

## IMPROVING STUDENT LEARNING OUTCOMES THROUGH THE IMPLEMENTATION OF PROBLEM SOLVING BASED LEARNING MODELS AT SMAN 1 TALANGPADANG

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### ABSTRACT

The purpose of this research is to determine the increase in student learning outcomes after implementing the Problem Solving Learning method as well as student activities during the learning process taking place in the employment material in the construction section of SMAN 1 Talangpadang. This procedure consists of 3 stages, namely planning, implementation, and the final stage of research. The type of research used is classroom action research (PTK) in the form of a cycle. The subjects of this research were 30 class XI IPS students. Data was collected using observation, tests and documentation, while data was analyzed descriptively. The results of the research are that there is an increase in student learning outcomes through the Problem Solving learning method cycle 1 with an average value of 59.53 (35%) not yet achieving the expected learning completeness. Cycle 2 student learning outcomes were in the very good category with an average score of 76.11 (90%). This value shows that the problem solving learning model can improve student learning outcomes which are shown in cycle 2 to have exceeded classical completeness standards, so it can be used for other materials.

**Keywords:** Problem Solving, Learning Outcomes, Employment

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### INTRODUCTION

Education is a conscious effort to educate the life of the nation and is the main key to achieving the ideals of a nation. Education is a vehicle for improving and developing the quality of human resources. Efforts to continuously improve the quality of education are carried out both conventionally and innovatively. Learning employment economics material is a learning activity, where students carry out thinking activities, by instilling concepts in solving problems related to the material being taught. Learning methods are a factor that plays an important role in

improving student achievement and learning outcomes. Several types of teaching methods include lectures, question and answer, discussion, problem solving, and so on (Sukarsono et. al., 2012, p. 99).

The low level of students' knowledge and understanding of economics and employment material has resulted in a decline in student learning outcomes in class XI IPS at SMAN 1 Talangpadang. According to Sukarsono et. al., (2012, p. 100), the decline in students' knowledge and understanding of economics lessons on employment material can be caused by several factors, including: a) in delivering material, teachers use less interesting

methods, b) lack of media used by teachers in learning, c) teachers only respond to students who are active in class, d) there is no variety in teaching. Learning methods are appropriate and expected to be used as a means to convey knowledge in an active, effective, efficient and interactive manner. One of these learning methods is problem solving.

According to Nadi et. al., (2016, p. 33), the problem solving learning method is the use of methods in learning activities by training students in dealing with various problems, both personal problems and group problems to be solved individually or together. Every method used by teachers always has advantages and disadvantages. The weaknesses of this problem solving learning method are (1) the material that students can master as a result of lectures will be limited to what controlled by the teacher; (2) lectures that are not accompanied by demonstrations can result in verbalism (disease); (3) teachers who lack the ability to speak well, lectures are often considered a boring model; (4) through lectures, it is very difficult to know whether all students have understood what was explained clearly or not (Sanjaya, 2006, p. 148-149).

Many other methods can be used. To cover the weaknesses of the lecture method, you can use a problem solving learning model. The problem solving learning model has great potential to train students to think creatively, innovatively in dealing with various problems, both personal problems and group problems to be solved individually or together (Mulyatiningsih, 2012, p. 236).

Learning is an effort. Actions that are carried out seriously, systematically, utilize all the potential that is possessed, both physical, mental and financial, five senses, brain and other body parts, as

well as psychological aspects such as intelligence, talent, motivation, interests and so on. Meanwhile, according to psychological understanding, learning is a process of changing behavior as a result of interaction with the environment in fulfilling one's life needs. These changes will be evident in all aspects of behavior. According to Slameto (in Apriyani, 2008, p. 3) from several definitions above, learning is "a process of effort and action carried out by a person to achieve a change in behavior".

Learning outcomes place a person from one level of ability to another. Regarding changes in the level of ability, according to Bloom, it includes three domains (in Sardiman, 2004, p. 23), namely "Cognitive: Knowledge (knowledge, memory), comprehension (understanding, explaining, summarizing), synthesis (organizing, planning, forming new buildings), evaluation (assessing), application (applying)". Learning is not just remembering, but broader than that, namely experiencing.

According to Slavin (in Khasanah, 2007, p. 11), learning is an individual change caused by experience, learning is a change in human disposition or skills that takes place over a certain period, and changes in behavior do not originate from the growth process. In line with the formulation above, there is also another interpretation of learning which states that learning is a process of changing individual behavior through interaction with the environment. Learning outcomes are the realization of the expansion of a person's skills or capacities. A person's mastery of learning outcomes can be seen from his behavior, both behavior in the form of mastery of knowledge, thinking skills and motor skills. Learning outcomes will grow knowledge and understanding in a person so that he can have abilities in the

form of skills in the form of habits, attitudes and aspirations for a sustainable life. "People who have succeeded in learning will become independent people and can improve their welfare and can determine the direction of their life" (Koster, 2000, p. 26).

Learning achievements or learning outcomes are obtained after implementing a teaching program. Assessment or evaluation of the achievement of learning outcomes is a step to find out how far the objectives of teaching and learning activities (KBM) in a field of study or subject have been achieved. The educational process has goals to be achieved, which can be categorized into three areas, namely the cognitive area (intellectual mastery), the affective area (related to attitudes and values) and the psychomotor (ability or skills to act/ behavior). Types of cognitive learning outcomes include learning outcomes resulting from rote knowledge, comprehension learning outcomes, application learning outcomes, analysis learning outcomes, and evaluation learning types. The type of affective learning outcomes relates to attitudes and values. Meanwhile, the types of learning outcomes in the psychomotor field appear in the form of skills and the ability to act individually. Learning outcomes or achievements are the realization or expansion of a person's potential skills or capacities. A person's mastery of learning outcomes can be seen from his behavior, both behavior in the form of mastery of knowledge, thinking skills and motor skills.

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from the learning outcomes tests in the form of skills, knowledge, intelligence, individual abilities and talents obtained at school are usually reflected in the form of certain values. The test aims to raise students' motivation so they can organize lessons well. Learning outcomes seen from learning outcomes tests in the form of skills, knowledge, intelligence, abilities and individual talents obtained at school are usually reflected in the form of certain values. The test aims to raise students' motivation so they can organize lessons well.

According to Meyer (in Wena, 2011, p. 87), there are three characteristics of problem solving, namely: (1) problem solving is a cognitive activity, but it is influenced by behavior, (2) the results of problem solving can be seen from action/ behavior in solving and (3) problem solving is a process of manipulation of previously owned knowledge. According to Yamin (2008, p. 164), the problem solving method is a method that stimulates thinking and uses insight without looking at the quality of the opinions expressed by students. Teachers only see the thoughts expressed by students, students' opinions, students' motivation to express their opinions and teachers must always respect each student's opinion.

The Problem Solving Method is a teaching method that seeks logically, critically and analytically towards a convincing conclusion. Problem Solving focuses on solving a problem rationally, logically and precisely. So essentially this method emphasizes the process of solving problems (Nurul, 2009, p. 164). From several of the statements above, it can be concluded that the problem solving method is a way of teaching teachers to find out how students act and think in solving problems logically, critically and analytically to draw

conclusions from problems. This method leads to a problem solving process carried out by students.

The problem solving method has great potential for training students to think creatively in dealing with various personal and group problems to be solved individually or collectively. In problem solving, students learn on their own to identify the causes of problems and students solve the problem. The teacher's task in the problem solving method is to provide cases or problems for students to solve. Student activities in problem solving are carried out through procedures: (1) identifying the cause of the problem; (2) studying theories to overcome problems or find solutions; (3) choose and determine the most appropriate solution; (4) develop procedures for solving problems based on the theory that has been studied (Mulyatiningsih, 2012, p. 237).

This description shows the definition of the problem, terminology for problem solving and useful forms of problem solving. We should define what the problem is as the first step in solving the problem. However, problem solvers often forget this initial step. Next, we should acknowledge common terminology such as goal, situation, problem, cause, solvable cause, problem, and solution.

The problem solving method is not just a teaching method but it is also a thinking method, because in problem solving you can use other methods starting from searching for data to drawing conclusions. The main aim of using the Problem Solving method is: Developing thinking skills, especially in finding the cause and effect and purpose of a problem. This method trains students in ways to approach and how to take steps when solving a problem.

Providing students with practical knowledge and skills that are valuable or useful for daily life needs. This method

provides a basis for practical experience regarding how to solve problems and these skills can be applied to deal with other problems in society. A problem can be said to be a good problem if it meets the following conditions: It is clear, in the sense that it is free from language errors or different meanings. The terms used do not have two meanings that can be interpreted differently. The difficulties can be overcome. What this means is that the main problem being solved is not multiple or complex.

Of value to students. The results or processes observed by students must be useful and benefit the student's experience or enrich the student's experience. In accordance with the level of psychological development of students. The problem to be solved is not too easy but also not too difficult. So it must be in accordance with the capacity of the student's mindset.

Practical, in the sense that it may be encountered in everyday life. Or, the problem is taken from the practice of daily life, from the surrounding environment where the student is. To support teaching and learning strategies using this problem solving method, teachers need to choose learning materials that have problems. Learning material is not limited to textbooks at school, but is also taken from environmental sources such as social events or events within the school environment. The aim is to make it easier for students to face and solve problems that occur in the real environment and for students to gain experience in solving problems so that they can be applied in real life. The benefits or advantages of applying problem solving methods are:

1. Educate students in analyzing and thinking systematically.
2. Educate how to identify problems, think to look for causes and effects.

3. Be open to various opinions and be able to make considerations in choosing a decision.
4. Able to find various ways out of a difficulty or problem.
5. Don't give up quickly if you face a problem.
6. Learn to act on the basis of a mature plan.
7. Learn to be responsible for decisions that have been made in solving a problem.
8. Don't feel like you only depend on the teacher's opinion.
9. Learn to analyze a problem from various aspects.
10. Educate a life attitude, that every difficulty has a solution if faced seriously.

Meanwhile, the weaknesses or shortcomings of problem solving methods are: 1) This method requires a lot of time if the right decision is expected to result. 2) In the lesson there are two problems that can be solved, so it is very possible that the lesson material

will be left behind. This problem solving method will only be successful if it is used in child-centered learning with universal development, and not from a subject-centered curriculum like the conventional/ traditional curriculum.

The research objectives are: 1). To find out the application of the problem solving learning model to improve student learning outcomes in employment material in class XI SMAN 1 Talangpadang. 2). To find out the learning outcomes of class XI students at SMAN 1 Talangpadang after using the Problem Solving learning model.

## METHOD

The research method used is a descriptive quantitative research method. Form of Classroom Action Research (PTK). The classroom action research procedure can be seen schematically in the figure below.

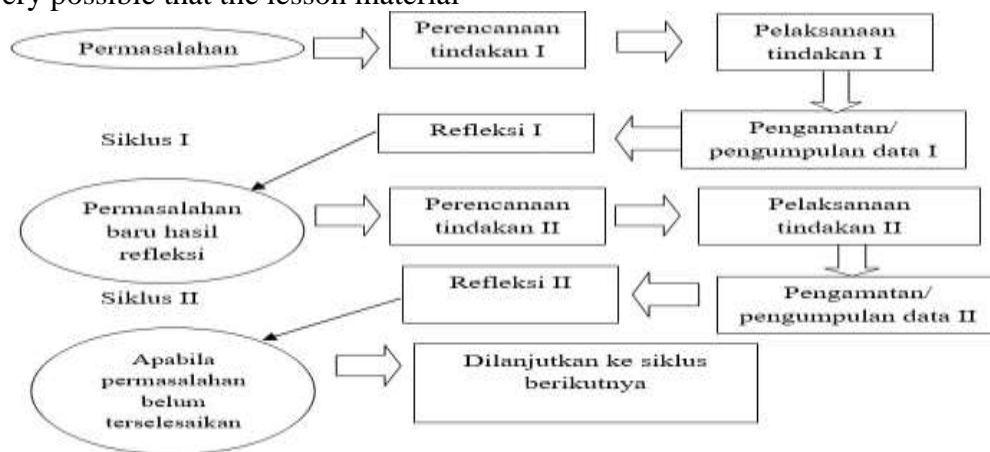


Figure 1: Flow of Class Action Activities (Source: Suhardjono, 2006, p. 74)

## RESULTS AND DISCUSSION

### A. Results

The research was carried out in two cycles by applying the problem solving learning model to employment material in improving the learning

outcomes of Class XI students at SMAN 1 Talangpadang. The research data obtained are as follows:

#### 1. Cycle 1

##### a) Planning Stage

At this stage the researcher prepares learning tools consisting of a Learning Implementation

Plan, syllabus, assessment instruments, and learning books, test questions, observation sheets.

b) Implementation Stage

Implementation of teaching and learning activities in class The first meeting was held with the application of the problem solving learning model, students still felt the need to adapt with the new learning model they get in the learning process.

The teacher explains to the students again about the steps of the problem solving learning model in the classroom. The teaching and learning process refers to the learning implementation plan that has been prepared. The steps in the problem solving learning model immediately become solutions to learning problems after reflection at the first meeting. In

implementing learning using the problem solving learning model, it is hoped that students will have the courage to identify problems and be active in learning so that they can improve student learning outcomes.

c) Observation Stage (observation)

In cycle I, in implementing the problem solving learning model, researchers obtained data through observation sheets of teacher activities in implementing the learning model. This observation sheet is used to determine the teacher's activities in implementing the problem solving learning model. The teacher's activity observation sheet is filled in by 2 observers.

**Table 1. Teacher Observation Results Regarding the Implementation of Learning Models problem solving Cycle 1**

Observer	Cycle 1	
	Meeting 1	Meeting 2
Observer 1	54%	69%
Observer 2	62%	77%
Mean	58%	73%

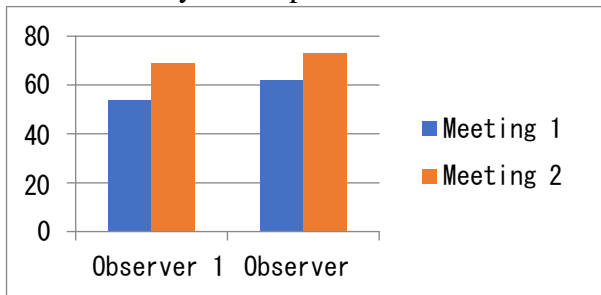
Based on Table 1, it can be seen that teacher activity during the learning process based on observer 1 at meeting 1 was 54%, of which only 7 items were implemented out of 13 plans that would be implemented in implementing the problem solving learning model. At the 2nd meeting there was an increase of 69%, where only 9 items were implemented out of 13 plans that would be implemented in the application of the problem solving learning model, however at the 2nd meeting there was an increase based on observer 1's

observations compared to the 1st meeting, which was 69%-54% = 15%.

It can be seen that teacher activity during the learning process based on observer 2 at meeting 1 was 64%, of which only 8 items were implemented out of 13 plans that would be implemented at application of the problem solving learning model. At the 2nd meeting there was an increase of 77%, where only 10 items were implemented out of 13 plans that would be implemented in the application of the problem solving learning model, however at the 2nd meeting there was an increase

based on observer 2's observations compared to the 1st meeting, namely 62 %-77%= 15%. In general, there has been quite a good improvement at each meeting with an average of 58% at the 1st meeting and 73% at the 2nd meeting in every activity planned and

implemented by the teacher. However, this value cannot be said to be maximum because there are still things that have not been implemented according to the learning implementation plan (RPP), therefore improvements must be made in the next cycle.



**Figure 2. Graph of Teacher Observation Results on the Implementation of the Cycle 1 Problem Solving Learning Model**

The learning process carried out in cycle 1 still has several shortcomings. For this reason, corrective steps are needed in the next cycle, while aspects that have been implemented well are maintained in cycle 2. Data from teacher observations in the learning process in cycle 1 with applying a contextual approach using a problem solving learning model was obtained at observer 1 meeting 1, namely 54% and 2 to 2 encounters at 69%, which means there was an increase of 15% from meeting 1 to meeting 2. Meanwhile, based on observer 2 of meeting 1, it was 62% and at meeting 2 it was 77%, which means there was an increase of

15% from meeting 1 to meeting 2, with an average of 58% at meeting 1 and 73% at meeting 2 of cycle I.

Based on cycle 1 of economic learning, the material taught is in accordance with core competencies and basic competencies. Question of test is given in written form which is carried out after the learning process in cycle I. The test contains 6 questions in multiple choice form which are made based on indicators and learning objectives. Based on the analyzed test results, results were obtained as shown below:

**Table 2. Cycle 1 Student Test Results**

Mean	59,07
Highest score	80
Lowest score	30
Classical completeness	40%

Based on table 2, the percentage of learning completeness in cycle

1 was 62.96%, including the incomplete criteria of 27 students who got a score  $\geq 70$ .

d) Reflection

Based on the minimum learning completeness (KBM) that has been determined by the school, learning is said to be individually complete if the student gets a score  $\geq 70$  which can be seen from the student's test results. Meanwhile, the learning process is said to be classically complete if 85% of students in the class get a score  $\geq 70$ . Based on the results of observations of teacher and student activities in cycle 1, there are still aspects that are lacking. This affects the completeness of the student's learning itself. Learning by applying the problem solving learning model that has been implemented in cycle 1 has not achieved maximum results because there are still many shortcomings, namely 1) students need to adapt to the problem solving learning method; 2) students cannot discuss well; 3) students cannot understand what taught; 4) students have not been able to summarize the material, so reflection needs to be carried out and continue to cycle 2 to improve the teaching and learning process.

2. Cycle 2

a) Planning Stage

At this stage the researcher prepares learning tools consisting of a Learning Implementation Plan, syllabus, assessment instruments, and learning books, test questions, observation sheets. support based on the results of

reflection in cycle 1 so that cycle 2 can be implemented well.

b) Implementation Stage

The implementation of learning in the second cycle is more optimized, especially in 1) students need to adapt to problem solving learning methods; 2) students must be able to discuss well; 3) students must be able to understand what is being taught; 4) students must be able to summarize the material, so that the aim of learning is achieved, that is, students' learning completeness can exceed minimal completeness and classical completeness.

The implementation of learning in the second cycle went well. When applying the problem solving learning model, students can implement it well, students have adapted to the problem solving learning model so that the learning process is carried out well.

c) Observation

In cycle II, in applying the problem solving learning model, researchers obtained data through observation sheets of teacher activities in implementing the problem solving learning model. In the second cycle, it is the result of reflection in cycle I as an indicator of success in improving cycle 2. The results of the observations are:

**Table 3. Teacher Observation Results Regarding the Implementation of Learning Models Problem Solving Cycle2**

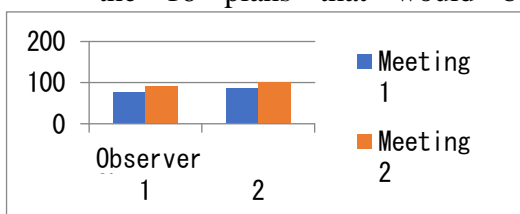
Observer	Cycle 2	
	Meeting 1	Meeting 2
Observer I	77%	92%
Observer II	85%	100%
Mean	81%	96%

Based on Table 3, it can be seen that teacher activity during the learning process based on observer 1 at meeting 1 was 77%, of which 10 items were implemented out of 13 plans that would be implemented in implementing the problem solving learning model. At the second meeting there was an increase of 92%, where only 12 items were implemented out of 16 plans that would be implemented in the application of the problem solving learning model, however at the second meeting there was an increase based on observer first observations compared to the first meeting, namely  $69\% - 54\% = 15\%$ .

It can be seen that teacher activity during the learning process based on observer 2 at meeting 1 was 85%, of which 11 items were implemented from 16 plans that will be implemented in implementing the problem solving learning model. At the second meeting there was an increase of 100%, where all of the 16 plans that would be

implemented in the application of the problem learning model were implemented solving, but at the second meeting there was an increase based on observer second observations compared to the first meeting, namely  $100\% - 85\% = 15\%$ .

In general, there has been quite a good improvement at each meeting with an average of 81% at the first meeting and 96% at the second meeting in every activity planned and implemented by the teacher. Data from teacher observations in the second cycle learning process using the problem solving learning model was obtained from observer 1 of meeting 1, namely 77% and meeting 2 to 2 was 92%, which means there was an increase of 15% from meeting 1 to meeting 2. Meanwhile, based on observer 2 at meeting 1 was 85% and at meeting 2 it was 100%, which means there was an increase of 15% from meeting 1 to meeting 2, with an average of 81% at meeting 1 and 96% at meeting 2 in cycle I with very good category.



**Figure 3. Graph of Teacher Observation Results Regarding the Implementation of the Learning Model Problem Solving Cycle**

The material taught in cycle 2 is a continuation of the material previously. In cycle 2 of economics learning, the material used is appropriate with indicators. The implementation

of learning in cycle 2 is carried out based on reflection in cycle 1. All aspects that are good are maintained while aspects that are less corrected are in cycle 2. Tests are given in written form which are carried out in the form

of written test which is carried out after the cycle 2 learning process. The test contains 6 questions in multiple choice form which are made based on indicators and learning

objectives. Based on the test results analyzed using classical learning mastery, the following results were obtained.

**Table 4. Cycle 2 Test Results**

Mean	76,11
Highest score	95
Lowest score	55
Classical completeness	90%

Based on table 4, the percentage of classical learning completeness in cycle II was 88.89% of the 27 students who got a score of  $\geq 70$  and 11.11% of the remaining 3 students had not yet completed it. Based on the results of observations of teacher and student activities in cycle 2, the implementation of the problem solving learning model was carried out well. This affects the student's learning outcomes. Learning by applying the problem solving learning model in cycle 2 has gone well. This can be seen in student learning outcomes which have increased from cycle I to cycle II. The learning process carried out in cycle II has gone well. This was marked by an increase in assessments on teacher observation sheets in cycle II. So this increase also affects student learning outcomes. However, there are still shortcomings, namely that there are several aspects of the observation sheet that have not been implemented properly.

## B. Discussion

The results of research that has been carried out by applying the problem solving learning model. At this stage in cycle 1 the students have been divided

by the teacher into 9 heterogeneous groups, each group consisting of 3 students. Students are also orderly to join the groups that have been divided by teacher. In cycle II, researchers also placed students in the same groups as cycle I. In cooperative learning, students were placed in groups with appointments made by small group researchers to make it easier for students to digest the learning. Because that way students can learn together with their heterogeneous group of friends. So that students who quickly understand the lesson can teach their group friends who do not yet understand the lesson. Students are divided into groups whose members are heterogeneous, those who are good at teaching the weak, those who know tell those who don't know, those who catch on quickly tell their friends who are slow, those who have ideas immediately make suggestions.

Increasing the application of problem solving learning models which are carried out by applying approaches. In cycles I and II it turned out to have an impact on improving student learning outcomes. Improving learning outcomes by implementing the problem solving learning model in class XI of SMAN 1 Talangpadang. This can be seen from the value of student learning outcomes for each cycle, namely in cycle I the percentage of students' classical learning completeness reached 43% of the 30 students who got a score  $\geq 70$  as many as 14 people. The learning outcomes have not been completed based on the

minimum learning completeness (KBM) set by the school.

Apart from that, there are several factors that cause incomplete student learning outcomes in cycle I, namely 1) Students are not yet familiar with the learning process by applying the problem solving learning model; 2) Some students do not understand the learning material; 3) When giving conclusions the teacher does not put enough emphasis on the students so that some students do not pay attention to the teacher's conclusions; 4) During group discussions there were still students who carried out activities outside the learning process.

Based on the second cycle of student learning results, the percentage of students' classical learning completeness reached 88.89% of the 30 students who got a score  $\geq 70$  as many as 24 students. The learning outcomes in cycle II have been completed, this is based on the minimum learning completeness (KBM) set by the school. That learning is said to be completed individually if students get a score of 70.

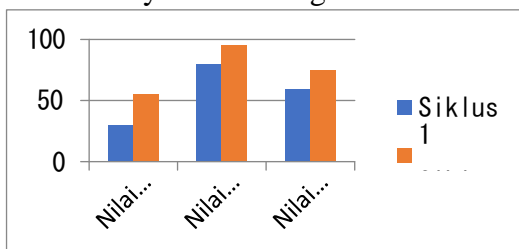


Figure 5. Graph of Learning Results for Cycle 1 and Cycle 2

## CONCLUSION

This classroom action research concluded that there was an increase in student learning outcomes of 47% from 40% of classical completeness in cycle 1 and became 88.89% in classical completion in cycle 2 with the highest score in cycle 1 being 80 and in cycle 2 being 90.

Meanwhile, the learning process is said to be completed classically if 85% of the class gets a score  $\geq 70$ .

There was a 47% increase in classical completeness from cycle 1 to cycle 2. This value shows that the problem solving learning model can improve student learning outcomes which were shown in cycle 2 to have exceeded the standard of classical completeness, therefore research using the problem solving learning model ended in cycle 2. Improvement of learning outcomes is in line with the research results of Khairani & Safitri, (2017, p. 32) which states that the application of problem solving learning methods can improve student learning outcomes, as well as Sukarsono et al (2012, p. 103) who state that the application of cooperative learning models with Problem solving methods can improve student learning outcomes. Therefore, through the application of the problem solving learning model, it can improve the learning outcomes of Class XI students at SMAN 1 Talangpadang.

It is recommended that the application of the problem solving learning model be used as an alternative variation in the teaching and learning process as an effort to increase student activity and learning outcomes.

It is hoped that teachers can pay attention to teaching strategies in providing guidance/direction to students so that the teaching and learning process carried out can run more optimally in the

problem solving learning model. In implementing the problem solving learning model, teachers must be able to

manage time so that the teaching and learning process can run well.

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