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The Implementation of Team Games Tournament-Based Peer Tutoring for Problem-Solving Ability in Fifth-Grade English Learning

Diah Sinta Sri Berlianti
Patria Handung Jaya*
Department of Elementary Teacher Education, Faculty of Teacher Training and Education, Universitas Ahmad Dahlan Ki Ageng Pemanahan Sorosutan, Yogyakarta, Special Region of Yogyakarta 55162, Indonesia
*Corresponding author, E-mail: patria.handung@gmail.com

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Abstract
Elementary students still face challenges in developing problem-solving ability in English learning due to conventional teaching methods such as teacher-centered instruction and lecturing which make students passive learners. This issue requires innovative and engaging learning models that can increase student participation, motivation, and learning outcomes. This quantitative experimental study investigates the effectiveness of TGT-based peer tutoring in enhancing V grade students' problem-solving ability in English. The study involved 50 students of Muhammadiyah Elementary School Karangploso, divided equally into an experimental class (25 students) and a control class (25 students). Data were collected using a descriptive test designed according to Polya's problem-solving indicators and analysed through normality, homogeneity, and independent sample t-tests using SPSS 30. The results demonstrated a significant difference between the two groups, with the experimental class achieving an average post-test score of 83.40, compared to 61.00 in the control class. These findings indicate that peer tutoring based on TGT is more effective than conventional teaching methods in improving students' problem-solving abilities. In conclusion, the TGT based Peer Tutoring model offers a strategic method for improving the quality of English instruction and strengthening problem-solving competence in an elementary school context.

Keywords: elementary students; english learning; peer tutoring; problem solving; teams games tournament

INTRODUCTION

English as an international language has played a strategic role in various fields of life, ranging from education, technology, and communication to the global economy. Mastery of English is important not only in a global context but also in a local context, especially in basic education. In Indonesia, English is categorized as a foreign language, which psychologically and practically makes students more distant from English (Aini & Nohantiya, 2020). The importance of mastering English at the basic education level lies not only in mastering vocabulary and grammar but also in students' ability to use language functionally to complete tasks, understand contexts, and communicate (Adilah et al., 2025). Developing thinking skills, understanding meaning in context, and responding appropriately to various communication situations aligns with the objectives of language learning. Education, as highlighted by the OECD through PISA, should equip students with the ability to apply their understanding and skills to real-life challenges, such as language learning, as emphasised (Courtney et al., 2023).

English language learning at the elementary school level continues to encounter various systemic and practical challenges. It is crucial for educators to possess the necessary competence to develop adaptive learning materials and provide feedback that aligns with learners' needs,

thereby enhancing the learning development process (Issah et al., 2023). Nevertheless, observations conducted in August 2025 at Muhammadiyah Elementary School Karangploso revealed that most students still struggle with understanding English instructions, composing independent answers, and using vocabulary correctly in context. This condition aligns with previous study indicating that teachers' learning practices remain dominated by the lecture method, individual exercises, and vocabulary memorization without promoting contextual language use (Khairanis & Aldi, 2025). This type of learning model limits students' active participation and does not provide space for the development of critical thinking skills or meaningful interaction with language. Thus, even though English is taught from elementary school to college, the level of English proficiency in Indonesia is still relatively low (Farahsani et al., 2024). Challenges include limited vocabulary, fluency, pronunciation, and grammar skills, which are affected by external factors such as limited facilities, an overcrowding of students exceeding the capacity, and less innovative teaching methods (Khasanah & Jaya, 2023). Consequently, it is essential to implement novel learning methods that enhance student engagement and foster the development of problem-solving skills, critical thinking, and creative abilities aligned with the needs of the 21st century (Mas'udi & Maryani, 2024).

The implementation of collaborative strategies such as peer tutoring, which affords students the opportunity to learn from and share skills with peers, is one approach that can be used to address the challenges of English learning in elementary schools (Ain et al., 2023; Nurhasanah & Gumiandari, 2021). Peer tutoring effectively improves students' academic outcomes, communication skills, motivation for learning, and social and cognitive abilities (Foulkes & Naylor, 2022). Furthermore, peer-led tutoring programs have also been shown to help students by improving their learning strategies and self-confidence (Nwaesei & Liao, 2023). In language learning, social interaction is an important component as language develops through practice and active communication (Agus, 2023; Ali, 2025). Teams Games Tournament (TGT), a cooperative model that combines group work with healthy competition, is an effective implementation that makes learning more fun, increases interaction between students, and stimulates the advancement of competencies in critical analysis and solution development (Fauziyyah & Iswara, 2024; Khairil et al., 2021). Correspondingly, student-led active learning strategies have also been shown to promote deep learning and transfer communication competencies into real-life experiences (Svellingen et al., 2021).

Several previous studies have demonstrated the effectiveness of implementing TGT and peer tutoring approaches in elementary school English language learning. Amrin (2022) and Sabrina and Zahra (2025) showed that the integration of TGT and peer tutoring models is effective in English learning at elementary schools. This approach increases engagement, vocabulary acquisition, and speaking skills of students through active roles as peer tutors. A communicative and healthy competitive learning atmosphere also supports the development of problem-solving skills. Peer tutoring integration in TGT strengthens collaboration and improves learning outcomes, as each student plays an active role both as a tutor and as a participant (Dewi et al., 2024). However, these studies have not complexly combined the TGT based Peer Tutoring on problem-solving skills in English learning. Therefore, the implementation of TGT-based peer tutoring models has the potential to produce a comprehensive learning model, where students not only understand the material but also actively use language in the context of problem solving.

The low problem-solving ability of students in English shows that the learning approach used does not fully support higher-order thinking skills. This ability is valuable not only in the context of language learning but also as a part of life skills that will be useful in the future (Azzahra et al., 2023; Cahyanti, 2024). In this research, problem-solving refers to the ability of students to independently understand and solve English problems through critical and collaborative thinking processes, so that students who are accustomed to solving problems from an early age will be better prepared to face academic and social challenges (Widayanti & Rahayu, 2022). Peer tutoring yields positive results in improving students' academic outcomes, social skills, motivation, and confidence in facing challenging tasks (Fairley et al., 2021; Zhai & Wibowo, 2023). Learning techniques that actively involve students, such as team-based, case-based learning interactive media, and artificial intelligence (AI) technology support, have been proven to strengthen students' critical thinking, creativity, and problem-solving skills (Daryanes et al., 2023; Urban et al., 2024; Yeung et al., 2023). This study aims to determine whether the implementation of TGT-based peer tutoring can influence students' ability to effectively address problems in the English learning process at Muhammadiyah Karangploso Elementary School's fifth grade by considering multiple issues and potential solutions.

METHODS

The method used in this research is both experimental and quantitative. This type of research uses the experimental method to identify the impact of a treatment on other variables in a controlled situation. The research design used was a nonequivalent control group design that includes a control group and an experimental group without random assignment. Class V-B of one of the elementary schools in Bantul, Yogyakarta, consisting of 25 students, was designated as the experimental class using the TGT-based peer tutoring model. Class V-A, which also comprised 25 students, served as the control class and employed the direct instruction learning method. This design allowed the researcher to objectively compare the efficiency of the treatment in the experimental group against the control group's results.

The research population consisted of 50 fifth grade students of the elementary school. A saturated sampling method was used to select participants because the entire population was sampled. This method was chosen as the total number of students was small and relatively homogeneous in terms of age, curriculum, and learning environment, allowing the researcher to obtain more accurate and representative results. A five-point description test based on the Polya problem-solving indicators was used. The test was initially validated by the English teacher of the school prior to its administration to the students. After the items were approved as valid by the teacher, further validation was conducted through the expert in English Language Teaching, particularly in teaching English to young learners, to ensure that each item accurately reflected the aspects of Polya's problem-solving process. After the questions were considered valid, validity and reliability tests were conducted. Two tests were administered, with the pre-test administered before the treatment and the post-test administered after the treatment.

The research steps began with a pre-test, followed by treatment for one meeting for each class, and ended with a post-test. The independent sample t-test was performed using SPSS 30 after confirming normality and homogeneity. The purpose of this study was to assess whether a significant divergence occurred in problem-solving ability between students taught using TGT-

based peer tutoring and those taught using the Direct Instruction method. Table 1 presents the indicators of Polya's problem-solving stages applied in the pretest and posttest.

Table 1. Scoring Rubric and Pretest Posttest Instrument Framework

No	Problem-Solving Stages According to Polya Models	Student Problem-Solving Indicator	Problem Indicator
1	Understanding The Problem	1. Students can understand the problem or context related to English (reading or situation). 2. Students can identify important information and obstacles in communication.	1. Illustrations of situations guide students in understanding the context and determining the problem. 2. A command text is presented so that students can mention important information and explain it in simple sentences.
2	Planning Resolution Strategies	1. Students are able to design appropriate responses, questions, or communication strategies. 2. Students can organize the order of language problem resolution.	1. A problem is presented so that students can design a polite request sentence. 2. A case is presented so that students can arrange possible answers in the correct order.
3	Implementation of Resolution Strategies	Students write sentences or paragraphs as language solutions using the correct vocabulary.	A situation is presented so that students can write an appropriate answer sentence.
4	Looking Back	Students can review their answers, correct mistakes, and conclude the problem's essence and its solution.	Instructions are presented so that the students can reflect on their answers.

Source: Putri et al. (2024)

RESULTS AND DISCUSSION

Result

The research was conducted at one of the elementary schools in Bantul, Yogyakarta on August 6-21, 2025, involving two groups. Class V-B was designated as the experimental group, which received instruction through the TGT-based peer tutoring model, while class V-A served as the control group and received Direct Instruction. Both groups took a pre-test to measure their initial abilities and a post-test to assess learning outcomes after the intervention. In the experimental class, the TGT-based peer tutoring model was implemented through five main phases, namely class presentation, teams, games, tournament, and team recognition. During the class presentation phase, the teacher briefly explained the main material and provided sample questions. The teams phase involved dividing students into heterogeneous groups of five members, each guided by a peer tutor who assisted the team in understanding the material and preparing for the upcoming games and tournament. Subsequently, the games and tournament phases were carried out in the form of an academic quiz competition, where each group competed to answer questions related to the lesson content quickly and accurately. The peer tutors played an active role in directing team strategies, maintaining motivation, and ensuring that every member participated optimally. The activity concluded with the team recognition phase, where awards were given to teams with the highest scores and best collaboration.

The difference in treatment between the experimental and control groups was evident in the nature of the activities and the students' learning roles. The experimental class emphasized cooperative and competitive learning with an active, enjoyable, and participatory atmosphere fostered through team-based academic quiz competitions. Students acted as active participants who supported and motivated each other within a collaborative setting, while the teacher served as a facilitator. In contrast, the control class employed Direct Instruction, which was teacher-centered and students listened to explanations, took notes, and completed individual exercises without collaborative or competitive elements. The following is the documentation of the learning activities in both classes.

Figure 1. Atmosphere of the core activity of the control class.
Source: Researcher's documentation (2025)

Figure 2. Atmosphere of the core activity of the experiment class.
Source: Researcher's documentation (2025)

The research findings focused on students' problem-solving abilities measured by pre- and post-tests. Descriptive analysis conducted with SPSS 30 includes the calculation of mean, minimum, maximum, and standard deviation values. The findings derived from the pre- and post-test descriptions are presented in Table 2 and 3.

Table 2: Descriptive Results in the Control Group

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest Control	25	0	75	38,88	24,785
Posttest Control	25	20	95	61,00	18,143
Valid N (listwise)	25				

Table 3. Descriptive Results of the Experimental Class

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest Experiment	25	10	95	44,80	27,252
Posttest Experiment	25	40	100	83,40	16,877
Valid N (listwise)	25				

The data in Table 3 show a significant improvement in the learning outcomes for both groups. The control group showed a notable increase in mean scores, rising from 38.88 in the pre-test to 61.00 in the post-test, indicating progress, albeit at a slower rate than the experimental group. In contrast, the experimental group experienced a more substantial increase, with average scores rising from 44.80 in the pre-test to 83.40 in the post-test. This difference indicates that TGT-based peer tutoring is more effective in improving problem-solving skills than direct instruction.

The standard deviation in the experimental group decreased from 27.252 to 16.877, indicating a reduction in the variability of learning outcomes. This reduction in variability suggests that the TGT model has facilitated the equalisation of learning opportunities, resulting in improvement for both students with high and low ability levels. As a result, this outcome confirms that the TGT model provides equitable learning opportunities for all students.

Table 4. Normality Test Results for the Control and Experimental Classes

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Pretest Control	,118	25	,200*	,926	25	,070
Posttest Control	,093	25	,200*	,979	25	,873
Pretest Experiment	,160	25	,096	,920	25	,052
Posttest Experiment	,152	25	,140	,927	25	,074

The normality test results presented in Table 4 show that all research data are normally distributed. In the control class, the pretest p-value of 0.070 was greater than 0.05, and the posttest p-value of 0.873 was also greater than 0.05, indicating that the data in this class met the assumption of normality. Similarly, in the experimental class, the pretest p-value of 0.052 and the posttest p-value of 0.074 were both greater than 0.05, confirming that the data in this class also meet the assumption of normality. Consequently, both the control and experimental classes satisfy the requirement of normality.

Table 5. Homogeneity Test Results

		Levene Statistic	df1	df2	Sig.
Problem Solving	**Based on Mean**	,125	1	48	,725
	Based on Median	,508	1	48	,479
	Based on Median and with adjusted df	,508	1	45,458	,480
	Based on trimmed mean	,232	1	48	,632

Table 5 presents the findings of the homogeneity of variance assessment for problem-solving competence. The test findings indicate that the variation between the control and experimental groups is the same or homogeneous. Based on the analysis with Levene's test, a statistical value of 0.125 with a significance level (Sig.) of 0.725 was obtained in the mean-based analysis, indicating no significant difference in variance. Similarly, the median-based analysis

yielded a statistical value of 0.508 with Sig. 0.479, while the median analysis of adjustment also showed a statistical value of 0.508 with Sig. 0.480. In addition, the mean-based analysis supported these findings with a statistical value of 0.232 and a significance level of 0.632. All of these results consistently show that $p > 0.05$ in each analysis, so the variance between the control and experimental groups is homogeneous. The findings revealed no significant discrepancy in variance between the two groups.

Table 6. Pre-test T-test Results

							95% Confidence Interval of the Difference	
		t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pretest	Equal variances assumed	-,804	48	,426	-5,920	7,367	-20,733	8,893
	Equal variances not assumed	-,804	47,574	,426	-5,920	7,367	-20,736	8,896

Table 6 presents the findings of an independent-samples t-test conducted on the pretest data from the control and experimental classes. The significance value, Sig. 2-Sided p, is 0.426, which exceeds the 0.05 threshold. This suggests that the two groups were statistically equivalent in terms of the mean performance before the treatment. The results indicate that students' initial performance in both classes was at a relatively similar level. This equal initial condition provides a strong foundation for comparing learning outcomes after the different treatments, as any observed differences at the posttest stage can be more confidently attributed to the effect of the learning model used, rather than differences in students' initial abilities.

Table 7. Hypothesis Test Results

							95% Confidence Interval of the Difference	
		t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances assumed	-,4,520	48	<,001	-22,400	4,958	-32,364	-12,436
	Equal variances not assumed	-,4,520	47,751	<,001	-22,400	4,956	-32,366	-12,434

Table 7 shows that the independent samples t-test results are <0.001, both on the assumption of equal and unequal variances. This indicates a significant difference between the control and experimental groups after treatment. The mean difference value of -22.400 with a 95% confidence interval between -32.364 and -12.436 further strengthens that the difference is real and consistent. Therefore, the alternative hypothesis (Ha) is accepted, indicating a significant difference in student achievement between TGT-based peer tutoring and direct instruction. This finding suggests that TGT-based peer tutoring is more effective than direct instruction in enhancing students' English problem-solving abilities.

Discussion

The implementation of the Team Games Tournament (TGT)-based peer tutoring model in this study was carried out through several instructional stages focused on developing the problem-solving abilities of fifth-grade students. The initial phase involved identifying existing issues through observations of English learning activities in classrooms applying conventional instruction, particularly teacher-centered approaches. The findings indicated that learning remained dominated by one-way activities, especially verbal content delivery and individual practice, resulting in minimal student-to-student interaction. This condition contributed to students' low engagement in reasoning processes, language analysis, and contextual problem solving. These findings emphasize that such methods are not yet optimal in supporting students in achieving the problem-solving competencies required in 21st-century English learning.

The next phase was a learning needs analysis, highlighting the necessity for approaches that are collaborative, participatory, and provide opportunities for students to understand problems more deeply through dialogue and meaning exploration. Literature reviews and observational findings indicated that models integrating elements of collaboration, structured discussion, continuous feedback, and healthy academic competition can enhance critical thinking and problem-solving skills. Based on these characteristics, the TGT-based peer tutoring model was selected as a solution because it integrates two core components, peer assistance in understanding concepts and an academic game structure that enhances motivation and student engagement. The effectiveness of TGT in strengthening collaboration and improving students' problem-solving abilities is evident from its contribution to promoting active and participatory interaction during learning (Islamiyah et al., 2024; Norfadila et al., 2025). These characteristics position the TGT-based peer tutoring approach as highly aligned with instructional objectives emphasizing the development of critical thinking and problem-solving abilities.

The effectiveness of the TGT-based peer tutoring model in improving problem-solving skills is determined by several factors. First, the integration of Polya's steps provides a systematic cognitive structure that guides students from understanding the problem, planning strategies, executing solutions, to evaluating results. Compared to direct instruction, which tends to emphasize information delivery and exemplifying solutions, the use of Polya's framework requires students to analyze context, formulate problems independently, and select appropriate solution strategies. This aligns with the view that effective problem solving begins with a careful analysis of the problem, involving thorough reading, identifying relevant information, and determining what needs to be found (Chaiarwut et al., 2025).

Second, the presence of peer tutoring offers pedagogical advantages that direct instruction does not provide. Peer tutors deliver explanations using language that is more accessible and aligned with their peers' thinking patterns. This horizontal interaction supports social learning principles, which assert that knowledge is gained through observation, imitation, and feedback during interaction (Arishaba, 2024). Peer tutors model problem-solving strategies, provide concrete examples, and ensure that group members understand each step progressively. This mentoring function reduces learning anxiety, strengthens confidence, and supports equal understanding within heterogeneous groups. Reinforcing this view, findings from a meta-analysis indicate that peer tutoring contributes significantly to students' academic achievement in STEM fields, illustrating how structured peer interaction can meaningfully enhance both cognitive and

performance outcomes (Hidayat & Saad, 2025). In addition, research in health education contexts shows that effective tutor preparation not only enhances tutors' self-efficacy and cognitive congruence with learners but also encourages more authentic and reciprocal learning relationships, allowing both tutor and tutee to develop essential interpersonal and professional competencies (Herinek et al., 2025).

Another factor influencing the model's success is the competitive environment inherent in TGT. Structured academic competition in the form of tournaments provides a strong motivational stimulus for students. They are encouraged to participate actively, correct errors, and study more diligently to make meaningful contributions to their teams. Unlike direct instruction, which does not offer competitive stimuli, TGT creates learning dynamics that enhance students' emotional and cognitive engagement. Positive competition also fosters academic responsibility, as team success depends on each member's contribution. This aligns with findings showing that when individuals engage in competitive yet collaborative settings, their satisfaction and engagement significantly enhance cognitive focus, emotional involvement, and psychological well-being (Abbasi et al., 2025). Moreover, fairness in tournament structures plays a critical role in maintaining balanced participation and motivation among teams, where equitable conditions ensure that competition remains constructive and that all participants perceive the process as both engaging and just (Osicka & Guajardo, 2023).

The final factor is the teacher's role, which significantly contributes to the overall effectiveness of the model. In TGT, teachers act as facilitators who ensure that group dynamics function effectively, provide clarification when necessary, and supervise peer tutors in guiding discussions. This facilitative role requires teachers to create a learning environment that supports interaction, collaboration, and shared responsibility among students (Ixfina, 2024). The model also enables teachers to focus more on monitoring students' thinking processes, diagnosing misconceptions, and providing structured guidance rather than serving as the sole source of information. The teacher's role in developing students' competencies through a problem-solving approach at the elementary school level becomes a crucial element that determines the quality and success of the learning process (Purwanto et al., 2024). In contrast to direct instruction, which centralizes all instructional control in the teacher, the facilitative role in TGT offers greater opportunities for student interaction, enabling more meaningful exchanges that support the development of both academic and social competencies.

During the implementation phase, students applied collaboratively designed problem-solving strategies, supported by feedback from peer tutors and group members to correct errors, strengthen conceptual understanding, and reinforce repeated strategy application. This interactive process provided more extensive practice opportunities than direct instruction, where learners tend to be passive and primarily follow teacher-led examples. The competitive element of TGT further encouraged students to complete tasks accurately and efficiently, enhancing both confidence and engagement in learning activities. For instance, during the tournament phase, students demonstrated high levels of participation by actively responding to questions given in the quiz and engaging in the learning process. Moreover, throughout the tournament, they showed strong motivation to provide accurate answers based on the collaborative discussions conducted with their teammates. Such collaborative and competitive dynamics not only improved solution accuracy but also strengthened students' motivation and reflective learning, aligning with findings that sustained peer interaction and reflective engagement significantly improve learners' critical

thinking and problem-solving abilities (Alashwal & Barham, 2025). Furthermore, the game-based characteristics of TGT promote hands-on and minds-on learning experiences that enhance intrinsic motivation and conceptual understanding through active participation (Byusa et al., 2022). Consistent with this, structured academic tournaments have been shown to foster essential soft skills such as communication, teamwork, and responsibility, supporting the development of holistic competence and confidence among learners (Koloszár et al., 2024).

The effectiveness of the TGT-based peer tutoring model is further supported by statistical test results showing a significance value of < 0.001, indicating significant differences between the experimental and control groups. This finding confirms that interaction within heterogeneous groups positively contributes to equalizing learning quality. Previous studies have extensively examined the effectiveness of the TGT model and the influence of student collaboration and interaction. The integration of collaboration in learning can strengthen students' 21st-century skills collaboration (Nursetyo et al., 2024). Learning that involves interaction among group members has also been proven to enhance motivation and analytical accuracy motivation (Subrata et al., 2025). In addition, a structured competitive environment can encourage students' creativity and resilience in solving competitive problems (Zhong et al., 2025). This consistency reinforces that the TGT-based peer tutoring model has strong theoretical and empirical foundations in significantly improving students' problem-solving abilities.

This research demonstrates that the implementation of TGT-based peer tutoring contributes to the development of problem-solving competence ability of fifth-grade students in English learning. The model created a more collaborative learning environment, promoted healthy competition, and promoted active student participation. Teachers played a key role in guiding the groups, provided support when needed, and ensured that collaboration and healthy competition helped students learn effectively. This study enriches the literature on cooperative and game-based learning and provides practical implications for teachers and schools in adopting more interactive and contextual learning strategies. Nonetheless, the study has limitations as it was conducted only with Grade V students and was restricted to English subjects. Further research is suggested to broaden its scope to other-grade levels and subjects to gain a more detailed understanding of the TGT in developing problem-solving skills.

CONCLUSIONS

Conclusion

The findings indicated that the application of TGT-based peer tutoring effectively enhanced the problem-solving ability of fifth-grade students in learning English. This is shown that the implementation of TGT-based peer tutoring enhances students' problem-solving competence in English learning by fostering cooperation, guided competition, and active engagement in a supportive classroom environment. Theoretically, these findings reinforce the conceptual foundation of cooperative and game-based learning, emphasizing how structured peer collaboration and teacher facilitation can foster higher-order thinking, motivation, and essential 21st-century skills. Practically, the study provides theoretical insights that can guide educators and curriculum designers in adopting more interactive, student-centered, and contextual pedagogical approaches in primary English education. Looking ahead, this study acknowledges its limitation as it was conducted only with fifth-grade students and the research was only

conducted in one school, so the population variation was limited. Therefore, future research is recommended to expand its scope across different grade levels and population variant to establish a more comprehensive theoretical understanding of TGT-based peer tutoring and its broader implications for learning enhancement.

Recommendations

Based on these findings, it is expected that this study can be an alternative variation of learning strategies that can be implemented by educators in English learning activities in elementary schools. Meanwhile, this study's findings are expected to be the basis for further broader research on the implementation of the TGT approach for enhancing students' problem-solving skills, both at different levels of education and in other subjects.

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