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EFFECTIVENESS OF TGT AND STAD MODELS IN ENHANCING MOTIVATION AND ACCOUNTING LEARNING OUTCOMES

EFEKTIVITAS MODEL TGT DAN STAD DALAM MENINGKATKAN MOTIVASI DAN HASIL BELAJAR AKUNTANSI

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Abstract

This study examines the differences in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) learning models in enhancing students' learning motivation and accounting learning outcomes. A quasi-experimental approach with a pretest-post-test control group design was employed, involving experimental and control classes. The population in this study consisted of 250 tenth-grade accounting students from SMKN 1 Bantul and SMK YPKK 2 Sleman. The sample used was 126 students, comprising two classes from each school. A random sampling technique was used to determine the experimental and control classes. Data analysis included descriptive statistical tests, N-Gain score tests, and independent sample t-tests. The findings reveal significant differences in effectiveness between the TGT and STAD models. In terms of learning motivation, the N-Gain score for the TGT model at SMKN 1 Bantul (0.576) was higher than that of the STAD model (0.482), and a similar pattern was observed at SMK YPKK 2 Sleman (0.580 > 0.471). Regarding learning outcomes, the TGT model also outperformed the STAD model, with an N-Gain score of 0.766 compared to 0.621 at SMKN 1 Bantul, and 0.713 compared to 0.599 at SMK YPKK 2 Sleman. These results indicate that the TGT model is more effective in increasing both students' motivation and accounting learning outcomes compared to the STAD model. The study suggests that teachers should consider implementing the TGT model in accounting instruction, as it fosters higher engagement and better academic performance.

Keywords: Effectiveness of Learning Models, TGT, STAD, Accounting

Abstrak

Penelitian ini bertujuan untuk mengetahui perbedaan efektivitas antara model pembelajaran Teams Games Tournament (TGT) dan Student Teams Achievement Divisions (STAD) dalam meningkatkan motivasi dan hasil belajar akuntansi siswa. Metode penelitian yang digunakan adalah quasi-experimental dengan desain pretest-posttest control group, melibatkan kelas eksperimen dan kelas kontrol. Populasi dalam penelitian ini terdiri dari 250 siswa kelas X AKL dari SMKN 1 Bantul dan SMK YPKK 2 Sleman. Sampel yang digunakan berjumlah 126 siswa, yang terdiri dari dua kelas pada masing-masing sekolah. Teknik sampling yang digunakan adalah random sampling untuk menentukan kelas eksperimen dan kelas kontrol. Teknik analisis yang digunakan meliputi uji statistik deskriptif, uji N-Gain score, dan independent sample t-test. Hasil penelitian menunjukkan bahwa terdapat perbedaan efektivitas yang signifikan antara model pembelajaran TGT dan STAD. Dalam aspek motivasi belajar, nilai N-Gain score model TGT lebih tinggi dibandingkan STAD, baik di SMKN 1 Bantul (0.576 > 0.482) maupun di SMK YPKK 2 Sleman (0.580 > 0.471). Demikian pula dalam hasil belajar, N-Gain score model TGT juga lebih tinggi dibandingkan STAD di SMKN 1 Bantul (0.766 > 0.621) dan SMK YPKK 2 Sleman (0.713 > 0.599). Temuan ini membuktikan bahwa model pembelajaran TGT

lebih efektif dibandingkan STAD dalam meningkatkan motivasi dan hasil belajar akuntansi siswa. Oleh karena itu, penelitian ini merekomendasikan agar guru menggunakan model pembelajaran kooperatif TGT, karena terbukti lebih efektif dalam meningkatkan keterlibatan siswa dan pencapaian akademik dalam mata pelajaran akuntansi.

Kata Kunci: Efektivitas Model Pembelajaran, TGT, STAD, Akuntansi.

INTRODUCTION

The learning system in Indonesia continues to evolve in response to changing times and educational policies. The government, through the Ministry of Education, Culture, Research, and Technology, has implemented various policies to enhance education quality, including the implementation of the Merdeka Curriculum, which provides schools with flexibility in designing learning processes that align with students' needs. However, despite these efforts, challenges within Indonesia's education system remain complex. One major issue is the disparity in education quality between urban and rural areas. Studies indicate that access to adequate educational facilities is still a challenge in various regions, particularly in disadvantaged, frontier, and outermost areas (3T) (Pratiwi et al., 2021). Additionally, the effectiveness of teaching methods remains a crucial issue. Conventional lecture-based teaching methods still dominate, limiting students' opportunities for critical thinking and active participation. Research shows that technology-based and cooperative learning approaches, such as Project-Based Learning (PjBL), Problem-Based Learning (PBL), and STEM-based learning models, can improve students' motivation and learning outcomes (Arianta et al., 2024; Fadilah et al., 2025).

In the digital era, the use of technology in education presents both challenges and opportunities. The COVID-19 pandemic accelerated the adoption of online learning but also exposed gaps in technological access and teacher readiness for digital-based instruction. Studies indicate that while online learning enhances flexibility, its effectiveness heavily depends on infrastructure readiness and digital competence among teachers and students (Dywan et al., 2020). Therefore, improving Indonesia's education system requires innovative teaching methods, teacher competency development, and equitable education access. Implementing interactive and technology-based learning models is expected to enhance education quality and create a more effective learning environment.

Learning motivation drives students to achieve their learning goals, ultimately resulting in academic achievement. Students' motivation arises from both internal factors (such as personal ambition) and external factors (such as encouragement from teachers) (Pratama & Ghofur, 2021). Motivation significantly affects learning outcomes, which represent students' acquired competencies and skills through the learning process. Learning outcomes serve as key indicators in education, with student achievement reflecting the effectiveness of teaching. At the end of the learning process, teachers conduct assessments to measure students' success in cognitive, psychomotor, and affective domains (Nabillah & Abadi, 2020).

Studies by Gunawan et al. (2018) and Saputra et al. (2018) reveal a significant positive correlation between learning motivation and student achievement. High learning motivation leads to high academic performance, whereas low motivation results in poor achievement. Increasing students' motivation is essential for improving learning outcomes, as motivation is a key factor in student success (Rike Andriani & Rasto, 2019; Nabillah & Abadi, 2020; Palittin et al., 2019). Thus, all stakeholders must collaborate to foster students' motivation, ensuring the achievement of desired learning outcomes.

Selecting the right learning model is crucial for teachers to enhance students' motivation

and learning outcomes (Juliya & Herlambang, 2021). Engaging teaching models prevent boredom and facilitate better understanding of lesson materials. According to Silalahi & Hutauruk (2020), cooperative learning models offer an effective alternative to enhance students' motivation and learning outcomes. These models provide a solution to the challenges of limited face-to-face learning, where students have experienced declines in motivation and performance following extended online education.

Cooperative learning is an approach that involves students working together in groups to solve problems, complete tasks, or achieve specific learning objectives (Artzt & Newman, 1990). This model emphasizes teamwork, discussions, and shared responsibility for both individual and group learning outcomes (Slavin, 1995). Slavin (1980) identified four main cooperative learning models: Teams Games Tournament (TGT), Student Teams Achievement Divisions (STAD), Jigsaw, and Small Group Teaching. To compare different learning models effectively, they must share similar characteristics to allow for meaningful comparison (Pranayoga et al., 2016). Below is a comparison of the characteristics of cooperative learning models as described by Slavin (1980).

Table 1. Comparison of Cooperative Learning Models

Models	Reward Interdependence	Task Interdependence	Individual Accountability	Teacher Imposed Structure	Group Competition Used
TGT	High	Low	High	High	Yes
STAD	High	Low	High	High	Yes
Jigsaw	High	High	High	High	Yes
SGT	Low	High	Low	Low	No

Source: Slavin (1980)

Based on Table 1 above, the cooperative learning models of the TGT and STAD types share similar characteristics in terms of reward interdependence, task interdependence, individual accountability, teacher-imposed structure, and group competition. In both models, reward interdependence is evident through the provision of awards to teams that win the tournament or quiz. Regarding task interdependence, neither model involves specific assignments, as the teacher does not assign individual or group tasks. In terms of individual accountability, assessments in both models are conducted individually during quizzes, and the group score is determined by the aggregation of individual scores. The teacher-imposed structure is reflected in the fact that the learning structure is determined and directed by the teacher. Additionally, group competition is utilized in both models, as team performance is evaluated at the end of the session to assess each group's understanding of the material. Therefore, the TGT and STAD cooperative learning models can be appropriately implemented or compared within the same instructional context.

Several studies comparing the cooperative learning models of Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) have been conducted in previous research by Andriani et al (2021) and Rompegading et al (2021). The study by Andriani et al. (2021) found no significant difference in student learning outcomes between the Teams Games Tournament and Student Teams Achievement Divisions models. Meanwhile, the findings of Rompegading et al. (2021) revealed a significant difference in learning outcomes between these two cooperative learning models. These contradictory results indicate a research gap, suggesting that further comparisons between TGT and STAD models are needed to strengthen previous findings by incorporating learning media as a supplementary tool.

The researcher identified limitations in previous studies comparing the Teams Games

Tournament and Student Teams Achievement Divisions models, namely: (1) Previous research focused solely on comparing TGT and STAD models without integrating learning media; (2) The test instruments used by teachers to assess students' learning outcomes did not apply the principles of High Order Thinking Skills (HOTS); (3) Both prior studies were conducted in only one school.

HOTS (High Order Thinking Skills) is a cognitive process within the learning taxonomy aimed at enhancing students' critical thinking at higher levels, particularly in evaluating information, solving problems creatively, reasoning effectively, constructing explanations, and making decisions in complex situations (Kristiyono, 2018). HOTS is crucial and relevant in the implementation of the 2013 curriculum and the *Merdeka Belajar* concept, as it supports cognitive learning objectives that encourage systematic thinking, multi-perspective problem analysis, self-confidence, and the development of critical and creative thinking skills.

Given the research gap, study limitations, and recommendations from previous research, the present study introduces the following novelties: (1) Examining the effectiveness of TGT and STAD cooperative learning models with the aid of printed visual learning media; (2) Utilizing HOTS-based test instruments to assess students' cognitive learning outcomes; (3) Expanding the research population and sample by including both public and private schools, thereby ensuring more credible research findings.

METHODS

The type of research used is quasi-experimental research with a pretest-posttest control group design, involving an experimental class and a control class. The population in this study consisted of 250 tenth-grade accounting students from SMKN 1 Bantul and SMK YPKK 2 Sleman. The sample used was 126 students, comprising two classes from each school. A random sampling technique was used to determine the experimental and control classes. The instruments used are questionnaires and test questions. The data analysis techniques include descriptive statistical analysis, n-gain score test, and independent sample t-test. The research population consists of all 10th-grade AKL students at SMKN 1 Bantul and SMK YPKK 2 Sleman. The research sample consists of an experimental class and a control class at each school, SMKN 1 Bantul and SMK YPKK 2 Sleman.

FINDINGS AND DISCUSSION

Findings

Learning Motivation

The results of the descriptive statistical calculations on students' learning motivation in the experimental and control classes at SMKN 1 Bantul are as follows.

Table 2. Students' Learning Motivation in the Experimental Class at SMKN 1 Bantul

	Min	Max	Std. Deviation	Mean	Category
Initial Survey	50%	67%	0.040	57%	Moderate
Final Survey	73%	90%	0.041	82%	Very High

The table 2 presents the results of the descriptive analysis of the learning motivation variable in the experimental class at SMKN 1 Bantul. Based on Afifah and Hartatik (2019) the classification of learning motivation levels based on percentage scores. A percentage ranging from 80% to 100% is categorized as "Very High," indicating a strong level of student motivation. Scores between 66% and 79% fall into the "High" category, reflecting above-average motivation. Percentages from 56% to 65% are classified as "Moderate," suggesting an adequate level of motivation. Scores between 40% and 55% are considered "Low," indicating

a lack of sufficient motivation, while any percentage below 39% falls under the "Very Low" category, signifying a critical need for motivational intervention. Prior to the implementation of the cooperative learning model of the Teams Games Tournament (TGT) type, the average level of students' learning motivation was at 57%, which falls into the “moderate” category. Following the application of the TGT cooperative learning model, the average motivation increased to 82%, categorized as “very high.” Based on these results, it can be concluded that there was a 25% increase in the average level of students' learning motivation after the implementation of the TGT model. This increase in average motivation was observed across all measured indicators.

Table 3. Learning Motivation for Each Indicator in the Experimental Class at SMKN 1 Bantul

Learning Motivation Indicator	Initial (%)	Final (%)
Desire and aspiration to succeed	60%	84%
Drive and need for learning	51%	82%
Hopes and future aspirations	66%	86%
Recognition in learning	64%	86%
Engaging learning activities	51%	84%
Conducive learning environment	64%	86%

Based on the table 3 above, it can be observed that all indicators of learning motivation showed an increase in average scores after the students were exposed to the learning process using the Teams Games Tournament (TGT) cooperative learning model. Accordingly, it can be concluded that the TGT cooperative learning model is effective in enhancing students' learning motivation in the experimental class at SMKN 1 Bantul.

Table 4. Students' Learning Motivation in the Control Class at SMKN 1 Bantul

	Min	Max	Std. Deviation	Mean	Category
Initial Survey	51%	68%	0.047	60%	Moderate
Final Survey	73%	89%	0.036	79%	High

Table 4 presents the results of the descriptive analysis of the learning motivation variable in the control class at SMKN 1 Bantul. Prior to the implementation of the cooperative learning model of the Student Teams Achievement Divisions (STAD) type, the average percentage of students' learning motivation was 60%, which falls into the "moderate" category. After the implementation of the STAD cooperative learning model, the average learning motivation increased to 79%, which is categorized as "high." Based on these results, it can be concluded that there was a 19% increase in the average level of students' learning motivation following the application of the STAD model. This increase in average motivation occurred in the following indicators.

Table 5. Learning Motivation for Each Indicator in the Control Class at SMKN 1 Bantul

Learning Motivation Indicator	Initial (%)	Final (%)
Desire and aspiration to succeed	60%	81%
Drive and need for learning	59%	80%
Hopes and future aspirations	66%	84%
Recognition in learning	65%	83%
Engaging learning activities	56%	83%
Conducive learning environment	67%	83%

Based on the table 5, it can be observed that all indicators of learning motivation showed an increase in average scores after the students underwent the learning process using the Student Teams Achievement Divisions (STAD) cooperative learning model. Therefore, it can be concluded that the

STAD cooperative learning model is effective in enhancing students' learning motivation in the control class at SMKN 1 Bantul.

The results of the descriptive statistical calculations of students' learning motivation in the experimental and control classes at SMK YPKK 2 Sleman are as follows.

Table 6. Learning Motivation in the Experimental Class at SMK YPKK 2 Sleman

	Min	Max	Std. Deviation	Mean	Category
Initial Survey	53%	67%	0.033	59%	Moderate
Final Survey	76%	90%	0.035	83%	Very High

Table 6 presents the results of the descriptive analysis of the learning motivation variable in the experimental class at SMK YPKK 2 Sleman. Prior to the implementation of the cooperative learning model of the Teams Games Tournament (TGT) type, the average percentage of students' learning motivation was 59%, which falls into the "moderate" category. After the application of the TGT cooperative learning model, the average learning motivation increased to 83%, categorized as "very high." Based on these results, it can be concluded that there was a 24% increase in the average level of students' learning motivation following the implementation of the TGT model. This increase in average motivation was observed across the following indicators.

Table 7. Learning Motivation for Each Indicator in the Experimental Class at SMK YPKK 2 Sleman

Learning Motivation Indicator	Initial (%)	Final (%)
Desire and aspiration to succeed	61%	85%
Drive and need for learning	54%	82%
Hopes and future aspirations	66%	86%
Recognition in learning	65%	87%
Engaging learning activities	55%	85%
Conducive learning environment	65%	87%

Based on the table 7, it can be observed that all indicators of learning motivation showed an increase in average scores after the students underwent the learning process using the Teams Games Tournament (TGT) cooperative learning model. Therefore, it can be concluded that the Teams Games Tournament (TGT) cooperative learning model is effective in enhancing students' learning motivation in the experimental class at SMK YPKK 2 Sleman.

Table 8. Learning Motivation in the Control Class at SMK YPKK 2 Sleman

	Min	Max	Std. Deviation	Mean	Category
Initial Survey	52%	70%	0.0467	61%	Moderate
Final Survey	73%	89%	0.0355	80%	Very High

Table 8 presents the results of the descriptive analysis of the learning motivation variable in the control class at SMK YPKK 2 Sleman. Prior to the implementation of the cooperative learning model of the Student Teams Achievement Divisions (STAD) type, the average percentage of students' learning motivation was 61%, which falls into the "moderate" category. After the application of the STAD cooperative learning model, the average learning motivation increased to 80%, categorized as "very high." Based on these results, it can be concluded that there was a 19% increase in the average level of students' learning motivation following the implementation of the STAD model. This increase in average motivation was observed across the following indicators.

Table 9. Learning Motivation for Each Indicator in the Control Class at SMK YPKK 2 Sleman

Learning Motivation Indicator	Initial (%)	Final (%)
Desire and aspiration to succeed	60%	81%
Drive and need for learning	60%	80%
Hopes and future aspirations	68%	84%

Learning Motivation Indicator	Initial (%)	Final (%)
Recognition in learning	66%	83%
Engaging learning activities	58%	83%
Conducive learning environment	68%	82%

Based on the table 9 above, it can be observed that all indicators of learning motivation experienced an increase in average scores after students underwent the learning process using the Student Teams Achievement Divisions (STAD) cooperative learning model. Therefore, it can be concluded that the STAD cooperative learning model is effective in enhancing students' learning motivation in the control class at SMK YPKK 2 Sleman.

Learning Outcomes

The learning outcomes of students in the experimental class at SMKN 1 Bantul, before and after being given treatment using the cooperative learning model of the Teams Games Tournament (TGT) type, are as follows.

Table 10. Learning Outcomes of the Experimental Class at SMKN 1 Bantul

	Min	Max	Std. Deviation	Mean	Category
Pretest	40	75	9.733	56.094	Moderate
Post-test	80	100	5.527	89.688	Very High

Based on the data in the table 10, it can be observed that the average pretest score of students in the experimental class was 56.094, which falls into the "Moderate" category. Considering the school's established Minimum Competency Criteria (KKM) of 75, only 3 students passed the KKM in the pretest, while 29 students did not meet the criteria (detailed data attached). After the treatment using the Teams Games Tournament (TGT) cooperative learning model, the average posttest score increased by 33.594 points to 89.688, categorized as "very high." Based on the posttest results, all students in the experimental class at SMKN 1 Bantul met the Minimum Competency Criteria, with 32 students passing the KKM.

Table 11. Learning Outcomes of the Experimental Class at SMKN 1 Bantul

	Min	Max	Std. Deviation	Mean	Category
Pretest	45	80	9.791	63.438	Moderate
Post-test	80	95	3.726	86.719	Very High

Based on the data in the table 11 above, it can be observed that the average pretest score of students in the control class was 63.438, which falls into the "moderate" category. Considering the school's established Minimum Competency Criteria (KKM) of 75, 8 students passed the KKM in the pretest, while 24 students did not meet the criteria. After the treatment using the Student Teams Achievement Divisions (STAD) cooperative learning model, the average posttest score increased by 23.281 points to 86.719, categorized as "very high." Based on the posttest results, all students in the control class at SMKN 1 Bantul met the Minimum Competency Criteria, with 32 students passing the KKM.

Table 12. Learning Outcomes of the Experimental Class at SMK YPKK 2 Sleman

	Min	Max	Std. Deviation	Mean	Category
Pretest	40	75	9.075	54.032	Low
Post-test	80	100	6.566	87.581	Very High

Based on the data in the table 12 above, it can be observed that the average pretest score of students in the experimental class was 54.032, which falls into the "low" category. Considering the school's established Minimum Competency Criteria (KKM) of 75, 3 students passed the KKM in the pretest, while 28 students did not meet the criteria. After the treatment using the Teams Games Tournament (TGT) cooperative learning model, the average posttest score increased by 33.549 points to 87.581, categorized as "very high." Based on the posttest results, all students in the

experimental class at SMK YPKK 2 Sleman met the Minimum Competency Criteria, with 31 students passing the KKM.

Table 13. Learning Outcomes of the Control Class at SMK YPKK 2 Sleman

	Min	Max	Std. Deviation	Mean	Category
Pretest	50	75	6.995	60.000	Moderate
Post-test	80	95	4.350	84.844	High

Based on the data in the table above, it can be observed that the average pretest score of students in the control class was 60.000, which falls into the "moderate" category. Considering the school's established Minimum Competency Criteria (KKM) of 75, 3 students passed the KKM in the pretest, while 28 students did not meet the criteria. After the treatment using the Student Teams Achievement Divisions (STAD) cooperative learning model, the average posttest score increased by 24.844 points to 84.844, categorized as "high." Based on the posttest results, all students in the control class at SMK YPKK 2 Sleman met the Minimum Competency Criteria, with 31 students passing the KKM.

N-Gain Test

The summary of the N-Gain test results on students' learning motivation in the experimental and control classes at SMKN 1 Bantul is presented as follows.

Table 14. N-Gain Test Results for Learning Motivation at SMKN 1 Bantul

Class	Initial	Final	N-Gain	Category
Experimental	57	82	0.576	Effective
Control	60	79	0.482	Effective

Based on the table 14 above, it can be seen that there was an increase in both initial and final motivation scores in the experimental class at SMKN 1 Bantul. Before the treatment using the Teams Games Tournament (TGT) cooperative learning model was implemented, the initial motivation score in the experimental class was 57, which increased to 82 after the application of the TGT model. The N-Gain score indicated an improvement of 0.576, which falls into the "Effective" category. Based on these results, it can be concluded that the Teams Games Tournament (TGT) cooperative learning model is effective in enhancing learning motivation in the experimental class at SMKN 1 Bantul.

In the control class, there was also an increase in both initial and final motivation scores. Before the application of the Student Teams Achievement Divisions (STAD) cooperative learning model, the initial motivation score in the control class was 60, which increased to 79 after the treatment. The N-Gain score showed an improvement of 0.482, also categorized as "Effective." Therefore, it can be concluded that the Student Teams Achievement Divisions (STAD) cooperative learning model is effective in enhancing learning motivation in the control class at SMKN 1 Bantul.

The summary of the N-Gain test results on students' learning outcomes in the experimental and control classes at SMKN 1 Bantul is presented as follows.

Table 15. N-Gain Test Results for Learning Outcomes at SMKN 1 Bantul

Class	Pretest	Post-test	N-Gain	Category
Experimental	56.094	89.687	0.766	Verry Effective
Control	63.437	86.719	0.621	Effective

Based on the table 15 above, it can be observed that there was an increase in both pretest and posttest scores in the experimental class at SMKN 1 Bantul. Before the treatment using the Teams Games Tournament (TGT) cooperative learning model was administered, the pretest score in the experimental class was 56.094. This score increased to 89.688 after the implementation of the TGT model. The N-Gain score indicated an improvement of 0.766, which falls under the "Highly Effective" category. Therefore, it can be concluded that the Teams Games Tournament (TGT)

cooperative learning model is highly effective in improving student learning outcomes in the experimental class at SMKN 1 Bantul.

In the control class, there was also an increase in both pretest and posttest scores at SMKN 1 Bantul. Prior to the treatment using the Student Teams Achievement Divisions (STAD) cooperative learning model, the pretest score was 63.438. This increased to 86.719 after the application of the STAD model. The N-Gain score showed an improvement of 0.621, which falls into the "Effective" category. Based on these results, it can be concluded that the Student Teams Achievement Divisions (STAD) cooperative learning model is effective in improving learning outcomes in the control class at SMKN 1 Bantul.

The summary of the N-Gain test results on students' learning motivation in the experimental and control classes at SMK YPKK 2 Sleman is presented as follows.

Table 16. N-Gain Test Results for Learning Motivation at SMK YPKK 2 Sleman

Class	Initial	Final	N-Gain	Category
Experimental	59	83	0.580	Effective
Control	61	80	0.471	Effective

Based on the table16 above, it can be observed that there was an increase in both initial and final motivation scores in the experimental class at SMK YPKK 2 Sleman. Before the implementation of the Teams Games Tournament (TGT) cooperative learning model, the initial motivation score in the experimental class was 59, which increased to 83 after the treatment. The N-Gain score showed an improvement of 0.580, which is categorized as "Effective." Based on these findings, it can be concluded that the Teams Games Tournament (TGT) cooperative learning model is effective in enhancing students' learning motivation in the experimental class at SMK YPKK 2 Sleman.

In the control class, there was also an increase in both initial and final motivation scores. Prior to the treatment using the Student Teams Achievement Divisions (STAD) cooperative learning model, the initial motivation score was 61, which increased to 80 after the treatment. The N-Gain score showed an improvement of 0.471, which is also categorized as "Effective." Therefore, it can be concluded that the Student Teams Achievement Divisions (STAD) cooperative learning model is effective in improving students' learning motivation in the control class at SMK YPKK 2 Sleman.

The summary of the N-Gain test results on students' learning outcomes in the experimental and control classes at SMK YPKK 2 Sleman is presented as follows.

Table 17. N-Gain Test Results for Learning Outcomes at SMK YPKK 2 Sleman

Class	Pretest	Post-test	N-Gain	Category
Experimental	54.032	87.581	0.713	Highly Effective
Control	60.000	84.844	0.598	Effective

Based on the table above, it can be seen that there was an increase in both pretest and posttest scores in the experimental class at SMK YPKK 2 Sleman. Before the implementation of the cooperative learning model of the Teams Games Tournament (TGT) type, the pretest score in the experimental class was 54.032, which increased to 87.581 after the treatment. The N-Gain score showed an improvement of 0.713, categorized as "Highly Effective." Based on these results, it can be concluded that the Teams Games Tournament (TGT) cooperative learning model is highly effective in improving learning outcomes in the experimental class at SMK YPKK 2 Sleman.

In the control class, an increase in both pretest and posttest scores was also observed. Prior to the implementation of the Student Teams Achievement Divisions (STAD) cooperative learning model, the pretest score in the control class was 60.000, which increased to 84.844 after the treatment. The N-Gain score showed an improvement of 0.598, categorized as "Effective." Based on these findings, it can be concluded that the Student Teams Achievement Divisions (STAD) cooperative learning model is effective in enhancing learning outcomes in the control class at SMK YPKK 2 Sleman.

Discussion

Learning Motivation

The increase in learning motivation among students in the experimental class at SMKN 1 Bantul occurred across all indicators. The first indicator, the desire and aspiration to succeed, increased by 24%; the second indicator, the drive and need for learning, increased by 31%; the third indicator, hopes and future aspirations, increased by 20%; the fourth indicator, recognition in learning, increased by 22%; the fifth indicator, engaging learning activities, increased by 33%; and the sixth indicator, a conducive learning environment, increased by 22%. The average learning motivation of students before receiving treatment using the Teams Games Tournament (TGT) cooperative learning model was 57%, which increased to 82% after treatment. The N-Gain score was 0.576, indicating a 25% increase in motivation, which falls into the effective category.

In the control class at SMKN 1 Bantul, the Student Teams Achievement Divisions (STAD) cooperative learning model was also effective in increasing students' learning motivation. This was confirmed through the N-Gain score test, which measured the effectiveness of the STAD model based on pre- and post-questionnaire results. The average pre-questionnaire score in the control class at SMKN 1 Bantul was 60%, increasing to 79% in the post-questionnaire, with an N-Gain score of 0.482, meaning a 19% increase in motivation, which is categorized as effective based on the N-Gain score.

The increase in learning motivation in the control class at SMKN 1 Bantul was also observed across all indicators. The first indicator (desire and aspiration to succeed) increased by 21%, the second indicator (drive and need for learning) increased by 11%, the third indicator (hopes and future aspirations) increased by 18%, the fourth indicator (recognition in learning) increased by 18%, the fifth indicator (engaging learning activities) increased by 27%, and the sixth indicator (a conducive learning environment) increased by 16%. The average learning motivation before treatment using the STAD model was 60%, increasing to 79% after treatment. The N-Gain score of 0.482 indicated a 19% increase in motivation, categorized as effective.

Based on the learning motivation data from both the experimental and control classes at SMKN 1 Bantul, a hypothesis test was conducted using the independent sample t-test for the N-Gain score, yielding a Sig. (2-tailed) value of 0.000, which is less than the 5% significance level ($0.000 < 0.05$). This result leads to rejecting H01 and accepting Ha1, concluding that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in enhancing students' learning motivation at SMKN 1 Bantul.

Similarly, an increase in learning motivation among students in the experimental class at SMK YPKK 2 Sleman was observed across all indicators. The first indicator (desire and aspiration to succeed) increased by 24%, the second indicator (drive and need for learning) increased by 28%, the third indicator (hopes and future aspirations) increased by 20%, the fourth indicator (recognition in learning) increased by 22%, the fifth indicator (engaging learning activities) increased by 30%, and the sixth indicator (a conducive learning environment) increased by 22%. The average learning motivation before treatment using the TGT model was 59%, increasing to 83% after treatment. The N-Gain score of 0.580 indicated a 24% increase in motivation, categorized as effective.

In the control class at SMK YPKK 2 Sleman, the STAD cooperative learning model was also effective in increasing students' learning motivation. This was confirmed through the N-Gain score test, which measured the effectiveness of the STAD model based on pre- and post-questionnaire results. The average pre-questionnaire score in the control class at SMK YPKK 2 Sleman was 61%, increasing to 80% in the post-questionnaire, with an N-Gain score

of 0.471, indicating a 19% increase in motivation, categorized as effective.

The increase in learning motivation in the control class at SMK YPKK 2 Sleman was also observed across all indicators. The first indicator (desire and aspiration to succeed) increased by 21%, the second indicator (drive and need for learning) increased by 20%, the third indicator (hopes and future aspirations) increased by 16%, the fourth indicator (recognition in learning) increased by 17%, the fifth indicator (engaging learning activities) increased by 25%, and the sixth indicator (a conducive learning environment) increased by 14%. The average learning motivation before treatment using the STAD model was 61%, increasing to 80% after treatment. The N-Gain score of 0.471 indicated a 19% increase in motivation, categorized as effective.

Based on the learning motivation data from both the experimental and control classes at SMK YPKK 2 Sleman, a hypothesis test was conducted using the independent sample t-test for the N-Gain score, yielding a Sig. (2-tailed) value of 0.000, which is less than the 5% significance level (0.000 < 0.05). This result leads to rejecting H01 and accepting Ha1, concluding that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in enhancing students' learning motivation at SMK YPKK 2 Sleman.

This study concludes that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in enhancing students' learning motivation at SMKN 1 Bantul and SMK YPKK 2 Sleman. Based on students' motivation scores, the TGT model was more effective in improving learning motivation compared to the STAD model.

These results align with Mardhiah and Akbar (2018), who emphasize that integrating games into learning increases students' enjoyment, enthusiasm, and engagement. This finding is also supported by other classroom action research studies. Chairhany (2018) reported a significant increase in students with high learning motivation from 6.67% in the first cycle to 83.33% in the second cycle. Similarly, Rachmawati (2019) observed a 6.03% increase in the average motivation score from 74.9% to 80.93%, while Nastiti et al. (2020) noted a rise from 40.19% in the pre-cycle to 85.07% in the second cycle of accounting classes.

The superior effectiveness of the TGT model can be attributed to its ability to foster self-confidence, active group participation, and collaboration through game-based learning. These aspects strengthen student interaction, material comprehension, and stimulate active thinking, ultimately leading to higher learning motivation (Pratama & Burhendi, 2021; Purnamayanti et al., 2019; Rohayati, 2019).

Learning Outcomes

The average pretest score in the experimental class at SMKN 1 Bantul was 56.094, categorized as fair, and increased to 89.688 in the posttest, categorized as very high. The number of students meeting the Minimum Competency Criteria (KKM) increased significantly, from only 3 students (9.3%) passing the pretest to 100% of students passing the posttest. Furthermore, the N-Gain test resulted in an N-Gain score of 0.76645, categorized as highly effective, indicating that the Teams Games Tournament (TGT) cooperative learning model is highly effective in improving student learning outcomes in the experimental class at SMKN 1 Bantul.

In the control class at SMKN 1 Bantul, the average pretest score was 63.438 (categorized as fair), which increased to 86.719 in the posttest (categorized as very high). The number of students meeting the KKM increased from 8 students (25%) in the pretest to 100% of students passing in the posttest. The N-Gain test showed an N-Gain score of 0.62155, categorized as effective, leading to the conclusion that the Student Teams Achievement

Divisions (STAD) cooperative learning model is effective in improving student learning outcomes in the control class at SMKN 1 Bantul.

Based on the students' learning outcome data in the experimental and control classes at SMKN 1 Bantul, a hypothesis test using an independent sample t-test was conducted on the N-Gain score. The Sig. (2-tailed) value obtained was 0.000, which is smaller than the 5% significance level (0.000 < 0.05). Thus, H02 is rejected, and Ha2 is accepted, indicating that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in improving student learning outcomes at SMKN 1 Bantul.

In the experimental class at SMK YPKK 2 Sleman, the average pretest score was 54.032 (categorized as low) and increased to 87.581 in the posttest (categorized as very high). The number of students meeting the KKM increased from 3 students (9.68%) in the pretest to 100% of students passing the posttest. The N-Gain test showed an N-Gain score of 0.713148, categorized as highly effective, leading to the conclusion that the Teams Games Tournament (TGT) cooperative learning model is highly effective in improving student learning outcomes in the experimental class at SMK YPKK 2 Sleman.

In the control class at SMK YPKK 2 Sleman, the average pretest score was 60.000 (categorized as fair) and increased to 84.844 in the posttest (categorized as high). The number of students meeting the KKM also increased from 3 students (9.68%) in the pretest to 100% of students passing the posttest. The N-Gain test showed an N-Gain score of 0.598013, categorized as effective, leading to the conclusion that the Student Teams Achievement Divisions (STAD) cooperative learning model is effective in improving student learning outcomes in the control class at SMK YPKK 2 Sleman.

Based on the students' learning outcome data in the experimental and control classes at SMK YPKK 2 Sleman, a hypothesis test using an independent sample t-test was conducted on the N-Gain score. The Sig. (2-tailed) value obtained was 0.009, which is smaller than the 5% significance level (0.009 < 0.05). Thus, H02 is rejected, and Ha2 is accepted, indicating that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in improving student learning outcomes at SMK YPKK 2 Sleman.

Overall, it can be concluded that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in improving student learning outcomes at SMKN 1 Bantul and SMK YPKK 2 Sleman. In terms of student learning outcomes, the Teams Games Tournament (TGT) cooperative learning method is highly effective in improving student learning outcomes, while the Student Teams Achievement Divisions (STAD) model is also effective but to a lesser degree than TGT.

This study concludes that there is a significant difference in the effectiveness of the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in improving student learning outcomes at SMKN 1 Bantul and SMK YPKK 2 Sleman. Based on students' performance scores, the TGT model is highly effective, while the STAD model is also effective, though to a lesser degree.

The findings are consistent with Mardhiah and Akbar (2018), who stated that integrating games into the learning process increases students' enthusiasm, motivation, and engagement, which positively affects their learning outcomes. Similarly, Rompegading et al. (2021) found a significant difference in student performance between the TGT (mean score = 86.7) and STAD (mean score = 79.71) models, with a statistical difference of 5.13 > t-table 2.003, indicating that TGT was more effective.

Further supporting evidence comes from Purwanto et al. (2020) and Pratama &

Burhendi (2021), who also confirmed the effectiveness of TGT in enhancing academic achievement. Purnamayanti et al. (2019) reported that students taught using TGT achieved better cognitive learning outcomes (average post-test score of 81) compared to those taught with STAD (52.7). Additionally, student activity levels were higher in TGT-based classrooms.

Similar results were found by Andaningsih & Wilujeng (2015), who concluded that TGT was more effective in improving learning competence, particularly in active and less active classroom contexts. Students in TGT classes were generally more engaged. Dzulfikri (2016) emphasized that game-based learning encourages enthusiasm and challenges students to solve problems, which improves memory retention and deepens learning experiences.

The superior effectiveness of TGT can be attributed to several advantages: the tournament element boosts motivation and engagement, promotes teamwork and peer support, enhances social interaction and competitive spirit, and enables students to master the material more efficiently. These factors contribute to increased motivation and, ultimately, improved academic performance (Astutik, 2013; Nugroho & Rachman, 2018).

CONCLUSION

Based on the hypothesis testing results and discussion, it can be concluded that there is a significant difference in effectiveness between the Teams Games Tournament (TGT) and Student Teams Achievement Divisions (STAD) cooperative learning models in enhancing students' learning motivation. The results of the independent sample t-test show that the significance value for learning motivation at SMKN 1 Bantul and SMK YPKK 2 Sleman is below the significance level, indicating a significant difference in effectiveness. A comparison of the two models reveals that the Teams Games Tournament (TGT) model is more effective than the Student Teams Achievement Divisions (STAD) model in increasing students' motivation. This is supported by the N-Gain score, which is higher for the Teams Games Tournament (TGT) model compared to the Student Teams Achievement Divisions (STAD) model.

Similarly, there is a significant difference in effectiveness between the two cooperative learning models in improving students' learning outcomes. The independent sample t-test results indicate that the significance value for learning outcomes at SMKN 1 Bantul and SMK YPKK 2 Sleman is below the significance level, confirming a significant difference. A comparative analysis demonstrates that the Teams Games Tournament (TGT) model is more effective than the Student Teams Achievement Divisions (STAD) model in enhancing students' learning outcomes. This is evidenced by the N-Gain score, which is higher for the Teams Games Tournament (TGT) model than for the Student Teams Achievement Divisions (STAD) model.

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