

The Role of TPSq in Partisipatory Learning: Accumulation of Knowledge

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Abstract

Efforts to improve the quality of education in Indonesia are carried out through improving infrastructure, competent educators, and improving the quality of graduates. However, the quality of education in some areas still needs attention. One of them is the amount of material content that is not proportional to the applied learning model. The use of expository learning models has become a habit for most teachers in Indonesia. Even though the implementation of the learning causes low learning outcomes and student participation. The application of participatory learning can be done through group activities and critical thinking. This study aims to determine the role of think pair square learning in participatory learning. This study uses a quantitative approach by determining the sample class through the cluster-sampling-area technique. The experimental class applies the think pair square cooperative learning model and the control class applies the expository learning model. Data retrieval is done through the method of learning outcomes tests, questionnaires and observations. The results showed an increase not only in student learning participation, but also in student learning outcomes. The involvement of students in learning activities caused through group activities led to high student participation in the experimental class by 26% compared to the control class by 2%. The application of participatory learning that is carried out effectively is able to increase student participation in learning activities. This is shown through students' self-confidence when interacting in one group to another.

Keywords: Cooperative, Expository, Participatory, Think Pair Square

1. Introduction

Prospect of Vocational Schools according to the 2015-2019 PSMK Strategic Plan is still very concerning because there are still many unemployed Vocational High School graduates, even though Vocational High Schools have many opportunities to create skilled workers in their fields compared to Senior High Schools, but in reality there are still more. working high school graduates compared to vocational high school graduates. According to the Ministry of Education and Culture, to improve the quality of vocational education is to improve the existing infrastructure, employ educators who are competent in their fields and improve the quality of graduates.

Several regions in Indonesia have quality education that needs attention. One of them is in North Sumatra, Chairman of Commission X DPR RI Djoko Udjiyanto assesses the quality of education in North Sumatra is still below the national average. One of the problems faced during 2017 on curriculum issues include: the amount of material that must be taught and the learning process that tends to memorize compared to critical thinking. Teachers as educators are required to create learning that can lead to active student involvement in learning activities. The use of the right learning model is needed so that learning can run effectively.

As for the learning activities that take place in SMK still use the expository learning model with the lecture method. Students tend to be passive during learning activities so that the interactions that occur are not optimal. Regarding the expository learning model

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(Kesumaningrum, et al, 2016), the application of this learning still has many weaknesses. According to Citra Nur, et al (2016), the expository learning model is most used at various levels of education. Even though the implementation of the use of learning causes students to be passive in learning activities. This has an impact on the low student learning outcomes.

Based on the observations that have been made previously, the expository learning model is not properly applied to Computer Systems subjects because of the communication style carried out by the teacher in one direction (lecture). In addition, the learning carried out by the teacher in the Number System sub-chapter emphasizes the aspect of teacher-centered knowledge and directs students with teaching materials in the form of information that does not develop students' critical thinking skills.

According to a statement from the Presidium of the Indonesian Teachers' Union (FSGI) Guntur (2013) said that to encourage an active learning process is to change the teacher's mindset from lecture learning to flexible, varied, and standardized learning. To improve the quality of education, students are encouraged to make observations, ask questions, explore and try to solve a problem. The low level of student participation in the learning process is influenced by several factors, including students lack the ability to formulate their own ideas, students lack confidence to express opinions to other people and teachers, and students are not accustomed to competing to express opinions with other friends (Abimanyu in Sri Sudarmi , 2012).

The lack of active participation of students also has an impact on the level of students' understanding of material concepts, which causes low learning outcomes. It is proven that the computer system learning activities show less than optimal learning outcomes with an average value of 61.78. The learning outcomes were obtained from the daily test of the Number System. Regarding the low learning outcomes of students, based on 2016 Ministry of Education and Culture data, it was found that nationally 73.61% of student learning outcomes were still in a low position, which indicates that the quality of education in Indonesia is still low. To create interesting learning and motivate students in learning activities, it is necessary for the creativity of teachers to develop learning models. The use of learning models must be considered so that the implementation process can be carried out appropriately and in accordance with the conditions and characteristics of students in the class.

To overcome the problems above, it is necessary to apply participatory learning. According to Rahmat Taufik (2013) participatory learning can provide more

space and time for students to process material in learning. In addition, in participatory learning the process of absorbing material depends on the involvement of students in learning activities. The teacher only acts as a facilitator in learning activities. One of the participatory learning models is the think pair square type of cooperative learning model. This type is a modified form of the think pair share learning model by Spencer Kagan in 1993. One type of cooperative learning is to direct students to interact with other students in groups.

The think pair square type learning model (Rahmi Badri, 2018) is a fairly simple group learning model with a relatively small number of groups. So as to create active participation in it. According to Lie (2014) think pair square can provide eight times more opportunities for students to show their participation in front of others compared to lecture learning. So that it can foster an attitude of confidence compared to the use of expository learning which allows only 1 student who dares to show his ability. According to research that has been done by Ni'mah, et al (2014) the think pair square type of cooperative learning model can be said to be able to improve learning outcomes and active student participation because it involves grouping students with different abilities and characters.

In accordance with the description above, researchers are interested in conducting research on the role of TPSq (Think Pair Square) learning in participatory learning.

2. Method

The study was conducted on 70 students of Vocational High School (SMK) which lasted for 2 weeks with 2 meetings.

This study uses a quantitative approach with a true-experiment method and a pretest-posttest control design. Determination of the sample class through the cluster-sampling technique, namely the control class applying the expository learning model and the experimental class applying the think pair square cooperative learning model.

Research data collection includes learning outcomes tests (pretest-posttest), questionnaires, and student participation observation sheets which were previously tested for validity, reliability, level of difficulty, differentiating power, and distractors.

The data from the results of the research were carried out by testing the analytical requirements including; 1) Normality Test, 2) Homogeneity Test, 3) Balance Test. Furthermore, hypothesis testing was conducted to determine whether there were differences in learning outcomes and learning participation in the two sample classes using the t test (independent sample t test).

Meanwhile, to find out an increase in learning outcomes and learning participation in the two sample classes using the gain test.

3. Result and Discussion

The results of data analysis before and after applying the learning model showed that both classes were normally distributed, had the same variance and students in both sample classes had balanced abilities. The data on the average learning outcomes of the two classes can be seen in Table 1.

Table 1. Average of Students Learning Outcome

Variabel	Experiment Class	Control Class
Total Students (N)	35	35
\sum Pretest	52,85	53,28
\sum Posttest	76,11	61,25
Δ Score	23,26	7,97

At the first meeting, the research results obtained in the form of the average pretest value of the experimental class and the control class which showed balanced results. Meanwhile, at the second meeting, the average posttest score for the experimental class was higher than the control class. This shows that the average posttest score in accordance with the minimum passing criteria is in the experimental class, namely as many as 25 students can be said to have completed while the other 10 have not. In the control class, there were only 4 students who met the minimum graduation requirements while the other 31 had not completed.

The results of the questionnaire on the level of student participation in the two sample classes before applying the learning model showed a balanced level of participation. Meanwhile, at the second meeting after applying the learning model, the two sample classes showed different results. The experimental class by applying the think pair square learning model has a higher participation rate than the experimental class that applies the expository learning model (can be seen in table 2).

Table 2. Participation Rate Comparison

Description	Before	After
\sum Experiemen Class	77, 63	87, 17
\sum Control Class	78, 03	80, 69
Target	108, 00	108, 00
Total Students	35	35

The high level of student participation in the experimental class is supported by the results of

observations made during learning activities. The achievement of the target student participation rate is at number 3 which indicates the active participation rate. The results of observations in the experimental class showed that the overall level of student participation was 2.46 higher than the control class of 1.76. The participation rate in the experimental class is closer to the target of achieving the active participation rate.

Based on the data of pretest and posttest values, it can be seen that there are differences in learning outcomes for the experimental class and the control class as evidenced in testing hypothesis 1 using the independent sample t test (t test) with the results of testing the posttest value of 0.000 (sig. < 0.05). Besides that, the application of the think pair square type of cooperative learning model is able to improve student learning outcomes in the experimental class as evidenced by testing hypothesis 3 using the gain test on the learning outcomes of the two classes. The test results show an increase in learning outcomes in the experimental class by 47.09 compared to the control class by 18.25, so there is an increase in learning outcomes in the application of the think pair square type of cooperative learning model with good categories ($0.30 < g < 0.70$).

Through questionnaire data, the level of student learning participation conducted before and after applying the learning model to each sample class, it can be concluded that there is a significant difference in student learning participation in the experimental class and control class of 0.000 (sig. < 0.05) in accordance with hypothesis testing. 2 using t test. In addition, in testing hypothesis 4 using the gain test, there is an increase in student participation in the experimental class by 26.94 and the control class by 2.03. From this test, it can be seen that there is an increase in higher learning participation in the experimental class by applying the think pair square type of cooperative learning model.

A significant increase in learning outcomes and student participation occurred in the experimental class by applying the think pair square (TPSq) cooperative learning model compared to the control class by applying the expository learning model. The high learning outcomes and participation in the experimental class because the application of think pair square learning requires students to be actively involved in seeking and finding answers with their abilities at the think stage, creating an attitude of confidence in expressing opinions and respecting the opinions of other students at the pair and square stage. Through discussion activities and thinking to solve problems together, students can understand concepts and solutions to problems in learning (Ni Made, et al, 2013). While in expository learning in the control class students are not

required to find the material to be studied because the material is presented with facts that are conveyed directly by the teacher (Directorate of Education Personnel in Safriadi, 2017). Think pair square type cooperative learning model is participatory learning that is able to encourage students to be involved in learning activities. It is characterized by the accumulation of knowledge that occurs before and after application. This accumulation occurs because it is easy for students to absorb the material, which is caused by high self-confidence in interacting with one another.

4. Conclusion

Based on the results of data analysis and discussion above, it can be concluded that the think pair square type of cooperative learning model has a role in participatory learning. Besides being able to increase student participation, TPSq learning can improve learning outcomes through the accumulation of knowledge that is increasing due to students' absorption of the material being studied.

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