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Systematic Literature Review: Impact of the Teams Games Tournament Model on Conceptual Understanding

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Abstract
This study was conducted to determine the effect of the Teams Games Tournament model on conceptual understanding. The purpose of this study was to determine the effect of the Teams Games Tournament learning model on conceptual understanding. This study uses the systematic literature review (SLR) method, employing a review procedure focused on selected reporting items for systematic review. The method involves reviewing various journal articles on Google Scholar from 2019 to 2025, using the keywords "Teams Games Tournament learning model" and "conceptual understanding ability." A total of 985 articles were identified, with 26 main articles selected for use. The review process consisted of three stages: Planning, Conducting, and Reporting. The results of this study indicate that the Teams Games Tournament learning model has an impact on conceptual understanding ability. These findings suggest that the Teams Games Tournament learning model is effective in enhancing students' conceptual understanding ability. It is hoped that future researchers will not limit their focus to Google Scholar alone.

Keywords
conceptual understanding; systematic literatur review; teams games tournament

INTRODUCTION

A learning model is a systematic procedure for achieving learning objectives that organizes learning experiences (Astuti et al., 2022). According to Suwarno (2019), a learning model is an effort designed to facilitate the learning process of students. Using models and media is expected to improve student understanding and outcomes Ulfia & Irwandani (2019). The learning model used should engage students and encourage their active participation. One such model is the TGT cooperative learning model.

The TGT (Teams Games Tournament) model presents material first, followed by questions for students Amri (2022). According to Diah dan Siregar (2023), the TGT cooperative learning model encourages students to collaborate in small groups through games. In line with Nadia (2025), the TGT learning model includes games and academic tournaments. These games are designed to make students more active and improve their conceptual understanding.

Conceptual understanding is one of the most important stages (Abidin, 2020) Additionally, conceptual understanding is the foundation for grasping principles and theories; therefore, before understanding principles and theories, students must first grasp the underlying concepts (Diana et al., 2020). The main emphasis of mathematics learning is on how students can better understand mathematical concepts. Conceptual understanding is the process of comprehending learning material; students not only know the material, but can also articulate the concepts in an easier-to-understand way (Hulu et al., 2023). According to Duffin and Simpson in Kesumawati, conceptual understanding is the ability to rephrase what has been communicated and develop consequences of a concept in various situations (Yulianah et al., 2020). It is also the ability to solve mathematical problems correctly. Furthermore, Maure (2020) states that conceptual understanding is an individual's ability to grasp the meaning of a concept by rephrasing it and connecting it to existing knowledge.

Research has been conducted on the impact of the TGT learning model on conceptual understanding. For example, (Arifin et al., 2020) conducted a study at the elementary school level investigating the effect of the TGT learning model on elementary students' mathematical conceptual understanding. The results showed that applying the TGT learning model influenced elementary students' conceptual understanding of mathematics. The data analysis revealed that the experimental class's average posttest score was higher than the control class's, at 85.39 and 80.00, respectively. These results were reinforced by hypothesis testing (t-test) with a p-value of $0.003 < 0.05$.

The study aimed to determine the effect of the TGT method on students' conceptual understanding. The results of this study are expected to contribute to the understanding of the effect of the TGT learning method on conceptual understanding.

METHOD

Researchers employed the SLR (systematic literature review) method, focusing the review procedure on selected reporting items for systematic reviews and meta-analysis frameworks (PRISMA). They used the SLR method to identify, evaluate, and interpret all previous research results (Nurjanah et al., 2025). The SLR process consists of three stages: Planning, conducting, and reporting. The planning stage involves the research question and the literature used. The second stage, conducting, involves searching for articles using SLR and keywords related to the research topic: TGT (Teams Games Tournament) and conceptual understanding ability. The final stage, Reporting, involves writing about the results of the articles used.

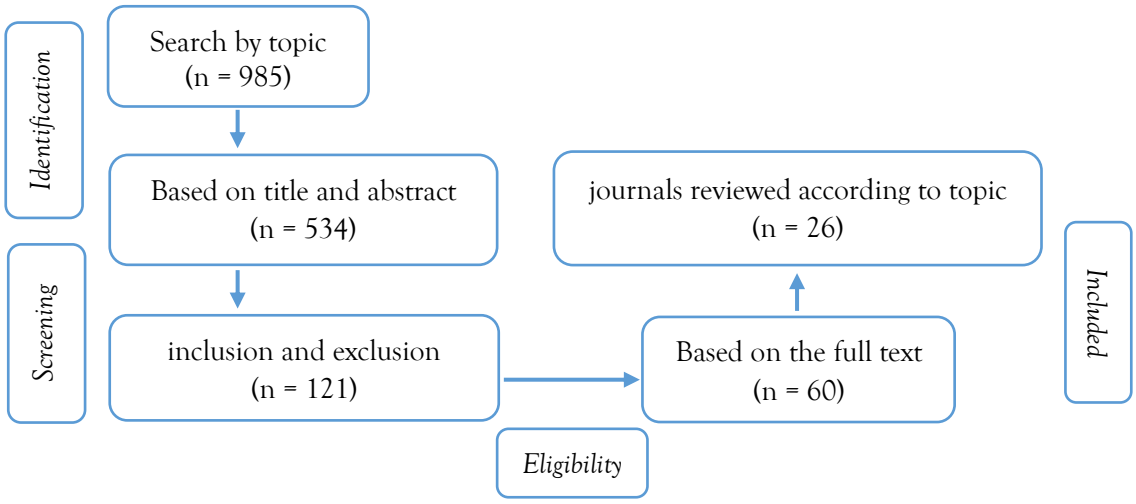

Figure 1. PRISMA Procedure

The author used various journal articles from Google Scholar. The articles searched for and used in the study were categorized as being from the last six years (between 2019 and 2025) and relevant to the topic of discussion: the critical thinking skills of mathematics students when solving contextual problems. The article data were collected, and the next steps were carried out. Based on PRISMA, 985 journals were identified. These were then filtered based on titles and abstracts, reducing the number to 534. Further filtering according to the inclusion and exclusion criteria yielded 121 journals. Full-text filtering yielded 60 journals. Of these, 26 were deemed relevant. Twenty-six main articles were ultimately chosen for further analysis to draw conclusions based on the results.

RESULT AND DISCUSSION

The research results were obtained from an analysis of several articles that were selected according to a predetermined plan. The data were obtained from articles found on Google Scholar related to the main topics of the TGT learning method and conceptual understanding abilities. This study used a total of 26 articles, all of which examined the influence of the TGT method on students' conceptual understanding abilities at the elementary/MI and junior high/MT levels.

Table 1. Analysis of Articles on the Influence of the TGT Learning Method on Concept Understanding

Years	Number of Articles
2025	3
2024	4
2023	3
2022	3
2021	2
2020	5
2019	6

Effect of the TGT learning method on conceptual understanding abilities in elementary/MI schools

An analysis of several articles on elementary and MI levels revealed that learning using the TGT method improves concept understanding, as demonstrated by increased student scores during classroom learning. The results of reviews of research articles on the effect of the TGT learning method on concept understanding at the elementary/MI levels are presented below:

Table 2. Example of Article Analysis of the TGT learning method on concept understanding at the elementary/MI level

Research Title	Journal Name	Research Method	Research Results
The Effect of the Teams Games Tournament (TGT) Cooperative Learning Model on Learning Motivation and Mathematical Concept Understanding (Avivah & Suryaningrat, 2019)	Social, Humanities, and Education Studies (SHEs): Conference Series	Quasi-Experimental	Based on the post-test results, the average score of the experimental class was higher than the average post-test score of the control class at a significance level of 5% or = 0.05 based on the t-test value of 2.176, while the t-table value at a significance level of 5% was 2.01. Thus, it can be concluded that students' conceptual understanding can be improved with the TGT

			cooperative learning model.
Application of TGT Assisted by Traditional Games to Improve Conceptual Understanding and Cooperation in Food Chain Material (Azhari & Sarwi, 2025)	Pendas: Journal of Basic Education	Meta-analysis	Based on the research results, the synergy between TGT and traditional media can improve conceptual understanding with an average learning outcome of 42%.
Improving Mathematical Conceptual Understanding in Elementary School Students Using the Teams Games Tournament (TGT) Model (TGT) (Royani & Kelana, 2022)	EduBase: Journal of Basic Education	Qualitative Descriptive	The application of the TGT model can improve conceptual understanding, as evidenced by an average respondent attitude score of 71% and an average score of 26% on each question item.

Based on the analysis conducted from the table above, the results show that the TGT learning method has an effect on students' conceptual understanding. This is also proven in the study (Nadia et al., 2025) with the results of the Paired Sample T-Test with a Sig. (2-tailed) value of 0.000 < 0.05, so H1 is accepted and H0 is rejected.

Effect of the TGT Learning Method on Conceptual Understanding at the Junior High School/MTs Level

Based on an analysis of a number of articles at the junior high school/MTs level, it was found that learning using the TGT method had an effect on conceptual understanding at the junior high school/MTs level, as seen from the increase in student scores during classroom learning. An example of the results of the review conducted on research articles with the topic of the effect of the TGT learning method on conceptual understanding at the junior high school/MTs level is presented as follows:

Tabel 2. Example of Article Analysis of the TGT Learning Method on Conceptual Understanding at the Junior High School/MTs Level

Research Title	Journal Name	Research Method	Research Results
The Effect of the Teams Games Tournament (TGT) Learning Model on Mathematical Conceptual Understanding Ability in Linear Equation Material	de Fermat: Journal of Mathematics Education	Quasi-Experimental	Based on data analysis, the Asym. Sig value was 0.000 (Mann Whitney U test). Since Asym Sig 0.000 < 0.05, H0 is rejected, concluding that the

for Grade 8 Students at SMP Negeri 11 Balikpapan in the 2023/2024 Academic Year (Damayanti et al., 2024)			TGT learning model has an effect on students' conceptual understanding.
Cooperative Learning Model Type Teams Games Tournament (TGT): Its Effect on Conceptual Understanding (Ulfia & Irwandani, 2019)	Indonesian Jounal of Science and Mathematics Education	Quasi Experiment	Based on the analysis results, the calculated t-value is greater than the critical t-value (4.933 > 2.011), indicating that the TGT learning model has an effect on students' conceptual understanding ability.
Students' Mathematical Conceptual Understanding Through the Cooperative Learning Model of the Team Game Tournament Type (Bela et al., 2024)	Prima Magistra: Scientific Journal of Education	Quasi Experimental	The TGT learning model is highly effective in improving students' mathematical concept understanding, with students in the experimental class achieving significantly higher average scores compared to the control class, with a p-value of 0.001 < 0.05.
Implementation of the TGT Cooperative Learning Model with the Quizizz Application to Enhance Mathematical Concept Understanding (Aulia et al., 2024)	Relevan: Journal of Mathematics Education	Quasi Experimental	Conducting research on the TGT learning model assisted by the Quizizz application to enhance mathematical concept understanding, with pretest average scores of 64.40 and posttest average scores of 81.57, representing a 57.2% increase. Thus, it is concluded that students' concept understanding with the TGT learning model has improved.

Based on the results of the analysis conducted in the table above, it is evident that the implementation of the TGT cooperative learning model has an impact on concept understanding at the junior high school or MTs level. This is supported by research (Safitri et al., 2023) showing an increase from cycle I to cycle II, from 24% to 76%. Additionally, students' responses to learning using games were quite positive.

CONCLUSION

The aim of this research was to determine the influence of the TGT learning model on the ability to understand consepts archieved. The results of the analysis conducted using the SLR method concluded that the TGT learning model affects conceptual understanding. This is evident in the model's characteristics, which are effective in improving students' conceptual understanding. Students do not focus on a single source of information but rather on other sources that can provide additional information to be used as learning tools. The advantage of this study is that it demonstrates the applicability of the TGT learning model at the elementary and junior high school levels and across all subjects (Azhari & Sarwi, 2025). Future researchers are encouraged to use a variety of sources to obtain more complex information, resulting in stronger and more accurate findings. This approach leverages multiple sources beyond Google Scholar, providing students with a broader range of information and enhancing their conceptual understanding skills.

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