SOUNDS LEARNING USING TEAMS GAMES TOURNAMENTWITH FLASH CARD AS MEDIA AT THE 13th JUNIOR HIGH SCHOOL OF MAGELANG

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ABSTRACT

The aim of this research is to know about students' response and the effectiveness of Teams Games Tournament learning model with Flash Card as media. This research type is Quasi Experimental Nonequivalent Group Design. The subject of the study is the students of 8 E and 8 F of the 13th junior high school of Magelang. The result of cognitive assessment showed that the classical learning achievement was 87% and the gained score was 0.46 which is included in media category. Value of Sig. (2-tailed) of Mann-Whitney U-Test is 0.01. It means that there is significant difference of academic achievement between the experiment group and the control group. The result of affective and pshycomotoric assessments are included in good category at average score 75% and 71% respectively. Correlation among cognitive, affective, and psychomotoric learning achievementswas strong at RScore of 0.684. Students' response toward the learning produced an average score at 74%, and it was included in good category. Based on the result, Teams Games Tournament learning model with Flash Card as media in learning about sounds at the 13th junior high school in Magelang is effective towards the learning achievementand the responses of the 8 D graderstowards the learning is categorized as good.

Keywords: Flash Card, Teams Games Tournament, Sounds

INTRODUCTION

A material about sounds consists of two teaching parts, physics part which discusses the concept of sounds and biology part which is discusses the sense of hearing. The basic competence that will be achieved is that the students are able to describe the concept of sounds in daily life of human senses and the relation to health. When reviewing previous studies, the material about sounds has obliged the students to memorize the theories and formulas. It causes the students to stumble upon great difficulties in understanding the concept and ultimately they feel uninterested in learning. Therefore, the students' learning achievement is still low.

That was proven by files of students' test score in the material about sounds in eighth grade in second semester for academic year 2013/2014 in the 13th junior high school of Magelang was 69. That score has not yet fulfilled the minimum score criterion, 75. The learning which should be done is a learning which is appropriate to BSNP instruction and based on direct experience or a fact. It is because the material related to the students' daily life, especially to the sense of hearing. The effort in creating it is by doing some varieties of learning method and using learning media.

Applying a variant learning method can increase the interest of the students in order they are actively involved in learning process, so the aims of learning is achieved. If a variety of learning method is conducted in a class, it will create a learning model. In learning process, a game is

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needed in order the students are not bored because the learning is fun. Classical, discussion, problem solving, demonstration are some appropriate learning methods for the material about sounds. A learning method which includes the four methods and a game is Teams Games Tournament (TGT).

TGT learning model is one of cooperative learning model which is easy to be applied. It involves the students without the difference of status. It also involves the role of students as a peer-tutor. Besides, there is a reinforcement factor in the game. Learning activities with a game which are designed in TGT cooperative learning method enable the students to learn in a relaxing situation beside increasing responsible, cooperation, healthy competition, and learning involvement (Slavin, 2005). Competitive factor is needed in learning to increase students' learning motivation. Muldayanti (2013) conveyed that tournament system and group assessment in TGT learning model makes the students become more interested and triggered. The students will do the best to win the competition on the tournamnet's table. The result of the previous study which was conducted by Van Wyk (2011) showed that TGT learning model was more effective towards learning achievement rather than traditional learning model.

The implementation of TGT learning model can adopt a learning media as an aid instrument in learning process. A learning media can handle the limitation of the senses, spaces, and times (Arsyad, 2013). Abstract materials can be more concretely delivered, so the students can easily understand a concept. Sub material of sounds, the sense of hearing, is an abstract material because the students have not gotten a direct experience to observe the inner parts of ears. One of media which can be used to visualize is Flash Card media.

Flash Cardis one of learning media as well as educative game in form of cards which there are a picture and a word to increase their memory and train their autonomy (Ikhwati *et al*, 2014). Education game can trigger the students to be more active then they are motivated to learn (Rohwati, 2012). This media of 2 dimensions things can visualize and ease the students to understand the sense of hearing concept because they are simple and removable. It can give the students a chance to learn by themselves wherever and whenever, so they can increase their autonomy to learn. The students who do self-learning can improve their responsibility towards their learning activities.

Based on the explanation above, teacher should apply a fun learning to triggereffective learning achievement of the students. It is entitled "Sounds Learning Using Teams Games Tournament and Flash Card Media at 13th Junior High School of Magelang". The aims of the research is to explain the effectiveness and students' response towards sounds learning using Teams Games Tournament and Flash Card media at 13th junior high school of Magelang.

METHOD

The type of the research is Quasi Experiment Non-Equivalent Control Group Design Research (Sugiyono, 2010). This research was conducted at the 13th junior high school of Magelang in April 20-30, 2015. The subject was choosen using purposive sampling technique. The subjects are 8 E graders as the experiment group which was taught using TGT learning model and Flash Card as media, whereas 8 F graders as the control group were taught using classical (speech) method and LDS.

The obtained data of this research was the students' learning achievement and questionnaires of students' response towards TGT learning model with Flash Card. The students' learning achievement was assessed in 3 aspects, cognitive, affective, and psychomotoric. The score of cognitive aspect was obtained with pretest and posttest. The score of affective and psychomotoric aspects was obtained with observation method. All of the scores were analyzed by using correlation analysis in order to find the relation among the students' learning achievement.

The effectiveness of TGT learning model with Flash Card toward the learning achievement is examined with three indicators. They are classical learning completeness $\geq$ 75%, the gain score is categorized media and there is significant difference between the learning achievement average of the experiment group and control group. The analysis which has been done showed that classical learning completeness and gain score were categorized media. It was analyzed with g test. Besides, it showed that there was significant difference between the learning achievement of experiment group and control group which was analyzed with *Mann-Whitney U-Test*. The questionnaire result about the students' response documented to be explained in descriptive percentage.

RESULT AND DISCUSSION

The experimental research aims to find the

students' response and the effectiveness of TGT learning using Flash Card medium towards the learning achievement. This research uses two classes as the sample, experiment class and control class. The learning used in experiment group is TGT learning model with Flash Card media, whereas the learning used in control group is classical method (speech) with Student Discussion Sheet (LDS). The cognitive score is measured from post-test score and LDS score. In other hand, the score of affective and psychomotoric is measured from the students' attitude and skill in learning. The used questions instrument is written based on the learning objective and the level of cognitive questions. Trying out of the questions is needed to find the validity, reliability, difficulty level, and the ability of differentiating the questions before used to conduct test.

This research can be called effective if it fulfill three indicators:
a. Classical learning completeness ≥ 75% with Minimum Completeness Criteria of 70.
b. Gain score is categorized media.
c. There is significant difference between the learning achievement average of experiment group and control group.

Students Response

The questionnaire about the students' response used to find the acceptance of the students towards TGT learning model with Flash Card as media. The analysis of the students' response uses Likert scale which consists of 20 questions. The result of the students' response questionnaire towards TGT learning model with Flash Card are described in table 1.

Recapitulation of the students' response showed that the students of experiment group responded well to TGT learning model with Flash Card as media with average score 74%.

1. Analysis of Learning Achievement
a. Cognitive Learning Achievement

Analysis of cognitive learning achievement aims to find the students' ability in material of sounds after apllying TGT learning model with Flash Card. The result of the last evaluation score analysis is in Table 2.

Table 2. The Result of the Last Evaluation Score Analysis

Learning Achievement	Class	
	Experiment	Control
Total of Students	30	26
Posttest Average Score	74	63
LDS Average Score	87	85
Lowest Score	66	56
Highest Score	93	82
Last Average Score	78	70

Based on Table 2, it is known that the experiment group had higher last evaluation score than the control group's score, 78 against 70. The different score happened because the implementation of the different learning model between experimental group and control group. TGT learning model with Flash Cardwas appliedexperimental group, whereas the control group was applied classical method (speech) with LDS (Student Discussion Sheet). The learning of sounds had a competitive factor and game because we applied an education game, the Flash Card. The media can help the students to understand the material and the important questions given by them. It will build cognitive knowledge of the students in long-term.

Long-term knowledge will ease the students to answer a test, so the learning achievement of the students increases. It is appropriate to constructivisme learning theory; students learn the ways to learn somethings by giving some practices to increase learning interest and to trigger the students' active involvement in learning. An un-

Table 1. The Result of the Students' Response Questionnaire

No	Asked aspects	Students' response (%)			
		SS	S	TS	STS
1	Catching the students' interest	23,3	73,4	-	3,3
2	Making the students conclude and taking the important idea about the delivered material	13,3	70	13,4	3,3
3	Making the students easily memorize the material of sounds	23,3	56,7	13,3	6,7
4	Making the students closer each others when discussion	33,3	43,4	20	3,3
5	Increasing the students' curiosity	23,3	56,7	20	-

sure of game that is in TGT learning model with Flash Card enables a fun learning. A fun learning will increase the students' motivation and passion in learning, so the students learning achievement will increase. That is proven by 96.7% of students being interested in learning when learning model with Flash Card is applied. The previous study conducted by Rohwati (2012) showed that Education Game can help the students to be active, so it motivates them to learn.

b.   Affective and Psychomotoric Learning AChievement

Figure 1 showed that the students of experiment group have higher affective score in each aspect rather than the control group. The students are given responsibility to collect points for their group when doing the game and tournament. The students are also trained to respect to other students' thought, and being discipline when their friends are conveying their opinion during the discussion and tournament. That showed that TGT learning model can help the students to increase their cognitive and affective learning achievement. That is supported by the study which was conducted by Veloo & Chairhany (2013) that stated that TGT learning is an alternative learning approach which can improve attitudes.

The affective learning achievement conducted in three meetings is described in Table 3. It showed that experiment group got a higher average of the affective learning achievement rather than control group. The affective learning achievement using TGT learning model with Flash Card media increased from a score 70% to 79%, and it was categorized good. The conducting of the game and tournament did not only help the students to understand the concept, but it can increase the students learning activities related to the affective learning achievement. Fajri *et al* (2012) explained that TGT learning increased the students' learning achievement related to increasing learning completeness and the students' affective achievement.
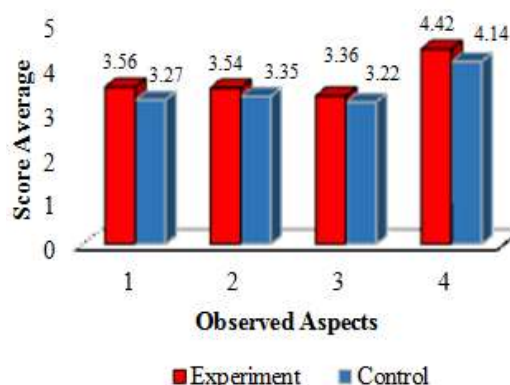

Figure 1. The Result of Affective Score Analysis
Note:
1   : Responsibility
2   : Attitudes
3   : Respect to others' thought
4   : Discipline

Table 3 shows that mean for creative thinking in treatment class is higher than control class. Mean values of creative thinking in treatment class was 14.32 while the mean values in control class was 11.79. It shows that there is significant difference in the mean value of 2.52. This results shows that the students in the treatment class underwentimprovement in creative thinking.

Table 3 and Picture 1 showed that experiment group got better psychomotoric learning achievement than the control group. The implementation of TGT learning model with Flash Card media trained the students to be braver in conveying their thought. Syntax discussion, game, and tournament enabled the students to convey their thought in front of class, so the students' communication skill and questioning-answering skill improved. Asking and answering section can be conducted when discussing LDS (Student Discussion Sheet) and applying Flash Card media. The students will learn from their self experience to improve their own ability.That showed that TGT learning model can increase the students' psychomotoric learning achievement which was appropriate to recapitulation result which sho-

Table 3. The Result of Persentage of Affective and Psychomotoric Score Analysis

Data	Experiment		Control	
	Affective	Psychomotoric	Affcetive	Psychomotoric
I	70	67	69	60
II	75	71	73	64
III	79	74	76	70
Average (%)	75	71	73	65
Criteria	Good	Good	Good	Good

wed the increase from 67% to 74%, included in good category. This opinion was supported by the study that was conducted by Van Wyk (2011) who stated that TGT learning model made the students not only learning the concept, but also the important skill such as searching, planning, discussion, negotiating, quickly making decision, and criticizing their own learning experiment.
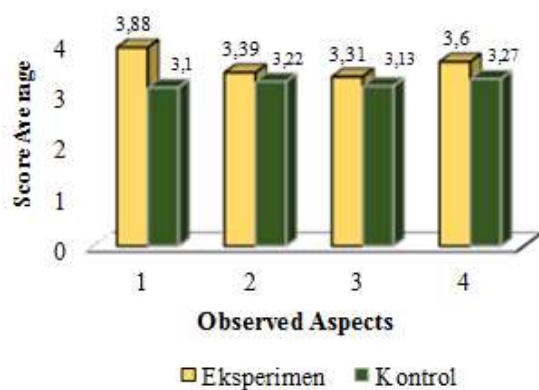

Figure 2. The Result of Psychomotic Score Analysis
Note:
1 : oral communication skill
2 : discussion skill
3 : answering question skill
4 : concluding discussion result skill

c.   Learning Achievement Correlation

The correlation among cognitive, affective, and psychomotoric learning achievements were analyzed with correlation test which showed that there was a correlation among cognitive, affective, and psychomotoric learning achievements. It was described in Table 4. R Score was 0.684 which showed that the correlation was strong. The implementation TGT learning with Flash Card media can increase the learning achievement as well as cognitive, affective, and psychomotoric The result of good cognitive learning achievement will appear some attitudes such as: paying attention to teacher's explanation and being discipline in following the learning process. It is supported by the study of Jayanti and Ridlo (2014) which conveyed that IQ had a significant role in influencing the human attitudes and behaviors included in the students' attitude in social adaptation in school environment.

The correlation between cognitive and psychomotoric achievement can be seen from oral communication skill result. The students who have oral communication skill will be able to communicate clearly, systematically, and flu-

ently, and have good dictions. The study of Burhanuddin (2012) supported the explanation by describing that oral communication skill is a skill which clearly arranges the mind and being able to competently use through words to convey their thought in form of speaking, writing, and reading.

Table 4. The Result of Learning Achievement Correlation Test

R	Sig. F Change	Description
0,684	0,000	There's a correlation

2.   Effectiveness Test
a.   Classical Learning Completeness

Classical learning completeness which is described in Table 5 showed that the learning completeness of experiment group is 87%, whereas the learning completeness of the control group is 54%. The implementation of TGT learning model has teacher's presentation and discussion in which enables the students to catch and conclude the learned main idea. Flash Card media used in syntax game and tournament help the students to measure how far they understand the material and help them to remember the learned material. 13% of the students' total of experiment group that did not pass showed that the students had not been able to catch the main idea of the material, so the students tended not being able to remember well the learned material. The students response questionnaire showed 16.7% and 20% answered that they had not been able to catch the main idea and remember the learned material. Based on the explanation, TGT learning model with Flash Card media is able to improve the students' understanding through the ability of catching the main idea of the material. This opinion is also supported by the study of Awofala *et al* (2012) which stated that the implementation of TGT learning model is able to increase the students' understanding towards the material.

Table 5. The Result of Classical Learning Completeness Test

Data	Class	
	Experiment	Control
Total of Students	30	26
Complete Students	26	14
Incomplete Students	4	12
Description	87% Complete	54% Complete

b. Gain Test

The result of gain test which is described in Table 6 showed that the gain test score of experiment group was higher, 0.46, than the control group, 0.36. The use of learning media is the cause of the higher gain score of experiment group. The students learned the material about sounds using the sense of seeing to get the real description about the material which will be learned, and the sense of hearing to understand the knowledge concept through the teacher's explanation.The concept of ears is an abstract concept, so it needs Flash Card media to visualize the concept. The picture of ears structure which is described on Flash Card helps the students to remember and understand the parts of the ears and their functions. Arsyad (2013) conveyed that learning media can solve the limitation of the senses, spaces, and times.

c. The Difference between the Average of Learning Achievement

The result of analysis done by *Mann-Whitney U-Test* showed that score of *Sig. (2-tailed)* was0.01in which it waslower than its significance standard, 0.05. It meant that there was a significant difference of average between the experiment group and the control group. TGT learning model can increase the students' self-esteem and solidarity through discussion. It caused the students' activity increased in which appeared in syntax of the game and the tournament. It showed that the students competed to get a score by answering the question on Flash Card which was read by the teacher. An unsure of competition can trigger the students' passion in learning. 86.6% of the students felt that they are more interested in learning Natural Science when TGT learning model with Flash Card media was applied. The control group in which the learning using classical method (speech) tended passive, so the learning achievement was less optimal because there was not a challenge which can trigger them to learn.

This opinion was supported by Susilowati (2014) in her study which explained that TGT learning model was more effective than teacher's speech.

The effectiveness of the research is measured by three indicators. They are classical learning completeness $\geq$ 75%, gain test categorized media, and the significant difference between the average of learning achievement between experiment and control group. An analysis which was conducted showed that classical learning completeness of the students was 87%, and gain test score was categorized as media using g test. *Mann-Whitney U-Test* proved that there was a siginificant difference between the average of the experiment and the control group. So, this study is effective towards the learning achievement.

In sounds learning using TGT with Flash Card as media, the students are asked to focus in understanding the material during the presentation of the material about sounds which is delivered by the teacher. It aims to make the students being able to answer the questions given when doing the competition. Then, the teacher divides the students into a small group consists of 4-5 members. Working in group will make the students closer each others. 76.7% of the students felt closer with their friends after the implementation TGT learning model with Flash Card as the media. Each group will do LDS (Student Discussion Sheet) which is given by the teacher. This activity can cause an interaction among students by sharing their idea, giving a chance to convey their opinion, and the students who understand to the material can help the students who have not understand.

The game and the tournament is conducted by using Flash Card. A media in form of cards which are written questions about sounds can measure the students' understanding of the sounds concept after doing and understanding the material and discussion. It is supported by Glover *et al* (2010) who conveyed that playing process of

Table 6. The result of Gain Test

Class	Data	*Pretest*	*Posttest*	Gain	Criteria
Experiment	Students' Total	30	30	0,46	Medium
	Means	51	74		
	Highest Score	72	92		
	Lowest Score	36	56		
Control	Students' Total	26	26	0,36	Medium
	Means	41	63		
	Highest Score	72	80		
	Lowest Score	28	40		

Flash Card is not only effective, but also it is easy to be used to conduct a learning process and as a tool to monitor.

The apply of Flash Card in a game and a tournament will make the students more remember and understand the material about sounds because the media in form of educative card with simple and clear content. Giving a score for the students who can answer the question on Flash Card will give a fun situation and competitive environment, so it creates a meaningful learning. The students' curiosity also will increase when a meaningful learning is created. The students will often ask to the teacher or browse some literatures related to the material which they have not understand, so the students can be active when learning process. 80% of the students felt that their curiosity increased after the implementation of TGT learning model with Flash Card as the media. The study of Trency *et al* (2012) showed that this media created an enthusiasm and pleasure during the learning in class, and the students participated well. Besides, Komachali& Khodareza (2012) in their study stated that a meaningful learning will create and solve the students' problems in learning.

Every student who can answer correctly the question on the card will contribute a score for their group and them selves. It can catch the students' attention to more active in learning in order to get the highest score in the competition. Recognition of additional score of discussion for the group that got the highest can increase the students' passion to win the game of the tournament in each meeting. The observation of the researcher showed that in each game and tournament, the students raise their hand enthusiastically to answer the question on the Flash Card. Syahrir (2011) supported the opinion, in the study he stated that the students which were given recognitions will desire to learn, finish the task, and get a learning achievement.

CONCLUSION

The conclusion of this study is Teams Games Tournament learning model and Flash Card as media in learning about sounds at the 13th junior high school in Magelang is effective towards the learning achievement, and the responses of the 8 D graderstowards the learning is categorized good.

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