

The Analysis of Students' Discipline Character in Mathematics Learning

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Abstract—Mathematics learning is one of the lessons which demands the students' discipline because it is a constructed subject. However, teachers often ignore the students' discipline during Mathematics learning. Thus, the students do not possess the discipline character. This survey research aims to describe the level of elementary school students' discipline character in Mathematics subject. All elementary schools in Berbah Sub-District, Yogyakarta were included as the population of this research. The purposive sampling technique was used to collect the data. The result of this study indicates that 48.70% of students have low discipline character in learning Mathematics. From the aspect of discipline character, the percentage of the obedience aspect is 50.61% (low). The percentage of orderly aspect is 50.26% (low), and the percentage of meticulous aspects is 44.41% (low). The elementary school students discipline in learning Mathematics in each elementary school is as follows: Elementary Schools SD Negeri Berbah 2 (47.50%), SD Negeri Jomblang 2 (46.25%), and SD Negeri Sumber 1 (52.36%). From the results of the research, it can be concluded generally that the level of elementary students' discipline character is still low. It leads to less effective and efficient learning processes.

Keywords—*character, discipline, learning, Mathematics.*

I. INTRODUCTION

Mathematics is one of the considerable learning subjects, so it is important to learn it intensively [1]. Mathematics learning is often regarded as a burden for students because despite the gender, most students have low scores in the subject. Based on a study conducted in a science class located in Turkey, there is a significant difference between the mastery skills of male and female students [2]. However, in the context of Mathematics learning, the research conducted by Hidayat & Dwiningrum [3] shows that there is no effect of gender differences on Mathematics learning achievement. It means that both male and female students have relatively the same competency in learning Mathematics.

Science has been applied in Indonesia to overcome various cases in learning, including in Mathematics learning. The 2013 Curriculum is one of the efforts by the Ministry of Education to overcome the stated problem. Yogyakarta is one of the areas declared ready to implement the 2013 Curriculum that has been made by the government [4]. However, during the implementation, it is found that the students' paradigms are still unchanged in learning mathematics [5]. Besides, the students seem careless during the learning, and it becomes one of the factors influencing their learning achievements.

II. RELATED WORKS/LITERATURE REVIEW

Mathematics is a lesson with constructed matters. Every material in the subject is constructed and interconnected with each other. The Mathematics concepts should be developed from the general to specific ones so that they can be easily understood by students [6]. This opinion indicates that to master mathematics learning, the orderliness of the students themselves to understand the concept from general to specific one is needed.

From several opinions that have been stated previously, it can be concluded that Mathematics learning is developed from several concepts, and it is interconnected with each other. Mathematics learning has a flow of thinking from general to specific. Thus, in learning Mathematics, accuracy and self-discipline to master or understand the concept of mathematics are needed.

Mathematics learning does not only focus on the cognitive skills, but it also focuses on the students' characters since Mathematics learning is a constructed and interconnected learning that requires students to understand some existing rules. Therefore, students' attitude during the lessons is the priority. Character building for the students at the basic level will be much more useful and easy because they have clean thought [7]. The opinion suggests that character building for students at elementary school will be easier and meaningful. Mathematics learning and rules are inseparable. Mathematics is closely related to the various rules and procedures that must be mastered by students to achieve the objectives in learning Mathematics. The students who are discipline will

obey the rules and will find it easier to master the subject. Compliance with the constructed rules is one of the discipline characteristics. This is in accordance with the opinion of M. Kann [8] that discipline is a behavior to obey the rules and willingness to be punished or charged if breaking the rules. In other words, students must behave orderly and be obedient to the rules while learning both derived concepts and other concepts in Mathematics. If they do not obey the rules of Mathematics, they will automatically get the consequences of failing to achieve the learning objectives [9]. This opinion shows how important being discipline in the Mathematics learning is.

In line with Gordon, Winkler et al. [10] state that discipline is shown by an individual behaving orderly and obediently to the rules and established regulations. It means that a student is considered discipline when he/she obeys the rules, follows the Mathematics learning, and follows the process of learning Mathematics orderly. The students' discipline characteristics need to be developed in Mathematics lessons.

Discipline character can be developed through the intensive routines [11][12]. The students' discipline character can be improved well through specific habits. Teachers have significant roles as facilitators and controllers of students' discipline character. The more roles the teachers have, the more the opportunities to improve the students' discipline character .

Furthermore, Lupu [13] explains that the discipline character constitutes the attitude and behavior owned by a person. The character is formed from the routines of obeying the rules made in learning Mathematics. Being obedient to the learning procedures will make the students more orderly and meticulous in participating in the learning process. It will help students improve their achievement in learning Mathematics.

The students' discipline will influence their learning result since they try to be more meticulous and obedient to the rules and follow the learning orderly [14]. This opinion shows that the students' accuracy is very important to be improved in during the Mathematics lesson. Based on the results of this research, the students' high accuracy shows that they have good discipline character. Furthermore, the discipline character is needed by every student, so that they can master the Mathematics concepts more easily.

Discipline can also be linked to the consequences and control [15]. It means that students who have good discipline will obey the whole rules that have been determined when carrying out the lesson, will maintain orders during the learning processes, and will become cautious in completing tasks or making decisions. There will be consequences when the students disobey the rules. Besides, the disciplinary programs may control the students' behavior during Mathematics learning.

The above opinion is supported by Lustic [16] saying that in developing students' discipline, the students should be accustomed to being always obedient to the rules, to be orderly during the learning process, and to be careful in making a decision. This indicates that the students should be accustomed to be discipline. On the other hand, the students' accuracy is an aspect that indicates the students' discipline. Students who are careful will neither be hasty nor careless in determining the action that they will do.

From several opinions described above, it can be concluded that the discipline in learning Mathematics is one of the personalities owned by students. It is shown in the way they obey the rules and the procedures, behave orderly, be meticulous during learning. There are three indicators to measure the students' discipline, namely attitude and obedience.

The role discipline character in Mathematics learning makes it essential to identify the level of students' discipline level. Hereafter, if the students' discipline character is low, the treatment needs to be given to improve it. Thus, this research figures out the level of students' discipline characteristic in Mathematics learning.

III. MATERIAL & METHODOLOGY

A. Data

This research was survey research aiming at investigating the level of students' discipline character in Mathematics learning. It used a quantitative approach. The results of this research could be used as one of the recommendations to identify the influences of discipline character on the elementary school students' learning achievement, specifically in Mathematics subject.

This survey research was conducted in the following steps [17]: (1) identifying the focus of the research and the research method, (2) planning the research schedule and budget, (3) establishing the basis of information, (4) developing the framework for sampling, (5) determining the sample size and sample selection, (6) designing the research instrument, (7) trying out the research instrument, (8) selecting the interview guideline, (9) conducting the survey, (10) analyzing the completed questionnaires and making the computerized data entry, and (11) conducting data analysis and making final report.

The research was conducted in elementary schools located in Berbah Subdistrict, Sleman, Special Region of Yogyakarta. This research was conducted from May to June 2017. The population of the research was all students of 24 elementary schools in Berbah Subdistrict. The sample was taken by using purposive sampling. The specified sample was SD Negeri Berbah 2 (25 students), SD Negeri Jomblang 2 (30 students), dan SD Negeri Sumber 1 (27 students). The total respondent was 82 students. The three schools were selected with the consideration that they are public

elementary schools, and they have implemented the 2013 Curriculum.

B. Method

The data of the research were collected through survey and interviews. Close-ended questionnaires were used during the survey and distributed to the students to figure out the level of discipline character in Mathematics learning before being interviewed by teachers. The results of the interview were used to support the data collected from the questionnaires.

The questionnaires in this research contained the scale of 1-4. After the data obtained, they were analyzed and interpreted. The blueprint of the questionnaire is presented in TABLE 1.

TABLE I. THE BLUEPRINT OF THE QUESTIONNAIRE

No	Sub Variables	Indicator	Item
1	Obedience	<ul style="list-style-type: none"> Coming on time Bringing learning supplies Completing exercises on time 	1,2 3,4 5,6,7
2	Being orderly	<ul style="list-style-type: none"> Taking an active role in the discussion Listening to the teachers Managing the time in completing tasks 	8,9,10 11,12 13,14
3	Meticulousness	<ul style="list-style-type: none"> Following the procedures in doing exercise Analyzing the tasks Having the ability in problem-solving 	15,16 17,18 19,20

The data were analyzed using the presentation technique. The percentage of students' answers was obtained from the formula below.

$$\frac{\text{value of expectation score}}{\text{value of expectation}} \times 100\%$$

Then, the percentage result was interpreted to become four categories as follows.

TABLE II. INTERPRETATION OF QUESTIONNAIRE PERCENTAGE

Percentage	Category
76% < x ≤ 100%	Very High
51% < x ≤ 76%	High
26% < x ≤ 51%	Low
0% < x ≤ 26%	Very Low

IV. RESULTS AND DISCUSSION

A. Result

The result of the research on the level of elementary students' discipline character in Berbah Subdistrict, Sleman-Yogyakarta is presented as follow.

TABLE III. RESULTS OF THE QUESTIONNAIRE

Elementary School	Score of the Answer	Percentage	Category
SD Negeri Berbah 2	949	47.50%	Low
SD Negeri Jomblang 2	110	46.25%	Low
SD Negeri Sumber 1	1130	52.36%	High
Total Score	2189	48.70%	Low

Based on Table 3, the percentages of the level of elementary students' discipline character in Mathematics learning at SD Negeri Berbah 2 and Jomblang 2 were in the range of 26%-51%. The percentages are considered low, however at SD Negeri Sumber 1 was in the range of 51%-76%, which indicated a high percentage. Overall, the level of elementary students' discipline character in Berbah Subdistrict, Sleman-DI Yogyakarta was in 48.70% which showed in the low category.

The level of the elementary students' discipline character in mathematics learning was reviewed from every aspect of discipline characteristic in Berbah Subdistrict, Sleman-Yogyakarta as follows.

TABLE IV. PERCENTAGE OF EVERY ASPECT OF STUDENT DISCIPLINE

Aspect	Answering score	Percentage	Category
Obedience	1162	50.61%	Low
Being orderly	1154	50.26%	Low
Meticulousness	874	44.41%	Low
Total	3190	48.42%	Low

The percentage of the level of elementary students' discipline character in Berbah Subdistrict, Sleman, Special Region of Yogyakarta was reviewed from every aspect of discipline character. The percentage of obedience aspect is 50.61%, the percentage of being orderly aspect is 50.26%, and the meticulousness aspect is 44.41%. Those aspects are in the low category, so the overall percentage is in the low range (48.42%).

The percentage of obedience aspect in SD Negeri Sumber 1 is the highest (53.87%). The second highest is SD Negeri Berbah 2 (49.71%). Then, the percentage for SD Negeri Jomblang 2 is 48.45%. The high percentage of obedience aspect 1 is shown by the students of SD Negeri Sumber attitudes, such as coming on time and completing exercises on time.

The percentage of being orderly aspect at SD Negeri Sumber 1 is the highest (53.97%). The percentage of the aspect in SD Negeri Berbah 2 is 50.57%. The last, the percentage of the aspect in SD Negeri Sumber 1 is 46.67%. The aspect of being orderly is categorized as high since the students of that elementary school participate in discussions and are capable of managing their time in completing tasks.

The aspects of obedience, being orderly, and meticulousness in SD Negeri Sumber 1 have the highest percentage (48.76%). The second is SD Negeri Jomblang 2 (43.19%), and the last is SD Negeri Berbah 2 (41.17%). The aspect of meticulousness level in SD Negeri Sumber 1 is high because the students at this school followed the procedures in doing exercise and had a good ability in problem-solving.

The percentage of the level of elementary students' discipline character in Mathematics learning in Berbah Subdistrict, Sleman-Yogyakarta is as follows: SD Negeri Sumber 1 52.36%, SD Negeri Berbah 2 47.50%, and SD Negeri Jomblang 2 46.25%. The highest percentage is in SD Negeri Sumber 1. Overall, the percentage of the level of elementary students' discipline character percentage in Berbah Subdistrict is at 48.70%, and it is categorized as the lowest.

This research was supported by the data collected from an interview with each classroom teachers from those three schools. The result of the interview was used as the supporting data. The interview result of obedience aspect is as follows: (1) the teacher of grade IV in SD Negeri Sumber 1 said that most of students were obedient. They came to the class on time, did the exercise on time, and brought the learning supplies. However, some of the students disobeyed the rules; (2) the teacher of grade IV in SD Negeri Berbah stated that there were many students who came late in Mathematics learning, and most of the students got difficulties in submitting the exercise on time; and (3) the teacher of grade IV in SD Negeri Jomblang 2 stated that students' character needed to be improved, especially in their discipline. There were still many students coming late to the class, and most of them do not complete the exercises on time.

The results of interview on being orderly aspect are as follow: (1) the teacher of grade IV in SD Negeri Sumber 1 stated that most of the students were able to behave orderly during the learning process. Although some students did not actively participate in the discussion, they listened to the teacher's explanation. Moreover, they were capable of managing their time in completing the tasks. The teachers get difficulties in controlling the students; it made some of the students not behave orderly. Besides, students' lack of awareness became a particular problem; (2) the teacher of grade IV in SD Negeri Berbah stated that students found problems in taking parts in discussions and managing the time; and (3) the teacher of grade IV in SD Negeri Jomblang 2 stated that students needed more attention during the class. Once they got the attention, they would actively participate in the discussion. In addition, the students' lack ability to manage the time was needed to be improved.

The results of an interview on the aspect of meticulousness is as follows: (1) the teacher of grade IV in SD Negeri Sumber 1 stated that the students do not feel that they are less meticulous. It could be seen

from the students who did not follow the learning procedure well. In addition, the ability in analyzing and finding the problem solving was low; (2) the condition of the students of grade IV in SD Negeri Berbah 2 and SD Negeri Jomblang 2 also experienced the same thing; the students were not meticulous in following the process of Mathematics learning.

The discipline character can be developed if the character became a habit. According to a study, the students should be intelligent and have a specific character of discipline during Mathematics learning [18]. Therefore, teachers need to train the student and make them familiar with the discipline character.

The results of the interview show that the teachers of grade IV in those three public schools found problems in controlling the students during Mathematics learning. The male and female students' different characters, the numbers of students, and the students' lack awareness became factors affecting the polemic for the teachers to build the students' discipline character up. Furthermore, the teachers said that the habituation to enforce the discipline especially in Mathematics learning in those three public schools were not thoroughly done. One of the effects is that it is hard for them to achieve the expected learning objectives.

B. Discussion

Being obedient and orderly during Mathematics learning processes is a must. Breaking the appointed rules and not behaving orderly during the learning process shows students' low character. In a certain time, there will be consequences for such undisciplined acts [19]. The consequences are not in a narrow sense which is focused on physical punishment. They can be in the forms of the students' difficulties in achieving the expected learning outcomes. The research that had been done in elementary schools located in Berbah Subdistrict shows the percentage of the students' obedience to the rules only 50.61% and the percentage of the students' orderly attitude 50.26%. The percentage is still far from the expectation since it indicates that students in elementary schools in Berbah Subdistrict still have low discipline level. It makes the students get difficulties to understand the materials and achieve the goal of mathematics learning.

Mathematics learning requires students to be meticulous. It means that the students must not be careless. If they are careless in understanding the concept of mathematics learning, they will get the difficulties in achieving the goals of mathematics learning. The higher the accuracy of the students shows that they have good discipline character [20]. Based on the result of the research, the students in Berbah Subdistrict have low meticulousness level; the percentage is 44.41%. The students' meticulousness level shows that they do not have good discipline character yet.

Mathematics learning requires the students' discipline character in the learning process. It requires the teachers to be more skilled to get students accustomed to discipline character. The character will become the identity [21]. It shows that if the teacher improves the students' discipline character in learning Mathematics teachers have to familiarize the students to be disciplined first by being obedient to the rules, orderly, and meticulous in following the learning process. If the character is not familiarized, thus the students will have the low discipline character that will impact on the ineffectiveness of learning. The low discipline character in mathematics learning is caused by the students who are not optimally accustomed to being discipline. As a result, students get difficulties in achieving the goals of Mathematics learning.

Based on the result of this research, it is seen that the elementary school students' level of discipline character in Mathematics learning is still low. The importance of the discipline character in Mathematics learning makes it important to find the solution to improve the discipline character. Many efforts have been done. One of those is the research that has been done in Yogyakarta. The research on developing the elementary school students' discipline character in Mathematics learning [18] reveals that (1) the elementary school students' discipline character in Mathematic learning is still low, and (2) elementary school students' discipline character in mathematics learning is important. The study supports the conducted research in a way that students' discipline needs to be improved.

Discipline character can be developed if the character has become a habit for students. Research shows that the Mathematics learning does not only need intellectual ability, but it also requires certain characters especially discipline character [18]. Discipline character makes the students more meticulous in following and doing every steps or procedure in Mathematics learning. The roles of educators are to get the students accustomed to the discipline character. The large number of students in every class becomes an obstacle for the teachers since it is hard to control all of the students at once. In SD Negeri Berbah 2, similar problems can be found.

Teachers have a role as parents for the students in schools. One of the tasks of the role is improving students' discipline character [22]. Research done in Bogor District shows that there were three points that are important to be noted to build the elementary students' discipline character. They are the students' gender, the students' discipline pattern, and the students' spiritual pattern [23]. The research shows that the teachers have to be able to take a role in helping the students to improve their character, especially discipline character. The result of the research done in Berbah Subdistrict shows that the teachers' efforts to help the students in improving their discipline character have not been comprehensively done. Thus,

the result of the research shows that the students' discipline character is low.

The high discipline character can influence the students' learning result [24]. By owning the high discipline character, the student will be more obedient, orderly, and meticulous in during the learning process. The students will achieve the goals of learning more easily. Eventually, the students' learning result will improve. On the contrary, if the students' discipline character is low, the students' learning achievement tends to be low. Based on the findings of the research conducted in elementary schools in Berbah Subdistrict, the students are not discipline. The condition affects students learning achievements, which are below their expectation.

Evaluation research has been conducted. The result shows that the students who are highly disciplined have the capabilities of understanding the learning materials more easily [10]. Therefore, it is important to improve students' learning discipline to support the expected learning objectives, especially in Mathematics learning. However, the teachers in SD Berbah do not facilitate the students in improving the discipline character.

V. CONCLUSION

Based on the research conducted, it can be concluded that the level of students' discipline character in Mathematics learning in Berbah Subdistrict, Sleman-DI Yogyakarta is in low category (48.70%). The highest level of discipline characteristic obtains by SD Negeri Sumber 1 (52.36%). It belongs to the "high category". The percentage of obedience aspect is 50.61%, the aspect of being orderly is 50.26%, and meticulousness aspect is 44.41%. This research has revealed that the level of students' discipline character in Mathematics learning is low. Thus, specific treatments are required to be done in the future to improve the discipline character in Mathematics learning. Based on the results of the research, it is recommended to conduct new research to improve the students' discipline characteristics in Mathematics learning and to review the factors influencing the students discipline character in learning Mathematics.

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