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The Correlation Between Active Participation and Metacognitive Ability of Primary School Students through Montessori Learning Method

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Abstract

Metacognitive was the student's skill in the process of acting (activity) and thinking (mental process). This skill could improve their learning process and memory. Student who had metacognitive skill will be able to control and to arrange his learning activity by himself. Active participation was the interaction both physically and psychologically to think, to interact, to try and to find new things in the learning process. The purpose of this research was to find the relationship between active participation and the metacognitive ability of students, especially in elementary school. This research was a correlation study. Population of this research was 5th grade students in SD Negeri 3 Klangenan academic year 2017/2018. Sample was taken using purposive sampling technique. The data was collected by observation and written test. The instruments for active participation was observation sheets and the instrument for metacognitive ability was a multiple choice test that consist of 20 questions. The data was analyzed using correlation technique using IBM SPSS Statistics 16.0 for windows. Based on the data nalaysis, it was obtained r_{count} was 0.682. At a significant level 5% then was 0.413. Based on value $r_{count} > r_{table}$ then it showed that there was a positive and significant corelation between active participation and metacognitive ability of students 5th grade SD Negeri 3 Klangenan.

Keywords: Active Participation, Metacognitive Ability, Montessori Learning, Student of Primary School

Hubungan Antara Partisipasi Aktif dan Kemampuan Metakognitif Siswa Sekolah Dasar Melalui Metode Pembelajaran Montessori

Abstrak

Metakognitif adalah kemampuan siswa dalam proses melakukan (aktivitas) dan berpikir (proses mental). Kemampuan ini dapat meningkatkan proses pembelajaran dan memori siswa. Siswa yang memiliki kemampuan metakognitif dapat mengontrol dan mengatur aktivitas pembelajaran dengan sendirinya. Partisipasi aktif adalah interaksi secara fisik dan psikologi siswa untuk berpikir, berinteraksi, mencoba, dan menemukan hal-hal baru dalam proses pembelajaran. Tujuan penelitian ini adalah untuk menemukan hubungan antara partisipasi aktif dan kemampuan metakognitif siswa khususnya siswa sekolah dasar. Penelitian ini merupakan penelitian korelasi. Populasi penelitian ini adalah siswa kelas 5 SD Negeri 3 Klangenan Tahun Ajaran 2017/2018. Sampel diambil menggunakan teknik purposive sampling. Variabel-variabel penelitian ini adalah partisipasi aktif dan kemampuan kognitif. Data penelitian ini dikumpulkan menggunakan teknik observasi dan tes tertulis. Instrumen untuk mengukur partisipasi aktif siswa menggunakan lembar observasi dan instrumen untuk mengukur kemampuan metakognitif menggunakan tes pilihan ganda yang terdiri dari 20 soal. Data dianalisis dengan teknik korelasi menggunakan bantuan IBM SPSS 16.0 untuk windows. Berdasarkan hasil analisis diperoleh nilai r hitung sebesar 0,682. Pada taraf signifikansi 5% diperoleh r_{tabel} sebesar 0,413. Berdasarkan nilai r_{hitung} dan r_{tabel} diketahui bahwa $r_{hitung} > r_{tabel}$ sehingga hal ini menunjukkan bahwa terdapat hubungan yang positif dan signifikan antara pastisipasi aktif dan kemampuan metakognitif siswa kelas 5 SD Negeri 3 Klangenan.

Kata kunci: Partisipasi Aktif, Kemampuan Metakognitif, Pembelajaran Montessori, Siswa Sekolah Dasar

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INTRODUCTION

Someone succesfull will be determined by the development of all aspects by themselves optimally, that is in physical, cognitive, emotional and spiritual development. The development of all aspects was begin in the prenatal period. As spoken by Papalia, Olds & Feldman that quoted by Dariyo (2007), the stage of child development including physical, intellectual, emotional, and spiritual development begin in the prenatal period until the final adulthood. Therefore the environment is what makes the child's development more optimal, especially in cognitive development.

Cognitive development is considered as a determinant of children intellectual intelligence. Cognitive development is how to manage or to regulate the cognitive abilities in responding any situation or problems. Aspects of cognitive cannot walk alone separately but it needs to be controlled or regulated so that if someone will use his cognitive abilities then they need the ability to determine and regulate what cognitive activities will be used. Therefore, someone must have an ability to think and be able to manage it. The experts say this ability is called metacognitive.

Ormrod (2008) explains that metacognitive is knowledge and belief about one's cognitive processes and conscious efforts to involved in mental processes (mind) and the emotional process (behavior) so as to improve the learning process and the memory of thinking. Meanwhile, according to Shahbari, Daher & Rasian (2015) metacognition is related to what he/she knows as an individual who learns and how he/she controls and adjustes his/her behavior. As according to Anderson & Krathwohl (2010) states that "metacognition is knowledge of cognition in general equals awareness and knowledge of self-cognition". It can be concluded that metacognition is a mental process (mind) of a person in their learning efforts to improve learning outcomes. Metacognitive activities occured when student can consciously adjust and manage the strategies to solve the problems they face. If students have metacognitive abilities in the learning process then they can have an ability to learn.

According to Sugiarto & Sophianingtyas (2013) metacognitive has an important role in regulating and controlling one's cognitive processes both in learning and in thinking so that it is more effective and efficient. While the opinions of other experts such as Ridley Schutz, Glanz & Weinstein in Jannah (2014) views on metacognition skills are "Metacognitive skills include taking conscious control of learning, planning and selecting strategies, monitoring the progress of learning, correcting errors, analyzing the effectiveness of learning strategies, and changing learning behaviors and strategies when necessary"

Students who have metacognitive abilities can have an ability to control the learning process. The learning process starts from the planning stage of problem solving, choosing the right strategy according to the problem at hand, then monitors progress in learning and simultaneously corrects if there are errors that occured during understanding the concept, analyzing the effectiveness of the chosen strategy. Students are said to have good metacognitive awareness, if the can design the best strategy in choosing, remembering to recognize the problems they face, organizing the information they face, and solving problems. The indicators that students must process in metacognitive ability are comprehend the problem construction of the relationship between prior knowledge and new knowledge, using appropriate strategies to solve problems/question, elaboration or diligent and careful cultivation, reflecting (Krimarski, et. al., 2002; Jacob in Putri, 2010).

Therefore, if someone wants to be able to have a good metacognitive ability then he/she must be able to control and adjust his behavior in solving the problem. This is in line with what was said by Santrock (2010) that "metacognitive activity occurs when students consciously adjust and manage their thinking strategies when solving problems and thinking about one goal".. This can be accustomed to in the learning process. In adjusting positive behavior students must be familiar with interacting of their environment. In optimizing positive behavior, the teacher must provide positive stimuli the students whom involved in the learning process one of them is by solving a problem in group it makes them

to be active and independent in solving the problem. Active students show a great desire in participating in various learning processes. Brita (2011) argues that participation is an active process, which means that the person or group will concern, takes the initiative and uses freedom to do so. Participation can be seen from several behaviors such as listening, discussing, creating something, writing reports, etc. Student participation is needed to setting goals in learning and teaching activities (Hasibuan & Moedjiono,2006).

Active participation of students is the involvement of students physically and psychologically to think, interact, try and find new things in the process of learning activities so that learning goals are achieved well. Active participation in learning is very important to create an active, creative and fun learning process. Thus the planned learning objectives can be achieved to the maximum extent possible. Without the participation and activeness of students, the learning processes will not occured. Every student must be active in learning, what distinguishes it is the level of student activity. The level of activity of student can be categorized starting from the low, medium, and high.

Various factors that led to active participation according to Sudjana (Hayati, 2001) are: 1). Knowledge about themes, facts, rules and skills; 2) The situasions or conditions such as the physical and social environment, also social factors; 3) The social habits such as sedentary habits and the environment; 4) Need that includes the need for approach, avoid, and individual needs; 5) attitudes include view or feelings of willingness to react, social interactions, interest and attention.

Indicators of active participation by students according to Suryosubroto (2002) will appear in the following activities: 1) doing something to understand the subject matter with full confidence; 2) learning, experiencing, and discovering for themselves how to get knowledge situations; 3) taking an experience for yourself how the tasks given by the teacher; 4) learning in groups; 5) trying certain concepts by yourself; 6) communicating the results of thoughts, discoveries, and appreciation of values orally or appearance. In addition, Sudjana (2009) also explained that student activity can be seen in the following cases; 1) participating in carrying out their learning tasks; 2) involving in problem solving; 3) asking other students or teacher about things that are not understood, 4) seeking information needed for problem solving; 5) conducting group discussions according to the teacher's instruction; 6) assessing abilities and the results obtained; 7) training yourself in solving problems; 8) applying what has obtained in completing the task.

In line with the understanding of active participation, students can be actively involved if they can have an active process in taking the initiative and using their freedom of thought to solve the problem. Elementary school students must be accustomed to being actively involved and actively participating in the learning process, so that if students participate themselves then they can be said to be learning and automatically student can think how to solve the problem on their own way. In the effort of teachers to optimize their active participation so as to improve their metacognitive abilities, the learning process must apply several methods that emphasize the student center approach, one of which is the Montessori learning method. Montessori method is one of the learning methods that emphasizes the activeness and creativity of children so that children's physical, emotional, intellectual, and social development can grow and develop optimally. The concept of Montessori learning was discovered by education experts, namely Dr. Maria Montessori. Montessori is a revolutionary method of observing and supporting the natural development of children. Montessori educational practice helps children develop creativity, problem solving, critical thinking and time-management skills, cares of the environment and each other, and prepares them to contribute to society and to become fulfilled persons (Montessori.edu, 2017). Montessori learning method is a learning method that emphasizes the activeness and creativity of children so that children's physical, emotional, intellectual, and social development can grow and develop optimally. Montessori learning method is divided into three parts, there are education on motoric, sensory and language aspects with

emphasis through the development of five senses. Children learn with different stages according to their needs and individual skills. Sardiman (2009) explains that there are characteristics of students that need attention, one of which is related to personality differences such as attitudes, feelings, interests and others.

Experience with the real environment is an important aspect of Montessori learning. This is explained by Montessori (Faryardi, 2007) "Education is a natural process spontaneously carried out by the human individual, and is acquired not by listening to words but by experiences upon the environment. The task of the teacher becomes that of preparing a series of motives of cultural activity, spread over a specially prepared environment, and then refraining from obtrusive interference". Teachers do not need to intervene excessively in the learning process to improve children's creativity.

So it can be concluded, if someone has metacognitive abilities, the student in the learning process must actively participate in solving the problem positively. To be more convincing that active participation has a relationship with metacognitive abilities, this study wants to analyze the relationship of elementary school student participation with metacognitive abilities in 5th grade elementary school in Montessori learning method on the material of plane.

METHODS

This study aims to reveal the correlation between active participation of students and metacognitive abilities of fifth grade students of SDN 3 Klangenan, Klangenan Sub-district, Cirebon Regency, as many as 29 people. Data was collected by using test and observation. The test was used to determine the metacognitive abilities of students by referring to the indicators and the observation sheet was used to determine the active participation of students by referring to indicators of active participation. The data were analyzed using product moment correlation analysis that available in SPSS 16.0 for windows program. But beforehand, a descriptive analysis of the research variables that have been studied will be presented. This sampling technique was purposive sampling. This research was correlation research. Correlation research is research conducted by researchers to determine the level of relationship between two or more variables, without making changes, additions or manipulation of data that already exists (Astuti, 2016: 54).

The research instrument used in this study is a test and documentation study. This study aims to determine the relationship between research variables, namely the relationship between active participation as an independent variable with metacognitive ability as the dependent variable. The data was analyzed using some test, there were (1) Prerequisite test which consist of the normality test was using One Sample Kolmogorov Smirnov and linearity test; (2) Hypothesis test was using product moment correlation equation to find out the correlation coefficient (r). The data analysis was helped by SPSS 16.0 program.

FINDINGS AND DISCUSSION

Results

This study aims to reveal the correlation between active participation of students with metacognitive abilities of fifth grade students of SD Negeri 3 Klangenan, Cirebon. Data was collected by using observation and test. Observation is used to determine the active participation of students in learning mathematics material properties of flat build with the help of sponge waste props. The test is used to find out 20 students' metacognitive abilities. To find out the correlation between students 'active participation with students' metacognitive abilities, the data were analyzed using product moment correlation using IBM SPSS statistics 20 for window program assistance. But beforehand a descriptive analysis of the research variables that have been studied will be presented.

Description analysis is done to determine the minimum value, maximum value, mean value, standard deviation and variance. The results of the description analysis are calculated using the IBM SPSS statistics 20 for window program. Results description of the students active participation and metacognitive abilities of 5th grade elementary school can be seen in Table 1 below.

Table 1. Description Result

	N Statistic	Range Statistic	Min Statistic	Max Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic	Variance Statistic
Active Participation	23	21,00	70,00	91,00	77,04	1,24	5,96	35,58
Metacognitive Ability	23	15,00	80,00	95,00	85,43	1,03	4,98	24,80
Valid N (listwise)	23							

Based on Table 2, it can be seen that the value of minimum active participation was 70 and the maximum value was 91, while the minimum value of the metacognitive ability was 80 and the maximum value was 95. The average value of the students active participation was 77,04 and the average value students on metacognitive abilities was 85,43.

Normality test is used to find out whether the data in the study is normally distributed or not. Normality test is carried out using one-sample Komlogorov-Smirnov test with the help of the IBM SPSS statistics 20 for Window program using a 5% significance level. Research data is said to be normally distributed if p>0,05. The result of normality test can see more detail in Table 2.

Table 2. Result of Normality Test

N		Active Participation 23	Metacognitive Ability 23
Normal Parameters a, b	Mean	77,04	85,43
	Std. Deviation	5,97	4,98
Most Extreme Differences	Absolute	,243	,210
	Positive	,243	,210
	Negative	-,189	-,168
Kolmogorov-Smirnov Z		1,164	1,008
Asymp. Sig. (2-tailed)		,133	,261
a. Test distribution is Normal.			
b. Calculated from data.			

Based on Table 2, it can be seen that the significance value was 0.618 that was higher than 0.05, which means that there was a significant linear relationship between independent variables (active participation) with dependent variables (metacognitive ability).The value of F_{table} at a significant level 5% was 3.16 if F test results were consulted with F_{table}, it can be seen that F_{count} is smaller than F_{table} it showed that the relationship between active participation and metacognitive abilities of students was linear. Testing of the hypothesis in this study was using product moment correlation technique with the help of IBM SPSS statistics 20 for window program.

The result of hypothesis test can be seen in Table 3.

Table 3. The Result of Hypothesis Test

		Active Participation	Metacognitive Abilities
Active Participation	Pearson Correlation	1	.695**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	782.95	454.56
	Covariance	35.589	20.662
	N	23	23
Metacognitive Ability	Pearson Correlation	.695**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	454.56	545.65
	Covariance	20.66	24.80
	N	23	23

**. Correlation is significant at the 0.01 level (2-tailed).

Based on Table 3, it can be seen that the active participation of students whom has metacognitive abilities was a significant value of 0.000 < 0.05,. It meant that there was a significant correlation. Based on Table 3, it can be seen that the value of the correlation coefficient (r) or r_{count} is 0.695. Furthermore, the significance test is done by comparing the price of the correlation coefficient with the r_{table}. The value of r_{table} at the significant level of 5% is 0.413. If is is consulted with r_{table}, it can be seen that r_{count} greater than r_{table} (0.695>0.413). This result meant that correlation coefficient of 0.695 was significant. in common, the result showed that there is positive and significant relationship between active participation with metacognitive abilities of 5th grade in SDN 3 Klangenan.

Discussion

Correlational analysis of the data showed that there was a significant and positive relationship between active participation and metacognitive abilities of 5th grade students at SDN 3 Klangenan. This can be proven by calculating the results of hypothesis testing that has been carried out using the product moment correlation formula with the help of IBM SPSS statistics 20 for window shows the r_{count} of 0.695. Furthermore, the significance test is done by comparing the price of the correlation coefficient with the r_{table}.

The results of these calculations can prove the theory of student active participation, that active participation of students is the mental and emotional inclusion of a person in a group situation that encourages them to develop their thinking and feelings for the achievement of goals, jointly responsible for these goals (Tjokrowinoto in Suryosubroto, 2002). With students participate in the learning process actively, they are be able to adapt and manage strategies to solve the problems they face so that the learning objectives can be achieved optimally. If students can adjust and manage strategies to solve problems they face then the student has metacognitive abilities. This is in line with the explanation of metacognitive abilities according to what can be said by Santrock (2010) that "metacognitive activity occurs when students consciously adjust and manage their thinking strategies when solving problems and thinking of one goal".

Students who have metacognitive abilities, actually they have studied independently both in group and individually. This can be seen when students are prepared with equipment for learning and they do it according to the directions from LKPD (worksheet). They also read their own work and assess whether or not they are doing what they are doing. Students immediately evaluate their own work by correcting what is considered lacking according to their abilities. After that, they confirmed to the teacher whether their work was right. As stated by Peters (in Corebima, 2006) that metacognitive ability enable students to develop as independent learners, because of their encouragement to become managers of themselves and to be assessors of their own thoughts and learning. In other

words the student as a whole can participate in the learning process. Therefore, activities of active participation can empower mental abilities (metacognitive) well. According to Inayah (2013), self-active participation in empowering mental abilities, feelings and behaviors that are oriented towards achieving goals can be expressed as a form of learning independence.

CONCLUSION

There is a positive and significant relationship between student active participation and metacognitive abilities of fifth grade students of SDN 3 Klangenan in the application of montesori learning methods in the material of the properties of plane. This can be seen from the significance value of 0.000 < 0.05. Therefore, it can be said that if student participate in learning process actively, they will improve their metacognitive abilities. Meanwhile, after the calculated value is consulted with the interpretation guidelines on the correlation coefficient, it can be seen that the closeness of the relationship between the two variables is said to be very strong, which is 0.695.

This research can be continued or converted into experimental quantitative research in seeing a very significant influence. But the researchers suggest that in the dependent variable (dependent variable) added to the independence of learning so that further research is more convinced that active participation, students' metacognitive abilities and learning independence are related and affect student learning outcomes.

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