

Efforts to Improving Creativity and Mathematics Learning Outcomes of Students With SPLET Strategy.

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Abstract. Students feel that math lessons are the most difficult and tedious lesson with less innovative learning methods. Effect of it the less innovative method of causing creativity and student learning outcomes decreased. This type of research is a classroom action research using SPLET (*Strategy Program for Efektif Learning/Teaching*). This study aims to know that by using SPLET strategy (*Strategy Program for Efektif Learning/Teaching*) Can improve creativity and student learning outcomes on linear inequality two variable system. The data obtained from the test results of students in groups and individuals both written and oral. The results of data analysis showed that in cycle II creativity increased and has reached the expected value of above 60 %. While the result of data analysis for learning ability more increase compared to initial capability and cycle I. Result of research indicate that by using SPLET strategy (*Strategy Program for Efektif Learning/Teaching*) Can improve the creativity and result of student's mathematics learning on linear inequality two variable. Thus it can be concluded that learning by using SPLET strategy (*Strategy Program for Efektif Learning/Teaching*) can be used in the process of learning to teach math.

Keywords: *SPLET strategy (effective program for effective learning/teaching), creativity and learning outcomes*

I. INTRODUCTION

Teaching skills are not heredity, are the result of experience. However we can use information from others who have developed learning from their own experiences. This adds a lot of information to us to develop the effectiveness of teachers and schools.

Based on the results of interviews with a teacher of mathematics subjects SMANegeri 3 Binjai obtained information that rendanya creativity and mathematics learning outcomes in learning activities. This is stated by the mother of Leli Herawati, S.Pd as a teacher of mathematics class X Accounting, this difficulty caused by the curiosity of the students tau lessons in math is still relatively low this can be seen from the creativity of students on the initial test there are only 15 students which completed with an average of 23.14 and 21 unfinished students of 36 students. And the result of

the students are also still low class yet reaching the value of classical completeness in the initial test only 15 complete students or 41.67% and 21 students who do not complete 58.33% from 36 students.

To solve the problem requires some strategies in proper teaching. This is the background of researchers to conduct research entitled "Efforts to Improve Creativity and Hasi learning Mathematics With SPLET Strategy (*Strategy Program for Effective Learning / Teaching*) On Students SMANegeri 3 Binjai Lesson Year 2015/2016".

The formulation of the problem is: a) how the students' creativity in learning the material of linear inequality system of two variables in class XIISMANegeri 3 Binjai Lesson Year 2015/2016". b) Whether by using SPLET strategy can improve student learning achievement of mathematics in linear inequality system two variable in class XIISMANegeri 3 Binjai Lesson Year 2015/2016".

II. LITERATURE REVIEW

Creativity

The conclusions of experts on creativity in Utami Munandar (2009) are:

- Creativity is the ability to create new combinations based on data, information, or elements that exist.
- Creativity (creative thinking or divergent thinking) is the ability based on available data or information, finding many possible answers to a problem where the emphasis is on quantity, usability, and diversity of answers.
- The operasoinal of creativity can be defined as an ability that reflects smoothness, impression and orisionality in thinking, and the ability to elaborate (develop, enrich, detail) an idea.

According to Utami Munandar (2009) the indicators that cause the child to be called creative can be observed in two aspects namely aptitude and nonaptitude aspects. The aptitude aspect is one that relates to a child's cognition or thinking process, whereas nonaptitude is more concerned with attitudes or feelings.

Some of the indicators of a child's creative category are extensive and profound curiosity, Often ask a good question, Giving a lot of ideas or suggestions to a problem,

free in expressing opinions, have a deep sense of beauty, prominent in one area of art, able to see a problem from various aspects, having a great sense of humor, have strong imagination, and original in the expression of ideas and in problem solving.

Definition of Learning Outcomes

According to Liebeck (in the book of muhabbin syah 2010) there are two kinds of mathematical results that must be mastered by students, namely mathematical calculation (mathematics calculation) and mathematical reasoning (mathematics reasoning). Based on such learning results Liebeck suggested that the curriculum of mathematics should cover three elements, (1) concepts, (2) skills, (3) problem solving.

In achieving learning success will be related to learning factors, both within and outside the individual. Factors that influence learning outcomes are: interent factor that is from within individual, consist of physical Factors, psychological factors, fatigue factor and external factors can be grouped into 3: family factors, school factors and community factors.

SPELT Teaching Strategy

In the world of education and modern teaching there are quite a number of sterategi specifically designed to teach certain materials to achieve the desired skills. Among the teaching strategies there is a teaching strategy based on the cognitive sterategi still relatively actual. This strategy, called Strategy Program for Effective Learning / Teaching, abbreviated as SPELT, was designed and piloted by Robert F. Mulcahy, a professor who heads the Cognitive Education Project in the School of Educational Psychology, University of Alberta.

As the name implies, SPELT's strategy was deliberately engineered to improve and improve the effectiveness of students' learning and thinking, especially those who occupy elementary and junior high school grades.

The aims of SPELT's Strategy is to get students into:

- Applicants who are active as thinkers and problem solvers;
- An independent science claimant, having his own efficient plan and strategy in approaching learning;
- The claimant of knowledge is more aware and more capable in controlling the process of thinking (metacognitive awareness).

SPELT strategy teaching steps

In implementing the SPELT strategy, teachers need to follow three different and lengthy steps in the sense of taking different but consecutive times. The steps to implement SPELT strategy are as follows:

1. Direct strategy instruction (direct instruction teaching).

The goal: to strengthen metacognitive awareness (thought process itself). In a way: Raise awareness of students that he has a strategy, that is by the way the teacher must motivate the students that he has a way to solve the problems, Describe that the use of systematic strategies can improve the quality of

learning, improve student participation and interaction in the learning process, that is by asking students to do the questions.

2. Teaching for transfer (teaching to transfer strategy).

In a way : using strategies derived from phase I, be able to assess the use of strategy, expand strategies for other places and learning situations, engage actively in the learning process.

3. Generating elaborative strategies.

In a way : assist, assess and develop effective strategies for improving the quality of learning, engage actively in the learning process itself.

SPELT strategy has several advantages and disadvantages, among others:

- The advantages: more stimulate students in doing individual or group learning activities, can develop student independence beyond teacher supervision, can foster student responsibility and discipline, can develop students' creativity, students have the opportunity to foster development and courage in taking initiative, responsible, and independent, the knowledge that students gain from their own learning will be remembered for longer
- Disadvantages: students are difficult to control, whether it is true that he is doing the task or someone else, especially for group tasks, not infrequently who actively do and solve them are certain members only, while other members do not participate well it is not easy to assign tasks that match individual student differences, frequently assigning monotonous tasks (not varying) can lead to student boredom, it is difficult to assign tasks that meet individual differences.

III. METHOD

This research is a classroom action research. To obtain the data in this research, the researcher uses the instrument in the form of ability test and student creativity observation sheet. Research on the creativity of students based on indicators that have been compiled rubrics creativity:

No	Indicator	Aspect to rated	4	3	2	1
K1	(fluency)	1.1 Asking 1.2 Give attention to lesson				
K2	(flexibility)	2.2 Asking back that lesson unclear 2.3 Don't give up to receiving the ask of the teacher.				
K3	(originality)	3.1 Search the problem solving 3.2 finded the other alternative				
K4	(elaboration)	4.1 Can spark after teacher explained 4.2 Have idea or others opinions with others.				

Analysis Technique

To analyze the level of success or achievement mastery learning after the teaching and learning process takes place in each cycle is done by giving evaluation in the form of test questions at the end of each cycle. This analysis is calculated by using simple statistics as follows:

Assessment for mastery learning outcomes

$$\text{Level of mastery} = \frac{\text{(score obtained by student)}}{\text{score max}} \quad (\text{Zainal Aqib, 2010: 41})$$

Presentation of its complete value is as follows:

0% < Lm < 65% (Unfinished), 65% ≤ Lm ≤ 100% (Completed)
Each student is said to be complete learning if the proportion of correct answers ≥ 65%,

then can be known mastery learning classically with the formula:

$$P = \frac{\text{(total number of correct answers)}}{\text{(total number of students)}} \quad (\text{Zainal Aqib, 2010: 41})$$

The criteria of students' success rate in % as follows:

75% - 100% (High), 65% - 75% (Medium), 0% - 65% (Low)

Analyze Observation Results

According to Soegito (2003), the calculation of the final value of each observation is determined based on:

$$V_a = \frac{S_y}{B_i} \dots (1)$$

Information :

Va = final value

Sy = scores obtained

Bi = many items

Category Value Activity Interval

1.0-1.5 Very less, 1.6-2.5 Less, 2.6- 3.5 Good, 3.6-4.0 Very good.

According Suherman (2001) to determine the level of student ability used the formula as follows:

$$LA = \frac{S}{T} \times 100 \dots (2)$$

Where:

LA = Level of Ability

S = Score obtained

T = Total Score

With the following capability criteria:

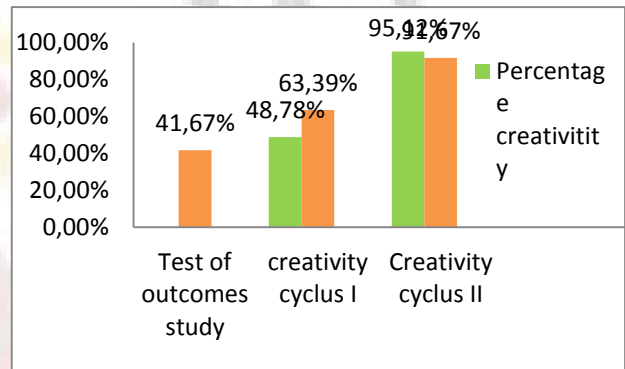
- The ability level of 90-100 is very high
- The ability level of 80-89 is high
- The ability level 65-79 is moderate
- The level of ability 55-64 is low
- The ability level 0-54 is very low

IV. RESULTS AND DISCUSSION

This can be seen from the results of research indicating that all students experience an increase in value.

NO	Tes	Percentage of creativity	Percentage of outcomes study
1	Pre Test		41,67%
2	cyclus I	48,78%	63,39%
3	cyclus II	95,12%	91,67%

More explanation of student's creativity and learning has improvement can be seen from the percentage of classical students during the initial test, cycle I and cycle II, as in the bar chart picture below:



V. CONCLUSION

Based on this description, it can be drawn some CONCLUSIONS as follows:

- Before being given an action, students have difficulty in learning mathematics especially on linear inequality two variable system. These difficulties include the lack of appropriate learning strategies and less active students in learning.
- Student learning creativity increased with average in cycle I to 36,25 in cycle II. Or on creativity observation at the beginning there are 15 students who get a good level of creativity in cycle I to 33 students who get a good level of creativity and in cycle II into the overall value.
- Students' satisfaction in the sense of matter of linear inequality two variables increases. This can be from the level of completeness of the evaluation results of students in a classical before using SPELLED strategy reached 41.67% to 63.89% increased to 91.67%. Or in the initial test there were 15 complete students or 21 unfinished students and on the completed cycle I of 23 or 13 unfinished students and in cycle II to 33 completed students or 3 students who did not finish in a classical manner from 36 students.
- Based on the results of research shows the level of mastery learning students cycle I to cycle II has increased creativity and learning ability of students in learning mathematics.

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