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Comparison of creative and creative capabilities history learning results using the method problem solving and problem based learning

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Comparison of creative and creative capabilities history learning results using the method problem solving and problem based learning

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Abstract. Life in society today shows competition in all aspects, one of them in the realm of education. Education in Indonesia still has a lack of capacity when compared to developed countries. This is because the learning process only focuses on the cognitive domain, while the creativity of students is less developed. Students tend to be passive, and tend to memorize. Low creative thinking ability influences student learning outcomes, one of them in Balung State High School. This type of research is an experiment, by comparing two methods, namely problem solving method and PBL. The method used is qualitative and quantitative, with sources of test data, observation and documentation. The results of preliminary observations show that there is a significant homogeneity of 0.956 which shows greater than α (0.05), so that all XI IPS classes have homogeneous abilities. The results of preliminary observations showed that the XI IPS 3 class was the control class and the XI IPS 1 class was the experimental class.

1. Introduction

Life in society today shows competition in all aspects, especially in Science and Technology. This makes it clear that society is entering an era of globalization, and must be able to compete with other human resources. Competitiveness will be won by human resources who have high knowledge, skills and creativity Having high knowledge, skills and creativity is the goal and result of quality education, as stated in the national education as following [1]. National education functions to develop capabilities and form a dignified character and national civilization in order to educate the nation's life, aiming at developing potential students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent , and become a democratic and responsible citizen.

The aim of the national education law is not in accordance with the existing reality, one of which is the process of learning history that tends to be passive. Historical subjects are often underestimated, as evidenced from the results of historical learning showing below the minimum level and students tend to be passive.

The anxiety experienced is one of the lack of attention in creativity, only results-oriented in the form of repetition, memorization, and the search for the correct answer to the questions given. Processes for using high-level thinking are rarely trained [2]. In fact, creativity and intellectual intelligence have the same role in achieving learning success [3], but this is not considered and understood by educators.

Things that must be known and understood by educators and students, developing creativity is very important. The urgency of creativity is a guideline for every human being, because every human part has the creative potential to build interpretations (personal) so that they can create objective products or creative performance [4] Developing creativity is a very important potential, both individually and socially. At the individual level, creativity is useful for solving problems that are in everyday life, while the social level functions to guide the development of science and technology [3].

Improving the quality of learning in must be done by educators with emphasis on the creativity of learners in the learning process. Conversely, expectations with the reality in the field do not align well. As for education in Indonesia, the creativity of students is less trained so that the learning outcomes of students also show below average. This happened in the history of specialization subjects at Balung State High School, when the learning process was carried out the students were more inclined to remain silent, passive, and only a few students who had high creativity . According to educators, not not wanting students to have high creativity, but at the beginning of learning students lack interest in learning history.

In addition to having low creative abilities, the history of specialization learning outcomes in the XI IPS class of Balung Semester Odd High School shows that the average is sufficient, but there are still many below the interval

Table 1. of Value Intervals and Knowledge Predicates of Balung State High School

Value Interval			Predicate	No moans
90	-	100	A	Very good
80	-	89	B	Well
75	-	79	C	Pretty good
0	-	74	D	Less

Source: recap document at the end of the odd semester of Balung State High School

Table 2. of Results Results of Middle Semester XI IPS

Predicate	No moans	XI IPS 1	XI IPS 2	XI IPS 3
A	Very good	21 students	3 students	6 students
B	Well	15 students	25 students	24 students
C	Pretty good	1 student	11 students	10 students
D	Less	2 students	1 student	0 students

Source: Documentation of Test Values of SMA 1 Balung

The problems are caused by students prioritizing subjects that are compulsory from The problems are caused by students being more influenced by the environment outside the school, such as gadgets, playing and others, so that they are active in reading low. This also affects the results of learning history, due to the narrow insight of history. Historical events will be easy for students to understand, when studying through a questioning process, followed by trying to find answers through problem solving, which is obtained from various information , so that the creativity possessed by students develops well .

In this case, the appropriate learning method to improve students' creative thinking skills in analyzing problems, by applying learning *problem solving* methods (problem solving). This is confirmed by the results of the research of [5] which explains that by applying *problem solving* method has several advantages, namely the method is included into a constructivistic approach, where the learning center is student *(student centered)* so that the method is considered capable activate students. Second, the method can be used for students with diverse intellectual abilities.

According to [6] explaining *problem solving* is a method that focuses on teaching and problem solving skills. the problem that will be solved is a problem that is not routine and has not been found how to solve it by students. Whereas according [7] problem solving is not just a form of the ability to apply knowledge that has been mastered through previous learning activities, but is a process to obtain rules at a higher level. This is reaffirmed by As'ari in [6] who explains among various learning methods, which can form students for higher-order thinking is a problem-solving method. He also added that the questions obtained as problem solving must have four conditions, namely:

1. Students do not know how to solve the problem;
2. Prerequisite material has been obtained by students;
3. affordable problem solving by students, and;
4. students want to do the problem solving.

Applying the *problem solving* method in history learning, attracts researchers to conduct comparative studies by applying the *Problem Based Learning* method of learning, because the learning method trains and develops the ability of students to solve problems that originate from students' actual lives [6].

Problem Based Learning is a learning method that has been used in the learning process for more than 30 years and can be applied in various disciplines to achieve success in learning [8]. The Dutch in [9] explain that PBL is an instructional method that challenges learners to "learn to learn" and work together in a group with the aim of finding solutions in real problems. The problem referred to in it is the existence of curiosity and the ability to analyze in the learning material.

Clarifies in the process of implementing PBL during the PBL learning process begins with giving problems - problems to students, with the context of problems around the real world [10]. Through problems, students are required to work together in groups, while looking for various relevant information to provide solutions to the answers they want. In this case, educators are only facilitators who are tasked with directing students to find and find solutions needed to get an answer. The explanation of PBL is not limited to definition, but each learning model has its own characteristics distinguishing it from other learning models.

Based on this background the authors are interested in writing about " **Comparison Of Creative And Creative Capabilities History Learning Results Using The Method Problem Solving And Problem Based Learning".** The problems studied are: Are there differences in students' creative thinking skills with problem solving methods and Problem Based Learning on historical subjects ?; Is there a difference in student learning outcomes with problem solving methods and Problem Based Learning on historical subjects?

2. Research Matode

This type of research is a type of experimental research. According to [11] experimental research is a study in which it wants to know whether or not there is a result of something that comes from the research subject. This type of research is experimental research, with the aim of testing the theory. The theory tested is the difference in the application of *problem solving* methods and *problem based learning.* The method is applied to find out the creative thinking abilities and learning outcomes of students on historical subjects. Thus, the method applied will be analyzed, which method can improve the results of learning history.

In addition, the theory tested is the theory of creativity according to Rhodes in [3] concluded that in general creativity is defined as person *(person),* process *(* product *),* product *(product),* and pusher *(press),* among the four known with " *P Four's Creativity".* The measuring instruments used for the *process* dimension are using creative thinking *with indicators of fluency, flexibility, originality and elaboration.* Whereas to measure the dimensions of the *person* using the attitudes of adoption of Sternberg & Lubart in [3] with indicators, (1) perseverance in facing challenges; (2) courage carries risks; (3) the desire to develop; (4) tolerance for fear; (5) openness to experience; (6) and determination.

The population in this study was in Balung State High School class XI IPS, but in this study only used samples as research subjects. Determine the sample in this study, namely by using *random sampling* , before conducting random researchers conducted a homogeneity test on the population. This aims to determine the level of cognitive abilities of students of class XI IPS on historical subjects.

3. Results and Discussion

The history lesson at Balung State High School is considered a very boring and boring subject so that when the learning process is carried out students are more inclined to remain silent, passive, and only a few students have high creativity. According to the educator, he explained, not not wanting students to have high creativity, but at the beginning of learning students lacked interest in learning history.

Table 3. Gap Between Expectations and Facts

Hope	Fact
2013 curriculum encourages students to be more active in learning, more creative, more developed reasoning power and educators pay more attention to attitudes, skills, power tangka p learners against the material being taught.	Teacher just too focused on cognitive aspects
Have intelligence according to talent or interest	Lack of communication between students and educators, so that to develop the talents and interests of students is hampered.
Clear and critical abilities	The low desire of students to develop, and have low critical power. Results of initial observations

Source: 2013 Curriculum, Wamendik Exposure and Observation Results.

The problems that exist are a task that must be completed by the educator. In addition to conducting research on creative thinking skills, researchers conduct research related to student learning outcomes. Learning outcomes of students also experience obstacles, where there is a mismatch between theory and practice in the field.

Tabel 4. Gap Between Expectations and Facts

Hope	Fact
Students are expected to have a high sense of historical learning interest	Students have a low interest in history learning, and often underestimate history subjects
The learning outcomes of students are expected to be a lot above theminimum completeness criteria	Many students are under the KKM, or only limited to the minimum completeness criteria standard

Source: observation results

The problems that exist, are caused by students making meals in compulsory subjects . In addition, the existing problems are caused by educators only focusing on cognitive success, and putting aside the creativity that is owned by students . Efforts to resolve these problems, researchers conducted a comparative study using creative methods, namely *problem solving* and *problem based learning.*

3.1 Problem Solving Learning Methods (Problem Solving)

According to [6] explaining *problem solving* is a method that focuses on teaching and problem solving skills. the problem that will be solved is a problem that is not routine and has not been found how to solve it by students. *Problem solving* methods teach to a student to find a solution to the problem obtained. The task of the students, to solve the problems obtained, the students must have various knowledge and abilities in getting information or answers related to the problem.

Whereas according to [13] *problem solving* method *is a* method that not only teach but rather a method of thinking, because in the *problem solving* method can use the method - another method, such as searching for data to make a conclusion. In other words, the *problem solving*method is a combination of several learning strategies such as contextual learning *(Contextual Teaching and Learning)*, role playing *(Role Playing)*,inquiry learning and others.

Whereas according to Gagne in [7] *problem solving is* not just a form of the ability to apply knowledge that has been mastered through previous learning activities, but is a process to obtain rules at a higher level. This is reaffirmed by As'ari in [6] who explains among various learning methods, which can form students for higher-order thinking is a problem-solving method. He also added that the questions obtained as problem solving must have four conditions, namely:

a. Students don't know how to solve the problem;
b. prerequisite material has been obtained by students;
c. affordable problem solving by students, and;
d. students want to do the problem solving.

Based on some definitions of *problem solving* above, it can be concluded that *problem solving* methods are a method applied by educators with the aim of increasing students' learning creativity starting from finding data to drawing conclusions, and students can take the meaning of the learning activities. just understanding definitions is not enough to make an educator capable of applying *problem solving* well, but rather having to understand how the steps in the process of applying *problem solving.*

3.1.1 Steps - Application of *problem solving*

The steps in implementing the *problem solving* method are as follows:

a. Students are given problems as problem solving or discussion in group work, but the problem given must be clear so that it is easy to solve;
b. students look for data or information that is used to solve the problems obtained, such as reading several sources of books, doing research, and others;
c. set a temporary answer to the problem, but the temporary answer must be in accordance with the data obtained from the results of the second step;
d. test the transient truth. In this case, students are required to solve problems with accurate answers so that the answers really - really in accordance with the facts. This fourth step requires other methods, such as discussions, demonstrations and others;
e. students make conclusions derived from the answer to the problem [13]

Several definitions of *problem solving* methods have been described, but what must be known is that each method has advantages and disadvantages, including *problem solving* methods .

3.1.2 Strengths and Lack of *Problem Solving*

Problem solving methods are no different from other methods, namely that its application has its advantages and disadvantages. The advantages of*problem solving* methods are as follows:

a. Making students more aware of their daily lives;
b. train and familiarize students to be ready to face and solve problems in a skilled manner;
c. develop the ability of students to be more creative
d. train students to design an invention;
e. solve problems realistically;
f. train students in identifying and conducting investigations, and;

g. train students to evaluate the results of their observations [6] While the disadvantages of problem solving learning methods according to [14] , namely:
h. things that are difficult for educators when applying problem solving methods are in determining problems, because an educator must be able to determine the problems given to students according to the level of school, class, and level of thinking ability of students .
i. During the learning process using problem solving methods requires considerable time.
j. Learning by using problem solving methods has its own difficulties for students , especially for students who depend on information throughteacher centered.

3.2 Learning Methods Problem Based Learning (Problem Based Learning)

Problem Based Learning is a learning method that has been used in the learning process for more than 30 years and can be applied in various disciplines to achieve success in learning [8]. The Dutch in [9] explain that *PBL* is an instructional method that challenges learners to "learn to learn" and work together in a group with the aim of finding solutions in real problems. The problem referred to in it is the existence of curiosity and the ability to analyze in the learning material.

Clarifies in the process of implementing *PBL* during the *PBL* learning process begins with giving problems - problems to students, with the context of problems around the real world [10]. Through problems, students are required to work together in groups, while looking for various relevant information to provide solutions to the answers they want. In this case, educators are only facilitators who are tasked with directing students to find and find solutions needed to get an answer. The explanation of *PBL is* not limited to definition, but each learning model has its own characteristics distinguishing it from other learning models.

The characteristics included in the *PBL* process are as follows [15]:

a. Problems are used as the initial stage in the learning process:
b. the problem used is a problem related to the real world, which is presented in an *ill-structured* manner *;*
c. the problem created requires a pluralistic perspective;
d. the problem created will attract students to get learning in new learning areas;
e. *PBL* model prioritizes *self-directed learning;*
f. utilize various sources of knowledge;
g. the most prominent characteristics are guiding students to work together in groups, interact, teach each other *(peer teaching)* , and make presentations.

The characteristics of *PBL* provide direction to educators in applying the method, but more fully that is by understanding the steps in the *PBL* modelas follows.

3.2.1 Steps to Implement *Problem Based Learning*

Applying a learning method, the center that must be considered is the steps of the method to be applied. The *Problem Based Learning* method is *as follows* :

a. Clarifying unclear terms and concepts. In this stage, each member in the group must understand the various terms and concepts contained in the problem obtained;
b. formulate a problem. The process of this stage, requires students to explain or connect - the connections that occur between the phenomena that exist;
c. analyze problems. Each member in the group is required to issue knowledge, from the results obtained from various information. This stage provides an opportunity for each student to train in explaining, seeing alternatives or hypotheses related to the problem;
d. organize ideas. This stage analyzes part by part or analyzes the relationship between one another;
e. formulate learning objectives. Each group can get the opportunity to formulate learning objectives. Learning objectives will be linked through the results of analysis of problems that

have been analyzed. Learning objectives are made as the basis for assignments - individual assignments in each group;

f. looking for additional information - from other sources (excluding group discussions). Each group has received information, but does not demand the possibility that the information obtained is incomplete. This sixth stage, students must look for additional information. The process of this stage, students are required to determine the keywords in the selection, estimate the topic, the author, choose, summarize the source of learning with their own sentences. This process makes each group member more active, with evidence in the form of reports that must be submitted by each individual;
g. synthesize, test new information and make reports. The results of reports of either individuals or groups, are presented in front of other group members, so that members of other groups get new information that has not been obtained. The process of this final step, each group can make their own synthesis, by combining and combining relevant things. The preparation that must be possessed by students is to have skills in summarizing discussing and revisiting the results of the discussion, and formed in a paper or paper [10].

3.3 Creative Thinking Ability

M ccording [16] a creative itas is the result of the learner in developing cognitive owned, so in order to have a high creative ability,the students should learn in the learning process. K reativity is a process of ability to understand gaps or obstacles in human life, to find new hypotheses, communicate the results, then modify them to test hypotheses that have been formulated. Creativity will also not grow and develop automatically through cognitive skills, but also requires stimuli from the environment [17].

Creative learning applies to all students, not just talented students . All students have a creative potential. Indeed, ownership creative potential differs from person to person. Some have it many, some little. Although there are differences in the level of ownership of creative potential, it must be recognized that all students have a potential for creative learning. This creative talent requires fertilization as early as possible, precisely since childhood. This can be done with provide various creative activities to children who can develop his creativity.

Children are potential human resources who is the successor and owner of the nation's future . According to Munandar in [3], although there are many definitions of creativity, none of them can be universally accepted, so it is not possible or necessary to define creativity that is generally accepted, because creativity can be viewed from various aspects different. Based with focus on some definitions, Rhodes in [3] concluded that, in general, creativity is defined as a person *(person)*, process *(process)*, products *(product)*, and a plunger *(press)*, between a fourth known as *"PFour's Creativity "*.

3.4 Learning Outcomes History

Learning outcomes are the center of the learning process. Learning outcomes occur thanks to an evaluation conducted by the educator and the interaction between learning and teaching actions. In view of teaching actions, educators carry out a learning evaluation process. While students, learning outcomes are the culmination of the learning process [18].

Learning results according to [19] the changes in its behavior experienced by learners and views from the wider scope of the changes that cognitive field, a fektif and p sikomotor. The way to find out the changes found in students , both from the cognitive, affective and psycho motoraspects, is by using e valuation. Determining the overall activities of the start of measurement, processing, interpretation and consideration of the level of learning outcomes of students by using e valuation [20] A also the valuation e is divided into two forms, namely:

a. Sumatif s evaluation: an evaluation carried out upon termination of the learning program. Summative evaluation aims to determine and know the mastery of students in mastering learning material that has been followed during a learning process;
b. informative evaluation : periodic or continuous evaluations in one learning process. Periodic itself is an evaluation carried out at the beginning, middle, or end of the learning process [21].

The focus of the study in this study was to conduct comparative studies in the form of methods, namely *problem solving* and *problem based learning*. To determine the way in which a given class action *prob lem-solving* methods and *problem based learning*, namely to test the homogeneity and normality.The results are as follows.

Table 5. Homogeneity Test

Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Kelas	N	Percent	N	Percent	N	Percent
Nilai	IPS 1	39	100,0%	0	,0%	39	100,0%
	IPS 3	40	100,0%	0	,0%	40	100,0%
	IPS 2	39	100,0%	0	,0%	39	100,0%

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Nilai	Based on Mean	,045	2	115	,956
	Based on Median	,116	2	115	,891
	Based on Median and with adjusted df	,116	2	81,682	,891
	Based on trimmed mean	,024	2	115	,977

The table above shows that the significance of 0.956 which shows greater than α (0.05). So that all XI IPS classes have homogeneity. The XI IPS class at Balung Public High School consists of only 3 classes, namely XI IPS 1, XI IPS 2 and XI IPS 3, because it has an odd number of classes, while only 2 classes are used to determine the class used, by looking class average. The average number that is almost close to the same number will be used as experimental class 1 and experimental class 2. The average value of students can be seen from the following table .

Table 6. of Average Student Values

No	Class	Total	Mean
1	XI IPS 1	3425	88
2	XI IPS 2	3205	84
3	XI IPS 3	3277	82

Source: Documentation of Analys

The table above shows that having an average of almost the same number will be used as a control class and experimental class, namely class XI IPS 2 and XI IPS 3. The stage after doing homogeneity, the researcher focuses on the variables resulting from learning history and creativity. Learning outcomes in this study refer to Bloom's theory, namely in the cognitive, affective and psychomotor domains. While the reativity in this study refers to the theory of Rhodes in [3] concluded that in general creativity is defined as person *(person)*, process *(process)*,

product *(product),* and pusher*(press),* among the four known as *" P Four's Creativity ".* The measuring instruments used for the *process* dimension are using creative thinking *with indicators of fluency, flexibility, originality and elaboration.* Whereas to measure the dimensions of the *person* using the attitudes of adoption of Sternberg & Lubart in [3] with indicators, (1) perseverance in facing challenges; (2) courage carries risks; (3) the desire to develop; (4) tolerance for fear; (5) openness to experience; (6) and determination.

4 Conclusion

Through the application of *problem solving* methods and *problem based learning,* can help educators in the learning process, by prioritizing the creativity of students. This is because, in both methods, it sharpens students' thinking skills through various problems - problems related to the material as well as relating to the life of the students in their daily lives.

5 Acknowledgments

Based on this research, the researcher hopes that the educators apply the *problem solving* learning method and *problem based learning* method correctly, because from this comparative study will be seen between the two methods, which method will make students more creative.

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