



Improving the Skills of Demand Function Counting and Demand Curve Drawing Using Drill Method and Think Pair Share (TPS)

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Abstract

This research aims to determine whether there is an increased of demand function counting and demand curve drawing using drill method and think pair share. It was a classroom action research that used drill and think pair share learning methods. The subjects of the research were students at class X IPS 4 in Senior High School 11 Semarang. Data were analyzed by using the simple descriptive statistics analysis with the mean of the evaluation result. Findings show that the mean of drill and think pair share learning methods in Class X IPS 4 Senior High School Negeri 11 Semarang was 72.94 and 76.10 at the pre-cycle. The study completeness was only by 13 students (39%). After conducting the first cycle, there was an improvement for 78.06 and 89.04. The study completeness was 18 students (55%). In the second cycle, students' learning outcomes increased up to 95.76 and 99.29 with learning completeness was 33 students (100%).

How to Cite

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INTRODUCTION

Education is an effort for giving particular science, knowledge, and skills for someone to develop himself in order to change his attitude to be better as well as his expectation. "Education will take place in family environment, school environment and community environment" (Munib, 2007). The school environment is a learning environment that involves the interaction between teachers and students. "The most significant interaction is the interaction between teachers and students as a learning process to change students behaviour can be deliberately created. Further, the students behaviour should be in line with the demands of education goals (Satmoko, 1999). Teacher activities to recognize his students are the important things in teaching and learning process (Kusmaryono, 2015).

Teaching and learning at schools should be run effectively, so that the goals of education can be achieved. The success of achieving the goals can be seen from the students' abilities in understanding and mastering the materials. As a matter of fact, it is very important in teaching about demand at the class. An effective and fun method should be applied because students are required to calculate skillfully the demand function and draw the demand curve.

According to Trianto (2007), teachers should learn more and enrich their knowledge about learning models as it will make teachers easier in teaching the students at the class and achieving the learning objectives.

Teacher should be innovative to improve the quality of teaching and learning process, so that students' skills and abilities will improve too. The abilities here mean students' mastery in calculating the demand function and drawing the demand curve. For improving the students' understanding, an appropriate learning method should be implemented. Teachers should prepare more various methods in order to avoid boredom in learning

Blumenfeld (2011) stated that student involvement is closely related to student motivation. Teacher centered method should not always be implemented. So far, students only listen to teachers explanation. Then, teacher should encourage students to be active in learning process, so that their interests in learning can increase. By having various methods, teachers can help students get various information, ideas, skills, ways of thinking and ways for expressing ideas.

The method chosen should encourage students for being active and creative in learning,

especially in understanding the materials given. The methods that can be implemented are Drill and Think Pair Share (TPS).

According to Santoso (2011), drill method is a teaching method. Teachers will ask students to visit training centers. Then, the students should see and observe how to make things, how to use the tools, why the things are made and what are the benefits of things. In the material of demand, some examples how to draw the curve, to analyze the curve are given. The students should listen to the teacher's explanation, and observe it individually or in groups.

Think Pair Share (TPS) is a cooperative learning which is designed to influence student interaction. TPS is developed by Frank Lyrman as cooperative learning activities. According to Arends cited in Trianto (2007), TPS is an effective way to create various design of discussion at the class. The implementation of TPS, particularly on calculating the demand function and drawing the demand curve can be explained deeply and clearly. Students are required to think for making a price table, determining the amount of demand, determining the demand function and drawing the demand curve in pairs. Then, they should present what they did (share).

A research conducted by Samsiah (2014) showed that there is an increase in student learning outcomes in cycle I, cycle II, and cycle III. Data on student learning outcome on the subject of bilangan bulat increase from 63.67 (in cycle I) to 73.33 (in cycle II) and 83 (in cycle III). Thus, it can be concluded that the implementation of drilling method can improve students learning outcomes on the subject of math with the topic of integers characteristics. Santi, et al. (2016) stated that by implementing drilling method, teachers can help students improve their abilities to calculate fractions.

Based on interview, there are many students who have difficulties in calculating demand function and drawing demand curves. Choosing an appropriate and attractive method for students such as a combination between drilling method and think pair share method can improve the skill of calculating demand function and drawing demand curves. The aim of this study is to know whether there is students' skill improvement in calculating demand function and drawing demand curve by implementing drilling and think pair share method.

METHODS

This study needed a particular place for

obtaining data to support the research. It was at SMA Negeri 11 Semarang. The object of study was students of grade X IPS 4 SMA Negeri 11 Semarang

Acting Plan

This study was a classroom action research. According to Suyanto, a classroom action research is a reflective research with certain actions to repair or to improve students' learning at a class professionally (Subyantoro, 2007). The classroom action research process was carried out in two cycles. In this study, each cycle consisted of four stages: planning, execution, observation, and reflection (Suharsimi, 2010). The detail of each step is depicted bellow:

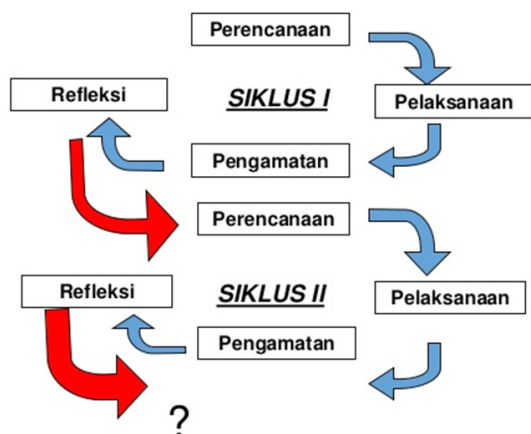


Figure 1. Cycles of Classroom Action Research

Planning

Planning was a preparation for implementing Drill and Think Pair Share method in learning process. It covered: (a) Identifying problems. It was done by interviewing economics teachers. Then, determining the solving action by implementing Drill and Think Pair Share. (b) Planning a learning activity with Drill and Think pair Share method. (c) Creating Lesson Plan and applying Drill Think Pair Share method. (d) Composing observation sheets for teachers and students. The sheets were used to observe the method of Drill and Think Pair Share applied. (e) Preparing exercises. (f) Arranging learning evaluation. It was an essay (case study).

Classroom Action Implementation

The activities that would be done was implementing Drill and Think pair Share method in teaching and learning activities based on the lesson plan. It was divided into two cycles.

Observation

Observation was done in teaching and learning process. Observation sheets were used to observe, monitor, and assessed every student's activities in each meeting. Researchers tried to find out the success and weaknesses of implementation of Drill and Think Pair Share method, so that the data could be gained.

Reflection

At this stage, the implementation of Drill and Think Pair Share method and the data collection were analyzed and evaluated to improve the next action. The results of reflection of cycle I were used to repair and plan the next actions at the next cycle.

Cycle II was done as the refinement of cycle I. The weaknesses occurred at cycle I was repaired to improve the students' skills in calculation. Cycle II was done in 4 stages; they were planning, implementation, observation and reflection. The reflection results of cycle II would become the basis to determine whether the next cycle was needed. If the calculation skill of students improve, at least 75%, the next cycles would not be necessary done. However, if the improvement was less than 75%, the next cycle could be conducted.

RESULTS AND DISCUSSION

Findings of Cycle I

Classroom action research was done in some stages. It starts by having planning, acting and it ends by doing reflection. Cycle I is done once time only. It is at the end of October 2016 with the time allotment of 90 minutes (2X45 minutes). The activities for cycle I are planning, acting, observing and reflection. They are explained bellow:

Planning

In planning, a teacher should choose a material for students. The teacher explained about the demand curve. He also plans some steps that consist of: (1) determining objectives of teaching and learning process with Drill and Think Share method in his lesson plan. He also determined the minimum criteria for economics subject is 76 and the method chosen was Drill and Think Pair Share (TPS). The method was for helping the students master the material about function of demand curve (2) the teacher planned scenario for learning. It was a plan for repairing the learning, (3) the teacher asked the students to make a group of two students as they will work in pairs, (4) the teacher, then, prepare the observation

sheets and card of function and demand curve, (5) the teacher designed evaluation tool for students to assess the success of students in learning economics with drill and Think Pair Share method (TPS).

Acting

In this stage, the teacher implemented the planned activities in learning. In cycle I, the teacher delivered briefly material material about the function of demand curve. For making the students understand, many exercises were given to the students. The exercises related to function and demand curve. First, in the learning process, the teacher conveyed material about function and demand curve in general. To implement scientific approach in learning, students were drilled directly to calculate function and draw demand curve. In drilling the students, the exercises were given in two stages.

The first stage, the teacher give some exercises to the students. Then, they discuss in pairs. In this stage, the teacher role is for clarifying the material in the discussion, and supervising the students when they tried to do the exercises given. At the second stage, students were asked to make a group consisted of four members. Then, the teacher asked the student to work individually. In this case, the teacher let the students work freely or without teacher's guidance. Each student would have one question for being answered. The function of making groups is to give students various questions, so that they can have turn taking roles in doing the exercises. Further, student would be given 5 minutes for answering the question at the exercises. There are 4 different questions given at each group. At the last stage of cycle I, an evaluation test for measuring students' ability was given. The following Table 1 shows the comparison scores of students before and after cycle I.

Table 1. Knowledge Score of Cycle I

| Outcomes | Pra cycle | Cycle I |
|--------------------|-----------|---------|
| Highest score | 90 | 100 |
| Lowest score | 59 | 60 |
| Average score | 72.94 | 78.71 |
| % Learning Mastery | 39 % | 55 % |

Sources: Processed Data, 2016

Besides assessing the knowledge of students, the teacher also assessed the skills of students in calculating the function and drawing the demand curve. The assessment covered their wri-

ting, timeliness, accuracy and neatness. The comparison score before and after cycle I is presented as follows.

Table 2. The Skill Score of Cycle I

| Outcomes | Pra Cycle | Cycle I |
|---------------|-----------|---------|
| Highest Score | 84 | 100 |
| Lowest Score | 70 | 77 |
| Average Score | 76.10 | 89,04 |

Source: Processed Data, 2016

Based on the Table 2, there is improvement in knowledge score before and after acting in cycle I. The average score and the percentage of learning mastery increases from 72.94 to 78.06 and the classical mastery is from 39% up to 55%. Further, the skill score also increases from 76.10 to 89.04. After being analyzed, it can be concluded that there is an increase for both knowledge and skill score in cycle I. However, the learning mastery on students skill classically is only 55%. It has not met the indicator criteria of classical learning mastery yet which is 75%, so that there should be improvement for the next cycle.

Observation

At the observation stage, the researchers observe the process of learning based on the preparation plan of learning process with Drill and Think Pair Share method. Observation is done by providing observational sheets made by the researchers. There are two aspects observed by the researchers in the process of learning focus on function and demand curve. They are students' activeness and teacher performance.

At the implementation of cycle I, the research activity is attended by 33 students from class X IPS 4. The learning process carried out by implementing drill and Think Pair Share (TPS) method has run well. It also runs smoothly and in control. Students are able to explore all the sources of learning and they do not hesitate to ask the teacher. However, there are still some learners who have not been able to focus on learning materials. The students' activeness can be found out when the teacher drill the students with exercises in pairs, and they are guided by the teacher. Each group tries to solve the problems and clarify to the teacher.

The researchers also observe teacher performance in the process of teaching and learning focuses on function and demand curve with Drill and Think pair Share method. The things observed by researchers in the first cycle is the ability of teachers in planning, implementing, and ta-

king action in the classroom. In the planning or before the teaching and learning process begins, the teacher takes various steps such as preparing the material to be taught to the students, formulating the goals to be achieved, and understanding the students' condition either from academic ability or student background, and other conditions. At implementation stage, the teacher delivers the material to the students based on the lesson plan which has been prepared previously. In the first cycle, there are still some weaknesses done by the teacher when implementing the method of teaching and learning. This can be seen when the teacher explains the game procedures and the application of learning methods that have not been maximized yet, so that the students can not evaluate maximally. Some improvements are necessary needed at cycle II.

Reflection

The last stage of cycle I is reflection. This stage, the teacher is expected to analyze the results of teaching and learning activities conducted by applying drill methods and Think Pair Share (TPS). In addition, the reflection stage is a correction of actions that have been implemented to determine the advantages and disadvantages that exist in cycle I. After analyzing cycle I, it can be concluded that (1) there are still some students have less attention and do not focus on the material conveyed; (2) the teacher still can not manage the time allotment for teaching and learning activities with drill and Think Pair Share (TPS) method; (3) the result of the knowledge and skill scores in cycle I is that students can not achieve the learning mastery because the knowledge score is still less than 75%. Then, cycle II is needed.

Findings of Cycle II

The study at cycle I is not completely done, as the determined indicator has not been successfully achieved. Cycle II is needed to be carried out. It was done on December 2016 with the time allotment of 2X45 minutes. The materials conveyed at this cycle are function and demand curve. In general, activities carried out in cycle II is more increased than cycle I. The activities of cycle II include planning, implementation, observation and reflection.

Planning

The implementation of cycle II is based on the analysis of cycle I. Before the teaching and learning process in cycle II, the teacher analyzes the weaknesses exist in cycle I. In cycle II, consolidation of drill and Think Pair Share (TPS) met-

hods must be mastered completely by the teacher. It is expected that at cycle II, the teaching and learning atmosphere can be better and more enjoyable, so that learners can have more interaction with the teacher.

Acting

At the stage of action, the teacher has similar teaching and learning process as it occurs at cycle I. It begins by giving apperception and informing the objectives of teaching and learning process to students. Furthermore, he also explains the benefits of learning the materials. He, then explains the main materials, function and demand curve. The materials given are emphasized more on the failing things occur at cycle I. Next, discussion in pairs is carried out. It focuses on answering the questions given by the teacher. At the first exercises of drilling, drilling is implemented. The teacher still gives an intensive guidance for his students experience difficulties in answering the questions. Besides, he observes the students who are active at the class. At the second exercises of drilling, it should be known that drill method at this stage is slightly different with the cycle I. In this case, in doing the exercises, the students work individually. The exercises are given at running powerpoint slide. Each question should be answer in 5 minutes. After all students complete their tasks, the teacher asks each student to collect the results of individual self-evaluation. The teacher asks about the difficulties experienced by the students during completing the exercises. The comparison score of knowledge at cycle I and II can be seen in the Table 3.

Besides assessing the students' knowledge, the teacher also assesses the skills of students in calculating the function and drawing the demand curve. The evaluation of skills undertaken by teachers are about students' writing, timeliness, and accuracy and neatness of students' workers. The comparison of students' skill score at cycle I and cycle II can be seen in the Table 4.

Based on the Table 4, it is known that there is an increase of knowledge score at cycle II. The average knowledge score of learning mastery has increased from 78.06 to 95.76. Next, the classical learning mastery of knowledge rises from 55% to 100%. While based on the above table, it is known that there is an increase in skill score of cycle I and cycle II. The average score of students' skill and the percentage of learning mastery has increased that is from the average score of 89.04 to 99.29. Knowing the results, it can be summed up that there is an increase both on the score of knowledge and skills. The increase of knowledge

score in cycle II reaches 100%, so that it meets the criteria of classical learning mastery indicator. Furthermore, 75% of students are successful in reaching the learning mastery. The skill score also rises, 10.25. It was from 89.04 up to 99.29. Then, it is decided that cycle III is not needed to be conducted

Table 3. Knowledge Score at Cycle II

| Outcomes | Cycle I | Cycle II |
|--------------------|---------|----------|
| Highest score | 100 | 100 |
| Lowest score | 60 | 80 |
| Average score | 78.06 | 95.76 |
| % Learning mastery | 55 % | 100% |

Source: Processed Data, 2016

Table 4. Skill Score at Cycle II

| Outcomes | Cycle I | Cycle II |
|---------------|---------|----------|
| Highest score | 100 | 100 |
| Lowest score | 77 | 97 |
| Average score | 89.04 | 99.29 |

Source: Processed Data, 2016

Observation

At the observation stage, the researcher observes the learning process with drill and think pair share (TPS) method based on lesson plan. The aspects that the researchers observed in the process of learning focus on function and demand curve are student activeness and teacher performance.

In the second cycle, there is a significant increase on the activities of students in the process of learning Economics. At the time of learning, the students are more active than at cycle I. They are more enthusiastic and competitive to solve the problems or exercises given by the teacher. This can be seen from the changes of students activeness in cycle II; they are: 1) student's focus increases; 2) students have more courages to ask things that have not been understood yet; 3) students are more enthusiastic and happier in doing the exercises.

The observation on teacher performance in cycle II is still the same as in cycle I. The teaching and learning Economics a by using drill and Think Pair Share (TPS) method in cycle II is very good to be applied because the knowledge and skill level reaches 100% and 99.29. They rise respectively. The performance of teacher in teaching and learning economics in the second cycle also improves, especially in delivering the materials and applying drill and Think Pair Sha-

re (TPS) method. The teacher performance can improve because the teacher begins to get used to the learning process applied, so that the teaching and learning can be carried out conductively and fun. It makes students more enthusiastic in learning Economics.

Reflecting

Based on the result of observation, the knowledge and skill scores of students in the learning of function and demand curve by using drill and Think Pair Share (TPS) method in cycle II has increased. In the first cycle the average sore is 78.71 with 55% classical learning mastery. In cycle II the average score is 95.76 with 100% classical learning mastery.

The discussion of this Classroom Action Research is based on the results of observations, evaluation, and reflection. Based on the research of the first and second cycle, it shows that the economics learning with the material of function and demand curve by using drill and Think Pair Share (TPS) method has improved both in terms of students' knowledge and skills during the learning process.

Drill and Think Pair Share (TPS) method is designed to optimize the activities of students. This can be seen in the learning components reflected during the learning process. They are dominated by the activities of students. The learning is done in pairs and the students are given questions. Through a series of discussion activities, and practices, students are expected to understand the material of function and demand curve. Moreover, the teaching and learning using Drill and Think Pair Share (TPS) method teaches students about social skills too as it is stated by Ibrahim et al (2000). He said that in cooperative learning, students learn how to learn with others, how to respond to other people's opinions, how to maintain cooperation and learn how to apply decision-making techniques that are very useful in social life. By giving a lot of exercises for the students, they will be motivated to strengthen their memory about the materials given.

This research is in line with Kothiyal's research (2013) which reveals that think pair share is an active learning strategy where students work based on teacher direction. First, students work individually, then they work in pairs and they have discussion finally. His study also recommends think pair share method in teaching and learning because it gives students the opportunity to express their opinions, reflect on what they think and get feedback from their understanding.

Based on the observation and reflection

in cycle I, it can be seen that the implementation of teaching and learning with the method of Drill and Think Pair Share has not improved the students' ability to have knowledge and skills optimally yet. The students still feel reluctant to ask and they do not really care to the answers of exercises. The students are able to cooperate in pairs, but there are still in doubt to trust each other. In addition, the teaching and learning process can not be carried out maximally because the students have not been familiar with Drill and Think Pair Share (TPS) method. It is still the first time for students of class X IPS 4 SMA Negeri 11 Semarang to have that method. From the background above, then the researchers continue conducting cycle II.

Actually, the overall teaching and learning process in cycle I and II is good. It is supported by the increase of students' activities and teacher performance, so that it impacts on the increased knowledge and skills of students. Further, the results of evaluation test of cycle I illustrate that the increase of average class score before using the Drill and Think Pair Share method is from 72.94 and 76.10; and to 78.06 and 89.04. Next, the classical learning mastery also rises from 39% to 55%.

The results of knowledge and skill assessment on the evaluation test of cycle I indicate that an improvement appears; if it is compared before and after the Drill and Think Pair Share (TPS) method applied. However, the classical learning mastery of cycle I only reaches 55%. It has not fulfilled the indicator criteria of successful classical learning mastery. As a matter of fact, it has been determined that 80 % of students should have successful learning mastery, so that there should be an improvement at the next cycle. Moreover, the results of knowledge and skill assessment on student evaluation test in cycle II increase. It can be known from the average class score of cycle I is 78.06 and 89.04 and they rise to 95.76 and 99.29. The percentage of learning mastery also increases from 55% and 89% in cycle I to 100% and 99% in cycle II. The average class score and the classical learning mastery can be seen at the Table 5 & 6.

The recapitulation of the knowledge and skills scores and data obtained during the study show that the application of drill and Think Pair Share (TPS) method can improve the skills of calculating the function and drawing the demand curve of the students at class X IPS 4 SMA Negeri 11 Semarang. According to Samsel (2013) the application of think pair share method has some beneficial effects. Case et al (2007) stated that

several studies on cooperative learning suggests that students increasingly improve their problem-solving skills through discussions with their peers. Diaz (2016) in his research concluded that active learning can improve student learning outcomes. Widodo (2007) wrote that the method of think pair share can improve the activity of students as it invites students to think why demand and supply can occur and why balance price in pairs can appear. In addition, students are required to be able to convey the results of their thoughts at the class and conduct discussion.

Table 5. The Knowledge Score Obtained by Implementing Drill dan Think Pair Share (TPS) Method

| Outcomes | Before Acting | Cycle I | Cycle II |
|------------------------------|---------------|---------|----------|
| Average Score | 72.94 | 78.06 | 95.76 |
| % Classical Learning Mastery | 39% | 55% | 100% |

Source : Processed Data, 2016

Table 6. The Skill Score Obtained by Implementing Drill dan Think Pair Share (TPS) Method

| Outcomes | Before acting | Cycle I | Cycle II |
|-----------------------------|---------------|---------|----------|
| Average score | 76.10 | 89.04 | 99.29 |
| % Clasical Learning Mastery | 76% | 89% | 99% |

Source : Processed Data, 2016

CONCLUSION

The implementation of Drill and Think Pair Share (TPS) method successfully applied in class X IPS 4 SMA Negeri 11 Semarang to improve the skills of calculating function and drawing demand curve. It has been proven that after having the classroom action research, there is a significant increase from the beginning or before the action done, cycle I to cycle II. The students' knowledge and skill before the drill and Think Pair Share (TPS) method applied are not too good. Their average scores are 72.94 and 76.10 with the percentage of classical learning mastery of 39% and 76%. In the first cycle after classroom, after conducting the action research with the application of drill and Think Pair Share (TPS) method, it can be obtained that the average score of students are 78.06 and 89.04 with the percentage of classical learning mastery of 55% and 89%. In the first cycle, the average scores and

classical learning mastery has increased, but the students' knowledge score has not met the criteria yet. Next, cycle II is carried out and the data that can be collected are the average class score are 95.76 and 99.29 with 100% and 99% of classical learning mastery. In the second cycle, there is an increase and it has already met the successful indicator of the classical learning mastery of 75%. The conclusion drawn is there is a correlation between the knowledge and skills of students. If the students' knowledge and understanding is high, the students will be more skillful in the material mastery, so that the skills of learners will increase as well.

Then, Economic teachers should use drill and Think Pair Share (TPS) as an alternative in economic teaching and learning method to improve the knowledge and skills of learners as well as making economic learning interesting and fun, especially on the materials relate to counting. The teachers should have abilities to create conducive learning conditions and good classroom management in every teaching and learning method. Further, good time management is crucially needed especially when the students do the exercises both guided and self-directed exercises. Here, the students really can use the time to ask when they have guided exercises, so that learners understand the material being studied. Economics teachers should always give positive attitude or appreciation to every student activity on the Economics learning process, because it can trigger the students to always learn hard. Then, they can obtain optimal learning results. They also be able to increase the students' courage in asking the teacher without shame and fear during the learning process in the classroom or outside the classroom.

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