



PROFILE OF STUDENT'S CONCEPT UNDERSTANDING IN COMPARATIVE MATERIAL WITH VALUE AND VARIOUS GRADES IN CLASS VII

Ni Luh Regita Eka Widhiani^{*1}, Anggraini², Gandung Sugita³, Ibnu Hajar⁴

^{1,2,3,4} FKIP, Tadulako University

Article Info

Article history:

Received Jun 14, 2023

Revised Aug 14, 2023

Accepted Dec 20, 2023

Keywords:

Concept understanding

Comparison of equa

Reverse values

Mathematical ability

ABSTRACT

Students' understanding of concepts needs to be profiled so that teachers can find out the description and understanding of students' mathematical concepts. This study aims to obtain a description or description of students' understanding of the concept of value comparison material and value turning at SMP Negeri 1 Ampibabo. This type of research is descriptive with a qualitative approach. The subjects of this study were students of class VII A at SMP Negeri 1 Ampibabo, which consisted of one student each with high, medium, and low mathematical abilities and good communication skills according to the teacher's recommendations. The results of this study are that students with high mathematical abilities are able to use the four indicators to understand the concept, and students with moderate mathematical abilities are able to use the four indicators to understand the concept. However, they are still mistaken in distinguishing comparisons of equivalent and reverse values, and students with low mathematical abilities are only able to use three indicators of conceptual understanding in working on comparison questions of value and return value.

This is an open access article under the [CC BY](#) license



Corresponding Author:

Ni Luh Regita Eka Widhiani,

Departement of Mathematics Education,

Tadulako University, Indonesia

Email: niluhregitaekawidhiani@gmail.com

Phone Number : 083136574296

How to Cite:

Widhiani, N. R. E., Anggraini, Sugita, G., & Hajar, I. (2023). Profile Of Student's Concept Understanding In Comparative Material With Value And Various Grades In Class VII. *JME:Journal of Mathematics Education*, 8(2), 218-231

1. INTRODUCTION

Mathematics is an important science in shaping attitudes, a person's ability to hone logic and thinking, and can direct a person in finding solutions to problems related to everyday life. Learning Mathematics requires that each student understands mathematical concepts which include the ability to explain relationships or linkages between concepts and utilize and apply a concept easily and precisely without losing the true meaning of a concept in problem solving (Kemendikbud, 2017).

Understanding mathematical concepts is a basic thing that must be possessed by a student because a good understanding can help students' procedural abilities in solving a mathematical problem (Asri et al., 2020). According to Riyandiarto in (Purwaningsih et al., 2017) conceptual understanding is very important in learning mathematics so students need to master understanding mathematical concepts because in learning mathematics consists of several interconnected concepts. However, at this time, many students have difficulty understanding mathematical concepts. As expressed by Russefendi in (Asri et al., 2020) there are some students who have studied mathematics, but cannot understand even the simplest concepts. So that many students think that learning mathematics is a difficult and complicated subject.

One of the mathematical concepts learned in class VII at the SMP/MTs level is comparison. Even so, understanding the concept of comparison by students still often gets difficulties in the learning process. This is in line with the statement of (Kumalasari et al., 2013) which states that students who experience difficulties in learning mathematics are due to a lack of understanding of concepts and principles in mathematics. Based on the results of interviews with the mathematics teacher at Ampibabo 1 Public Middle School on February 17 2022, information was obtained that students had difficulty distinguishing which were equivalent comparison problems and inverse comparison problems, students made mistakes in making or translating questions in mathematical modeling, namely in determine the units involved and the value of changes between units, and students make mistakes in the calculation steps.

There is an indicator of understanding the concept based on the Regulation of the Director General of Basic Education No. 506/C/PP/2004 in (Maulida et al., 2017). In this study, 4 indicators of understanding the concept were used, namely 1) restating a concept, 2) identifying objects according to certain characteristics, 3) giving examples and non-examples of a concept, 4) using, utilizing and selecting procedures or operations certain. Understanding of concepts can be influenced by several things, one of which is students' mathematical abilities. This is in accordance with the results of research by (Gani et al., 2020) which revealed that students have different abilities in understanding a mathematical concept. Therefore, it is very important for a teacher to know the ability of each student to understand the concepts being taught.

Based on the description above, the researcher is interested in conducting further research related to students' understanding of concepts based on students' mathematical abilities with the title "Student Conceptual Understanding Profiles on Material Comparison of Values and Returns of Values in Class VII of SMP Negeri 1 Ampibabo". The purpose of this research is to describe students' understanding of concepts in material comparisons of value and return value.

2. METHOD

The type of research used by researchers is qualitative research. The approach used in this research is a qualitative descriptive approach, namely describing the profiles of students' conceptual understanding with high, moderate and low abilities in material

comparisons of value and return values. This research was conducted at Ampibabo 1 Public Middle School, located in North Ampibabo Village, Parigi Moutong Regency, Central Sulawesi, in the even semester of the 2022/2023 academic year. The selection of subjects in this study were students of class VII A of SMP Negeri 1 Ampibabo consisting of 1 subject with high ability, 1 subject with moderate ability, and 1 subject with low ability. The selection of subjects in this study was carried out by looking at the results of student semester exams in the odd semester of the 2022/2023 school year and recommendations from the teacher. Next, classify the level of students' mathematical ability in the high, medium, and low ability groups based on the student semester exam scores in the odd semester of the 2022/2023 school year. Data collection techniques in this study were carried out using interview methods and written assignments consisting of 2 story problem numbers. This study uses time triangulation to test the credibility of the data. After conducting the data credibility test, the data were analyzed using qualitative data analysis techniques according to Miles, Huberman, and Saldana (2014) carried out interactively through the Data Condensation process by focusing on the selection of research objectives, then at the data presentation stage, presented the results of condensation and After that, conclusions are drawn/verified.

3. RESULTS AND DISCUSSION

The results of grouping the data on student odd semester test results are grouped based on the grouping of (Sudijono, 2014). Subject grouping in terms of mathematical abilities, obtained 5 students with high mathematical abilities, 18 students with moderate mathematical abilities and 3 students with low mathematical abilities. Of the three levels of mathematical ability, one student was selected each, SS for students with high abilities, AF for students with moderate abilities and R for students with low mathematical abilities. The following is a description of the data on answers to written assignments and interviews for each subject.

3.1 Subjects with High Mathematics Ability SS

3.1.1 Restating a Concept

Research on SS subjects in expressing a concept was carried out by interviewing. The following is the result of the SS subject's interview in restating the concept of comparison of value and return of value.

SSM1 S1-006 S : *{-} an equivalent comparison is a comparison of two quantities, if one of the values increases/decreases then the value of the other quantity also increases/decreases{-}, and the ratio of inverse values is the comparison of two quantities, if one of the quantities increases/decreases, the other quantity decreases/increases {-}.*

Based on the interview transcript of SS at M1 in restating the concept of comparison of equivalent and reverse value based on its characteristics by providing an explanation of comparison of value is a comparison of two quantities, if one of the magnitudes increases the value of the other magnitude also increases and vice versa, a comparison of reversed values is a comparison of two quantities, When one of the quantities increases, the other decreases and vice versa. SS is also able to express the equivalent comparison equation is $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ and the reverse value comparison equation is $\frac{a_1}{a_2} = \frac{b_2}{b_1}$. So it can be concluded that subjects with high mathematical ability SS are able to restate the concept of comparison of worth and value by using their own words appropriately. This is in accordance with the

opinion of (Jhonson, 1998) which states that understanding is the ability to explain a concept that has been learned using language or one's own words.

3.1.2 Identifying the Objects a Concept

Research on SS subjects in identifying comparisons of value and return values contained in question number 1 was carried out by means of written assignments and interviews. Following are the results of the SS written assignment answers in identifying comparisons of value and reverse value.

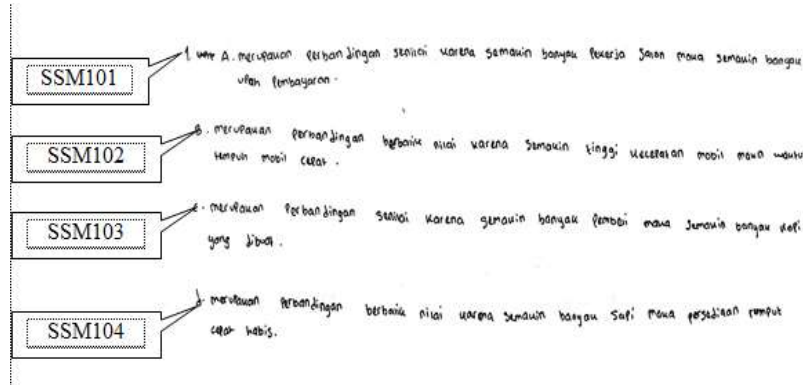


Figure 1 SS's answer in identifying comparisons of value and return value

The following are the results of the researcher's interview with the SS subject

SSM1 S1-024 S : *The number of salon workers with paid wages issued by the salon and the number of buyers with coffee provided at the coffee shop is a comparison worth while the speed of a car with the travel time and the number of cows with the length of the grass supply is a reverse comparison of the value {-}*

Based on the interview transcripts, it is known that SS classifies statements that include comparisons of value, namely the number of salon workers with wages paid by the salon and the number of buyers with coffee provided at the coffee shop, while statements that include comparisons of inverse values, namely the speed of a car with travel time and the number of cows with long supply of grass. SS also revealed the reasons why the number of salon workers with paid wages issued by the salon and the number of buyers with coffee provided at the coffee shop is a comparison of value, the speed of a car with travel time and the number of cows with the duration of grass supply is a ratio of inverse value. So it can be concluded that subjects with high mathematical ability SS are able to identify comparisons of value and return value according to the characteristics of the comparison of value and return value correctly. This is in line with the results of research conducted by (Saputra, 2021) which stated that subjects with high mathematical abilities were able to solve questions identifying comparisons of value and return value.

3.1.3 Give examples and non-examples of a concept

Research on SS subjects in providing examples and non-examples of value comparisons and comparisons of value returns was carried out by interviews.

SSM1 S1-038 S : An example of a comparison worth {-} **pool water volume with pool water filling time** and which is not a comparison worth {-} **water discharge with pond water filling time** {-}

Based on the interview transcripts, it is known that SS revealed an example of a comparison of the value of the volume of pool water with the time it was filled with pool water and not an example of a comparison of value, namely the water discharge with the time it was filled with pool water accompanied by the right reasons. SS also discloses an example of a comparison of inverse values, namely the water debit with the time it takes to fill the pool and not an example of a comparison of inverse values, namely the volume of pond water and the time it is filled with the pool accompanied by the right reasons. So it can be concluded that subjects with high mathematical ability SS are able to provide examples and non-examples of comparisons of equivalent and reversed values according to their definitions correctly. This is different from the results of research conducted by (Fajar et al., 2019) which stated that subjects with high mathematical abilities were less able to provide examples and non-examples of a concept.

3.1.4 Using, Utilizing and Selecting Certain Procedures or Operations

Research on SS subjects in using, utilizing, and choosing the right procedures in solving problems of value comparisons and comparisons of value returns was carried out by means of written assignments.

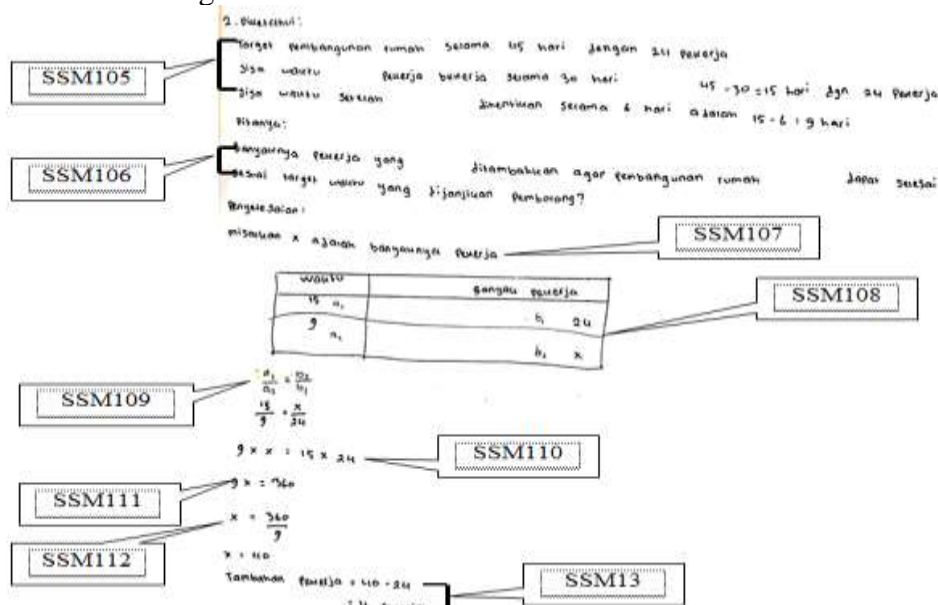


Figure 2 SS's answer uses, utilizes, and chooses the right procedure in solving the problem of comparison of equal and reverse values of Problem Number 2 Part a

The following is the result of the researcher's interview with the SS subject.

SSM1 S2-060 S : Because the question {-} is included **reverse value comparison**.

SSM1 S2-062 S : The first step {-} I write first is **known** from the problem, namely the construction target of the house promised by the contractor for 45 days with 24 workers. After that, {-} the remaining time after working for 30 consecutive days is 15 days. Because the work was stopped for 6 days because there were running out of building materials, the remaining time was 9 days {-}

- SSM1 S2-064 S : {-} **asked** in terms of the number of workers that must be added so that the construction of the house is completed according to the time target promised by the contractor {-}
- SSM1 S2-070 S : {-} **using** the concept of inverse comparison of values $\frac{a_1}{a_2} = \frac{b_2}{b_1}$ {-} **I entered the values** a_1 , a_2 , b_1 , and b_2 to get the equation $15/9 = x/24$ **then I cross-multiplied** {-} I got $9 \times x = 15 \times 24$, then I multiplied the result $9x = 360$ {-} to find the x value {-} **I divided** 360 by 9 ($\frac{360}{9}$) the result was 40 {-} After that, for To find the number of additional workers, I subtracted the number of workers obtained earlier from the initial number of workers (40-24). So the number of additional workers is 16 workers {-}

Next, an explanation of the results of the written assignment and SS interview on M1 question number 2 part b. Following are the answers to the results of SS's written assignment.

Penyelesaian

Diketahui: Perbandingan bangunan yang dibangun Fajri, Fadil dan Fikri 3:6:9
Jumlah bangunan Fajri dan Fikri 96 buah

Ditanya: jumlah pekerja Fajri, Fadil dan Fikri

Dijawab: misalkan x adalah jumlah pekerja Fajri, Fadil dan Fikri

a_1	a_2	b_1	b_2
3	9	36	x

$3 \cdot 9 = 12$

$24 \cdot 36 = 12$

$\frac{a_1}{a_2} = \frac{b_1}{b_2}$

$\frac{12}{18} = \frac{36}{x}$

$12x = 18 \times 36$

$12x = 1728$

$x = \frac{1728}{12}$

$x = 144$

Jumlah pekerja Fajri, Fadil dan Fikri 144 buah

Callouts: SSM114, SSM115, SSM116, SSM117, SSM118, SSM119, SSM120, SSM121

Figure 3 SS's answer uses, utilizes, and chooses the right procedure in solving the problem of comparing equal and reverse values of Problem Number 2 Part b

The following is the result of the researcher's interview with the SS subject.

- SSM1 S2-076 S : {-} the first one is **known** {-} the ratio of the number of marbles of Fajri, Fadil and Fikri is 3:6:9, meaning that there are 3 marbles owned by Fajri, 6 marbles owned by Fadil and 9 marbles owned by Fikri and the total marbles of Fajri and Fikri are 96 marbles. {-} **asked** {-} the number of marbles of Fajri, Fadil and Fikri.

- SSM1 S2-078 S : **I let x be the number of marbles for Fajri, Fadil and Fikri {-} then I made a table.** For the value of a_1 , I get 12, a_2 is 18, then for b_1 it is 96 and b_2 is x {-}
- SSM1 S2-082 S : Next {-} **I entered these values** into the equation $\frac{a_1}{a_2} = \frac{b_1}{b_2}$, **to find the value of x** and I got that $\frac{12}{18} = \frac{96}{x}$, after that I crossed {-} I got $12x=96 \times 18$ and the result was $12x=1728$. Then to **get the x value I divided** 1728 by 12, I got the result 144.

In accordance with the data on the results of written assignments and the results of interviews with subjects with high mathematical ability SS in using, utilizing, and choosing the right procedures to solve the problem of comparison of equivalent and reverse values, namely writing down what is known and what is asked, then making a mathematical model and making tables. This is in accordance with the opinion of which states that subjects with high mathematical abilities can easily state things that are known and asked and then write them down in the form of a mathematical model. After that, SS uses a reversed comparison equation $\frac{a_1}{a_2} = \frac{b_2}{b_1}$ to solve part (a) and SS uses an equivalent comparison equation $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ to solve part (b) by entering values a_1 , a_2 , b_1 , and b_2 as well as utilizing the cross-multiply operation and selecting the dividing operation accompanied by steps for solving complete and correct. So it can be concluded that the subject with high mathematical ability SS is able to use, utilize and choose the right procedure to solve the problem of comparing values and turning values. In line with the opinion of (Sa'adah, 2018) revealed that students with high mathematical abilities are able to choose and use the correct problem-solving steps to calculate with the right answer.

3.2 Subjects with Moderate Mathematics Ability AF

3.2.1 Restating a Concept

Research on AF subjects in expressing a concept was carried out by interviews. The following are the results of the researcher's interview with the AF subject.

- AFM1 S1-006 S : {-} **when two quantities are compared, if one of the quantities increases, the value of the other quantity also increases, that is an equivalent comparison and when two quantities are compared, if one of the quantities increases, the other quantity decreases, the comparison reverses in value {-}**

Based on the AF interview transcript in restating the concept of comparison of equivalent and reversed value by providing an explanation that a comparison of equivalent is when two quantities are compared, and if one of the magnitudes increases, the value of the other quantity also increases, and the comparison of equivalent is when two quantities are compared, and if one quantity increases, the other quantity decreases. AF also states that the equivalent comparison equation is $\frac{a_1}{a_2} = \frac{b_1}{b_2}$. So it can be concluded that the subject with moderate mathematical ability AF is able to restate the concept of comparison of worth and value based on their characteristics by using their own sentences correctly. In accordance with Carin's opinion in (Susanto, 2013) understanding is the ability to translate a concept, meaning that someone is able to understand and is able to explain back what has been learned in their own sentences.

3.2.2 Identifying the Objects a Concept

Research on AF subjects in identifying comparison objects of value and return values contained in question number 1 was carried out by means of written assignments and interviews. Following are the results of the AF subject's written assignment answers.

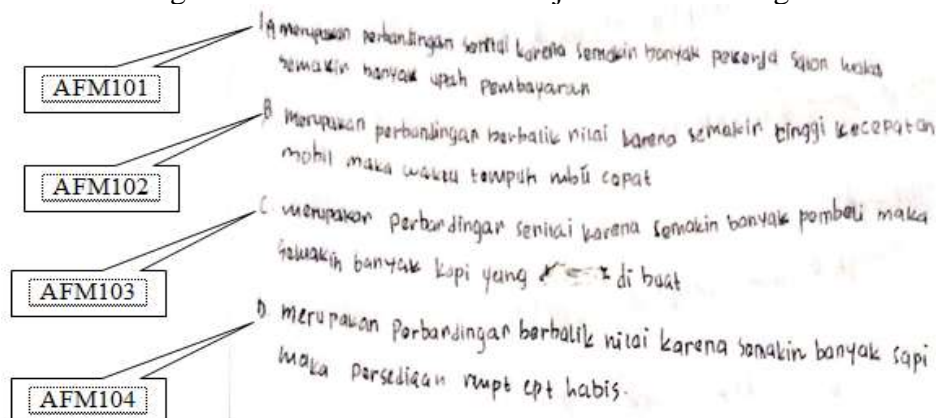


Figure 4 AF's answer in identifying a comparison of worth and turn around value

The following are the results of the researcher's interview with subject AF.

AFM1 S1-024 S : Which includes a comparison worth {-} **the number of salon workers and payment wages issued by the salon and the number of buyers with coffee provided at the coffee shop** whereas **the speed of a car with the travel time and the number of cows with the length of the grass supply** including inverted comparison of {-} values

Based on the interview transcripts, it is known that AF expressed statements that included comparisons of value, namely the number of salon workers with wages paid by the salon and the number of buyers with coffee provided at the coffee shop, while statements that included comparisons of inverse values, namely the speed of a car with travel time and the number of cows with long supply of grass. AF also revealed the reasons why the number of salon workers with paid wages issued by the salon and the number of buyers with coffee provided at the coffee shop is a comparison of value, the speed of a car with travel time and the number of cows with the duration of grass supply is a ratio of inverse value. So it can be concluded from the results of the answers to written assignments and interviews that subjects with moderate mathematical ability AF are able to classify comparisons of equivalent and reversed values. In accordance with the results of research conducted by (Yasma et al., 2022) subjects with moderate mathematical abilities are able to identify a concept correctly.

3.2.3 Give examples and non-examples of a concept

Research on AF subjects in providing examples and non-examples of value comparisons and comparisons of value returns was carried out by interviews. The following are the results of the researcher's interview with the AF subject in providing examples and non-examples of comparisons of value and return value.

AFM1 S1-037 S : {-} worth comparison example **amount of money to the number of items that can be purchased**
 AFM1 S1-038 P : If not an example worth comparison?
 AFM1 S1-039 S : **car speed with travel time** {-}

- AFM1 S1-043 S : {-} example of reversed value comparison {-} **car speed with travel time.**
- AFM1 S1-045 S : **A lot of money against the number of items that can be purchased {-}**

Based on the results of the AF interview, it was revealed that an example of a comparison of value is the amount of money to the amount of goods that can be purchased and not an example of a comparison of value, namely the speed of a car with travel time. AF also revealed an example of a comparison of inverse values, namely the speed of a car with travel time and not an example of a comparison of inverse values, namely the amount of money to the number of items that can be purchased. So it can be concluded that subjects with moderate math skills are able to give examples and not examples of comparisons of value and value. This is in line with the results of research from (Fajar et al., 2019) subjects with moderate math skills can provide examples and non-examples of a concept.

3.2.4 Using, Utilizing and Selecting Certain Procedures or Operations

Research on AF subjects in using, utilizing, and choosing the right procedures in solving the problem of comparison of values and comparisons of value returns was carried out by means of written assignments and interviews.

AFM105 points to the problem statement: "2. a. Diketahui: Target pembagian waktu 48 H dgn 24 org pekerja. Jika waktu 5 Hk bekerja 10 H = 48 - 10 = 18 H dgn 24 pekerja. Jika waktu 5 Hk bekerja 10 H = 48 - 10 = 18 H dgn 24 pekerja. Ditanyakan: Banyaknya pekerja yang ditambahkan. Penyelesaian: Misal x adalah banyak nya pekerja."

AFM106 points to the problem statement.

AFM107 points to the problem statement.

AFM108 points to the table:

Waktu (Hr)	Banyak pekerja
18 a_1	24 b_1
9 a_2	x b_2

AFM109 points to the equation $\frac{a_1}{a_2} = \frac{b_1}{b_2}$.

AFM110 points to the equation $\frac{18}{9} = \frac{24}{x}$.

AFM111 points to the calculation $18x = 9 \times 24$.

AFM112 points to the final result $x = 14$.

At the bottom, it says: "Tambahan Pekerja = 14 + 24 = 38 Pekerja"

Figure 5 AF's answer uses, utilizes, and chooses the right procedure in solving the problem of comparing equal and inverse values of Problem Number 2 part a

The following are the results of the researcher's interview with the AF subject in question number 2 part a

- AFM1 S2-069 S : {-} **meform examplex** as the number of workers needed, then **Icreate table** this is ka (pointing to the table).
- AFM1 S2-073 S : I **amenter** all values{-} a_1 , a_2 , b_1 , and b_2 {-} to the equation $\frac{a_1}{a_2} = \frac{b_1}{b_2}$, I get the equation $\frac{15}{9} = \frac{24}{x}$ from the table earlier, then I multiply {-} cross I get $15 \times x = 24 \times 9$, then I multiply the result $15x = 216$. So to find the value of x {-} I divided 216 by 15 {-} so I got the result 14 {-} After that, to find the number of additional workers I added the initial number of workers with the number of workers obtained {-} $(14 + 24)$. So the number of additional workers is 38 workers {-}

Next, an explanation of the results of the written assignment and the AF interview on question number 2 part b.

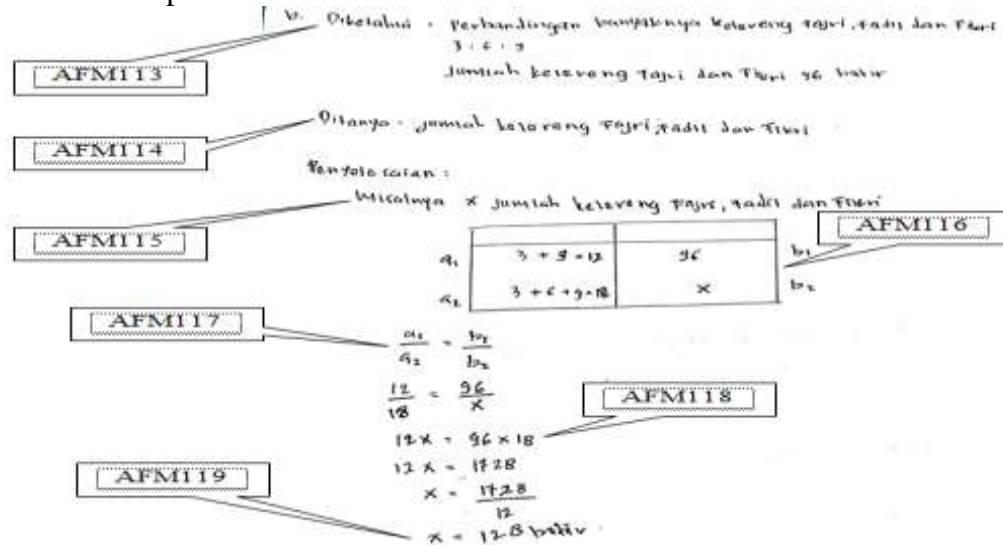


Figure 6 AF's answer uses, utilizes, and chooses the right procedure in solving the problem of comparing equal and inverse values of Problem Number 2 part b

The following are the results of the researcher's interview with the AF subject in question number 2 part b

- AFM1 S2-079 S : Because the question{-} includes a comparison worth {-}
- AFM1 S2-081 S : {-} the first one is **known** {-} the ratio of the number of marbles of Fajri, Fadil and Fikri is 3:6:9, meaning that there are 3 marbles owned by Fajri, 6 marbles owned by Fadil and 9 marbles owned by Fikri and the total marbles of Fajri and Fikri are 96 marbles. Then they asked about the number of marbles Fajri, Fadil and Fikri.
- AFM1 S2-083 S : I let **x** be the number of marbles for Fajri, Fadil and Fikri {-} then I made a table. For the value of a_1 , I get 12, a_2 is 18, then for b_1 it is 96 and b_2 is x {-}
- AFM1 S2-087 S : Next, sis, I entered the {-} values into the equation $\frac{a_1}{a_2} = \frac{b_1}{b_2}$, to find the value of x and I got that $\frac{12}{18} = \frac{96}{x}$, after that I crossed it {-} I got $12x = 96 \times 18$ and the result was $12x = 1728$. Then to get the x value I divided 1728 by 12, I got the result 144.

In accordance with the data from the results of written assignments and the results of interviews with subjects with moderate AF skills in using, utilizing, and choosing the right procedures to solve the problem of comparison of values and reverse values, namely writing down what is known and asking questions, then making a mathematical model and making tables. However, AF erroneously used the procedure to solve part (a) questions, namely AF used equivalent comparisons in reverse value comparison questions so that the final results obtained were not quite right. Furthermore, AF used the correct procedure to solve part (b) of the problem, namely using a comparison equation equivalent $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ to the correct steps, but AF was not careful in carrying out the calculations so that the final result obtained was not quite right. So it can be concluded that subjects with moderate

mathematical abilities AF are able to use, utilize and choose the right procedure to solve value comparison problems but AF is less able to use, utilize and choose the right procedure to solve value comparison problems. This is in line with the results of research conducted by (Nurwana, 2019) subjects with moderate mathematical ability are able to identify what is known and asked about questions well, but are poorly understood, causing errors in selecting and using methods to complete answers.

3.3 Subjects With Low Mathematics Ability R

3.3.1 Restating a Concept

Research on subject R in expressing a concept was carried out by interview. The following is the result of the interview is the result of the R interview in stating a concept.

RM1 S1-006 S : **Comparison of equivalent value of one quantity increases, so the value of the other quantity also increases and if In reverse comparison the value of one quantity increases then the other quantity decreases {-}**

Based on the results of R's interview on M1 in restating the concept of equivalent and reversed value comparisons, by providing an explanation that a comparison of equivalents is a comparison of two quantities, if one of the magnitudes increases, the value of the other quantity also increases, and a comparison of equivalents is a comparison of two quantities, if one quantity increases, the other quantity decreases. From the results of the interviews, information was also obtained that R was unable to restate the comparative equations of equivalent and reversed values. So it can be concluded that subjects with low mathematical ability R are able to restate the concept of comparison of value and value in their own words but are unable to state the equation of comparison of value and value.

3.3.2 Identifying the Objects of a Concept

Research on subject R in identifying comparison objects of value and return value contained in question number 1 was carried out by means of written assignments and interviews.

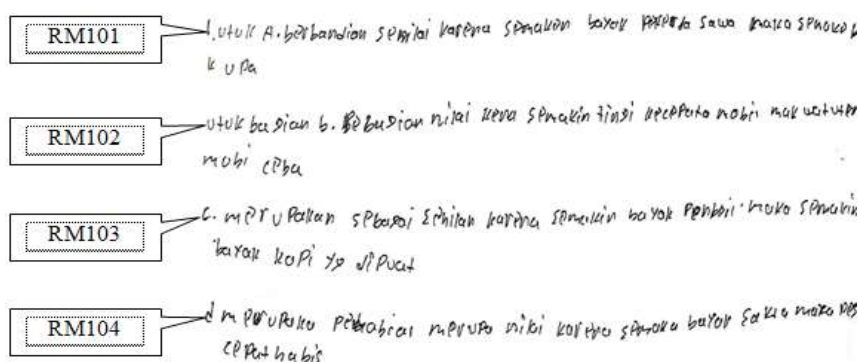


Figure 7 R's answer in identifying a comparison of worth and turn around value

The following is the result of the researcher's interview with subject R in identifying comparisons of value and return value.

RM1 S1-022 S : **The number of salon workers with paid wages issued by the salon and the number of buyers with coffee provided at the coffee shop entered comparison worth while the speed of a car with the travel time and the number of cows with the length of the grass supply enter inverse comparison {-}**

Based on the interview transcript on M1, information was obtained, R revealed that the statement included a comparison of value, namely the number of salon workers with paid wages issued and the number of copies made by the number of buyers in the coffee shop, while the statement included a comparison of inverse values, namely the speed of a car with time mileage and the number of cows with long grass supply. R also explained the reasons why the number of salon workers with paid wages issued by the salon and the number of buyers with coffee provided at the coffee shop is a comparison of value, the speed of a car with travel time and the number of cows with the duration of grass supply is a ratio of inverse values. So it can be concluded from the results of written assignment answers and interviews that subjects with low mathematical ability R are able to correctly identify equivalent and reversed value comparisons.

3.3.3 Give examples and non- examples

Research on subject R in providing examples and non-examples of value comparisons and comparisons of value returns was carried out by interviews.

RM1 S1-036 S : {-} which comparison is worth, **the amount of coffee made and the number of customers in the coffee shop** and not that example **the number of cows with a long supply of grass.**

RM1 S1-040 S : Examples of inverted comparisons bro, **the speed of a car with the time traveled** and not the example **the amount of coffee made by the number of buyers in the coffee shop**

Based on the interview transcript R revealed that examples of value comparisons were the number of coffees made and the number of customers at the coffee shop and not examples of value comparisons, namely the number of cows and the duration of grass supply. R also revealed an example of a comparison of inverse values, namely the speed of a car with travel time and not an example of a comparison of inverse values, namely the number of coffees made to the number of buyers in a coffee shop and not an example of a comparison of inverse values, namely the number of coffees made to the number of buyers in a coffee shop. So it can be concluded that subjects with low math ability R are able to provide examples and not examples of comparisons of value and reverse value but are still based on the questions given.

3.3.4 Using, Utilizing and Selecting Certain Procedures or Operations

Research on subjects with low mathematical ability R in using, utilizing and choosing the right procedures in solving problems of comparison of values and returns of value was carried out by means of written assignments and interviews.

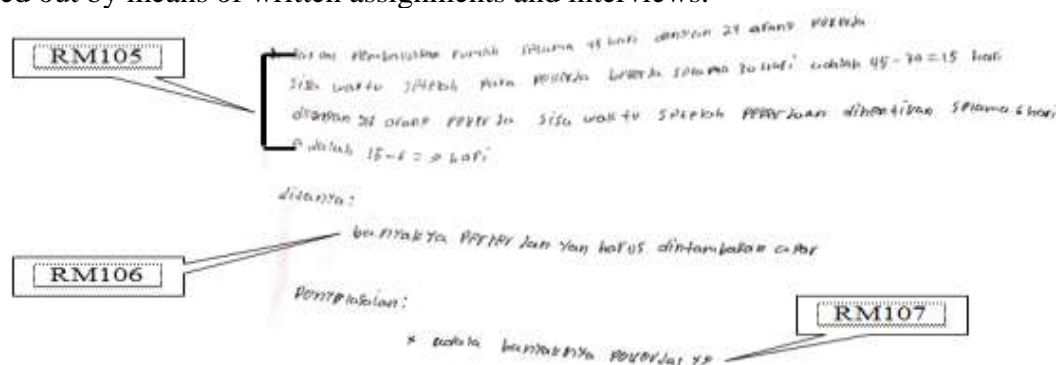


Figure 8 Answer R uses, utilizes, and chooses the right procedure in solving the problem of comparison of equal and reverse values of Problem Number 2 Part a

Following are the results of the researcher's interview with subject R

- RM1 S2-058 S : Which **his known** from the problem, the work target is 45 days with 24 workers. Then the remaining time after working for 30 days with 24 workers is 15. Because it was stopped for 6 days, there are only 9 days remaining, sis.
- RM1 S2-066 P : Then according to my sister, this question is a comparison of value or reverse value?
- RM1 S2-067 S : Shut up. (while shaking head). I don't know sis.
- RM1 S2-068 P : Now, look at the problem, what is known from part b?
- RM1 S2-069 S : Shut up (while reading the question). I don't know bro.

Based on the results of the interviews, information was obtained that R used, utilized, and chose the right procedure in solving the problem of comparison of values and reverse values, namely writing down what was known from the problem, writing down what was asked from the problem. From the interview results also obtained information that R could not complete the answer to determine the value, R is only able to make a mathematical model of the problem, R does not know what method to use for the next step. In line with the opinion of (Toha et al., 2018) subjects with low ability are able to find known information and be asked questions, but are confused about what method to use to solve the problem. Subject R was also unable to answer part b questions because he did not understand the meaning of the questions. So it can be concluded that subjects with low mathematical abilities are unable to use, utilize and choose the right procedure to solve the problem of comparison of value and return value.

4. CONCLUSION

Based on the data analysis and discussion, it is concluded that the profile of students' understanding of the concept on material comparisons of value and return value in class VII A of SMP Negeri 1 Ampibabo. Subjects with high mathematical ability (SS) are able to restate the concept of comparison of value and return of value, identify, give examples and non-examples of comparisons of value and return of value and are able to use, utilize and choose the right procedure in solving problems of comparison of value and return of value.

Subjects with moderate mathematical ability (AF) are able to restate the concept of comparison of value and return, identify and provide examples and non-examples of comparisons of value and return, but are less able to use, utilize and choose the right procedure in solving the problem of comparison of value and return value, i.e. still confused about determining the problem which is a comparison of value or turning value.

Subjects with low mathematical ability (R) were able to restate the concept of comparison of value and value, were able to identify and give examples and non-examples of comparison of value and value, but were unable to solve comparison questions of value and value. Subject R did not understand the problem, did not know what method to use to solve the problem. R was only able to write down what was known and asked from the questions and was able to make a mathematical model of the value-reverse comparison questions.

In this study, researchers provide suggestions to be expected to be able to consider the results of this research and make it a reference in applying learning models to develop and hone students' conceptual understanding skills both orally and in writing.

REFERENCES

Asri, F. M., Ruslan, R., & Asdar, A. (2020). Description of Student's Understanding of

- Mathematical Concepts in View of The Intensity of Using Quipper Video E-Learning Quipper Video. *Issues in Mathematics Education (IMED)*, 3(2), 148. <https://doi.org/10.35580/imed11051>
- Fajar, A. P., Kodirun, K., Suhar, S., & Arapu, L. (2019). Analysis of Ability to Understand Mathematical Concept of Class VIII Students of SMP Negeri 17 Kendari. *Jurnal of Mathematics Education*, 9(2), 229. <https://doi.org/10.36709/jpm.v9i2.5872>
- Gani, F. A., Ismailmuza, D., & Sudarman, S. (2020). Profile of Student's Understanding of Concepts Viewed From the Level Of mathematical Ability in Material Compositional Functions. *Aksioma*, 9(2), 98–111. <https://doi.org/10.22487/aksioma.v9i2.520>
- Jhonson. (1998). *Cooperative Learning and Social Interdependence Theory*.
- Ministry of Education and Culture of the Republic of Indonesia. (2017). *Mathematics for SMA/MA/SMK/MAK Class X*. Jakarta: Balitbang, Kemendikbud.
- Kumalasari, A., Oktora, R., & Eka, P. (2013). *Student's Mathematics Learning Difficulties are Reviewed in Terms of Mathematics and Mathematics Education*. Yogyakarta State University. 978–979.
- Maulida, F. O., Mardiyana, & Pramudya, I. (2017). Analysis of Student's Understanding of Circle Equation Material in Terms of The Learning Motivation of Class XII IPS 4 SMA Negeri 6 Surakarta Academic Year 2016/2017. *Jurnal Pendidikan Matematika Dan Matematika*, 1(4), 26–45. <http://www.jurnal.fkip.uns.ac.id/index.php/matematika/article/view/11603/830>
- Miles, M. B., Huberman, A. M. & Saldana, J. (2014). *Qualitative Data Analysis, A Methods Sourcebook*, Edition 3. USA: Sage Publication: Terjemahan Tjetjep Rohindi Rohidi, UI-Press.
- Nurwana. (2019). Description of Mathematical Communication Ability in View of the Level of Mathematics Ability of SMA Negeri 11 Makassar Students. *Makassar State University Eprints* [Online]. Available: <http://eprints.unm.ac.id/id/eprints/13944>.
- Purwaningsih, K., Zaenuri, & Hidayah, I. (2017). Analysis of Concept Understanding Ability in Contextual Teaching And Learning in Quadrilateral Materials Viewed from Students Personality Type. *UNNES Journal Mathematics Education*, 6(1), 142–151. <https://doi.org/10.15294/ujme.v6i1.12642>
- Sa'adah. (2018). Profile of Students' Critical Thinking Ability in Solving Mathematical Problems in Class VIII Pythagorean Material at MTs Negeri Kota Belitar 2017/2018 Academic Year. *Thesis of the Faculty of Tarbiyah and Teacher Training at UIN Satu Tulungagung* [On line]. Available: <http://repo.uinsatu.ac.id/8189/>.
- Saputra. (2021). *Profile of Conceptual Understanding of Class VII B Students of SMP Negeri 16 Palu on Comparative Material Reversed Values in View of Mathematical Ability*. Thesis. Hammer: Unpublished..
- Sudijono. (2014). *Pengantar Evaluasi Pendidikan*. Jakarta: PT Raja Grafindo Persada.
- Susanto. (2013). *Theory of Learning and Learning in Elementary Schools*. Jakarta: Kencana Perdana Media Group.
- Toha, M., Mirza, A., & Ahmad, D. (2018). Analysis of Student Errors in Solving Comparative Material Story Problems in Class VII Middle School. *Equatorial Education and Learning Journal. Jurnal Pendidikan Dan Pembelajaran Khatulistiwa*, 1–10.
- Yasma, S., Rochaminah, S., & Sugita, G. (2022). Profile of Students' Concept Understanding in Solving Straight Line Equations in Class VIII A of SMP Labschool Untad Palu in terms of Mathematical Ability. *Elektronik Pendidikan Matematika Tadulako*, 9(4), 471–484.