

Analysis of Mathematical Disposition of Nursing Class XII Students SMK Swasta Sartika Rantau Prapat

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Abstract: *This study aims to determine the disposition of students' mathematics. This research uses descriptive qualitative research design. The research was conducted at SMK Swasta Sartika Rantau Prapat with the total population of Private Vocational School Sartika Rantau Prapat 2015/2016 academic year and the sample of this study is class XII Nursing amounted to 21 students. The instrument uses a questionnaire. The percentage analysis of students' mathematics disposition ability was obtained that 71,4% students have fulfilled their mathematical disposition ability and 28,6% of students are not fulfilled their mathematics disposition ability in class XII Nursing SMK Sartika Rantau Prapat.*

Keywords - the ability of mathematical disposition

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I. Introduction

The current growing science makes the government also work hard to improve the quality of education in national schools. One of the education quality improvement programs undertaken by the government is the holding of teacher certification. Teacher certification is expected to improve the pedagogic, personality, professional, and teacher social competence and also can optimize learning in school. Learning in schools should be met learning facilities and infrastructure, such as libraries. What is also considered important is the educational curriculum that governs the course of the learning process in the classroom.

The process of learning in the classroom is entirely in the hands of teachers as teachers. Teaching techniques in the classroom teachers are very influential on the attitude and knowledge of students. Many models and methods teachers use to improve the quality of learning. Especially for math teachers are required to be more creative in delivering various subject matter, because many students who consider mathematics is a difficult lesson. Mathematics is considered difficult because it is not concrete, so students find it difficult to learn.

Whereas according to the National Council of Teachers Mathematics (NCTM: 2000) the purpose of learning mathematics is to develop: the ability to explore, construct conjectures; and to reason logically, the ability to solve non-routine problems; the ability to communicate mathematically and use mathematics as a communication tool, the ability to connect between mathematical ideas and between mathematics and other intellectual activities. In order for math lessons feels easier then the teaching of mathematics that only focus on the use of the formula alone should be abandoned. Teaching mathematics (Farikhin: 2007) should be emphasized on exploration and investigation of mathematics. Teaching with the emphasis of the system will familiarize students to use science in solving various problems and will also increase the confidence and curiosity of students in solving various mathematical problems. Thus the student's mathematical disposition also increases.

Based on the above description, the authors are interested in discussing the disposition of students' mathematics to compose an article entitled "Analysis of Mathematical Disposition of Students of Class XI Smk Private Sartika Rantau Prapat On Statistics Material."

II. Method

This research uses descriptive qualitative research design. The research was conducted at SMK Swasta Sartika Rantau Prapat with the total population of Private Vocational School Sartika Rantau Prapat 2015/2016 academic year and the sample of this study is class XII Nursing amounted to 21 students. The instrument uses a questionnaire.

III. Result and Discussion

Result

According to the National Council of Teachers Mathematics (NCTM: 1989) the mathematical dispositions not only refer to the attitude but the tendency to think and act in a positive way. The student's mathematical disposition is a manifestation in the way they accomplish math tasks both from self-confidence, a desire to explore alternative ways, persistence and interest, as well as a tendency to reflect on their own way of thinking. The disposition of mathematics goes beyond math. Students may like math but do not reflect positive attitudes and actions as expected.

Polking (Sumarmo: 2010) suggests that the mathematical disposition indicators of students, namely: (1) Confidence in using mathematics, solve problems, give reasons and communicate ideas, (2) Flexibility in investigating mathematical ideas and trying to find alternative methods in solving problems (5) Tend to monitor, reflect their own performances and reasoning, (6) Assess mathematical applications in situational matters, (3) interest in mathematical tasks, (4) interest, curiosity, mathematics and daily experience, (7) appreciation of the role of mathematics in culture and values, mathematics as a tool, and as a language.

At this time, the power and disposition of student mathematics has not been fully achieved. This is partly because learning tends to focus on teachers who emphasize procedural processes, mechanistic training tasks, and provide less opportunities for students to develop mathematical thinking skills (Djohar: 2003 in Shaban: 2009). In fact, the importance of developing the ability to think and the role of teachers has long been proposed by Polya (Shaban: 2009) that to teach how to think, teachers not only provide information but also put themselves according to the condition of students, and understand what happens in the minds of students.

The expected positive attitude and action of indirect despair when accomplishing difficult mathematical tasks and to consider mathematics something logical, useful and useful in everyday life, so that any mathematical problems that are considered difficult must be found a way out. Development of mathematical dispositions must be is run with the development of thinking skills such as the ability of reasoning, reasoning, problem solving, communicating. This becomes increasingly important when connected with the demands of science and technology advancement and the increasingly competitive atmosphere of graduates all levels of education.

In the classroom learning of mathematics dispositions students will be continually reflected in the way they ask questions and answer questions, work on problems, and new approaches they find. Because the evidence of mathematical disposition can be seen clearly in written exercises of students such as homework, project development, and journal or presentation orally by students can also provide valuable information about the student's mathematical disposition. Such as individual projects or group presentations on the solution of a problem or proof of a theorem can be used as proof of how much the students desire to be diligent and steadfast in doing the tasks and trying various alternative motides in solving the problem.

The type of this research is descriptive qualitative research that is to see picture of student's mathematical disposition. This research was conducted on the students of class XII Nursing Private SMK Sartika Rantau Prapat which amounted to 21 students. The test of the student's mathematical disposition statement is a statement relating to the material consisting of 7 statements. The statement is a contextual statement. Furthermore, for the preparation of instruments more systematic, so easy to be controlled, corrected before the instrument is compiled into the items of the instrument, it is necessary to make a grid of the student's mathematical disposition questionnaire instrument presented in table 1.

Table 1. Grid of Mathematical Disposition

NO	Indicators measured	Statement Number
1.	Confidence	1
2.	Curiosity	2
3.	Perseverance	3
4.	Flexibility	4
5.	Reflective	5
6.	Assessment of mathematical applications	6
7.	Appreciation of mathematical role in lifepan	7

Furthermore, scoring is based on guidelines for rubric assessment for students' mathematical dispositions presented in Table 2.

Table 2. Statement Score In Questionnaire

Answer Options	Skor
Strongly Agree (SA)	4
Agree (A)	3
Disagree (D)	2
Strongly Disagree (SD)	1

There are 7 statements in the questionnaire, so the maximum score of the mathematical disposition is 4 (maximum score of each statement) x 7 (number of statements) = 28. To find out the mathematical disposition the student meets the indicator, the researcher uses the formula (Purwanto: 1999) as follows:

Explanation :

$$N_{DM} = \frac{R}{SM} \times 100\%$$

- N_{DM} = The value of the student's mathematical disposition
- R = Total student earning score
- SM = Maximum score of mathematical disposition

By criteria:

- $0\% \geq N_{DM} < 65\%$ Does not have a mathematical disposition
- $65\% \geq N_{DM} < 100\%$ Has a mathematical disposition

From the research obtained the data of mathematical disposition test results of students presented in table 3 as follows:

Table 3. Mathematical Disposition Value of Grade XII Students of Private SMK Sartika Rantau Prapat

NO	ITEM SCORE							TOTAL	N_{DM} (%)
	1	2	3	4	5	6	7		
1	3	2	3	3	2	2	4	19	67
2	4	4	2	2	2	3	4	21	75
3	3	4	3	3	3	4	3	23	82
4	3	4	2	4	2	4	4	23	82
5	3	3	3	4	3	3	3	22	78
6	3	3	3	4	3	3	2	21	75
7	3	4	3	3	3	3	2	21	75
8	3	2	3	0	2	3	3	16	57
9	3	3	0	3	2	2	3	16	57
10	2	3	3	2	2	2	4	18	64
11	2	2	2	3	2	3	4	18	64
12	4	3	4	4	3	3	2	23	82
13	3	0	4	3	2	3	3	18	64
14	3	4	2	4	2	4	4	23	82
15	3	3	3	3	3	4	4	23	82
16	3	3	3	4	3	4	3	23	82
17	4	4	3	3	3	4	2	23	82
18	3	4	3	4	3	4	2	23	82
19	3	2	3	2	2	2	2	16	57
20	3	3	4	3	4	2	2	21	75
21	3	3	3	4	4	3	1	21	75
Total	64	63	59	65	55	65	61	-	-
Percentage of Indicators (%)	76	75	70	77	65	77	72	-	-

For the presentation of indicators on each item / statement above can be seen in the following table:

Table. 5 Percentage of Student Mathematical Disposition Indicators

Item	Percentage of Indicators
1	76 %
2	75 %
3	70 %
4	77 %
5	65 %
6	77 %
7	72 %

Based on the calculation obtained by the percentage of indicator of each item is for indicator 1 = 76%, for indicator 2 = 75%, for indicator 3 = 70%, for indicator 4 = 77%, for indicator 5 = 65%, for indicator 6 = 77%, and for the indicator 7 = 72%. It can be concluded that the seven items percentage of 65% so that each item is considered to meet and worth tested to know the mathematical disposition of students in class XII Nursing Private SMK Sartika Rantau Prapat.

From the results of data above that have been obtained also shows that the mathematical disposition of grade XII students of Private SMK Sartika Rantau Prapat obtained from 21 students there are 6 students who achieve 65% score and 15 students achieve 65% score.

Table 4 Disposition of Mathematics of Grade XII Students of SMK Swasta Sartika Rantau Prapat

The Value of Mathematical Disposition (N_{DM})	Many Students	Percentage of Number of Students	Explanation
< 65 %	6	28,6 %	Do not have
≥ 65 %	15	71,4 %	Have

Based on the calculation obtained the percentage value of 65% as many as 6 students while the percentage of 65% as many as 15 students. It can be concluded that 71.4% of students already have mathematical dispositions and as many as 28.6% of students do not have mathematical disposition of students in class XII Nursing Private SMK Sartika Rantau Prapat.

IV. Conclusion

Indicator of mathematical disposition by Polking (Utari: 2010), is:

1. Confidence in using math, solving problems, giving reasons and communicating ideas.
2. Flexibility in investigating mathematical ideas and trying to find alternative methods of problem solving.
3. Diligently doing the mathematical task.
4. Interest, curiosity (curiosity), and inventiveness in performing mathematical tasks.
5. Tend to monitor, reflect their own performances and reasoning.
6. Assess mathematical applications in mathematics and daily experience.
7. Appreciation of the role of mathematics in culture and values, mathematics as a tool, and as a language.

Thus, through the table of mathematical disposition calculation students obtained 65% percentage value of 6 students while the percentage of 65% as many as 15 students. So, it can be concluded that 71.4% of students already have mathematical disposition and as many as 28.6% of students do not have mathematical disposition of students in class XII Nursing SMK Sartika Rantau Prapat Private

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