Journal of Elementary School Education
journal homepage: https://journal.berpusi.co.id/index.php/joese/article/view/883/version/884
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e-ISSN 2963-9484 Vol 2 No 2 2024 (Page: 491-499)

Improving Cooperation and Critical Thinking Ability Using The "Be Smart" Model in Primary School Students

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ARTICLE INFO

Keyword
Collaboration, Critical Thinking Skills, Mathematics, Elementary School, BE SMART

ABSTRACT

The problem in this research is the low level of cooperation and critical thinking abilities of students. The reason is that learning is one-way and the use of inappropriate learning models to stimulate critical thinking. An effort to overcome this is by using the *"BE SMART" model.* The purpose of this research is to analyze the increase in students' cooperation and critical thinking abilities. This research is Classroom Action Research (PTK) which was carried out in four meetings. The research subjects were 22 class V students at SDN Mawar 7 Banjarmasin. The type of research used is qualitative and quantitative data. The results of the research showed that student cooperation in meeting I was 45%, increasing in meeting IV by 95% in the category "All Students Work Together". Students' critical thinking abilities at meeting I were 41%, increasing at meeting IV at 95% in the category "All Students are Critical". It is recommended to teachers that the results of this " *BE SMART* " model research can be used as a reference in using innovative learning models.

Introduction

Education currently plays an important role in creating human resources that have quality and are competent according to the needs of the times. Currently, education has entered the 21st century, which can be known as the century of globalization (I. Nurhayati et al., 2024) . The term education in the 21st century includes aspects that must be developed including the 4Cs, namely *Critical Thinking, Communication, Collaborative, Creativity* (Partono et al., 2021) . This 4C aspect has a big impact on the learning process, especially because it can improve understanding in mathematics (Harsono et al., 2023; Suharna & Abdullah, 2020) . At the educational unit level, the most important thing for creating quality human resources is that it can be started from the Elementary School (SD) education unit level, because this will determine the quality of subsequent education (Putri et al., 2023) . Mathematics in education, especially in elementary schools, is a bridge or foundation for further education. This is in line with the opinion (DK Putri et al., 2019; Mulyanto et al., 2018; Suriansyah et al., 2021) that one of the subjects in school which is considered to be able to teach students critical, logical, analytical thinking and cooperation is mathematics. In the opinion of (Prastitasari et al., 2023) mathematics is one of the sciences that has an important role in various aspects of human life. Mathematics learning in elementary schools has achievements to set an example for students with abilities, one of which is cooperation. At this time, one of the most important abilities for students is the ability to collaborate, because with this collaboration it will be easier for students to carry out learning activities in class with other students. According to (Wati et al, 2020) the ideal condition for student collaboration during learning is that students are able to carry out collaborative activities well with other students. According to Hadaina & Astawan (2021) indicators of cooperation include: every child wants to join and interact with their group; responsibility for completing tasks. Meanwhile, according to Kamawarni (in Azizah & Ikhlas, 2021) indicators of cooperation include: mutual assistance to fellow members; appreciate the contribution of each group member. Learning mathematics in

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the 21st century is required to improve students' life skills such as critical thinking. The ability that a person has to be able to solve problems is by thinking critically. According to (Nurkhasanah et al., 2019) the ideal condition for students' critical thinking abilities in learning is that students can solve problems by involving their critical thinking abilities. According to Maqbullah et al., (2018) indicators of critical thinking abilities include: identifying problems, collecting relevant information from various sources, compiling a number of alternative problem solutions, and making conclusions.

However, the reality is not supported by the facts that occur in the field. Based on the results of observations and interviews on 20-21 December 2023 with Mrs. Annisa Nursyifa, S.Pd as class teacher at VB SDN Mawar 7 Banjarmasin, the problem of low student cooperation was found, namely that 50% of students were not able to work together well due to learning. being one-way will have an impact on students in groups who tend to be individualistic. Furthermore, the low critical thinking ability of students, namely that 55% of students are not able to think critically, is caused by the use of inappropriate learning models to stimulate critical thinking, which will have an impact on students having difficulty analyzing in the problem solving process. Based on the problems found in the VB class at SDN Mawar 7 Banjarmasin, solutions can be provided to overcome the problems by applying the model. This is in line with Noorhapizah's opinion (in Rahimah & Novitawati, 2023) that choosing a meaningful learning model can add a sense of enthusiasm to the learning. Therefore, researchers provide a solution using the " *BE SMART* " model. This model is an acronym for the Problem Basic Learning *(PBL*), Number Head Together *(NHT)* and Make a Match *models*. The researcher developed this learning model to answer problems in the classroom, namely to increase cooperation and students' critical thinking skills on mathematics content. The element of novelty in this research is an effort to increase cooperation and students' critical thinking skills by using the " *BE SMART* " model. This model is a combination of 3 models that have been chosen by researchers to overcome the problems described above. The philosophy of the " *BE SMART* " model is that if translated into Indonesian it means "be smart". The word "smart" is not a trait that is possessed from birth, but rather an intellectual quality or you could say smart that is acquired through learning over time. This intellectual quality is mastery of the subject matter studied. So, this intelligence is actually obtained through the efforts made by students while studying at school. Therefore, researchers hope that the *"BE SMART" learning model* can overcome the problem of low cooperation and critical thinking abilities of students in class and can also make students in class smart in subjects, especially mathematics. For more details regarding this learning model, it will be explained as follows. The main model used is the *Problem Based Learning (PBL*) model, namely this learning model is appropriate for mathematics learning because it is objective, related to daily life events. According to the opinion (Ghufron & Ermawati, 2018 ; Masruro et al., 2021; Pramesti et al., 2022; Prameswari & Cinantya, 2023 ; Rifdah et al., 2023; Suriansyah et al., 2019) that this PBL model with its characteristic problem orientation can be develop students in collaborating in groups, discussing, being challenged in critical thinking and working together in groups to answer problems and present the results of their work. This is also reinforced in the book by the author (Cendana et al., 2022) that the PBL model can improve social skills and teamwork. This was further strengthened by research (Anjani et al., 2021; Anwar et al., 2021 ; Aulia & Cinantya, 2023; Nawangsih et al., 2023 ; Rahmawati et al., 2023; Rifdah et al., 2023) that there was an increase in collaboration and learning outcomes students because students are involved in learning activities in class, students are trained to continue working together with other friends, students can understand problem solving.

The supporting model used is *the Number Head Together (NHT) model* , a learning model that emphasizes a special structure created with the characteristic of using head numbers to have an impact on student interaction patterns so as to increase student cooperation. This is also in line with Moh's opinion. Sholeh Hamid (Ariyani & Sari, 2024; Muliandari, 2019; Palupi, et al., 2023; Prameswari & Cinantya, 2023; Rachmawati, 2023) namely that this NHT learning activity can develop students to study in groups, discuss, improve critical thinking skills, increase responsibility and express opinions to each other. This is reinforced by research from (Aldistya, 2019 ; Erfan et al., 2020 ; Fatma et al., 2023; Janah & Subroto, 2019; Kholifah, 2019 ; Nourhasanah & Aslam, 2022 ; Rachmawati, 2023) that there is an increase in cooperation and critical thinking. Because the *Number Head Together learning model* is able to create the idea that students can understand a concept more easily if students can work in peer groups, so that students are able to discuss problems together. The complementary model used is the *Make A Match model*, which is a learning model that provides freedom of movement for students so they can interact and mingle with students in class and there is competition between students with its characteristic card matching game to solve problems related to the learning topic. This is also in accordance with the opinion (Isnaini et al., 2023; Setyawati, et al. 2019; Ulhusna et al., 2020) that the *Make A Match model* provides opportunities for students to interact with fellow students, thereby increasing student cooperation in solving problems in mathematics. This is also reinforced based on a book by the author (Refika, et al., 2021) that this *Make A Match* type model can influence students' understanding of the material being studied well, this is effective in encouraging students to have the courage to make presentations in public, training discipline in students in respecting study time. This is reinforced by research from (Fauhah & Rosy, 2020; Isnaini et al., 2023 ; Kurniawan et al., 2021 ; Nurhayati et al., 2022 ; Tanjung & Barus, 2023) that the *Make A Match model* contains game elements that make learning fun and active for students. This

allows students to be involved in learning activities with play patterns, making it easier for students to achieve a learning goal and influencing student learning outcomes to improve. Based on the problems described, the research that will be carried out aims to find out several things, including analyzing cooperation and students' critical thinking abilities with Mathematics content using the *"BE SMART" model.*

Research Methodology

The type of research used is Classroom Action Research (PTK). In Suriansyah's opinion (in Noorhapizah et al., 2019) classroom action research is research carried out in a class for the purpose of improving or increasing the quality of learning in the classroom. This classroom action research activity was carried out at SDN Mawar 7 Banjarmasin for the 2023/2024 even semester academic year. The subjects studied were 22 VB class students. This research was conducted in four meetings. This research uses data collection techniques in the form of observation and written tests. Observations were made on cooperation and critical thinking skills. The data analysis technique used in this research is qualitative data analysis which is explained in the form of tables, graphs and interpreted in the form of percentages. The indicator of success in this research is that individual student cooperation is said to be successful if it reaches a score of ≥13 in the "Very Collaborative" category and classically it reaches a percentage of ≥82% in the "All Students Collaborate" category. Individual students' critical thinking abilities are said to be successful if they achieve a score of ≥13 in the "Very Critical" category and classically reach a percentage of ≥82% in the "All Critical Students" category.

Results and Discussion

The results of this research show that student cooperation at each meeting has increased . Below are presented the results of observations of student collaboration at meetings I, II, III and IV.

Table 1. Comparison of Student Collaboration Results from Meetings I, II, III and IV

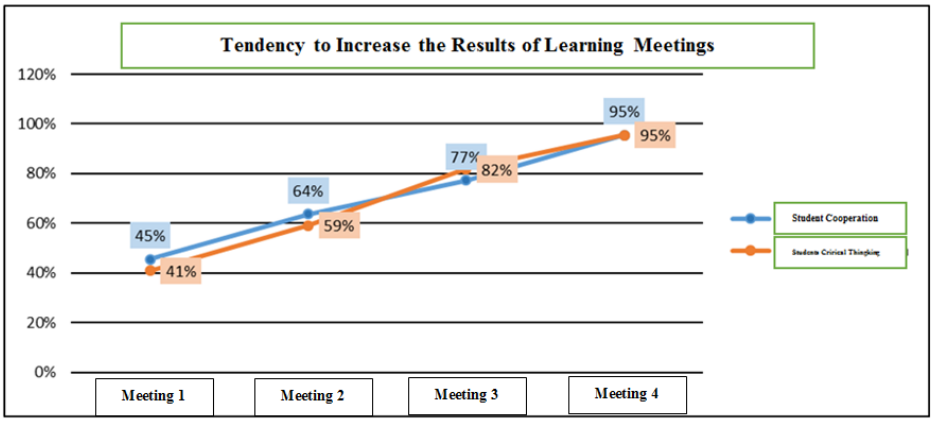
Student Collaboration	Percentage	Category
Meeting I	45%	Some Students Work Together
Meeting II	64%	Almost all students work together
Meeting III	77%	Almost all students work together
Meeting IV	95%	All Students Work Together

Based on the data presented above, it can be seen that student cooperation classically increased from meetings I to IV. The percentage of student cooperation in the first meeting was 45%, in the second meeting it was 64%, in the third meeting it increased to 77% and in the fourth meeting it increased again to 95%. This can happen because of the use of the *"BE SMART" model* which can have an impact on increasing student cooperation at each meeting. Increasing this aspect affects students' critical thinking abilities.

Table 2. Comparison of Students' Critical Thinking Results from Meetings I, II, III and IV

Students' Critical Thinking	Percentage	Category
Meeting I	41%	A Small Number of Critical Students
Meeting II	59%	Some students are critical
Meeting III	82%	Almost all students are critical
Meeting IV	95%	All students are critical

Based on the data presented above, it can be seen that students' critical thinking skills classically increased from meetings I to IV. The percentage of students' critical thinking abilities at meeting I was 41%, at meeting II it was 59%, at meeting III it increased to 82% and at meeting IV it increased again to 95%. This can happen because of increased student cooperation in implementing the "BE SMART" model which will also have an impact on increasing students' critical thinking at each meeting. The following is a picture of the trend of increasing results from learning meetings that occur at each meeting which can be seen in the graph below:



Picture 1. Graph of the Trend of Increasing Learning Meeting Results

Based on Picture1. The trend graph above shows that students' cooperation and critical thinking abilities have increased with each meeting. In the picture, it can be seen that students' cooperation and critical thinking skills can reach the percentage according to the indicators set by the researcher.

Cooperation

Based on data analysis on student collaboration in Mathematics learning using the *"BE SMART* " model, class V students at SDN Mawar 7 Banjarmasin have experienced an increase at each meeting. This increase in student cooperation shows that the " *BE SMART* " model has been successfully implemented. This can be seen from the indicators of student cooperation as follows. The first indicator is that every student wants to join and interact with their group. In this aspect of cooperation, students can be seen interacting with each other as group members and being able to communicate with the group. This is in accordance with the opinion of (Ardiyansyah & Metroyadi, 2021; Hasanah & Himami, 2021; Hur'ien Assyifa et al., 2023) that students' openness in accepting group members, initiating conversations and exchanging ideas, shows that students easily mingle and build solidarity and provisions for life in society. The second indicator is responsibility in completing tasks. In this aspect of cooperation, students can be seen actively participating in working on assignments in groups, completing assignments according to or on time and working carefully with the group. This is in line with the opinion of (Aslamiah et al., 2023 ; BTW Sari & Kristin, 2020; Nuriyani et al., 2023; Pramasanti et al., 2020) that a sense of responsibility also influences student learning achievement, having an interest in learning will make students actively involved in learning, and time management is very important in completing assignments. The third indicator is helping fellow members. In this aspect of cooperation, students can be seen working together to unite opinions and discuss with group members. This is in line with the opinion of (Maulida et al., 2020; Hur'ien Assyifa et al., 2023; Nuriyani et al., 2023; Syifa & Annisa, 2023) that an attitude of mutual assistance must be developed within the group to be able to complete the task, in cooperation it is important to unite opinions and not only rely on one member, therefore the involvement of all members is required. The fourth indicator is respecting the contribution of each group member. In this aspect of cooperation, it can be seen that students respect the opinions of group members, can communicate well, and work well together. This is reinforced by the opinions of (BTW Sari & Kristin, 2020; Hasanah & Himami, 2021; Maulida et al., 2020; Nuriyani et al., 2023) that respecting the contributions made by group members is important, so that there is no unrest within the group and open communication with each other will create effective cooperation.

Therefore, cooperation in the learning process is very necessary to form students who are social, unselfish and accept each other's differences of opinion and unite their opinions into one. According to (Lestari et al., 2023) in learning, students are encouraged to mingle with other students to create a study group. In agreement with the opinion above, according to Hamid (in Anwar, et al., 2021) states that collaboration can facilitate learning goals. Because, studying in groups always seems to be better than studying individually. According to Rahmawati, et al. (2023) mathematics learning in elementary schools should equip students with the ability to work together in class. According to Lestari et al (2023), research proves that if human activity is carried out collaboratively as a group, it will result in increased efficiency and better effectiveness. The importance of cooperation is because cooperation is something that is done by two people or a group for the same desire to achieve a common goal. Because humans are known as social creatures, they will always be in contact with other people or it could be said that we need other people in our lives and when learning in class takes place. Collaboration will be established in group learning. In agreement with the opinion above, according to Hamid (in Anwar, et al., 2021) states that collaboration can facilitate learning goals, because group learning is better than learning alone or individually. According to the opinion of (Wati et al., 2020), by working together, students are expected to be able to understand the learning content more clearly and gain good interaction skills. In the opinion of (Lestari et al., 2023) with cooperation, it will be easier for

someone to complete tasks quickly. Collaboration in learning certainly has many benefits for students. According to (Silva et al., 2022) students work in small, heterogeneous groups to carry out activities, share ideas and achieve common goals. With interaction in groups, many opportunities arise for students to present ideas, argue in arguments, evaluate information to produce better understanding in the group. According to (BTW Sari & Kristin, 2020) this collaboration can create a sense of solidarity because there are discussions within groups and classmates. This is reinforced by the opinion (Maulida et al., 2020) that cooperation is able to alleviate various difficulties, carried out as a group and with a full sense of responsibility from each group member. According to (Lestari et al., 2023) cooperation can improve learning achievement, positive attitudes, leadership attitudes, positive attitudes and mutual respect among group friends. Research using the *"BE SMART" model* is supported by relevant research results from previous researchers, namely (Aldistya, 2019; Anwar et al., 2021 ; BTW Sari & Kristin, 2020; Isnaini et al., 2023 ; Maulida et al., 2020; Nawangsih et al., 2023) .

Critical Thinking Ability

Based on data analysis on students' critical thinking skills in Mathematics learning using the " *BE SMART* " model in class V students at SDN Mawar 7 Banjarmasin has experienced an increase at each meeting. This increase in students' critical thinking abilities shows that the " *BE SMART* " model has been successfully implemented. This can be seen from the indicators of students' critical thinking abilities as follows. The first indicator is identifying the problem. In this aspect of critical thinking skills, students can be seen reading the problem first and understanding it well. This is reinforced by the opinions of (Mahliani & Sari, 2023; Putro & Sumardjoko, 2023; Setyaningsih et al., 2014) that identifying this problem requires the process of formulating the problem and analyzing the problem, understanding concepts and information and making students think critically. The second indicator is collecting relevant information from various sources. In this aspect of critical thinking skills, students can be seen participating in collecting information, asking questions to the teacher and recording the information in notebooks. This is in line with the opinion of (Prasetiyo & Rosy, 2021; Putro & Sumardjoko, 2023) that students will be active in collecting various sources and relevant information in various ways to solve problems on questions. The third indicator is developing a number of alternative problem solutions. In this aspect of critical thinking skills, students can be seen discussing with each other in groups and working together in the problem solving process. Strengthened according to opinion (Fristadi & Bharata, 2015; Putro & Sumardjoko, 2023) that students will be trained to be active and directly involved in problem solving, consider alternative problem solutions and work together according to their thinking abilities. The fourth indicator is making conclusions. In this aspect of critical thinking skills, it can be seen that students can make conclusions by relating each learning material and are willing to ask questions when they don't understand. This is in line with opinion (Azahra & Jannah, 2023; Putro & Sumardjoko, 2023) that making this conclusion can be done if students understand it thoroughly by linking learning material and discussions correctly, thereby fostering students' critical thinking skills.

Therefore think critically This is very important to train in the learning process to encourage students to be able to analyze problems and easily solve problems in learning. According to Nadia & Sari (2023), elementary school children are in the golden age to hone their critical thinking skills, that is, students can discuss and solve problems. So teachers need to find the right learning model to hone students' critical thinking skills. According to Sulistiani & Masrukan (2016), it is important to hone students' critical thinking in learning mathematics in more depth. In the opinion of Mulyanto, et al (2018) that one of the goals of school is to hone students' critical thinking skills. This is in accordance with the opinion of (Elsabrina et al., 2022; Kusumawati et al., 2022) that they agree with the aim of mathematics learning, namely focusing on structuring students' reasoning, critical thinking skills should be honed more deeply in mathematics learning. According to (Alghafri & Ismail, 2014) critical thinking behavior means being open-minded when synthesizing, evaluating and analyzing information for problem solving and providing solutions to problems. According to Muhmuzah (in Mahliani & Sari, 2023) that students are able to think critically because in the learning process students are able to capture the stimulus given by the teacher, identify problems, have opinions and solve problems appropriately. The importance of critical thinking is because it can train students to examine their thinking more deeply. (Noorhapizah et al., 2022; Suriansyah et al., 2021) also agree that critical thinking is very important in solving problems because it allows students to formulate and solve problems. In the opinion of Hidayati et al., (2020) that critical thinking skills help students in dealing with social, functional and scientific problems, can filter information correctly, and try to find the truth in various events in order to achieve understanding for these students. This is in accordance with the opinion (Agustinova et al., 2022; Y. Rahmawati et al., 2024) that critical thinking skills are high-level thinking skills or 4Cs that students must have, because they are very useful in solving problems in everyday life. . According to the opinion (Kurniawati & Ekayanti, 2020; Radiansyah et al., 2023; R. Sari et al., 2023) that critical thinking can be developed with problem-based learning, implementing a learning system with problem solving in the process, thus encouraging students to think critically in solving existing problems. Research using the *"BE SMART" model* is supported by relevant research results from

previous researchers, namely (Aek et al., 2022 ; Aulia & Cinantya, 2023; Mahliani & Sari, 2023; Nurkhasanah et al., 2019; Noorhapizah et al., 2022; Putri et al., 2023; Sukmawati, 2020).

Conclusion

The conclusion from the results of this research is: there has been an increase in students' cooperation and critical thinking abilities in learning Mathematics content using the *"BE SMART" model* for class V students at SDN Mawar 7 Banjarmasin and they have succeeded in achieving the predetermined indicators, namely student cooperation is able to achieve a success indicator of 95% with the criteria "All Students Work Together and students' critical thinking skills are able to achieve a success indicator of 95% with the criteria "All Students Are Critical". The suggestion in this research is to develop the *"BE SMART" model* by combining other media or by combining new knowledge and skills with this model.

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