

# Effectiveness of *Discovery Learning Model Based on Team Games Tournament Assisted with Thematic English Media on Learning Achievement*

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## ABSTRACT

Learning achievement in learning is very important because the success of learning carried out in teaching and learning activities can be seen from student learning outcomes. Learning achievement is the result achieved by students or someone after carrying out learning activities. Thematic learning achievements at SD N 1 Patukangan class IV in 2018/2019 still vary widely. Not all students' Thematic learning outcomes are high or good. There are several Thematic learning achievements that are unsatisfactory. The purpose of this study was to determine the effectiveness of using the *discovery learning* model based on *team games tournaments* assisted by thematic workshop media on student achievement in class IV SD N 1 Patukangan. The method used in this study was a quasi-experimental method with a research design using Nonequivalent [Pre-Test and Post-Test] Control Groups Design (NCGD). The results showed that the experimental class mean was 82.50, while the control class showed a result of 71.09. This shown that the average learning achievement of students in the experimental class is higher than the average learning achievement of students in the control class. The n-gain results in the experimental class show moderate criteria with an average gain of 0.45 while those in the control class show moderate criteria with an average of 0.30. This shows that there is the effectiveness of the *discovery learning* model based on *team games tournament* assisted by thematic workshop media on student achievement.

**Keywords:** *engklek thematic, model discovery learning, team games tournament, learning achievement*

## INTRODUCTION

Learning achievement in learning is very important because the success of learning carried out in teaching and learning activities can see from student learning outcomes. Learning achievement is the result achieved by students or someone after carrying out learning activities. Students try to get the best learning achievement to achieve good performance as well. Student achievement is not only seen from academic grades at school but also seen from the changes in these students, because in teaching and learning activities students experience the teaching and learning process that is obtained when interacting with their environment.

Teaching that does not use appropriate learning strategies tends to be a factor that causes unstable personal development and reduced mental health. These conditions are changed through teaching that aims to develop a healthy and balanced personality, by restoring methods and materials, providing opportunities to succeed confidently, avoiding anxiety, creating situations that allow students to participate based on their wishes and interests. The learning conditions also occurred at SDN 1 Patukangan with the results of observations

and interviews with grade IV teachers at SDN 1 Patukangan Kendal District, Kendal Regency, there were problems, namely: (1) Class conditions were not conducive. In student learning, many students are busy, talk to themselves with their classmates, and do not listen to the teacher's explanation, (2) Lack of teacher mastery of learning models, (3) The media used by the teacher is less innovative, (4) low student achievement.

Researchers were trying to solve problems that occur in SD N 1 Patukangan by providing alternative media-assisted learning models that can increase student learning outcomes on the theme of my ideals. Researchers examine this by using the *Discovery learning*-based Team Game Tournament learning model. According to Hosnan (2014) *Discovery learning* is a model for developing active student learning methods by discovering themselves, investigating on their own, so the results obtained are loyal and long lasting in memory, students will not easily forget. By learning discovery, children can also learn to think analytically and try to solve their own problems.

The learning model that researchers use was learning media, which was that the learning process is more varied and interesting. The learning model supports the *discovery learning* model based on *team games tournament* based on Thematic Workshop.

According to Lestari (2017), *Discovery learning* is a learning model that aims to train students to discover concepts independently. Students learn actively in learning activities by answering questions and solving problems to find a concept. The *Discovery learning* model refers to the process of students being directly involved in experiences and experiments where later they will be able to discover their own knowledge and concepts. So that it can increase student interest because learning is more fun and challenging and not even boring. In *Discovery learning* learning, the material or learning materials are not delivered in a final form, but students are encouraged to identify what they want to

know, followed by searching for information, and then organize or shape what they know and understand in a final form.

Meanwhile, the game in TGT can be in the form of questions written on numbered cards. Each student takes a card that is numbered and tries to answer the question that corresponds to that number. Tournaments should allow all students of all ability levels to contribute points to their group. Games that are packaged in the form of tournaments can act as an alternative assessment or can also be a repetition of learning material. Teams Games Tournament (TGT) is a type of cooperative learning that places students in study groups consisting of 4 to 6 students who have different abilities, gender and syllables or race.

The teacher presents the material and students work in their respective groups. After that each student works in tournament groups. The teacher gives a reward to the initial group that gets the highest score at the end of the game. The teacher gives group worksheets as an evaluation. The assignments given were done together with members of the initial group of students. If there are members who do not understand the task given, then the group member is responsible for providing answers or explaining to other members, before asking the question to the teacher.

Through Thematic Workshop media, students can measure how extensive their knowledge of thematic learning is. The learning process will be more interesting in introducing the spirit of nationalism through games.

This study aimed to test the effectiveness of the *discovery learning* model based on *team games tournaments* assisted by thematic media-assisted workshops in class IV semester 2 of SDN Patukangan.

## **MATERIALS & METHODS**

The method used in this study is a Quasi-Experimental method. quasi-experimental research is quasi-experimental research in

which research subjects are not randomly grouped, but accept the condition of the subject as it is (Ruseffendi, 2006, p. 52). The research design used Nonequivalent [Pre-Test and Post-Test] Control Groups Design (NCGD). In this design the experimental group (A) and control group (B) were selected without random assignment procedure (without random assignment). Both the pretest and posttest were carried out in the two groups, only the experimental group was given treatment (Creswell, 2014, p. 242). Further, from the two existing research groups, namely the experimental class and the control class, they were not chosen randomly, but accepted the condition of the subjects as they were.

In this study, the research samples were fourth grade students at SDN 1 Patukangan with details of the experimental class being class IV B with a total of 37 students and the control class being class IV A with a total of 37 students. The data collection technique used was a test technique to measure learning achievement. students with the test instrument in the form of multiple-choice questions. Data analysis techniques used are trend frequency, sample t-test, independent sample t-test, and n-gain test.

## RESULT

At the beginning of the implementation, class IV SD N Patukangan was given a pretest in the form of multiple choice questions. After being given a pretest, the experimental class was given learning using the *Discovery learning* model based on the *Team games tournament* assisted by Thematic Englek Media while the control class was taught using conventional learning. Participatory observation activities were carried out by the observer on the activities carried out by students while using the *Discovery learning* model based on the *Team games tournament* assisted by Thematic Englek Media. After completion, students are given a posttest in the form of multiple choice questions.

### 1) Frequency of Experimental Class Students' Learning Achievement Trend

The effectiveness of the *discovery learning* model based on the *team games tournament* assisted by crank media on student achievement can also be seen from the pretest-posttest scores of class IV students at SDN Patukangan.

Analysis of the trend of student achievement results before and after participating in *discovery learning* based on *team games tournament* assisted by engklek media also showed an increase. Learning achievement on the results of the pretest there were no students who were in the very good category, 2 students were in the good category with a percentage of 5.4%, 2 students were in the good category with a percentage of 5.4%, 20 students were in the less category with a percentage of 54.05%, and 13 students are in the very poor category with a percentage of 35.15%. After carrying out learning using the *discovery learning* model based on *team games tournament* assisted by crank and posttest media, the results obtained were 10 students who were in the very good category or 27.02%, there were 13 students who were in the good category with a percentage gain of 35.15%, 9 students were in the good category. enough with a percentage of 24.32%, 4 students are in the less category with a percentage of 10.83%, and 1 student is in the very lacking category with a percentage of 2.7%. A more detailed picture can be seen in Figure 1.

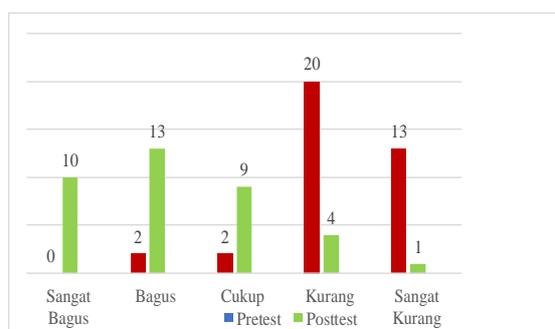


Figure 1 Absolute Frequency of Student Achievement

Based on Figure 1, it seen clearly that student learning achievement is in the very

good category before being given treatment none of the students achieved it, after being given treatment with the *discovery learning* model based on *team games tournament* assisted by crank media there were 10 students who achieved it who reached the good category were 2 people and increased to 13 people after being given treatment. Students who reached the sufficient category before being given treatment were 2 students and increased to 9 students after being given treatment. The category less achieved by 20 students before being given treatment, and being 4 students after being given treatment. Before being given treatment, students who were in the very less category reached 13 people and reduced drastically to 1 student after being given treatment. Based on this, it can be said that there is learning effectiveness using the *discovery learning* model based on *team games tournament* assisted by crank media on student achievement in class IV SD N Patukangan.

## 2) Frequency of Control Class Students' Mathematics Learning Achievement Trend

The control class in this study only used the *discovery learning* model. Analysis of the trend of student achievement in the control class before and after participating in learning using the *discovery learning* model only showed a slight increase. Learning achievement on the pretest results there were no students who were in the very good category, 4 students were in the good category with a percentage of 10.82%, 15 students were in the sufficient category with a percentage of 40.54%, 9 students were in the less category with a percentage of 24.32%, and 9 students were in the very poor category with a percentage of 24.32%. After the learning and posttest were carried out, the results showed that there were no students who were in the very good category, there were 5 students who were in the good category with a percentage of 13.52%, 16 students were in the sufficient category with a percentage of 43.24%, 6

students were in the less category with a percentage of 16.23%, and 10 students are in the very poor category with a percentage of 27.02%. A more detailed picture can be seen in Figure 2.

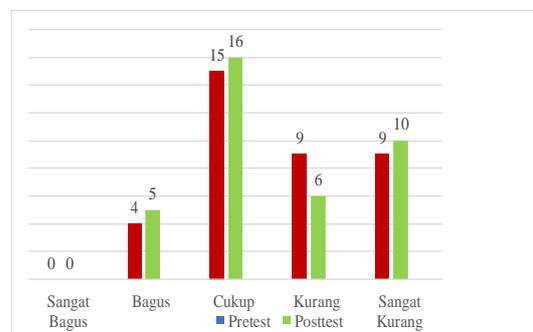


Figure 2 Absolute Frequency Learning Achievement Student

Based on Figure 2, it seen clearly that the learning achievement of the control class students was in the very good category both before and after being given treatment, none of the students achieved it. Before learning, students who reached the good category were 4 people and increased to 5 people after learning. Students who reached the sufficient category, before being given learning as many as 15 students and still 16 students after learning. Poor category was reached by 9 students before learning, and became 6 students after learning. Before learning, students who were in the very less category reached 9 people and reduced to 10 students after learning. Therefore, it can be said that learning with the *discovery learning* model alone is not effective in increasing student achievement.

## 3) Sample t-Test

The results of the sample t-test of students' mathematics learning achievement can be seen in Table 1.

Table 1 Sample t-Test Learning Achievement

Test Value = 70	t	df	Sig. (2-tailed)
	3.004	37	.005

Based on the data obtained in Table 1, it can be seen that the Sig. shows a result of  $0.05 \leq 0.05$  meant that  $H_0$  is rejected, in other words that the posttest average results of student learning achievement classically

have reached the KKM so that it can be said to be effective.

#### 4) Independent Sample t-Test

Differences in the effectiveness of learning with *discovery learning models* based on *team games tournaments* assisted by crank media can be known by conducting a t test. The t test used is the independent sample t-test which is a test of the difference in mean by comparing the posttest results of the control class and the experimental class. The results of the calculation of the independent sample t-test of student achievement between the experimental class and the class can be seen in Table 2 below.

Table 2 t Test Posttest Learning Achievement

Sig. tailed	2	$\alpha$	Mean		Remark
			Experiment	Control	
0,00		0,05	82.50	71.09	There are differences in the average learning achievement

Based on the posttest t-test table above, it can be seen that the significance value indicates the number  $0.00 < 0.05$ . This proved that there was a difference in the average learning achievement of students in the experimental class and the control class after learning is carried out. In the mean box it can be seen that the mean of the experimental class shows a result of 82.50, while in the control class it shown the result is 71.09. This shows that the average learning achievement of students in the experimental class is higher than the average learning achievement of students in the control class.

#### 5) Experimental Class N-Gain Test

The *Gain test* was carried out to find out the difference in the increase in student achievement from pretest to posttest. The results of the *N-Gain test* can be seen in Table 3.

Table 3 Calculation Results of the N-Gain Test

Aspect	Score Total	Average Gain	Category Gain
Learning Achievement	11.142	0.45	Middle

Based on the data in Table 3, it can see that the average N-Gain student achievement shown a result of 0.45 which is in the medium category. The results of the N-Gain calculation for each student can be seen in Figure 3.



Figure 3 N-Gain Experiment Class Learning Achievement

Based on Figure 3, it can be seen that in terms of learning achievement, there were no students who achieved high gain scores, students who achieved moderate gain scores had a percentage of 90%, and students who achieved low gain scores had a percentage of 10%.

## DISCUSSION

The *discovery learning* model based on *team games tournament* is considered more effective than conventional learning using the lecture method. This can be seen from the results of the t test used to analyze the data. Based on the results of the t test, it found that there was an effectiveness of the *discovery learning* model based on *team games tournament*. During learning using the *discovery learning* model based on *team games tournament* students seem enthusiastic in participating in learning. They try their own learning according to the experience they have. Students seem serious in participating in learning by using the *discovery learning* model. In addition, the use of TGT-type cooperative learning has an influence on students' mathematics learning achievement. This is because in the learning process, it emphasizes collaboration between groups to work or discuss understanding information and practice before competition with other groups in tournaments. During the lesson, they were

seen discussing with their group mates in a sporty manner. Therefore, the cognitive learning outcomes obtained by students increased compared to before being given treatment using the *discovery learning* model based on *team games tournament*.

This is aligned with research conducted by Gina (2016) in her research by applying the *discovery learning* model which is an alternative for increasing student learning outcomes, especially in material changes in the form of objects. The increase can be seen from the results of the paired sample t-test which shows that the significant figure shown is  $0.00 < 0.05$ . This proves that there is an influence of the *discovery learning* model ( $X_1$ ) on student learning outcomes ( $Y_1$ ).

Based on the results of the study, it shown that there was learning effectiveness using the *discovery learning* model based on *team games tournament* assisted by crank media on student achievement in class IV SD N Patukangan. This can see from the absolute frequency of student achievement which has shown an increase during the posttest compared to the pretest. In addition, the posttest average results of student achievement classically have reached the KKM so that it can be said to be effective. The results of the t-test show that there is a difference in the average learning achievement of students in the experimental class and the control class after learning is carried out. In the mean box it can be seen that the experimental class mean showed a result of 82.50, while in the control class it showed a result of 71.09. This shown that the average learning achievement of students in the experimental class is higher than the average learning achievement of students in the control class. The n-gain results in the experimental class showed moderate criteria with an average gain of 0.45 while those in the control class showed medium criteria with an average of 0.30. Based on this, it can be concluded that there is an effectiveness of the *discovery learning* model based on the *team games tournament* assisted by crank media on the learning

achievement of fourth grade students at SD N Patukangan.

The *discovery learning* method basically develops active learning students because they were directed to be able to find a concept for themselves that will last a long time in memory so that by itself it can make students confident. increased self-confidence of students who received learning with *discovery learning* methods and conventional learning. The results shown that the increase in self-confidence of students who get learning with *discovery learning* methods is better than students who get conventional learning.

The succeed in this study is supported by research from Rumini (2016) that the application of the *Discovery learning* learning model can successfully improve critical thinking skills and student learning outcomes in mathematics content through its steps. The *Discovery learning* model is a model that can be used and is expected to improve students' cognitive abilities so that it influences student learning outcomes, student responses, and student activities in class. According to Hosnan (2014), *Discovery learning* is a model for developing an active way of learning students by finding themselves, investigating themselves, then the results gained will be loyal and long lasting in memory.

This research is also supported by the results of research from Solihah (2016) the use of the TGT learning model can improve students' mathematics learning outcomes. This statement is also supported by research conducted by Rahmayanti (2007), which stated that the learning outcomes of students who are taught using the TGT cooperative learning model are higher than the learning outcomes of students who are taught using the group training method. Research by Pitriya (2012), stated that the TGT type cooperative method using modules with an average value of 79.69 is better than using worksheets with an average value of 70.78.

The application of the *team games tournament* in this study was packaged in

the form of a tournament that could serve as an alternative assessment or could also be a repetition of learning material. Teams Games Tournament (TGT) is a type of cooperative learning that places students in study groups consisting of 4 to 6 students who have different abilities, gender and syllables or race.

The teacher presents the material and students work in their respective groups. After that each student works in tournament groups. The teacher gives a reward to the initial group that gets the highest score at the end of the game. The teacher gives group worksheets as an evaluation. The assignments given were done together with members of the initial group of students. If there were members who do not understand the task given, then the group member was responsible for providing answers or explaining to other members, before asking the question to the teacher.

This research was also assisted with thematic crank media, during learning using the crank, students always felt enthusiastic and looked very happy. In addition, students also appear to be agile in playing, the Engklek game is carried out by all students in one group alternately, so students must interact with their group mates. It means that the engklek game has implicit values in each game. As written by Nugrahastuti, et al (2013) that the Engklek game has values contained in it, such as discipline, dexterity, socializing and health. As Rochmawati et al (2017) stated that cooperative activities in children can create an attitude of tolerance, respect for the opinions, attitudes and actions of other people who are different from themselves.

During learning using thematic workshops, students do not seem to feel pressured by the teacher in participating in learning, students look happy, the teacher provides full opportunities for students to explore their knowledge during the learning process as long as they do not disturb friends or make noise during the learning process, and students claim to be happy to participate learning by using games. This is aligned

with what was written by Komara (2017) that an indication of enjoyable learning is a pattern of good relations between teachers and students in the learning process. Teachers position themselves as students' learning partners, even in certain cases they do not rule out the possibility of teachers learning from their students.

This is aligned with the learning theory put forward by Piaget, that in the developmental stages of children aged 7-11 years playing is very important for children's learning. Children obtain information after information through their interactions with objects and later this information is structured into a knowledge structure.

Trianto (2010) explained that cognitive development largely depends on how far children actively manipulate and actively interact with their environment. Further explanation according to Nurhayati (2012) that games and toys are very close to the pattern of development of a child's life and even these games will be able to develop children's thinking power indirectly. Piaget encourages teachers to be able to create learning conditions that are able to invite students to learn on their own.

This thematic workshop-based learning activity provides new experiences to students in learning but in game activities that they know. This is in accordance with the learning theory presented by Vygotsky (Trianto, 2010) explaining that learning occurs when children work or learn to handle tasks that have not been studied but these tasks are still within the reach of their abilities. This hopscotch game not only helps students to receive knowledge, but also provides many opportunities for students to interact actively. This is aligned with what was conveyed by Vygotsky, that children do not necessarily master knowledge because of the maturity factor, but rather because of active interactions with their environment.

In addition to Piaget's and Vygotsky's learning theories, workshop-based learning is also based on social and compensation learning theories. Syaikhudin (2013) that

social learning theory means that playing is a means or medium for communicating, socializing, and interacting with other people or other living things. While the compensation theory means that playing as a spare time filler, but now it has become a necessity to get awards or to maintain life.

## CONCLUSION

There was the effectiveness of the *discovery learning* model based on *team games tournament* assisted by thematic workshop media on student achievement. This is evidenced by the results of the absolute frequency of student achievement which has shown an increase during the posttest compared to the pretest. In addition, the posttest average results of student achievement classically have reached the KKM so that it can be said to be effective. The results of the t-test shown that there was a difference in the average learning achievement of students in the experimental class and the control class after learning is carried out. In the mean box it can be seen that the experimental class mean showed a result of 82.50, while in the control class it showed a result of 71.09. This shown that the average learning achievement of students in the experimental class is higher than the average learning achievement of students in the control class. The n-gain results in the experimental class showed moderate criteria with an average gain of 0.45 while those in the control class showed medium criteria with an average of 0.30.

## Declaration by Authors

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