



The Influence of the TGT Model Based on the Kahoot on Students' Higher Order Thinking Skills in Mathematics Learning

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Abstract

This study is a literature study with a qualitative type of research with library research which aims to investigate the effect of using the Teams Games Tournament (TGT) learning model based on the Kahoot application on the development of students' Higher Order Thinking Skills (HOTS). In this study the author used various written sources such as journals, articles and documents relevant to the topic of this study. Where the data collection method used is reading, identifying and analyzing which then categorizes, classifies and describes the data. The study results show that the learning model using the Kahoot application has a significant influence on improving students' higher order thinking skills in learning mathematics. Furthermore, teaching materials using the Teams Games Tournament model based on the Kahoot application can be developed to encourage students' Higher Order Thinking Skills (HOTS).

Keywords:

Higher Level Thinking Skills, Kahoot, Teams Games Tournament

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1. Introduction

1.1. Background

The quality of learning and education can be improved with the role of teachers. Teachers can do various things to improve the quality of learning and education. Improving the quality of learning can be done from various improvements in education. One way that can be done is to increase student competence. Student competency can be assessed from the student's learning abilities. In the 21st century, student learning skills that are really needed include critical thinking, creative thinking, and problem solving. These abilities are usually known as HOTS (Higher Order Thinking Skills) abilities. According to Musrikah (2018), this Higher Order Thinking Skill consists of 2 skills, including critical thinking and creative thinking. Both ways of thinking involve higher order thinking activities. Apart from that, according to Brookhart (2010), it consists of logical and reasoning abilities, analyzing, evaluating and creating, solving problems, and making decisions.

According to Musrikah (2018), higher order thinking skills (HOTS) can be taught and implemented to students in the world of education. Because students can be trained and improve their high-level thinking abilities. Saraswati, et al have stated that the results of the analysis carried out on several students show a tendency for students to have sufficient HOTS thinking abilities and tend to be low in working on questions in the cognitive domain in C6, namely creating.

One learning method that can be used to improve HOTS abilities is cooperative learning. Cooperative learning itself is learning where a number of students are divided into small groups where later these small groups can discuss and solve problems to improve HOTS abilities. One application of cooperative learning is the Teams Games Tournament model. With this TGT model, it can provide a pleasant atmosphere for students, is easy to apply in the classroom and can make students play an active role in learning. This TGT model can also create an interactive learning environment, opening up access

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to discussion, both between students and fellow students, as well as students and teachers. With the Teams Games Tournament model, learning begins with a group of students discussing solving existing tasks or problems, then group representatives represent their groups to compete and compete with other groups. Fellow groups compete to get scores or grades for their own teams.

One application of this TGT model is using the Kahoot! Kahoot! is a game that allows teachers to create and present a quiz containing mathematical problems presented in a game. In learning to use Kahoot! This is already a point in the game. In this game, groups of students can be given tasks or problems that can be solved by discussing as a group and can make the group compete to get the highest points.

1.2. Problem Formulation

Based on the above background, the problem can be formulated as follows.

- Do you use TGT learning model with the Kahoot! can this improve students' hot skills?
- How to implement and apply Kahoot! in improving students' hot skills?
- What is the influence of TGT models on students' HOTS abilities?

1.3. Purpose

Based on the formulation of the problem, the objectives of this research can be written, among others.

- Know that TGT learning model with the Kahoot! can this improve students' hot skills.
- Know that implement and apply Kahoot! in improving students' hot skills.
- Know the influence of TGT models on students' HOTS abilities.

2. Methodology

This research is a generalization of several classroom action studies that have been conducted previously. There is 4 researchs that explains the effectiveness of using the Kahoot Application for learning using the Team Games Tournament (TGT) learning model and there is 2 researchs that explains the effect of learning using the Team Games Tournament (TGT) learning model on high level thinking abilities (HOTS) student. The 6 researchs was collected through searches on Goggle Scholar, so that previous research has been published in journals or proceedings indexed by Goggle Scholar. The results of the research used for generalization purposes are conclusions on the application of using Kahoot in TGT learning and the application of TGT learning to improving students' high-level thinking abilities. The research results were analyzed using meta analysis techniques.

3. Result and Discussion

After conducting a literature test on the use of Kahoot games in team games tournament modeled learning to improve students' higher order thinking skills (HOTS). **Table 1.** presents several studies and their conclusions regarding the effectiveness of using Kahoot games in learning with the TGT model and **Table 2.** presents several studies and their conclusions regarding the effect of TGT modeled learning on students' higher order thinking skills.

Table 1. The characteristics of the table are analyzed regarding the implementation of using Kahoot in learning using the TGT model.

The Author	Year	Country	Research Objective	Participants	Design and Data Collection Methods	Result	Implications
Nasution	2022	Indonesia	Testing the ADDIE	20 Mathematic	The data collection	While the field trial	Learning using the

, H.	learning method (a combination of Canva and Kahoot) in improving problem solving abilities. With, oriented towards the TGT learning model.	s Students in SMAN 10 Medan	method was carried out using a test on Kahoot for 20 participants, consisting of a pre-test and post-test. As well as a satisfaction questionnaire with the media and models developed.	which was attended by 20 students towards the ADDIE learning method oriented towards the TGT learning model has a fairly high level of interest. Apart from that, this learning model is able to improve mathematical problem-solving abilities, although not significantly enough. So, this learning method is suitable for implementation in learning.
				For problem-solving ability, the result (g) = 0.7 which is included in the Medium-(g) category is an increase but not significant

Pello, A. C. S.	2018	Indonesia	Teaching the topic of quadratic equations to class X students using cooperative learning with the TGT learning model assisted by Kahoot media.	20	Mathematics Students in SMAN 10 Medan SMA IPH 2 Surabaya	The data collection method was carried out using the Kahoot test for 16 participants consisting of a pre-test and post-test on the ability to solve quadratic equation problems to experiment class and control class.	The average increase in learning outcomes in the experimental class was greater than the average increase in learning outcomes in the control class. This means that towards TGT type cooperative learning assisted by positive Kahoot media.
Munir, A. M., & Darmant o, E.	2022	Indonesia	Analyze how the effect of the TGT-assisted Cooperative Learning Model on the mathematics learning outcomes of fifth-grade elementary school students	98	students of class V Elementary School in the Ahmad Yani Cluster.	The research is a quantitative study with a quasi-experimental research design in the form of a non-equivalent control group design.	The Quizizz-assisted TGT Experiment Class with a sample of 30 students obtained an average pretest score of 53.53, the highest score was 72 and the lowest score was 33. As presentation for the post-

					test, the class V average Elementary score was School. 81.93, the highest value is 100 and the lowest value is 67.
Putri, D. 2022 O.	Indonesia	The research aims to analyze the effect of using the TGT learning model using Padlet and Kahoot media on students' critical thinking abilities.	60 students of class VIII Junior High School in the SMP N 13 Magelang	The research used a quasi- experimental design with a Non-Equivalent Control Group Design type. This exploration was directed using two meetings, namely the trial and control classes. The trial class will be treated to the Teams Games Tournament (TGT) learning model using Padlet and Kahoot as supporting media.	Research II has The use of the differenc Teams Games es in the posttest (TGT) scores of experim ental class and control class students in the use of learning models and media. The magnitu de of the influenc e given in this research is classifie d in the high category with evidence from the N-Gain

	test of 0.71 in the experim ental class and the medium category with a value of 0.51 in the control class.
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Tabel 2. The characteristics of the table are analyzed regarding the implementation of the TGT learning model to improve students' high-level thinking abilities.

The Author	Year	Country	Research Objective	Participants	Design and Data Collection Methods	Result	Implications
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Lestari, I., 2019 Shoffan, S., & Suryaning tyas, W.	Indonesia	Describe the developmen t of learning devices with the TGT- HOTS type cooperative model on trigonometr y material for class X SMA Muhammad iyah 4 Surabaya.	28 students of class X Senior High School in the SMA Muhammadiyah 4 Surabaya.	Data regarding the results of the study were collected using the device quality observation sheet and the validity sheet in developing TGT-STEAM teaching media.	Cooperati ve learning type TGT HOTS (Teams Games Tournament- High Order Thinking Skill) Tournamen t-High Order Thinking Skill) on trigonom etry material in class X SMA Muhamma diah 4 Surabaya using the ADDIE developm ent model shows that 85.71% of students are complete in solving HOTS problems.	TGT HOTS (Teams Games Tournament- High Order Thinking Skill) cooperative learning using ADDIE development model is effective to familiarize students in solving HOTS problems.
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Apriliyant i, F.	2023	Indonesia	Improving HOTS skills through the Team Games Tournament model for elementary school students can improve their learning outcomes.	39 students of class III Elementary School in the SD Muhammadiyah 04 Batu.	The research was conducted by using a type of Classroom Action Research (PTK), where data was collected through HOTS questions.	The percentage of cognitive activities in cycle I was 70% and in cycle II was 92%.	The Team Games Tournament model can improve student learning outcomes. The activities that take place can be applied to elementary schools by developing the creativity of teachers in packaging learning so that it can attract students.
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Based on the literature review conducted by the researcher on **Table 1.**, the research generally agrees that learning with the TGT learning model can be done with the help of Kahoot games. Based on Nasution's research (2022), this learning tends to get a very positive assessment from students where this positive assessment itself will certainly have a good impact on student achievement. The use of good learning media can contribute 32.89% to the improvement of students' mathematics learning outcomes (Tumangkeng, 2018). In a study conducted by Munir & Darmant (2022) it was also shown that learning using the TGT method with the help of the kahoot game can increase learning achievement where it can be seen from 98 students that the average class score increased dramatically by 28.4 points. Not only is it always about improving higher-level thinking skills, but based on research conducted by Putri (2022), learning using the Kahoot application using the TGT approach can help students improve critical thinking skills. Thus, it can be concluded that the Kahoot game is suitable for use in TGT-modeled learning.

Based on the research in **Table 2.**, it is presented that these studies largely agree that learning using TGT can improve students' higher order thinking skills. Apriliyanti (2023) revealed in her research, that the cognitive thinking ability of elementary school students on HOTS questions wrapped using TGT modeled learning increased to 92%. In another study conducted by Lesstari, et al. (2019), it was concluded that TGT-HOTS learning (TGT-modeled learning focused on HOTS questions) can improve students' learning achievement in the classroom. So in this case it can be concluded that learning using TGT is able to significantly improve students' critical thinking skills and improve student achievement in the classroom.

Based on the two analyses above, it can be concluded that Kahoot games can be used as media for TGT learning and TGT learning can be used to improve students' higher order thinking skills and improve their learning achievement. In this case, it can be concluded that Kahoot game can be used to improve students' higher order thinking skills (HOTS) by using team games tournament (TGT) modeled learning

4. Conclusion

Based on Study literature that we get, it can be concluded that Kahoot games can be used as media for TGT learning and TGT learning can be used to improve students' higher order thinking skills and improve

their learning achievement. In this case, it can be concluded that Kahoot game can be used to improve students' higher order thinking skills (HOTS) by using team games tournament (TGT) modeled learning. With learning that uses the TGT model students can solve problems in groups, in these groups they can act as a forum for peer tutors, they can discuss together to solve problems and this can be used to train higher order thinking skills. Using the Kahoot! The TGT model of learning also has an impact, namely that students can feel more challenged and compete to get high points, This makes students more willing to try to improve their HOTS skills.

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