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Students' Mathematical Connection Ability in Solving Block and Prism Problems viewed from Cognitive Style

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Abstract
Mathematical connection skills are very necessary in solving flat-sided geometric problems. This research aims to describe the mathematical connection abilities of class VIII students at SMP Negeri 11 Sampit in solving cubaid and prism problems in terms of cognitive style. This research uses a qualitative-descriptive approach. The subjects in this research consisted of cognitive style subjects' field dependent (FD) 1 student and cognitive style subjects' field independent (FI) 1 student. The instruments used in this research were the GEFT test, mathematical connection ability test and interviews the results of this research show that the mathematical connection ability in solving flat-sided geometric problems of FD cognitive style subjects has difficulty in connecting between concepts, is slow in making decisions and is less analytical. Mathematical connection abilities in solving flat-sided geometric problems, FI cognitive style subjects are able to connect and analyze concepts, and are able to categorize them into a plan. These results show that there are differences in students' mathematical connection abilities in solving flat-sided geometric problems in terms of cognitive style.

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1. INTRODUCTION

Mathematics lessons are structured lessons so that the topics studied are interrelated and cannot be separated and students need to be able to recognize the relationships and connections between these topics to understand mathematics [1] [2]. Students are required to master the material as a whole, namely understanding the previous material which is the basis for the next material and a person's ability to make connections between units is very necessary in solving mathematical problems [3]. The ability to relate mathematics to problem solving in everyday life and other sciences is very important for students to master [4]. Therefore, mathematical connections have an important role in mathematics learning.

Mathematical connection abilities also support a more meaningful understanding of concepts and facilitate problem solving using connections between concepts in mathematics and their relationships with other concepts [5]. Students who can see the relationship between topics in mathematics and topics outside mathematics, and relate them to everyday situations, will make students more appreciative of the usefulness of mathematics itself [6]. So, if students want to master mathematics well, they must have mathematical connection skills.

Developing mathematical connection skills can be done by creating student-oriented learning, where the teacher only guides students to discover for themselves the mathematical concepts they want to teach [7]. This indicates that simply mastering theoretical mathematical concepts is not enough to build strong mathematical connection abilities. Students need to be given the opportunity to connect these concepts with real experiences and relevant situations, so that they can see and understand the relationship between these concepts. Apart from that, students' ability to solve problems mathematically will help them increase their analytical power and will make it easier for them to apply this power in various situations [8]. This shows the importance of having the ability

to be able to use mathematical linkages or mathematical connections in solving mathematical problems in mathematics learning, other sciences, as well as in everyday life.

The mathematical connection process in this research is described at each problem-solving step and the problem-solving steps used are the problem-solving steps proposed by Polya (1957) containing indicators: understanding the problem, designing a plan, implementing the plan, checking and developing [4]. Furthermore, apart from students' mathematical problem-solving abilities and mathematical connections, what is also taken into consideration in learning is the students' cognitive style. The uniqueness and peculiarities of students themselves are expressed through perceptual and intellectual aspects, differences in students themselves can be revealed by cognitive types or types which are called cognitive styles (*cognitive style*) [9]. According to Saracho (1997) cognitive style includes stable attitudes, tendencies, or habitual strategies that differentiate individuals in perceiving, remembering, thinking, and solving problems [10].

Witkin, Moore, Goodenough & Cox (1977) Cognitive styles can be divided into two, namely cognitive styles *Field Dependent* (FD) and *Field Independent* (FI) [11]. This type of cognitive style reflects the individual's analytical way of interacting with the environment [12]. One of them is research conducted by Nugraha and Awalliyah (2016), the results of their research show that there is an increase in conceptual differences between the FD cognitive style group and the FI cognitive style group [13]. Therefore, the research carried out refers to cognitive style because there are differences in concepts between students.

After conducting initial observations and interviews at SMP Negeri 11 Sampit, information was obtained that in solving problems regarding flat-sided spatial structures, students had not been able to show good or appropriate methods and results. Students' mathematical connection abilities in solving problems are not yet completely good. In research [14] it is stated that students will surrender when faced with problems or questions that they consider difficult.

Based on the background explained above, mathematical connection skills are needed which can be seen from students' problem solving, because mathematics lessons consist of several topics that are interrelated and cannot be separated and students need to be able to recognize the relationships and connections between these topics. to understand mathematics thoroughly. So, researchers are interested in analyzing students' mathematical connection abilities. For this reason, the researcher took the title **"Students' Mathematical Connection Ability in Solving Block and Prism Problems Seen from Cognitive Style"**.

2. RESEARCH METHOD

This research was carried out at SMP Negeri 11 Sampit on class VIII students. In this research, the approach used is a qualitative approach. This research aims to describe the mathematical connection abilities of students who have a cognitive style *field dependent* And *field independent* in solving mathematical problems regarding blocks and prisms. The research subjects used were class VIII students at SMP Negeri 11 Sampit who were given the GEFT test. In determining the research subject, the sampling technique used is *purposive sampling.* The selection of subjects was based on the results of the GEFT test, so 2 subjects were selected, consisting of 1 subject with a cognitive style *field dependent* and 1 subject with cognitive style *field independent*. The data collection technique in this research was carried out with the following strategy:

Table 1. Data Collection Techniques

Data	Strategy	Explanation
Tes GEFT	Give the GEFT test	Used to find out cognitive style *field dependent* And *field independent* that students have.
Test mathematical connection abilities in solving mathematical problems	Test sheet	In the form of questions related to Beams and Prisms.
Interview	Interview guide	Used to explore students' mathematical connection abilities in solving Block and Prism mathematical problems.
Documentation	Recording and photographing	Used to collect evidence and all data found.

The instrument in qualitative research is the person who conducts the research themselves, namely the researcher and is assisted by supporting instruments. Supporting instruments consisting of GEFT questions, mathematical connection ability test questions in solving problems, interview guides and documentation. Furthermore, the supporting instruments are first validated by experts to measure whether the instruments used are appropriate or not.

3. RESEARCH RESULTS AND DISCUSSION

3.1.Research result

Based on the results of data analysis of mathematical connection ability tests in solving problems and interviews according to indicators of mathematical connection ability. The results of data analysis in this research consisted of 1 (one) subject of cognitive style mathematical connection abilities *field dependent* and 1 (one) cognitive style mathematical connection ability subject *field independent*. The following is a table of results for 2 (two) subjects selected from the GEFT questions as follows:

Table 2. Subject Cognitive Style Category *Field Dependent-Independent*

No	No	Code	Score	Category
1	RAS	SFD_1	7	FD
2	RRA	SFI_1	11	BE

Indicators of mathematical connection ability in solving mathematical problems or in the process of mathematical connection are described through the problem-solving steps proposed by Polya, namely understanding the problem, planning problem solving, carrying out problem solving, checking again. The description of the mathematical connection abilities of each subject in solving Beam and Prism mathematical problems is as follows:

1. Description of the Subject's Mathematical Connection Ability *Field Dependent* (SFD_1)
   a. Understanding the Problem

      In the step of understanding the problem of flat-sided shapes, the subject connects and states what is known and asked in the problem. Based on the results of the answer sheet provided, it can be seen that SFD_1 not writing down what is known and asked in the question.

Next, an interview was conducted with the subject *field dependent* to know the ability of mathematical connections in depth. The following are the results of the SFD interview1 at the level of understanding the problem.

P : *What do you think the form of the Beam and Prism problem that you are working on will look like?*

SFD1 : *The form of the questions to be done is quite difficult*

P : *Do you understand the meaning of the Beam and Prism question?*

SFD1 : *I quite understand*

P : *Try to explain the meaning of the questions given with your own understanding?*

SFD1 : *Know the sides and find the area of the tent fabric used.*

Based on the results of the interview above, SFD1 explained that the subject had a little difficulty with the questions given. SFD1 also mentioned a little understanding of the meaning of the questions given, but SFD1 can state what is known and asked in the question given, namely finding the area of the tent cloth used.

Based on the results of the answer sheet and SFD interview1 for the given question, then SFD1 meet the indicator of understanding the problem despite the SFD1 unable to write down what is known and asked in the question on the answer sheet, as well as SFD1 a little difficulty and little understanding of the meaning of the questions, but SFD1 can state what is asked in the question.

b. Plan Problem Solving

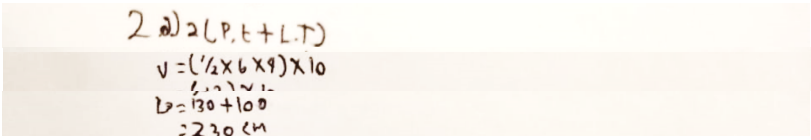

Figure 1. Results of planning SFD problem solving

In the step of planning to solve the problem of flat-sided shapes, the subject connects the understanding of the problem that has been done previously, then a plan is created to solve the problem of flat-sided shapes. Based on the results of the answer sheet in the image above SFD1 when planning to solve the problem of flat-sided shapes, SFD1 write *2(p.t + L.T)* to find the volume of the beam and the SFD1 write $2(\frac{1}{2} x\ 6\ x\ 4{,}5)$ to find the surface area of the block. Then, SFD1 write $v = 2(\frac{1}{2}\ x\ 6\ x\ 4)\ x\ 10$ to find the prism volume and SFD1 write *Lp = 130 + 100* to find the surface area of the prism.

Next, an interview was conducted with the subject *field dependent* to know the ability of mathematical connections in depth. The following are the results of the SFD interview1 at the planning stage of solving the problem of building a flat sided space.

P : *When working on a problem, is there a way to solve it or another method that you use to solve the problem?*

SFD1 : *The method I use is in accordance with what has been taught or learned in class*

P : *Do you know the formula used?*

SFD1 : *I'm having trouble remembering the formula*

P : *Why are there some parts of your answer that you don't write the formula for first?*

SFD1 : *I forgot to write it down*

Based on the results of the interview above, SFD1 use the method of solving according to what has been learned in class, but SFD1 difficulty remembering the formula used so that the formula used is still wrong to solve problems and SFD1 also forgot to write down the other formulas so that SFD1 immediately write down and enter the numbers.

Based on the results of the answer sheet and SFD interview1, SFD1 was deemed not to have met the indicators for planning problem solving due to SFD1 not yet able to connect and determine the formulas used to solve the problem.

c. Perform Troubleshooting

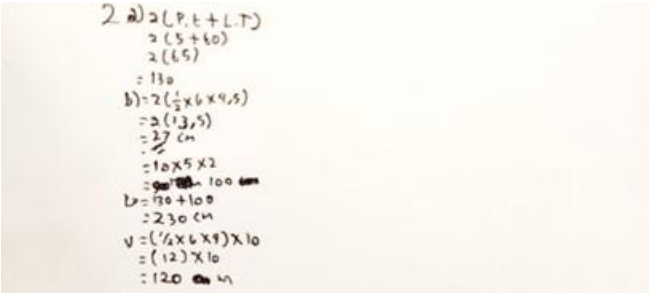

Figure 2. Results of Carrying out SFD Problem Solving

In the step of solving the problem of flat-sided shapes, the subject solves the problem according to previously planned ideas. Based on the results of the answer sheet in the image above, SFD1 when carrying out problem solving for flat-sided shapes, SFD1 writes down the completion steps well, this can be seen from the work process carried out by SFD1. Next, SFD1 also answered what was asked in the question.

Next, an interview was conducted with SFD1 to know the ability of mathematical connections in depth. The following are the results of the SFD interview1 at the level of implementing problem solving.

P : *When answering the Beam and Prism questions, did you find it difficult to calculate or solve them?*

SFD1 : *I can calculate, but I have difficulty remembering what formula to use*

P : *What steps did you use to solve the Beam and Prism problem?*

SFD1 : Write down the formula, then enter the numbers into the formula and then calculate it

Based on the results of the interview above, SFD1 I don't feel any difficulty in calculating, but remembering, writing down and using the formula used to solve the problem is still not precise and correct. SFD steps1 did it well enough, but because the formula used was not correct, the answer or solution was still wrong.

Based on the results of the answer sheet and SFD interview1, SFD1 is considered not to have met the indicators in solving the problem of flat-sided building problems, because SFD1 cannot solve problems with ideas that have been linked and planned beforehand.

d. Check Back

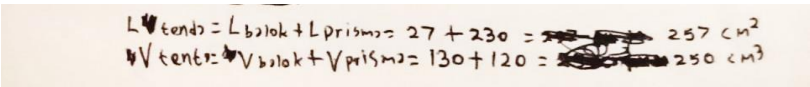

Figure 3. Results of rechecking the SFD1

In the step of checking the results of solving the flat-sided geometric shape problem again, the subject relates whether the results of the solution are in accordance with what was asked in the problem. Based on the results of the answer sheet in the image above, SFD1 in the step of checking again the results of solving problems with flat sided shapes, SFD1 write down what is the final conclusion. Next, an interview was conducted with SFD1 to know the ability of mathematical connections in depth. The following are the results of the SFD interview1 at the level of implementing problem solving.

P : After you have finished working on the Beam and Prism questions, are you sure about the answers you have worked on?

SFD1 : I'm not sure about the answer

P : Do you always check your answers every time you finish working on a question?

SFD1 : I'm just checking the calculations in case I miscalculated

P : Did you double check what you knew and what was asked in the question?

SFD1 : No, I just checked the count

P : What is the conclusion from the Beam and Prism problem that you have worked on?

SFD1 : I forgot the answer

Based on the results of the interview above, SFD1 is not sure about the solution to the question given and in checking the answer SFD1 just checks the calculation section. Additionally, SFD1 can't say what the conclusion of the answer is.

Based on the results of the answer sheet and interview results, SFD1 deemed unable to meet the rechecking indicators, because SFD1 Cannot relate the results of the work and it is not in accordance with what is asked in the question.

2. Description of the subject's mathematical connection abilities *field independent* (SFI1)

a. Understand the problem

In the step of understanding the Beam and Prism problem, the subject connects and states what is known and asked in the problem. Based on the results of the answer sheet provided, SFI_1 not writing down what is known and asked in the questions given. Next, an interview was conducted with the subject *field independent* to know the ability of mathematical connections in depth. The following are the results of the SFI interview$_1$ at the level of understanding the problem.

P	:	*What do you think the form of the Beam and Prism problem that you are working on will look like?*
SFI$_1$	:	*Because it's quite difficult*
P	:	*Do you understand the meaning of the Beam and Prism question?*
SFI$_1$	:	*Yes, I understand*
P	:	*Try to explain the meaning of the questions given with your own understanding?*
SFI$_1$	:	*The problem is that the shape of the combination of two buildings continues to ask about the area of the tent fabric used.*
P	:	*Try to name any combination of two spatial shapes?*
SFI$_1$	:	*Beams and prisms*

Based on the results of the interview above, SFI_1 explained that the subject found it difficult to answer the questions given. However, SFI_1 understands the meaning of the question and the SFI_1 can explain the combined shape of geometric figures, namely geometric shapes of blocks and prisms. Then, SFI_1 can say what is asked in the question, even though the subject does not say what is known in the question.

Based on the results of the SFI answer sheet and interview$_1$ for the given question, then SFI_1 meet the indicators of understanding the problem due to SFI1 being able to mention and understand the meaning of the question, even SFI_1 do not write on the answer sheet.

b. Plan problem solving

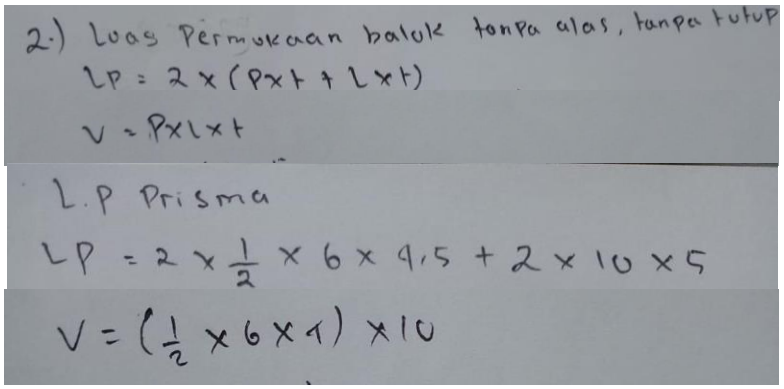

Figure 4. Results of planning SFI problem solving$_1$

In the step of planning to solve the Beam and Prism problem, the subject connects the understanding of the problem that has been done previously, then a plan is created to solve the problem of flat sided shapes. Based on the results of the answer sheet in the image above, SFI_1 When planning a solution to the problem of flat-sided shapes, the subject writes down $Lp = 2 x (p x l + L x t)$ to find the surface area of the block and write $V = P x L x T$ to find the volume of the block, next, the subject writes $Lp = 2 x \frac{1}{2} x 6 x 4{,}5 + 2 x 10 x 5$ to find the surface area of the prism and write $V = (\frac{1}{2} x 6 x 4) x 10$ to find the volume of the block.

Next, an interview was conducted with the subject *field independent* to know the ability of mathematical connections in depth. The following are the results of the SFI $interview_1$ at the stage of planning problem solving.

P : *When working on a problem, is there a way to solve it or another method that you use to solve the problem?*

SFI_1 : *I use the method I have learned*

P : *Do you know the formula used?*

SFI_1 : *Yes, I know the formula*

P : *Why, when finding the surface area and volume of a prism, don't you write down the formula and immediately write down the numbers?*

SFI_1 : *I forgot to write it down*

Based on the results of the interview above, SFI_1 uses methods in solving according to what has been learned. SFI_1 also knows the formula used to solve the problem, only SFI_1 forgot to write the formula in the section to find the surface area and volume of the prism, so SFI_1 immediately wrote down and entered the numbers.

Based on the results of the SFI answer sheet and $interview_1$, SFI face1 was deemed not to have met the indicators for planning problem solving due to SFI1 being able to connect and determine the formulas used to solve problems even though some SFI1 didn't write it down.

c. Perform troubleshooting

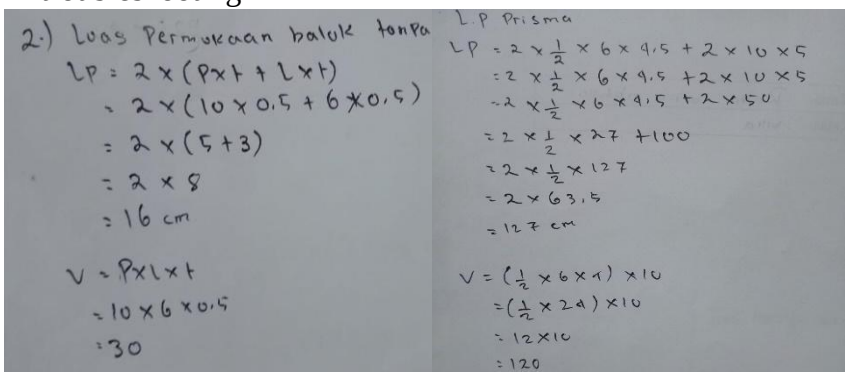

Figure 5. Results of Implementing SFI Problem $Solving_1$

In the step of solving the problem of flat-sided shapes, the subject solves the problem according to previously planned ideas. Based on the results of the answer sheet in the image above, SFI_1 When solving the flat-sided building problem, the subject wrote down the steps to solve it well, this can be seen from the work process carried out by SFI_1. Then, SFI_1 has answered

what was asked in the question, the steps and methods used by SFI_1 in solving the question well enough, so that the results obtained are also correct.

Next, an interview was conducted with SFI_1 to know the ability of mathematical connections in depth. The following are the results of the SFI interview$_1$ at the level of implementing problem solving.

P : *Do you find it difficult when answering flat-sided geometric figures when answering questions to calculate or solve them?*

SFI_1 : *When calculating the prism, I was a little confused about finding the sides*

P : *After that, were you able to find his side?*

SFI_1 *Yes it is*

P : *What steps did you use to solve the flat sided space problem?*

SFI_1 : *Find the surface area and volume of the block first, then the surface area of the prism and the volume of the prism*

Based on the results of the interview above, SFI_1 felt a little difficulty in calculating and determining the sides of the prism, but after that SFI_1 can search and find the sides of the prism. As for the steps that SFI_1 does are good enough, SFI_1 looks for the surface area and volume of the block then looks for the surface area and volume of the prism, and shows the correct answer.

Based on the results of the SFI answer sheet and interview$_1$, SFI face1 is considered to meet the indicators in carrying out problem solving, because SFI_1 can solve problems with ideas that have been linked and planned beforehand.

d. Check Back

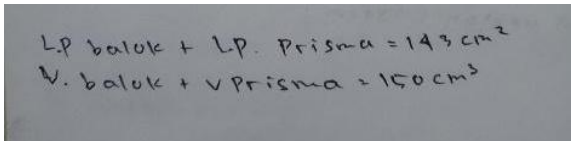

Figure 6. Results of Rechecking SFI_1

In the step of checking the results of solving the Beam and Prism questions again, the subject relates whether the results of the solution are in accordance with what was asked in the question. Based on the results of the answer sheet in the image above, SFI_1, at the step of rechecking the results of the SFI solution$_1$ write down what is the final conclusion, which can be seen from the SFI process and work results$_1$ do it and the answer given is correct. Next, an interview was conducted with SFI_1 to know the ability of mathematical connections in depth. The following are the results of the SFI interview$_1$ at the level of implementing problem solving.

P : *After you have finished working on the Beam and Prism questions, are you sure about the answers you have worked on?*

SFI_1 : *I believe*

P : *Do you always check your answers every time you finish working on a question?*

SFI_1 : *Yes, I double checked the formula and calculations*

P : *Did you double check what you knew and what was asked in the question?*

SFI1 : *I just saw what he asked*

P : *What is the conclusion from the Beam and Prism problem that you have worked on?*

SFI1 : *The area of the tent fabric used is the same as the surface area of the beam + prism*

Based on the results of the interview above, SFI1 explains that the subject is confident in the answer or solution to the problem that has been given. In checking the answer, SFI1 double check the formula and calculations. Then, SFI1 Also check again what is asked in the question. Additionally, SFI1 does not state what the conclusion of the answer is, only states what was asked in the question.

Based on the results of the answer sheet and interview results, SFI1 is considered to meet the indicators of rechecking, because SFI1 is able to write down the final results and able to check and relate back to the results of the work.

1. SFD Achievement Results1 and SFI1

Table 3 Summary of SFD Achievements1 and SFI1 On Indicators of Mathematical Connection Ability in Solving Problems

Indicators of Mathematical Connection Ability in Solving Problems	SFD1	SFI1
	About Building Flat Side Spaces	
Understand the problem	Fulfill	Fulfill
Plan problem solving	Does not meet	Fulfill
Perform troubleshooting	Does not meet	Fulfill
Check again	Not fulfilling	Fulfill

Based on the table above, it can be seen that the mathematical connection capability of SFD1 in solving Beam and Prism problems. At the step of understanding the problem, SFD1 can understand the problem from the question that has been given by mentioning what is known and asked, even if SFD1 does not write it on the answer sheet. In the step of planning problem solving, SFD1 is unable to write formulas correctly, as well as during SFD interviews1 Cannot say the formula used. In the steps to carry out SFD troubleshooting1 unable to write the solution steps well, so the result of the solution is wrong. At the Back check step, SFD1 can write the final conclusion but the results are wrong, during the SFD interview1 unable to connect the final conclusion with what was asked in the question.

Based on the table above, it can be seen that the mathematical connection capability of SFI1 in solving Beam and Prism problems. On the step of understanding the SFI problem1 can understand the problem of the question given by stating what is known and asked in the question. In the step

of planning problem solving, there are some that are SFI_2 didn't write down the formula, but during the SFI interview$_2$ know the formula. In the step of carrying out problem solving, SFI_1 is able to write the solution steps well and be able to solve the problem with the correct solution. At the step of rechecking the SFI_1 can write the final conclusion, as well as during the SFI interview$_1$ can check again and connect the final conclusion with what is asked in the question.

3.2.Discussion

Based on the results of data analysis of mathematical connection ability tests in solving Beam and Prism problems and interviews in accordance with research indicators. Obtained 2 cognitive style mathematical connection abilities *field dependent* (FD) and *field independent* (FI). The following is a discussion of the results of research on students' mathematical connection abilities in solving Block and Prism problems in terms of cognitive style.

1. Mathematical Connection Ability in Solving Beam and Prism Problems for Subjects Who Have the FD Cognitive Style

In indicator 1, namely in the step of understanding the Beam and Prism problem, the subject connects and states what is known and asked in the problem. Subjects with the FD cognitive style can understand the problem. On SFD_1 as well as SFD_2, the subject did not understand the problem presented, but at the time of the SFD interview$_1$ can explain what is known and asked. This is in line with research conducted by [15] that in the step of understanding the subject problem, FD's cognitive style makes external connections by citing information obtained from reading the questions.

In indicator 2, namely in the step of planning to solve the Beam and Prism problem, the subject connects the understanding of the problem that has been done previously, then a plan is made to solve the problem of flat sided shapes. SFD_1 unable to write down or determine the formula used for the solution, in line with research conducted by [16] that FD subjects cannot make connections between one concept and another.

In indicator 3, namely in the step of solving the Beam and Prism problem, the subject solves the problem according to connecting previously planned ideas. SFD_1 Cannot write good solution steps. In line with research [17] that some FD subjects were able to write down the steps in calculations to solve problems correctly, but others were unable.

In indicator 4, namely the step of checking the results of solving the Beam and Prism questions again, the subject relates whether the results of the solution are in accordance with what was asked in the question. On SFD_1 unable to state and relate the final conclusion to what was asked in the question. In line with the opinion of [18] that subjects with the FD cognitive style tend to think less analytically and more broadly.

Based on the ability of mathematical connections in solving Beam and Prism problems of subjects with FD cognitive style above, subjects with FD cognitive style have difficulty in connecting between concepts, are slow in making decisions and are less analytical. This is in line with the definition from [19] that cognitive style *field dependent* is a cognitive style that tends to express a problem globally (comprehensively), meaning that a problem is seen as an integrated whole and experiences difficulty in describing and connecting the parts of the problem.

2. Mathematical Connection Ability in Solving Beam and Prism Problems for Subjects Who Have the FI Cognitive Style

In indicator 1, namely in the step of understanding the Beam and Prism problem, the subject connects and states what is known and asked in the problem. Subjects with the FI cognitive style can understand the problem. SFI_1 can understand the problem of the questions presented. SFI_1 is able to state and explain what is known and what is asked in the question. In line with the opinion of [20] which states that subjects with the FI cognitive style are people with the characteristics of being able to analyze information obtained outside the existing context, can easily categorize objects around them and tend to be analytical, and prioritize inner motivation.

In indicator 2, namely in the step of planning to solve the Beam and Prism problem, the subject connects the understanding of the problem that has been done previously, then a plan is made to solve the problem of flat sided shapes. SFI_1 is able to write the formula, but there are parts where the formula is not written. SFI_1 knows the process of planning problem solving and during the SFI interview$_1$ also knows the formula used. SFI_1 able to connect the ideas obtained into plans. This is in line with research by [4] that FI subjects can design problem-solving plans according to the existing problem conditions.

In indicator 3, namely in the step of solving the Beam and Prism problem, the subject solves the problem according to connecting previously planned ideas. SFI_1 is able to write the solution steps well and be able to solve the problem with the correct solution. SFI_1 can connect previously planned ideas to solve the problem presented. In line with research [21] that subjects with FI cognitive style show when working on a problem systematically.

In indicator 4, namely the step of checking the results of solving the Beam and Prism questions again, the subject relates whether the results of the solution are in accordance with what was asked in the question. SFI_1 You can write the final conclusion on the answer sheet that has been presented. SFI_1 can check the results of the solution again and can connect the final conclusion with what was asked in the question. In line with research [22] that FI subjects wrote conclusions that were in accordance with what was asked and were relevant to the problem.

Based on the ability of mathematical connections in solving problems with FI cognitive subjects above, FI cognitive style subjects are able to analyze existing information by connecting information they have or have previously obtained, and can categorize information into a plan. This is in line with Wiktin who defines the FI cognitive style as a style that tends to state a problem analytically, meaning that a problem is broken down into small parts and finds relationships between these parts [23]. Wiktin and Goodenough also stated that FI cognitive individuals are able to recall information from memory [19].

4. CONCLUSION

Based on the results of the research and discussion, it can be concluded that the mathematical connection abilities of class VIII students at SMP Negeri 11 Sampit are seen from cognitive style *field dependent* (FD) and *field independent* (FI) in solving Beam and Prism mathematical problems are as follows:

1. SFD students' mathematical connection abilities$_1$ in solving problems is categorized as having poor mathematical connection abilities in solving problems. Students with SFD cognitive style$_1$ can only fulfill one indicator, namely the step of understanding the problem
2. SFI students' mathematical connection abilities$_1$ in solving problems, they are categorized as having mathematical connection skills in solving problems very well. Students with the FI cognitive style is able to fulfill the four indicators, namely steps to understand the problem, plan problem solving, carry out problem solving and check again.

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