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The Effectiveness of Teams Games Tournament Using Google Sites with Local Wisdom in Teaching Flat Shapes to Elementary Students

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ABSTRAK

Penguasaan materi bangun datar dalam pembelajaran matematika di sekolah dasar masih menjadi tantangan akibat metode pembelajaran yang cenderung monoton dan minim penggunaan media interaktif. Permasalahan ini menunjukkan pentingnya penerapan model pembelajaran inovatif yang mengintegrasikan teknologi dengan nilai budaya lokal untuk meningkatkan pemahaman konsep siswa. Penelitian ini bertujuan menganalisis perbedaan penguasaan materi bangun datar antara siswa yang belajar menggunakan model Teams Games Tournament (TGT) berbantuan media Google Sites bermuatan kearifan lokal dengan siswa yang mengikuti pembelajaran konvensional. Metode penelitian yang digunakan adalah quasi experiment dengan desain pre-test post-test control group design. Populasi penelitian terdiri dari 86 siswa kelas V sekolah dasar, dengan sampel yang dipilih secara random sampling, melibatkan 25 siswa dalam kelompok eksperimen dan 27 siswa dalam kelompok kontrol. Data dikumpulkan melalui tes pemahaman konsep bangun datar dan dianalisis menggunakan uji validitas, reliabilitas, daya beda, tingkat kesukaran butir, analisis deskriptif, uji N-Gain score, uji normalitas, homogenitas, serta uji-t independent N-Gain score. Hasil analisis menunjukkan bahwa siswa yang belajar menggunakan model TGT berbantuan media Google Sites bermuatan kearifan lokal mengalami peningkatan penguasaan materi yang lebih signifikan dibandingkan siswa dalam kelompok kontrol. Temuan ini menyimpulkan bahwa penggunaan model TGT berbantuan media interaktif berbasis kearifan lokal dapat meningkatkan pemahaman siswa terhadap konsep bangun datar secara lebih efektif.

ABSTRACT

Mastery of flat shape concepts in elementary mathematics remains a challenge due to monotonous teaching methods and limited use of interactive media. This issue highlights the need for innovative learning models that integrate technology and local cultural values to enhance students' conceptual understanding. This study aims to analyze the differences in flat shape mastery between students using the Teams Games Tournament (TGT) model assisted by Google Sites with local wisdom content and those following conventional learning methods. The research employs a quasi-experimental method with a pre-test post-test control group design. The population consists of 86 fifth-grade elementary school students, with a randomly selected sample comprising 25 students in the experimental group and 27 students in the control group. Data were collected through flat shape concept comprehension tests and analyzed using validity and reliability tests, item discrimination, item difficulty levels, descriptive analysis, N-Gain score analysis, normality tests, homogeneity tests, and an independent N-Gain score t-test. The analysis results show that students in the experimental group using the TGT model assisted by Google Sites with local wisdom content experienced significantly higher mastery improvement compared to students in the control group. This finding demonstrates that interactive media based on local wisdom effectively enhances students' understanding of flat shape concepts.

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1. INTRODUCTION

Mathematics is often perceived as a difficult and uninteresting subject (Maryani, 2023; Mytra, 2023). Moreover, there are still issues in teaching and learning mathematics, as teachers still use conventional teaching methods (Dwiastuti, 2024; Pentury et al., 2020; Sari & Wardhani, 2020). Traditional teaching methods refer to teaching that uses lectures, where teachers merely explain the material and focus students on memorizing formulas without using good learning strategies and techniques (Amalia, 2024; Darma & Wiguna, 2023; Jannah & Hayati, 2024; Suardipa, 2020). The methods used in teaching mathematics should be packed with learning while playing (Khalbi, 2024; Maulana, 2024; Noorhapizah, 2024; Suardipa, 2023). Teachers should carefully select teaching methods that motivate students to be more active in learning activities (Althamiranda et al., 2023; Purwati, 2024). The outcome of the 2022 Programme for International Student Assessment (PISA) survey showed quite worrying results. Based on the program initiated by the Organization for Economic Co-operation and Development (OECD), Indonesian children's abilities in mathematics, science, and reading are ranked low. Indonesia is ranked 68 out of 81 countries in the world in terms of mathematics ability, with a score of 379. It showed a very distant position compared to other ASEAN countries like Singapore, ranked first in mathematics ability, with a score of 575. In addition, the assessment of Indonesian children aged 15 years for mathematics subjects in 2022 decreased by 12-13 points compared to the results in 2018. These results could be the lowest outcome, equivalent to the results obtained in 2003. PISA found that only 18% of students in Indonesia reached at least level 2 for mathematics and 82% of the remaining information was not available. This ability is very low compared to the OECD average of 69%. For students in Indonesia who get level 5 or 6, the number is even lower, at around 9%. The decrease in PISA scores is a challenge in the Indonesian education system (Marpaung, 2023). This shows that education in Indonesia must be immediately improved, especially in mathematics learning.

The problem of mathematics learning also persists in elementary schools, particularly in SDN Gugus 2 Buleleng. This is supported by preliminary observations conducted in all elementary schools in Gugus 2, Buleleng District, in fifth-grade mathematics classes. Initial observations indicated that teachers still employ conventional teaching methods, with activities that do not sufficiently engage students in critical and systematic problem-solving. Students tend to be encouraged to memorize mathematical formulas without variations in strategies, methods, media, and learning resources, leading to boredom and a lack of focus during learning. This is evident in students' tendency to play with their peers and engage in conversations during class, paying less attention to the teacher's explanations.

This reality is that students in fifth grade at SDN Gugus 2, Buleleng, have the potential and enthusiasm to be active in class. Yet they have not been able to demonstrate it well, especially in mathematics. This can be seen from the researcher's initial observations that students' mastery of mathematics material is still relatively low. This is reflected in the low scores on the first-semester mathematics final exam (PAS) for fifth-grade students in Gugus 2, Buleleng District. The low results of the mathematics final exam indicate that many fifth-grade students have not yet met the criteria for achieving learning objectives (KKTP). Observations revealed that students' mathematics achievement fell below the established criteria for achieving learning objectives (KKTP). The KKTP for fifth-grade mathematics in SDN Gugus 2 was at 75. Of the 86 fifth-grade students, only 41.86% achieved scores above the KKTP, while 58.13% scored below. This indicates a substantial gap between students' actual performance and the expected learning outcomes. It is hypothesized that this low achievement can be attributed to inadequate mastery of the subject matter, particularly evident in students' difficulties in solving final asessment exams (PAS).

Further analysis identified several contributing factors to this issue. The most significant factor was a lack of mastery of the subject matter. Specifically, students in SDN Gugus 2, Buleleng, demonstrated difficulties in understanding plane figures concepts, leading to low-class averages and a failure to meet the class mastery criteria. Potential causes for this include: (1) a limited variety of teaching methods, (2) excessive reliance on teacher-centered lectures and monotonous teaching aids, which resulted in passive student engagement, (3) student boredom and disengagement manifested in off-task behaviors such as socializing during class, and (4) the inadequate use of teaching media, further contributing to student disinterest. To address the challenges, this study proposes the impact of the Teams-Games-Tournament (TGT) learning model. The TGT model has been shown to effectively stimulate and motivate learners, facilitating deeper understanding and mastery of the subject matter, and fostering real-world application. Initially introduced by David DeVries and Keith Edward in 1972, and subsequently refined by DeVries and Edward Slavin in 1978 (Nurhayati, 2022). The TGT model is a game-based learning approach that creates an enjoyable and engaging learning environment. This, in turn, encourages active student participation and enhances motivation (Nurhayati, 2022; Sulistiyawati et al., 2024). The right learning model definitely promotes a happy, comfort and motivate students in learning process. The TGT model offers a promising solution to the identified problems by providing a stimulating and supportive learning environment.

Students undoubtedly desire a new atmosphere in their learning experiences. Unlike traditional learning, teacher-centered instruction that relies heavily on lectures, there is a need for more innovative pedagogical approaches (Dacholfany, 2024; Dewi & Ikhwan, 2024). The Teams-Games-Tournament (TGT) learning model offers a promising solution. TGT is a cooperative learning model that involves students as peer tutors and incorporates academic competitions (Amalia, 2024; Kasingku & Lotulung, 2024; Pristiwanti, 2022). By transforming learning into a game-like experience, TGT enhances student engagement and motivation. Moreover, the model promotes positive interdependence and healthy competition for students without creating a hierarchical classroom environment. Beyond the effective teaching models, the enhancement of students' subject matter mastery can also be influenced by the appropriate use of learning media. The learning media acts as valuable tools that enable teachers to present learning materials in an involving manner, thereby fostering student interest (Wulandari, 2023). The advancements in technology have provided with many tools and media to support the learning process. Google Sites is one of the technology-based platforms that can be easily utilized for learning purposes. A teacher can use this site as learning media. Every learning activity can be recorded such as attendance records, learning materials, and assignments that combine various elements in Google Site (Ramadia, 2023; Yulia, 2023). This development necessitates that teachers adapt to integrate technology into their teaching practices. Furthermore, learning videos can be seamlessly embedded within Google Sites to enrich the learning experience (Wicaksono & Paksi, 2023).

The efficacy of the TGT learning model in enhancing students' mastery of subject matter is supported by the similar findings, that demonstrated a significant positive impact of TGT on elementary school students' academic achievement (Banani & Aman, 2022). The study revealed that students taught using the TGT model exhibited higher levels of engagement compared to those taught through conventional lecture-based methods. Similarly, TGT model had a substantial influence on students' learning motivation (Handayani, 2022). In line with this similar findings concluded that Google Sites can effectively enhance the numeracy skills and engagement of elementary school students (Halimatusyadiah & Disman, 2023). Moreover, by incorporating local wisdom into the Google Sites platform, which includes real-world examples and cultural elements specific to the Buleleng region, the learning materials become more relevant and meaningful to students, promoting a deeper understanding of concepts, especially in plane figures. It is expected that this approach will foster a more realistic and contextually relevant learning experience. Based on previous studies, integrating the TGT learning model and Google Sites presents an innovative and engaging approach to enhance students' mastery of subject matter, particularly mathematics.

2. METHOD

This research used a quantitative research design using a quasi-experimental method. This design involves selecting two groups (control and experimental), with only the experimental group receiving the treatment (Lestari et al., 2024). After conducting a thorough observation, both groups were administered pre-tests and post-tests, and a conclusion was drawn based on the differences between the two groups. The research population consisted of all fifth-grade students in SDN Gugus 2, Buleleng District, totalling 86 students. To determine the initial abilities of the students, the population's equivalence was tested using a paired samples t-test. The experimental and control classes were determined using cluster random sampling. This process got a sample of 52 students, with SDN 1 Kalibukbuk as the experimental class and SDN 3 Kalibukbuk as the control class. Data analysis was conducted in stages, including descriptive data analysis, inferential testing (N-Gain), assumption testing, hypothesis testing, and discussion of the research findings. The Kolmogorov-Smirnov test was used to assess the normality of both data groups, while Levene's test was used to test the homogeneity of variances. The independent samples t-test for n-gain scores at a significance level of 0.05 was employed to test the hypothesis, following the confirmation of normality and homogeneity assumptions.

The findings of this study were interpreted within the context of the treatment's effectiveness in enhancing critical thinking and learning motivation among fifth-grade students. The results were thoroughly discussed to determine the extent of the intervention's impact, highlighting significant differences between the experimental and control groups. By employing a robust methodological framework and comprehensive data analysis procedures, this research provides valuable insights into the role of innovative learning models in improving educational outcomes. The use of both descriptive and inferential statistics, supported by assumption testing, reinforces the reliability and validity of the conclusions drawn from this study.

3. RESULT AND DISCUSSION

Result

The results and discussion of this study present the following: (1) data description, (2) inferential testing results (N-Gain), (3) assumption testing, (4) hypothesis testing, and (5) discussion of the research findings. The data in this study were obtained from students' mathematics achievement scores, resulting from implementing the TGT learning model with local wisdom-embedded Google Sites in the experimental group and conventional teaching in the control group. Student mathematics achievement was measured using a mathematics test consisting of 20 pre-test and 20 post-test items. The minimum ideal score was 0, and the maximum score was 100. The results of the mathematics achievement measurement can be seen in Table 1.

Table 1. Table Description of Pre-test and Post-test Results for Experimental and Control Groups

Variables Statistics	Pre-test Experimental Groups	Post-test Experimental Groups	Pre-test Control Groups	Post-test Control Groups
Mean	25.60	71.80	22.96	25.37
Median	25.00	70.00	25.00	25.00
Mode	20.00	65	25	20
Std. Deviasi	8.21	7.76	8,.46	8.43
Variance	67.33	60.167	71,65	71.01
Range	35	25	35	30
Lowest Score	10	60	10	10
Highest Score	45	85	45	40

Based on the data presented in Table 1, the mean post-test score of the experimental group using the TGT learning model with local wisdom-embedded Google Sites in grade 5 of SDN 1 Kalibukbuk was 71.80, with a highest score of 85 and a lowest score of 60. Meanwhile, the mean final score of the control group using conventional teaching in grade 5 of SDN 3 Kalibukbuk was 25.37, with a highest score of 40 and a lowest score of 10. From this data, it is evident that the experimental group using the TGT learning model with local wisdom-embedded Google Sites had a significantly higher mean mastery of plane figures compared to the control group using conventional teaching. Before conducting the hypothesis test, an inferential N-Gain test and assumption tests, including normality testing and homogeneity of variance testing, were performed. The N-Gain was used to determine the improvement in students' mastery of the material before the treatment (pre-test) and after the treatment (post-test). N-Gain was used to measure the difference between the pre-test and post-test scores. The results of the pre-test, post-test, and N-Gain are presented in Table 2.

Table 2. Table N-Gain Test Results for Experimental and Control Groups

Inf	Experimental Groups	Control Groups
Mean	62.27	2.79
Min	46.15	-15.38
Max	80.00	20.00

Based on the results of the N-Gain test, the average N-Gain score of the experimental group (TGT learning model with local wisdom-embedded Google Sites) was 62.27 or 62%, categorized as moderately effective. The minimum N-Gain score was 46.1%, and the maximum was 80%. Meanwhile, the N-Gain of the control group (conventional teaching) was 2.79 or 2.8%, categorized as ineffective. The minimum N-Gain score was -15.4%, and the maximum was 20%. A detailed summary of the N-Gain score results is presented in the appendix. Assumption testing was conducted on the data distribution in two parts: normality testing and homogeneity of variance testing, which was performed on the N-Gain scores of the mathematics achievement of the experimental and control groups. This testing was conducted to determine the next step in hypothesis testing. Normality testing was conducted to determine whether the obtained data came from a normally distributed population. Normality testing was performed on the N-Gain scores of both the experimental and control groups, with the following criteria: H_0 is accepted if the Sig value is greater than 0.05 at a significance level of 5% ($\alpha = 0.05$). A detailed summary of the normality test results can be seen in Table 3.

Table 3. Table Summary of Normality Test Results for Mathematics Mastery Data

Parameters	Class	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	Df	Sig.
N Gain_Score	Experimental	0.083	25	0.200	0.968	25	0.584
	Control	0.092	27	0.200	0.968	27	0.558

Based on the results of the normality test using the Kolmogorov-Smirnov statistic, conducted using SPSS version 25.00 for Windows, it can be determined that the significance value of the N-Gain data for the experimental group is 0.200 (> 0.05). Meanwhile, the significance value of the N-Gain data for the control group is also 0.200 (> 0.05). Since the significance values of the experimental and control groups are greater than 0.05, it can be concluded that the data from both groups are normally distributed. Furthermore, a homogeneity test was conducted to determine whether the two groups had the same variance. If both groups have the same variance, then the groups are said to be homogeneous. The testing criteria are as follows: if the significance value of the N-Gain score test is greater than 0.05, then H_0 is accepted; otherwise, if the significance value of the N-Gain score test is less than 0.05, then H_0 is rejected at a significance level of 5% (α = 0.05). The results of the homogeneity test of the N-Gain scores between the experimental and control groups are presented in Table 4.

Table 4. Table Summary of Variance Homogeneity Test Results

	Parameters	Levene Statistic	df1	df2	Sig.
N-Gain Score	Based on Mean	1.731	1	50	0.194
Mathematics	Based on Median	1.737	1	50	0.194
Mastery	Based on Median and with adjusted df	1.737	1	44.147	0.194
	Based on trimmed mean	1.743	1	50	0.193

Based on the table above, the significance based on the mean N-Gain scores of the experimental and control groups is 0.194. This means N-Gain scores between the experimental and control groups are greater than 0.05 (Sig > 0.05). Therefore, it can be concluded that the variances of the N-Gain scores between the experimental and control groups are homogeneous. After obtaining the results of the prerequisite/assumption tests of the data analysis, the hypothesis test was conducted for the research hypothesis (H_1) and the null hypothesis (H_0). The hypothesis is tested using the Independent Samples t-test for N-Gain Scores, with the following testing criteria for the first hypothesis: H_0 is rejected if the significance value is less than 0.05 at a significance level of 5% (α=0.05). Based on the results of the independent samples t-test for N-Gain scores using SPSS Version 25.00 for Windows as shown in the Table 5, it can be seen that the calculated t_{value} is 16.042 with df = n1 + n2 - 2 = 25 + 27 - 2 = 50 at a 5% significance level, the critical t_{table} is 1.676. From these calculations, it is clear that the $t_{value} > t_{table}$ (16.042 > 1.676) and the Sig. (2-tailed) <0.05 (0.001 < 0.05), this indicates that there is a significant difference in the effects between students who received learning activity using the TGT learning model with local wisdom-embedded Google Sites in grade 5 of SDN 1 Kalibukbuk and those who received conventional teaching model in grade 5 of SDN 3 Kalibukbuk.

Table 5. Table T-test Independent N-Gain Score Result

Parameters		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
N-Gain Score Result of Plane Figures Mastery	Equal variances assumed	1.731	0.194	16.042	50	0.001
	Equal variances not assumed			16.246	47.101	0.001

This can be seen from the analyzed research data. The average pre-test score for mastery of plane figures in mathematics for the experimental group was 25.60, with a highest score of 45 and a lowest score of 10. This data indicates that the student's mastery of plane figures in mathematics was still low, with all students scoring below the minimum competency criteria (KKM). Subsequently, the experimental group received 6 treatments using the TGT learning model with local wisdom-embedded Google Sites.

Table 6. Table Comparison of Classroom Conditions Between Control and Experimental Groups in Learning

Dates	Control Class Condition (Conventional Mode)	Experimental Class Condition (TGT Learning Model with Local Wisdom-Embedded Google Sites)
Meeting 1	The students were both excited and astonished by the new learning materials. Some were so curious that they couldn't resist touching the materials even while the researcher was setting them up.	The students were hesitant to speak due to the researcher was new and the teacher-centered nature of the learning process.
Meeting 2	The students showed great enthusiasm and excitement during the meeting. Even the quieter students actively participated in answering the questions of tournament games.	Students started to show their genuine behavior, but they still relatively preferred chatting with their classmates during the learning process compared to listening to the teacher's explanation.
Meeting 3	The students have become more accustomed to the TGT Google Sites learning model integrated with local wisdom. The learning environment has significantly improved from the beginning to the end of the study.	The learning atmosphere has become more conducive, but students' enthusiasm for asking and answering the teacher's questions is very low, and only a few students are actively participating in the learning process.
Meeting 4	The classroom environment has become conducive and supportive of learning, and students immediately sat in their respective groups without any direction from the researcher to find their own groups. Similar to the previous meeting, students were very happy throughout the learning activities, and no student was silent during the lesson.	The classroom had a friendly atmosphere, similar to the last session. Nevertheless, student engagement was very low, as shown by their negative responses to the teacher's explanations. They seemed more interested in playing than learning.
16 April 2024	Students have a great enthusiasm for learning. They can communicate effectively with their group members and share knowledge with other groups. When a game or tournament is played and they successfully answer questions, they become excited.	Students' learning motivation has improved, but 30 minutes before the class ends, they start to feel bored. This indicates that students' learning motivation decreases as the lesson is about to end.
17 April 2024	Students enjoyed the learning process so much that some of them wanted to ask for the Google Sites link to the learning materials for their own homes and asked about how to create Google Sites.	Students' understanding of the lesson content is still lacking, and every time the teacher asks, "Is there anything else you want to ask?", some answer "No," while others remain silent. The teacher explains the content again, but students still do not show enthusiasm in following the lesson.

From the Table 6, it can be observed that the learning conditions in the experimental class showed improvement from one meeting to the next, with increases in student participation, enthusiasm, and the effectiveness of material delivery. Meanwhile, the control class tended to face challenges in actively engaging students in learning and in understanding the material. A comparative analysis of student achievement between the experimental and control classes showed a significant difference in mastering the material. Before the treatment, the pre-test scores of students in the experimental class were below the criteria for achieving learning objectives (KKTP). However, after the treatment, only a few students still had scores below the KKTP on the post-test. In contrast, in the control class, both before and after the treatment, all students had pre-test scores below the KKTP. These results indicate that the treatment given to the experimental class significantly improved students' mastery of the material.

DISCUSSION

When comparing the average post-test scores of the experimental and control groups, it is evident that the experimental group achieved significantly higher scores in the Mathematics Plane Figures Mastery test (71.80 > 25.37). The difference in the achievement of Mathematics Plane Figures Mastery between the two groups can be attributed to the differences in the instructional treatments. In the experimental group,

students were (1) engaged in cooperative learning, specifically the Team-Games-Tournament (TGT) model, which provided new experiences and increased student motivation, (2) supported by the use of Google Sites embedded with local wisdom content, which enhanced student enthusiasm and engagement, as evidenced by their eagerness to answer practice questions, (3) actively involved in the learning process, creating a more dynamic and enjoyable classroom environment for both students and teachers, (4) more confident in asking and answering questions, and (5) able to answer practice questions effectively. During the implementation of the TGT learning model in the experimental group, several new and engaging experiences were observed. However, some challenges were also encountered, such as students shouting during inter-group tournaments, which disrupted the learning environment for other classes. To address this issue, group leaders were assigned to manage their group members, and disruptive students were given additional questions by the teacher. Over the six treatment sessions, significant improvements were observed in the experimental class.

In contrast, the control group, which received conventional learning model, demonstrated that (1) students tended to be passive during the learning process, (2) student activity was limited, (3) the use of learning media was not diverse, (4) students were less active in the learning process, leading to boredom in the classroom, and (5) students had difficulty understanding the material due to the teacher's dominant role in the classroom. According to Jean Piaget's cognitive theory, the learning process should be adapted to the student's cognitive developmental stage. Therefore, for fifth-grade students in the concrete operational stage (aged 7/8 to 12/14 years), teachers must understand the students' needs during this developmental stage (Yue et al., 2013). Lev Vygotsky's constructivist theory emphasizes the importance of cooperative learning settings, such as the TGT model with local wisdom-embedded Google Sites, in addressing challenges related to low mastery of plane figures in mathematics.

The results of this study are in line with previous research entitled "The Effect of Cooperative Learning Model Type Teams Games Tournament (TGT) on Mathematics Learning Motivation of Fourth Grade Students at SDN 12 GU," which found that there was a significant effect of the TGT cooperative learning model on students' mathematics learning motivation (Rismayani & Astuti, 2021). Previous research entitled "The Effect of Cooperative Learning Model Type Team Games Tournament (TGT) on Mathematics Learning Motivation of Fifth Grade Students at MI The Noor" also found that the implementation of the TGT cooperative learning model had a positive impact on students' motivation and learning outcomes (Handayani, 2022). Furthermore, another previous research entitled "The Implementation of Cooperative Learning Model Type Teams Games Tournament to Improve Social Science Subject Learning Outcomes for Sixth Grade Students" concluded that the TGT cooperative learning model could improve students' learning outcomes in social science subject (Armidi, 2022).

Students undoubtedly desire a new atmosphere in their learning experiences. Unlike traditional learning, teacher-centered instruction that relies heavily on lectures, there is a need for more innovative pedagogical approaches (Dacholfany, 2024; Dewi & Ikhwan, 2024). The Teams-Games-Tournament (TGT) learning model offers a promising solution. TGT is a cooperative learning model that involves students as peer tutors and incorporates academic competitions (Amalia, 2024; Kasingku & Lotulung, 2024; Pristiwanti, 2022). By transforming learning into a game-like experience, TGT enhances student engagement and motivation. Moreover, the model promotes positive interdependence and healthy competition for students without creating a hierarchical classroom environment. Beyond the effective teaching models, the enhancement of students' subject matter mastery can also be influenced by the appropriate use of learning media. The learning media acts as valuable tools that enable teachers to present learning materials in an involving manner, thereby fostering student interest (Wulandari, 2023). The advancements in technology have provided with many tools and media to support the learning process. Google Sites is one of the technology-based platforms that can be easily utilized for learning purposes. A teacher can use this site as learning media. Every learning activity can be recorded such as attendance records, learning materials, and assignments that combine various elements in Google Site (Ramadia, 2023; Yulia, 2023). This development necessitates that teachers adapt to integrate technology into their teaching practices. Furthermore, learning videos can be seamlessly embedded within Google Sites to enrich the learning experience (Wicaksono & Paksi, 2023).

4. CONCLUSION

Based on the findings, it can be conceptually concluded that integrating the Team Games Tournament (TGT) learning model with local wisdom-embedded Google Sites significantly enhances students' mastery of plane figures in mathematics compared to conventional teaching methods. This approach effectively combines collaborative learning and technology, enriched with cultural relevance, fostering both academic achievement and cultural appreciation. The results highlight the importance of innovative, culturally contextualized pedagogies in creating engaging and effective learning experiences for

elementary school students, particularly in the context of grade 5 students in Gugus 2 Buleleng Elementary Schools.

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