conceptual Understanding Ability Test Results

Data on students' conceptual understanding ability were obtained using tests. The test was given to 30 students. The test consisted of 5 questions and was in the form of a description. Based on the results of the test that had been conducted, data on conceptual understanding ability were obtained. Based on the results of the test that had been conducted, six informants were selected according to the data presentation. In general, informants were selected based on certain categories with the following steps:

1) Providing a conceptual understanding ability test on the Three Variable Linear Equation System (SPLTV) material to 30 class X TKRO-2 students.
2) Checking the results of students' test work, then categorizing them into 3 categories, namely high, medium, and low.
3) Select six informants in each category with 2 informants in each category which will then be used as the basis for determining the research subjects.

Table 3. Data on Students' Conceptual Understanding Ability Test

Value Interval	**Ability Category**	**Average**	**Number of Students by Category**	**Total Number of Students**	**Presentation**
$0 \leq x < 65$	Low	47	15		50%
$65 \leq x < 80$	Currently	69	13	30	43%
$80 \leq x < 100$	Tall	82	2		7%

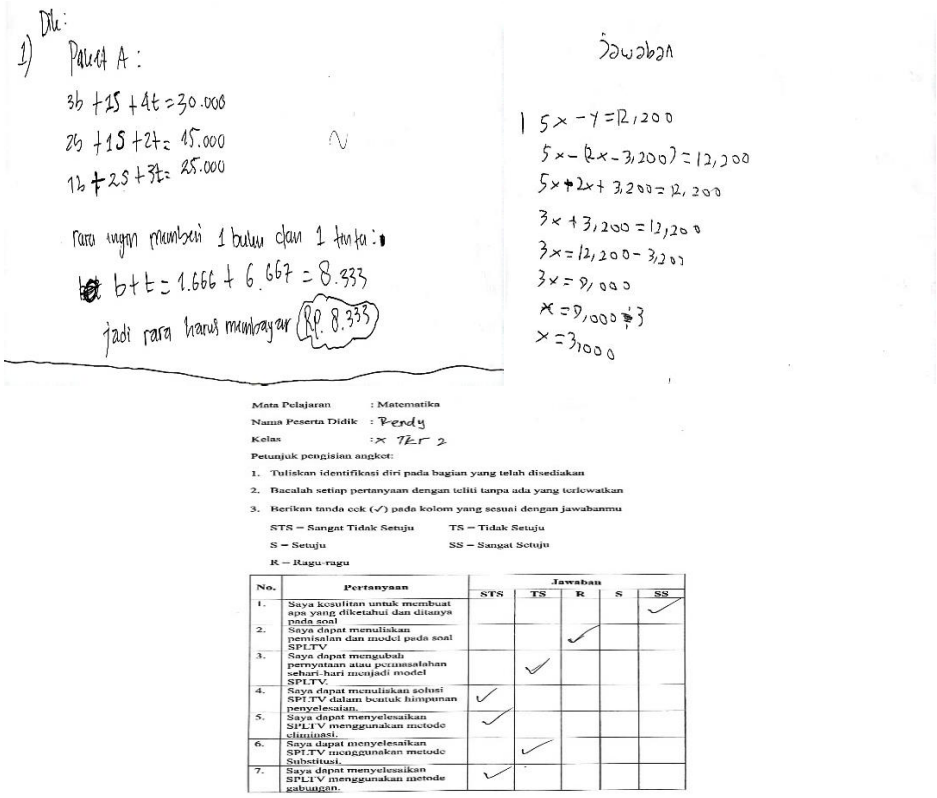
Table 4.7 above shows that the results of the conceptual understanding test of class X TKRO-2 students of SMK Negeri 5 Medan in solving problems on the material of Three Variable Linear

Equation Systems show a presentation in the low category of 50%, in the medium category 43%, and in the high category 7%. Based on these results, it can be concluded that the conceptual understanding ability of class X students of SMK Negeri 5 Medan is classified as low.

Next, the six informants will be further analyzed based on three categories using three indicators of conceptual understanding ability in the Three Variable Linear Equation System material.

2. Analysis of Students' Conceptual Understanding Ability

a. Indicators: Restating a Concept



Mata Pelajaran : Matematika
Nama Peserta Didik : Rendy
Kelas : X TKR 2

Petunjuk pengisian angket:
1. Tuliskan identifikasi diri pada bagian yang telah disediakan
2. Bacalah setiap pertanyaan dengan teliti tanpa ada yang terlewatkan
3. Berikan tanda cek (✓) pada kolom yang sesuai dengan jawabanmu

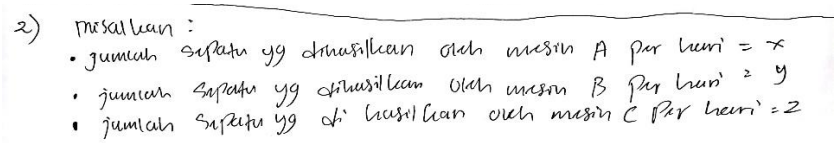
STS = Sangat Tidak Setuju TS = Tidak Setuju
S = Setuju SS = Sangat Setuju
R = Ragu-ragu

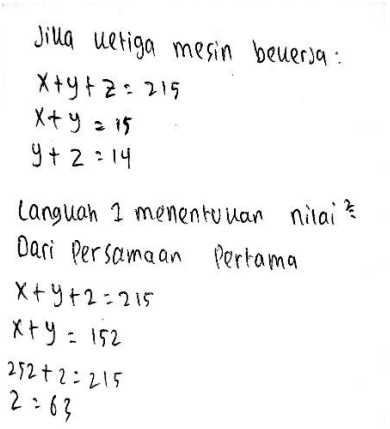
No.	Pertanyaan	Jawaban				
		STS	TS	R	S	SS
1.	Saya kesulitan untuk membuat aps yang diketahui dan ditanya pada soal					✓
2.	Saya dapat menuliskan pemisalan dan model pada soal SPLTV			✓		
3.	Saya dapat mengubah pernyataan atau permasalahan sehari-hari menjadi model SPLTV.		✓			
4.	Saya dapat menuliskan solusi SPLTV dalam bentuk himpunan penyelesaian.	✓				
5.	Saya dapat menyelesaikan SPLTV menggunakan metode eliminasi.	✓				
6.	Saya dapat menyelesaikan SPLTV menggunakan metode Substitusi.		✓			
7.	Saya dapat menyelesaikan SPLTV menggunakan metode gabungan.	✓				

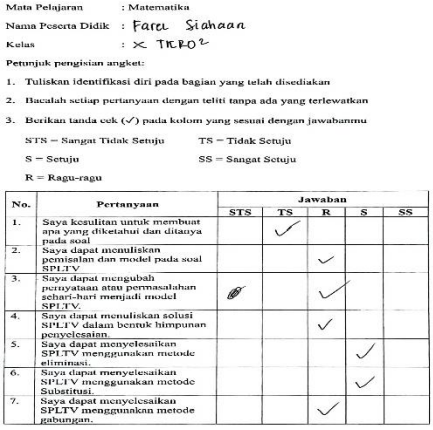
Figure 2. Indicators Restating a Concept

Based on the analysis of the results of students' answers for the indicator of restating a concept, the results of students' answers show that it can be said that the students are less able to restate a concept because seen from the test results, there are still many students who do not write what is known and what is asked in the test questions given. This is also shown in the results of the student questionnaire which states that the students have difficulty in making what is known and asked in the questions. Based on the results of the test and questionnaire, the conceptual understanding ability of class X TKRO-2 students of SMK Negeri 5 Medan is still relatively low because students do not understand the questions, and students do not pay attention to the questions properly. So many students have difficulty in making what is known and asked in the questions.

b. Indicator: Presenting Concepts in Various Forms of Mathematical Representation







Mata Pelajaran : Matematika
Nama Peserta Didik : Farel Siahaan
Kelas : X TKR 2

Petunjuk pengisian angket:
1. Tuliskan identifikasi diri pada bagian yang telah disediakan
2. Bacalah setiap pertanyaan dengan teliti tanpa ada yang terlewatkan
3. Berikan tanda cek (✓) pada kolom yang sesuai dengan jawabanmu

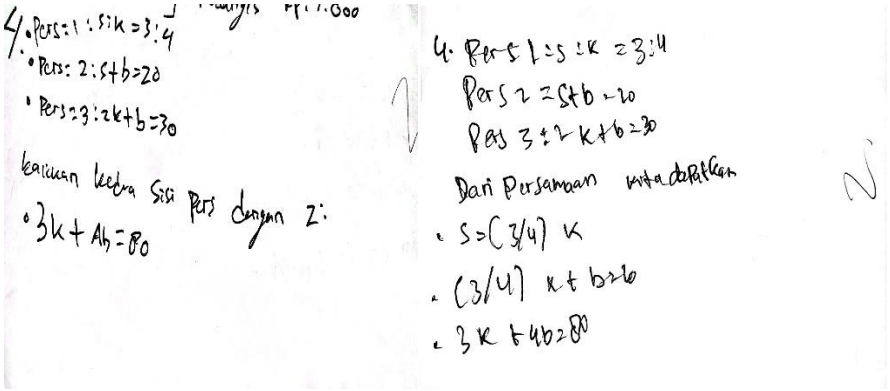
STS = Sangat Tidak Setuju TS = Tidak Setuju
S = Setuju SS = Sangat Setuju
R = Ragu-ragu

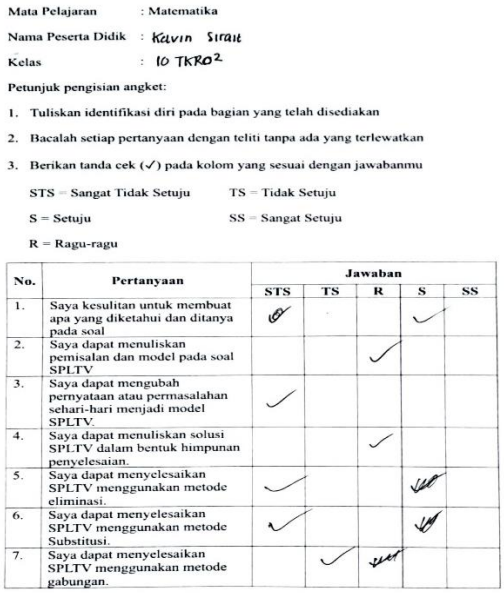
No.	Pertanyaan	Jawaban				
		STS	TS	R	S	SS
1.	Saya kesulitan untuk membuat apa yang diketahui dan ditanya pada soal		✓			
2.	Saya dapat menuliskan pemisalan dan model pada soal SPLTV			✓		
3.	Saya dapat mengubah pernyataan atau permasalahan sehari-hari menjadi model SPLTV.	✓		✓		
4.	Saya dapat menuliskan solusi SPLTV dalam bentuk himpunan penyelesaian.			✓		
5.	Saya dapat menyelesaikan SPLTV menggunakan metode eliminasi.				✓	
6.	Saya dapat menyelesaikan SPLTV menggunakan metode Substitusi.				✓	
7.	Saya dapat menyelesaikan SPLTV menggunakan metode gabungan.			✓		

Figure 3. Indicators Presenting Concepts in Various Forms of Mathematical Representation

Based on the analysis of the results of students' answers and the results of the questionnaire for the indicator of presenting concepts in various forms of mathematical representation, the results of students' answers show that it can be said that the students are less able to present a concept into various forms of mathematical representation because only a few students can make mathematical analogies and models on the test questions given. This is shown in the test results that there are students who do not make analogies but immediately make equation models and there are students who do not make equation models but immediately make analogies, it can be seen from the results of the questionnaire that students are hesitant to be able to write analogies and models on the questions given.

c. Indicator: Applying Concepts or Algorithms to Problem Solving





Mata Pelajaran : Matematika

Nama Peserta Didik : Kalvin Sirait

Kelas : 10 TKRO2

Petunjuk pengisian angket:

1. Tuliskan identifikasi diri pada bagian yang telah disediakan
2. Bacalah setiap pertanyaan dengan teliti tanpa ada yang terlewatkan
3. Berikan tanda cek (✓) pada kolom yang sesuai dengan jawabanmu

STS = Sangat Tidak Setuju TS = Tidak Setuju

S = Setuju SS = Sangat Setuju

R = Ragu-ragu

No.	Pertanyaan	Jawaban				
		STS	TS	R	S	SS
1.	Saya kesulitan untuk membuat apa yang diketahui dan ditanya pada soal	✓			✓	
2.	Saya dapat menuliskan pemisalan dan model pada soal SPLTV			✓		
3.	Saya dapat mengubah pernyataan atau permasalahan sehari-hari menjadi model SPLTV.	✓				
4.	Saya dapat menuliskan solusi SPLTV dalam bentuk himpunan penyelesaian.			✓		
5.	Saya dapat menyelesaikan SPLTV menggunakan metode eliminasi.	✓			✓	
6.	Saya dapat menyelesaikan SPLTV menggunakan metode Substitusi.	✓			✓	
7.	Saya dapat menyelesaikan SPLTV menggunakan metode gabungan.		✓	✓		

Figure 4. Indicator: Applying Concepts or Algorithms to Problem Solving

Based on the analysis of the results of students' answers and the results of the questionnaire for the indicator of applying concepts or algorithms to problem solving, the results of students' answers show that it can be said that these students have difficulty in making problem solving on the Three Variable Linear Equation System (SPLTV) because in the test results many students do not make problem solving so that students immediately continue to the next question. This is shown in the test results that students only make questions and examples in the questions but do not solve the problem in the questions and in the results of the questionnaire students strongly disagree that these students can solve SPLTV using the elimination method, substitution and combined methods, students also cannot write the SPLTV solution in the form of a solution set.

Discussion of Research Results

This research is a descriptive qualitative research conducted at SMK Negeri 5 Medan, precisely in class X TKRO-2 in the 2024/2025 academic year. This research was conducted by giving 4 test questions to 30 students of class X TKRO-2 and giving a questionnaire with 8 items to 30 students. Based on the scores obtained by the students, it can be categorized that the results of the conceptual understanding ability test of class X students of SMK Negeri 5 Medan in solving questions on the Three Variable Linear Equation System (SPLTV) material have a presentation in the low category reaching 50%, in the medium category 43%, and in the high category 7%. To obtain further information, 6 people were selected as informants to analyze the results of the conceptual understanding ability test and questionnaire. The following is a description of the conceptual understanding ability of class X TKRO-2 students at SMK Negeri 5 Medan based on the conceptual understanding ability indicators (Magfirah et al., 2019):

a. Restating a Concept

Based on the analysis of the results of students' answers and the results of the questionnaire for the indicator of presenting concepts in various forms of mathematical representation, the results of students' answers indicate that it can be said that these students are less able to present a concept in various forms of mathematical representation.

b. Presenting Concepts in Various Forms of Mathematical Representation

Based on the analysis of the results of students' answers and the results of the questionnaire for the indicator of presenting concepts in various forms of mathematical representation, the results

of students' answers indicate that it can be said that the students are less able to present a concept into various forms of mathematical representation because only a few students can make analogies and mathematical models on the test questions given. It can be seen from the test results that there are students who do not make analogies but immediately make equation models and there are students who do not make equation models but immediately make analogies,

c. Applying Concepts or Algorithms to Problem Solving

Based on the analysis of the results of students' answers and the results of the questionnaire for the indicator of applying concepts or algorithms to problem solving, the results of the students' answers show that it can be said that the students have difficulty solving problems on the Three Variable Linear Equation System (SPLTV) because in the test results, many students did not make problem solving so that students immediately continued to the next question (Kalengkongan et al., 2021).

From the results of the analysis conducted, the indicator that is most mastered by students is at the stage of presenting concepts in various forms of mathematical representation because in this indicator many students can write examples and mathematical models on the test questions given. While the indicator that is least mastered by students is at the stage of applying concepts or algorithms to problem solving because many students are only able to make known, asked, examples, and mathematical models but only a few students are able to solve problems on the test questions given. This is because the indicators are interrelated. If the answers to indicators 1 and 2 are not quite right, then the answer to indicator 3 is also not quite right.

In this study there are several limitations, including the author realizes that this study is not completely perfect even though various efforts have been made to obtain optimal results. This study only examined the subject matter of the Three Variable Linear Equation System (SPLTV), so it cannot be applied to other subjects. The author only analyzed the ability to understand the concept. The research subjects involved were only 30 students, not involving students with a larger number (Jojor & Sihotang, 2022).

CONCLUSION

Based on the scores that have been obtained by students, it can be categorized that the results of the conceptual understanding ability test of class X students of SMK Negeri 5 Medan in solving problems on the material of the Three Variable Linear Equation System (SPLTV) have a presentation in the low category reaching 50%, in the medium category 43%, and in the high category 7%. When viewed from the indicators obtained, the indicators that are most mastered by students are indicators 1 and 2, namely indicators of restating a concept and presenting concepts in various forms of mathematical representation. While the indicators that are least mastered by students are at the stage of applying concepts or algorithms to problem solving because many students are only able to make known, asked, examples, and mathematical models but only a few students are able to solve problems on the test questions given.

Based on data analysis and questionnaires on students' conceptual understanding ability on the Three Variable Linear Equation System (SPLTV) material for class X of SMK Negeri 5 Medan, the results obtained on the indicator of restating a concept, the results of students' answers indicate that it can be said that the students are less able to restate a concept because seen from the test results, students do not write down what is known and what is asked on the test questions given, on the indicator of presenting concepts in various forms of mathematical representation, the results of students' answers indicate that it can be said that the students are less able to present a concept into various forms of mathematical representation because only a few students can make mathematical examples and models on the test questions given, and on the indicator of applying concepts or

algorithms to problem solving, the results of students' answers indicate that it can be said that the students have difficulty solving problems on the Three Variable Linear Equation System (SPLTV) because on the test results, many students do not make problem solving so that students immediately continue to the next question.

Suggestion

Based on the conclusions, the researcher provides the following suggestions:

1. For teachers, it is hoped that the thesis that researchers write can be a reading that provides insight into knowing students' conceptual understanding abilities based on predetermined categories.
2. For students, it is expected that students will be able to improve their practice of questions related to daily life and story problems, especially on the Three Variable Linear Equation System (SPLTV) material.
3. For other researchers, this thesis can be used as a reference if they want to conduct further research. This conceptual understanding research is only shown in one material, namely the Three Variable Linear Equation System (SPLTV) material, therefore it should be done on other main materials.

Based on the research results, the author emphasizes that further research should place more emphasis on different indicators and different data analysis techniques.

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