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ANALYSIS TEACHER IN STUDENTS' CREATIVE THINKING ABILITY THROUGH PROBLEM SUBMITTING

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Abstract

One of the problems in learning is the low ability of students to solve problems (story questions), especially non-routine or open-ended questions. This is due, in part, to students' weaknesses in aspects of creative thinking skills needed to solve problems. To overcome this, appropriate learning is needed, one of which is learning by proposing problems (Problem Posing). Problem posing is an activity task that leads to a critical and creative attitude. Critical thinking skills must be possessed by students in order to be able to face various personal and social problems in their lives. Critical thinking ability is the ability to think reflectively and reason in making decisions. This research is a qualitative descriptive study with the aim of describing students' abilities in constructing critical thinking. The results of this study indicate that not all aspects of creative thinking ability increase, especially flexibility in solving problems. But for the aspect of understanding problem information, novelty and fluency in answering questions has increased. Other results show that the ability to solve problems and pose problems has progressed/increased.

Keywords: *Creative Thinking Ability, Problem Submission*

A. Introduction

The kids' poor problem-solving skills, particularly with regard to open-ended or non-routine questions, is one of the issues with math education in elementary schools. highlighting some of the student's weaknesses, such as comprehension of the sentences in the questions inability to distinguish between known information and questions

requested; lack of fluency when applying known knowledge or ideas conversion of story sentences into mathematical sentences and use of various methods or strategies when planning to solve a problem, carrying out calculations, drawing conclusions, or returning to the problem at hand. If focused, the students' understanding of problems and ability to formulate a plan for solving them is where the weakness lies. Knowing what is known and what is being requested demonstrates understanding of a problem.

Creatively arranging available information or data by employing particular methodologies to uncover potential solutions demonstrates planning to address an issue. Students can draw diagrams or tables, create mathematical models, look for patterns, or go backwards. Because creative thinking is a high-level thinking (reasoning) talent following basic and critical thinking, pupils must have an acceptable amount of it to comprehend and plan problem solving. These findings demonstrate that pupils' capacity for original thought is still inadequate. Creatively arranging available information or data by employing particular methodologies to uncover potential solutions demonstrates planning to address an issue. Students can draw diagrams or tables, create mathematical models, look for patterns, or go backwards. In understanding and planning problem solving, an adequate creative thinking ability of students is needed, because this ability is a high-level thinking (reasoning) ability after basic and critical thinking (Kusuma et al., 2017).

(Ermeling, 2010) In this study, discussions with teachers formed a team identifying the potential causes of these student deficiencies, which included: (1) They have not yet particularly instructed students on how to grasp problem information when teaching problem solving (story

questions). Instead of offering pupils the chance to share their own ideas or representations, the teacher demonstrates problems and solves them in-class. (2) The current method of instruction continues to involve the steps of explaining the subject matter (including motivating in an informative way), presenting examples, and having students complete activities, but very little storytelling. Due to the presumption that word problems will undoubtedly be challenging for children to comprehend, they are rarely offered or taught with priority.

(Witherspoon & Schunn, 2019) Critical thinking skills include basic clarification skills. They include the capacities for critical thinking, creativity, and problem solving. To be able to deal with various problems faced in social and personal life, a person must have the ability to think critically. There are many ways to define critical thinking. Critical thinking is self-control of decision making that leads to interpretation, analysis, evaluation, and inference and presentation using facts, ideas, methodologies, standards, or contextual factors. High-level cognitive information processing is necessary for complex critical thinking processes.

You must consider solutions if you are to address the issue's root, which you should do. Also, the curriculum makes reference to the goal of studying mathematics, which focuses on developing creative activities, problem-solving techniques, and concept communication. The quality of input (students) in schools can be improved by making efforts in the areas of materials, learning processes, infrastructure support and improvement, teacher skill enhancement through education or training, material reduction or division into simpler parts, curriculum content simplification, and material organization.

(Jian, 2019) Researchers have focused more on the learning

process as a solution to these issues because it affects the assignments for the following class and is part of the teacher's daily professional responsibilities. In order to identify the root causes of these weaknesses, it is necessary to use a teaching strategy that encourages students to comprehend the issue at hand, develops their capacity for original thought when developing a solution strategy, actively engages students in problem-solving, and promotes both student- and teacher-centered learning. solely as an enabler.

Learning by offering issues is one of the learning ways that contains these qualities and qualities when we look at the intended style of learning (Problem Posing) (Schechter, 2011). Students are essentially asked to submit or construct new problems (questions) before, during, or after addressing the first problem that is given. Because their mathematical concepts are tested to comprehend the problem at hand and can enhance their performance in problem solving, problem posing is helpful in helping children gain confidence and a love for mathematics. Posing problems is a task that fosters a critical and creative mindset. Students are invited to create questions based on the information provided when they submit difficulties. Even so, asking is the foundation of all creation.

Although problem posing and problem solving differ slightly, both are nevertheless effective instructional tools for mathematical reasoning. Discuss numerous strategies for inspiring students' original thought when posing problems. Start by modifying the textbook's math problems. utilizing questions with numerous correct answers is the second. Single-solution problems do not foster original mathematical thought; rather, pupils are forced to use well-known procedures (Lewis & Smith, 1993).

One area of research on mathematical creativity has identified the capacity for problem-posing as a creative aptitude. As a result, the task of posing a problem can be used to illustrate creativity. because providing problems is seen as a creative thinking test. Solving problems has long been considered a sign of creativity or unique abilities in a variety of human undertakings. problem-solving as being fundamental to the experience of creative creativity and artistic creativity. Activities that involve posing and solving problems might help people become more creative (Sanz de Acedo Lizarraga et al., 2010). The ability of pupils to think creatively as well as their grasp of the problems or assignments presented will therefore enhance if the class is taught by posing problems.

To evaluate pupils' creative thinking, consider the following criteria: fluency, adaptability, and uniqueness.

Solution To Problem	**componen Creativity**	**ConfessionJuan Trouble**
Studenta solve the problem with various interpretations of solutions and answers	Fascinatinghan	Studenta create many problems that can be solved Students share the problems posed
Studenta finish (or statedright or justify) in one way, then in another way the students discuss various methodde completion	flexbility	Studenta posing a problem that can be solved in different ways. Students use the "what-if-not?" approach. to raise a problem.
Studenta check the range methodde solutions or answers (statement-2 or justification-2) then create another different method.	Noveltyn	Studenta check for some problems yesg filed then posed a different problem.

According to the foregoing rationale, it is predicted that giving

students assignments that confront issues will help them develop their creative problem-solving abilities. After solving the supplied problem, students are asked to pose or generate a new problem (question) in the problem posing activity. Students must also fill out the additional questions on their own or in pairs with other students.

Students that can think creatively are able to comprehend difficulties and discover answers using a variety of (divergent) ideas or ways.

Raising test scores for kids' understanding of problems, fluency, adaptability, and unique problem-solving is a sign of improved creative thinking abilities. When students demonstrate what they know and what is requested, it is claimed that they have understood the problem. When students can come up with multiple logically sound solutions to an issue, they are considered to be fluent problem solvers. When students are able to approach an issue in two or more distinct yet reliable methods, they demonstrate flexibility in their approach. If students can come up with solutions that are innovative compared to prior solutions or solutions that other students are familiar with, they will find issues more interesting to solve (Tsortanidou et al., 2019).

Comparing the ability score for each discussion of the mathematical ideas covered in class allows for the measurement of skill growth. How to assess it by assigning a problem-solving exercise at the conclusion of the lesson.

B. Method

Descriptive research is the kind of study that this is. Research that tries to accurately describe a situation or occurrence without changing the subject of the study is called descriptive research. The teacher conducts

an in-depth examination of how pupils process information in order to determine their capacity for creative thinking when solving line and angle problems as well as their accuracy rate.

Summary of the factors investigated as well as indicators is as follows.

Factors	Instrumen	Indicateor
campmadam students' creative thinking	• The Assessment (Written and Performance) The Assessment	increases if the proportion of all students who are able to think creatively is higher than before or the number of students who demonstrate this ability is greater than before. At each meeting, the importance of student performance increases.
Student life	• Observation sheet defenderran with teacher problem	Students is active if often or always shows aspek-aspect of observation.
Teacher's vita	• Observation sheet defenderran with problem posing	Teacher do the learning steps with tepat if it often shows aspects of observation.
Managern Pemstudy	• Direct Learning Observations	Teacher do the learning steps with accurate if it is in accordance with the steps of direct teaching and in accordance with the syllabus.
Student respons	Student Opinions	a positive response to learning, here are more students who agree or strongly agree than students who do not or strongly disagree.

Teacher response	Teacher's Opinion	give a positive response to learning, jika aspects that agree or strongly agree are more than those that do not or strongly disagree.

C. Finding and Discussion

The study's findings revealed that each of the 15 student test questions had a variety of categories for each feature examined. The student responses are divided into four groups, namely groups B, C, K, and S. Table 1 displays the findings from the examination of student responses. Figure 1 displays the distribution of the answer categories and the number of students.

Table 1. Results of Analysis of Student Answers

	No. Category Aspect	B	C	K	S
1	Identify or construct questions	89,	10,		
2	Why conclusion lysis	27,	41,	27,	
3	Identify and address irrelevance	27,	51,	17,	0,3
4	Whya	62,	20,	17,	
5	Whya	75,	10,	13,	
6	Reputation	0,3	17,	58,	17,
7	Short interval between observation and	10,	6	34,	48,
8	logic class	6,8	79,	13,	
9	Generealize		37,	48,	13,
1	Consequences of accepting or rejecting a	68,	31,		
1	Definition	24,	65,	10,	
1	Menassumption truth value			93,	6,8
1	Make and consider the decision	27,	31,	34,	6,8
1	Follow the troubleshooting steps	93,	6		
1	Follow the troubleshooting steps	93,	6		

The outcomes of the categorization of students' critical thinking abilities in each area show a wide range of findings. Category B is quite

high in terms of identifying or assembling questions. This demonstrates that pupils are quite skilled at creating questions. The pupils' inquiry sentences had excellent sentence structure and adhered to the given topic. Category C predominates in the area of analyzing conclusions. This demonstrates how weak pupils' ability to recognize conclusions still is. Students are able to judge whether the conclusions offered are true or false, but they are less able to offer justifications for these judgments.

Changes in Teacher and Student Activities, as Well as Classroom Learning Management

The management of learning in class each cycle, together with changes in student and instructor activity, are rather consistent. According to the problem-posing learning approach adopted, student and instructor actions have demonstrated activeness. In accordance with the learning processes for submitting issues, the teacher has demonstrated the proper learning stages. The teacher can already tell that kids are beginning to employ diverse ways from their own journal, though not too many. The teacher has started to create questions to gauge the formativeness of the pupils' learning based on the handycam recordings from the second cycle. Also, there are recommendations from observers and teachers that can be used to advance learning with different models, such cooperative learning. Together with improving students' capacity for creative thought, this is likely to boost student engagement and instructor excitement.

Students' and Teachers' Contributions to Learning

Students were requested to fill out a closed questionnaire at the last meeting with their thoughts on the learning that had been

accomplished.

The results of the survey demonstrate that students respond positively to learning because they are more likely to agree or strongly agree with each question than disagree or strongly disagree. They claim that creating their own questions is enjoyable because it allows them to experiment with their own ideas, make the subject matter and problem-solving techniques simple to recall, ensure that they can learn how to solve problems, promote the use of critical thinking skills (analyze and analyze problems), and promote considering question answers in a variety of contexts. Aside from that, the task of posing a problem necessitates that he comprehend the previous questions, aids in making connections between mathematics and earlier material or other aspects of daily life, makes it simpler to understand the material that has been explained in class, and encourages him to be more active in studying earlier material. It also necessitates that he repeat lessons at home and motivates him to read more of the material that the teacher will provide. Posing problems is an engaging task and a method of training new teachers. He can better concentrate on the information offered by discussing the mistakes he makes.

According to students, the assignment of introducing difficulties, with students making questions as well as solving them, is the difference that is both enjoyable and unpleasant. Consequently, the assignment provides students' continual learning with color or impression. When the questionnaire findings were combined, it was determined that pupils learned more effectively as a result of this problem being presented.

According to the questionnaire's findings, the teacher had a favorable attitude about teaching because features that were highly or generally accepted were more prevalent than those that were not. Yet,

one of the professors felt that the learning environment was not enjoyable. This is achievable because it teaches students how to solve problems they haven't mastered in a method that isn't often done, making the learning environment stiff and artificial, like having a task to complete at every meeting so it's boring. Also, there is a belief that problem-posing cannot be used in classes with a wide range of student skill levels. This is appropriate given that each student's heterogeneity in the class necessitates a distinct approach, making it occasionally challenging for the teacher. In actuality, this is a challenge for all cutting-edge learning strategies, but it will be simpler if applied to students with similar ability levels.

The biggest challenge is dealing with students who have diverse personalities and require different management. According to the teacher, learning gives children the ability to think critically and creatively. The suggestions that are received are modifications to the learning model that is applied to routine questions from the student handbook rather than actual problems. Yet, there were no questions that promoted creative thinking while using the student handbook.

D. Conclusion

Based on the findings of the data analysis and discussion, it can be said that the students' low average performance in the correct answer category (B) is a sign that they lack the ability to think critically. Students' poor critical thinking skills are a result of their inexperience with active learning, which increases their capacity for thought. The findings of this study give educators and academics an overview of the state of students' critical thinking skills. In order to help students develop their critical thinking abilities so that they become second nature, teachers must

exercise more creativity when creating and improving learning materials. Via a variety of active learning strategies, teachers must engage students in learning scenarios that might foster their capacity for critical thought.

The four components of students' creative thinking abilities, especially flexibility in problem-solving, have not enhanced as a result of learning through problem-posing. Yet, uniqueness and fluency in answering inquiries have grown in relation to the component of grasping problem information.

Both the student and the teacher responded well to the learning that was accomplished by posing problems. obstacles, particularly when working with pupils that are diverse and need specific treatment when putting learning into practice.

Based on the research findings, it is possible to make the following recommendations: (1) For researchers who will replicate this research in classrooms, classes, or using different materials, it is important to focus on choosing "problems" that are equivalent for each cycle or meeting; (2) For additional research (other research), it may be necessary to concentrate more on the use of problem posing to improve problem solving skills, as solving individual problems is still a challenge for many people.

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