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The Relationship Between Learning Styles and Student Outcomes through Team Games Tournament Learning Integrated with Pancasila Student

Anik Widiastuti[1)]*, Eki Yulia Susanti[2)], Diana Ayu Pamungkas[3)], M. Khoiri Nursalim[4)]

1) Pendidikan IPS, Universitas Negeri Yogyakarta, Indonesia
2) 3) 4) Pendidikan Profesi Guru, Universitas Negeri Yogyakarta, Indonesia

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Abstract

Previous studies have shown that the Teams Games Tournament (TGT) model is effective in enhancing student engagement; however, they have not explicitly examined how this effectiveness is influenced by differences in learning styles within the context of the integration of the Proyek Penguatan Profil Pelajar Pancasila (P5). This gap serves as a critical foundation for the present study.

This study aims to analyze the relationship between learning styles and student learning outcomes through a P5-integrated TGT model using a quantitative correlational-comparative design. The research subjects consisted of 64 students at SMPN 2 Depok, categorized into auditory, visual, and kinesthetic learning preferences. The instruments used included a learning style questionnaire, achievement tests, peer assessment observation sheets, and teacher journals to measure the attainment of the Pancasila Student Profile dimensions. Data were analyzed using the Kruskal-Wallis test and Spearman correlation. The results indicate a significant difference in learning outcomes based on students' learning styles ($p = 0.000$), with kinesthetic students demonstrating superior performance within the TGT framework compared to auditory and visual students. Furthermore, the Spearman correlation reveals a strong relationship between learning styles and academic achievement ($\rho = 0.886$, $p = 0.000$), indicating a very strong association between the two variables. The novelty of this study lies in the integration of learning style analysis, the TGT learning model, and the implementation of P5 within a single measurable empirical framework. Practically, this study recommends the implementation of TGT-based differentiated instruction, such as the use of visual media and structured verbal reinforcement, to ensure that all learning styles are optimally accommodated.

Keywords: *differentiated instruction; learning styles; profil pelajar pancasila; teams games tournament (tgt)*

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**Corresponding author:*
E-mail: anikwidiastuti@uny.ac.id

INTRODUCTION

The contemporary Indonesian pedagogical landscape, steered by the Ministry of Education, Culture, Research, and Technology (Kemdikbudristek, 2020), has pivoted toward a dual-focus mandate: academic excellence and the cultivation of the "Pancasila Student Profile." This framework prioritizes core competencies including critical reasoning, collaborative praxis (mutual cooperation), and learner autonomy. Central to achieving these benchmarks is the strategic selection of instructional models that harmonize character development with cognitive gains.

The Teams Games Tournament (TGT) model emerges as a potent pedagogical intervention, leveraging group-based competition to catalyze student engagement and motivation (Slavin, as cited in Riana, 2019). However, the efficacy of TGT is inherently mediated by individual cognitive modalities. As posited by Felder and Silverman (as cited in Sarah et al., 2022), synchronizing instructional delivery with diverse learning styles is critical for optimizing learning efficiency. While preliminary evidence suggests that TGT fosters a conducive environment for Pancasila-aligned competencies (Jannah, 2024; Batrisya & Rijal, 2024), conventional methods frequently result in stagnant motivation and suboptimal outcomes (Fitriani et al., 2023). This study addresses this dichotomy by examining the implementation of TGT at SMPN 2 Depok. Preliminary observations indicate that Class 7D, utilizing TGT, demonstrated superior participation and profile achievement compared to the conventionally taught Class 7A, necessitating a rigorous analysis of how TGT interacts with specific learning styles to fulfill national educational mandates. This study identifies a gap in that there has been no comprehensive investigation integrating learning styles, the TGT model, and the achievement of the Pancasila Student Profile within a unified analytical framework.

This research seeks to empirically examine the correlation between individual learning modalities and the attainment of "Profil Pelajar Pancasila" dimensions through the strategic implementation of the Teams Games Tournament (TGT) model, integrated with the P5 (Proyek Penguatan Profil Pelajar Pancasila) framework. Adopting a rigorous quantitative methodology, the study aims to elucidate the nuanced interactions between pedagogical interventions and diverse cognitive styles.

Beyond mere assessment, this investigation is positioned to provide critical insights into the operational efficacy of TGT in catalyzing holistic learning outcomes. By bridging the gap between standardized national character-building mandates and personalized instructional needs, the findings contribute to the evolution of differentiated learning theories. Ultimately, this research offers a replicable model for educational practitioners seeking to align classroom dynamics with the inherent characteristics of student learning styles, thereby fostering a more inclusive and effective secondary education environment. The research questions of this study are (1) whether there are differences in learning outcomes based on learning styles, and (2) whether there is a relationship between learning styles and learning outcomes. The research hypotheses are H1 there are significant differences in learning outcomes, H2 there is a significant relationship between the variables (Mahayasa, 2023).

LITERATURE REVIEW

Definition of Teams Game Tournament (TGT)

Teams Game Tournament (TGT) is a learning model that combines group learning, games and adaptation to students' learning styles. This model offers significant relevance and benefits to the learning process. The learning process trains students to develop a spirit of cooperation within groups. Students are also required to interact effectively in order to achieve the best possible results. The TGT model is a cooperative learning approach that combines group learning through games. The TGT model is designed to enhance students' conceptual understanding and academic achievement, and is particularly effective in the learning process. The TGT model is a cooperative learning method in which pupils are grouped into small learning groups of five to six members with varying characteristics such as ability, gender and ethnic background (Hasanudin et al., 2023). The TGT cooperative learning model was developed with several considerations in mind; for instance, the TGT model not only allows academically gifted students (those with high academic ability) to stand out in the learning process, but also ensures that students with lower academic ability are actively involved and play an important role within their group. By using this learning model, a sense of solidarity and mutual respect among group members is fostered. This learning model can enhance students' motivation to learn

Definition of Pancasila Education

Pancasila Education is a subject that helps students broaden their understanding of the social world. It is a subject that encourages students to engage in active and creative learning, which can then be applied to national and civic life. Students are considered to have a good grasp of the subject matter if they are able to critically understand and apply these concepts in everyday situations. The ability to understand concepts is essential for students to connect the subject matter with real-life situations around them (Tirtoni et al., 2023).

Learning Styles

A learning style is defined as the consistent way in which a learner responds to stimuli and information, remembers, thinks and solves problems (Zagoto et al., 2019). The way each learner learns, or the way they focus on the process and comprehend new information in different ways, is referred to as a learning style (Kurniati et al., 2019). These learning styles explain how each person learns or how they focus on the process and master new and difficult information through various perspectives (Kurniani Ningsih et al., 2021). Meanwhile, the definition of learning style according to Derici & Susanti (2023) is that a learning style can also be defined as the understanding that everyone learns in different ways according to their respective abilities and uniqueness, in line with the learning principles championed by Ki Hajar Dewantara, who emphasised the importance of providing guidance for everyone to develop their potential to achieve the highest possible level of happiness. All learners possess different levels of intelligence, so learners have different ways of learning; therefore, learning style is one of the factors that can influence how a person learns (Nofriansyah et al., 2022).

METHODOLOGY

This study employs a quantitative comparative research design to systematically evaluate the correlation between diverse learning modalities and the attainment of the Proyek Penguatan Profil Pelajar Pancasila (P5) within an Integrated Social Studies (IPS) curriculum. By utilizing the Teams Games Tournament (TGT) model as the primary pedagogical intervention, this design facilitates a rigorous assessment of how distinct cognitive styles - visual, auditory, and kinesthetic - influence both academic performance and character-building outcomes. The integration of P5 within TGT framework is operationalized through the explicit alignment of learning objectives, instructional activities, and assessment indicators with the dimensions of the Pancasila Student Profile, particularly collaboration, independence, and critical thinking. Each phase of the TGT cycle class presentation, team study, games, tournaments, and team recognition is systematically integrated with character-oriented tasks to ensure that both cognitive and affective domains are developed concurrently. The selection of a comparative approach is theoretically grounded in its capacity to delineate variances in educational efficacy across differing instructional contexts. This methodology mirrors the established framework of Masini et al. (2019), whose comparative analysis identified significant disparities in social studies engagement and achievement when contrasting "make-a-match" cooperative learning against conventional paradigms. Similarly, Arsyadi and Prasetyawan (2018) successfully leveraged this approach to differentiate information literacy proficiencies between disparate academic cohorts. Consequently, the application of a comparative quantitative framework in this study is highly pertinent; it allows for a precise determination of the TGT model's impact on the multidimensional development of student character, providing empirical clarity on its alignment with national educational standards.

The target population for this research comprises the entire 7th-grade student body at SMPN 2 Depok. A purposive sampling technique was employed to select classes VII A and VII D as the primary cohorts. This selection was strategically designed to capture a representative distribution of three distinct learning modalities: visual, auditory, and kinesthetic. By isolating these cohorts, the study ensures a robust comparative framework to evaluate the interaction between heterogeneous learning styles and academic outcomes mediated by the Teams Games Tournament (TGT) model.

To ensure data integrity and multifaceted analysis, the study utilized a triad of validated research instruments:

1. Learning Modality Inventory (LMI): A digitized questionnaire, administered via Google Forms, was utilized to categorize students based on their dominant learning tendencies (visual, auditory, or kinesthetic). The instrument was structured to quantify cognitive preferences, providing the foundational data for subsequent comparative analysis. The instruments were tested for validity and reliability (Cronbach's alpha > 0.70) to ensure data reliability.
2. Summative Learning Assessment: To evaluate the cognitive impact of the TGT versus conventional models, a criterion-referenced test was developed. This instrument measures academic achievement relative to the Social Studies (IPS) curriculum taught during the intervention period, serving as the primary metric for learning outcomes.

3. Multidimensional Observation Protocol: Beyond academic testing, a structured observation rubric was implemented to assess the "Profil Pelajar Pancasila". The rubric was analytically constructed based on observable behavioral descriptors for each targeted P5 dimension, such as active participation in group problem-solving (gotong royong), self-regulated task completion (mandiri), and the ability to justify arguments during discussions (bernalar kritis). Each indicator was rated using a scaled performance level to ensure consistency and inter-rater reliability. This protocol focused on behavioral indicators of collaboration, intrinsic motivation, and peer interaction. This qualitative layer allows for the triangulation of data, ensuring that character development dimensions such as mutual cooperation and independence are captured through real-time engagement in both experimental and control environments.

The data collection process was executed in a systematic four-phase sequence to ensure environmental consistency and data reliability:

1. Baseline Diagnostic: Prior to the pedagogical intervention, the Learning Modality Inventory (LMI) was administered via Google Forms to establish a baseline of student learning preferences (visual, auditory, or kinesthetic). The instruments were tested for validity and reliability (Cronbach's alpha > 0.70) to ensure the reliability of the data.
2. Pedagogical Intervention: The Teams Games Tournament (TGT) model was implemented across two intensive sessions in classes VII A and VII D. During implementation, students were organized into heterogeneous teams consisting of mixed learning styles to promote peer scaffolding. Learning tasks were designed as problem-based IPS scenarios requiring collaborative analysis, while game and tournament questions incorporated both content mastery and situational judgment reflecting Pancasila values. Teachers functioned as facilitators, providing structured reflection prompts at the end of each session to reinforce internalization of P5 dimensions. Concurrent with these sessions, non-participant systematic observations were conducted to capture real-time behavioral data regarding student engagement.
3. Summative Evaluation: Following the conclusion of the learning cycle, a Post-Intervention Assessment was administered to quantify academic gains and cognitive retention.
4. Longitudinal Character Mapping: Observational data were synthesized throughout the intervention to map student progress against the specific dimensions of the Pancasila Student Profile, using cumulative scoring and reflective field notes to identify patterns of character development across sessions.

The quantitative data derived from the LMI, summative tests, and observational protocols were subjected to a multi-stage statistical analysis using SPSS software, following these logical steps:

1. Exploratory Data Analysis (EDA): A Shapiro-Wilk Normality Test was performed to examine data distribution. This step was critical in determining the transition from parametric to non-parametric testing (such as the Kruskal-Wallis test used in the final results).

2. Bivariate Correlation Analysis: Spearman's Rho *(ρ)* was utilized to evaluate the strength and direction of the relationship between learning modalities and the achievement of Pancasila Profile dimensions.
3. Inferential Comparative Analysis (ANOVA): A One-Way Analysis of Variance (ANOVA) or its non-parametric equivalent was conducted to identify statistically significant disparities in learning outcomes across the three distinct learning style cohorts.
4. Predictive Modeling: Simple Linear Regression was employed to determine the extent to which learning style preferences serve as a predictor for the successful internalizing of Pancasila values. This analysis provided the basis for interpreting the effect size and significance of the studied variables

RESULTS AND DISCUSSION

The empirical phase of this study involved a cohort of N=64 seventh-grade students at SMPN 2 Depok. Following the administration of a standardized diagnostic assessment, participants were stratified into three distinct cognitive modalities: Auditory, Visual, and Kinesthetic. This mapping was essential to establish the baseline variables required for evaluating the TGT model's efficacy across diverse learning profiles This section presents the research findings objectively The results of this study indicate that there are significant differences in students' learning outcomes based on their learning styles. Descriptive analysis shows that kinesthetic learners achieved the highest mean scores, followed by visual and auditory learners. Statistical testing using the Kruskal–Wallis test confirms that these differences are statistically significant. The distribution of the sample across these categories is summarized in the table below:

Table 1. Number and Percentage of Learning Style Groups

Learning Style Category	Frequency (n)	Percentage (%)
Auditory	15	23%
Visual	17	27%
Kinesthetic	32	50%
Total	64	100%

The diagnostic phase revealed a heterogeneous distribution of learning modalities within the study cohort (N = 64). Kinesthetic learners constituted the largest proportion (50%, n = 32), followed by visual (27%, n = 17) and auditory learners (23%, n = 15). This distribution provides the basis for subsequent comparative and correlational analyses. Conversely, Visual learners accounted for 27% (n=17) of the cohort. These students demonstrate a cognitive preference for spatial and pictorial data processing, utilizing visual aids such as diagrams and written documentation to synthesize information (Lestari, 2021). Finally, the Auditory subgroup represented 23% (n=15) of the population, characterized by a reliance on verbal cues, tone, and discursive interaction for knowledge acquisition (Kurnia, 2023).

Following this stratification, the study transitioned to an inferential analysis of how these specific modalities intersect with the Teams Games Tournament (TGT) model in Social Studies (IPS). Given that TGT is inherently a high-movement, collaborative, and game-based framework, the high concentration of kinesthetic learners (50%) provides a unique

opportunity to evaluate the model's efficacy in a contextually synchronized environment. The subsequent analysis evaluates whether this demographic skew significantly influenced the robust correlation results (rho = 0.886) and the achievement of the Profil Pelajar Pancasila. Prior to the inferential analysis, a comprehensive data audit was conducted to ensure the structural integrity of the dataset. As delineated in Table 2, the case processing summary confirms a 100% validity rate across all categorical variables, with no missing data points identified (N=64). This absolute data completion rate eliminates the need for imputation techniques or statistical adjustments, thereby fortifying the reliability of the subsequent comparative results.

Table 2: Case Processing Summary and Sample Distribution

Case Processing Summary							
		Cases					
	Learning Styles	Valid		Missing		Total	
		N	Percent	N	Percent	N	Percent
TGT	auditori	13	100.0%	0	0.0%	13	100.0%
	visual	19	100.0%	0	0.0%	19	100.0%
	kinestetik	32	100.0%	0	0.0%	32	100.0%

The stratified sample consisted of 13 auditory, 19 visual, and 32 kinesthetic students. No missing data were identified, indicating complete data for subsequent analysis. The following subsection provides a descriptive statistical breakdown of the performance scores associated with each learning modality under the TGT framework.

Tabel 3. Descriptive Statistic

Descriptives					
	Gaya Belajar			Statistic	Std. Error
TGT	Auditori	Mean		78.77	1.378
		95% Confidence Interval for Mean	Lower Bound	75.77	
			Upper Bound	81.77	
		5% Trimmed Mean		78.91	
		Median		78.00	
		Variance		24.692	
		Std. Deviation		4.969	
		Minimum		70	
		Maximum		85	
		Range		15	
		Interquartile Range		9	
		Skewness		-.228	.616
		Kurtosis		-.920	1.191
	Visual	Mean		84.26	.582
		95% Confidence Interval for Mean	Lower Bound	83.04	
			Upper Bound	85.49	
		5% Trimmed Mean		84.18	
		Median		85.00	
		Variance		6.427	

	Std. Deviation		2.535	
	Minimum		80	
	Maximum		90	
	Range		10	
	Interquartile Range		3	
	Skewness		.287	.524
	Kurtosis		.353	1.014
Kinesteti	Mean		97.03	.468
k	95% Confidence Interval	Lower Bound	96.08	
	for Mean	Upper Bound	97.99	
	5% Trimmed Mean		97.19	
	Median		97.00	
	Variance		6.999	
	Std. Deviation		2.646	
	Minimum		90	
	Maximum		100	
	Range		10	
	Interquartile Range		5	
	Skewness		-.437	.414
	Kurtosis		-.260	.809

Descriptive analysis indicates that kinesthetic learners achieved the highest mean performance, followed by visual and auditory learners. This pattern highlights the influence of learning styles on students' academic outcomes within the TGT framework..

The Kinesthetic cohort achieved the highest mean performance (97.03), followed by the Visual (84.26) and Auditory (78.77) groups. Notably, the kinesthetic group also represented the largest proportion of the sample (50%), indicating not only dominance in performance but also in population distribution, which strengthens the internal validity of the observed trend. This dominance suggests that the TGT model operates most optimally within learning environments where active and experiential engagement is prevalent.The proximity of the median values 78.00, 85.00, and 97.00, respectively to their corresponding means suggests a relatively symmetrical data distribution across all subsets. Regarding data dispersion, the Auditory group exhibited the highest degree of variability, evidenced by a standard deviation of (SD = 4.969) and a range of 15. In contrast, the Visual (SD = 2.535) and Kinesthetic (SD = 2.646) cohorts demonstrated greater homogeneity, both maintaining a restricted range of 10. This indicates that while TGT yielded high scores for kinesthetic learners, the outcomes for auditory learners were more dispersed, suggesting varying levels of model receptivity within that group. This high variability implies that auditory learners do not respond uniformly to the TGT structure, some may adapt successfully through peer interaction, while others may experience cognitive overload due to the reduced emphasis on verbal explanation and linear instruction.

To evaluate the normality of the dataset, skewness and kurtosis coefficients were analyzed. The findings of this study demonstrate that the effectiveness of the Teams Games Tournament (TGT) model is influenced by students' learning styles. This supports the theoretical perspective of person–environment fit, which posits that optimal learning outcomes are achieved when instructional strategies align with learners' cognitive characteristics. The descriptive results suggest a clear performance advantage for kinesthetic learners under the TGT model. This can be explained by the active,

collaborative, and game-based nature of TGT, which aligns closely with the experiential learning preferences of kinesthetic students. However, this finding does not imply that auditory and visual learners are less capable. Instead, it indicates that the effectiveness of TGT is not universal but depends on how well the instructional design accommodates different learning styles. From a theoretical perspective, this study highlights the importance of interaction between instructional models and individual learning characteristics. From a practical standpoint, the findings suggest that teachers should implement differentiated instruction within the TGT framework.

This study also proposes a conceptual model in which learning styles influence the effectiveness of TGT implementation, which in turn affects learning outcomes and the achievement of the Pancasila Student Profile. Skewness and kurtosis values indicate that the data are normally distributed, as all groups fall within the acceptable range. The findings demonstrate that the effectiveness of the Teams Games Tournament (TGT) model is influenced by students' learning styles. This supports the theoretical perspective of person–environment fit, which suggests that learning outcomes are optimized when instructional strategies align with learners' characteristics. This result is consistent with the theoretical premise that cooperative learning structures that involve active participation, competition, and peer interaction can enhance engagement and cognitive processing among learners who benefit from experiential activities. Previous studies similarly report that TGT improves learning outcomes and student motivation because it combines collaborative problem-solving with game-based reinforcement (Slavin, 2014; Huda, 2013).

In addition, research on learning styles shows that kinesthetic learners tend to perform better in instructional environments that integrate physical activity and social interaction rather than passive instruction (Fleming & Mills, 1992; Gilakjani, 2012). Within the P5 framework, kinesthetic learners are more likely to demonstrate observable indicators of collaboration and independence, as these dimensions are enacted through interactive learning activities. However, the observed differences among learner groups indicate that the effectiveness of TGT is not universal, but varies depending on learning preferences. This finding reinforces previous research suggesting that instructional models interact with learner characteristics (Johnson & Johnson, 2009). The relatively high standard deviation within the auditory group indicates variability in learning experiences, which may be related to the limited emphasis on structured verbal reinforcement within the TGT cycle. Auditory learners typically benefit from sequential explanation and dialogic interaction, which may be less prominent in fast-paced, game-based learning environments.

From a practical perspective, these findings suggest that teachers should implement differentiated instruction within the TGT framework by incorporating visual supports, strengthening verbal interaction, and maintaining interactive activities to accommodate diverse learning styles. This study also proposes a conceptual model in which learning styles influence the effectiveness of TGT implementation, which in turn affects learning outcomes and the achievement of the Pancasila Student Profile.

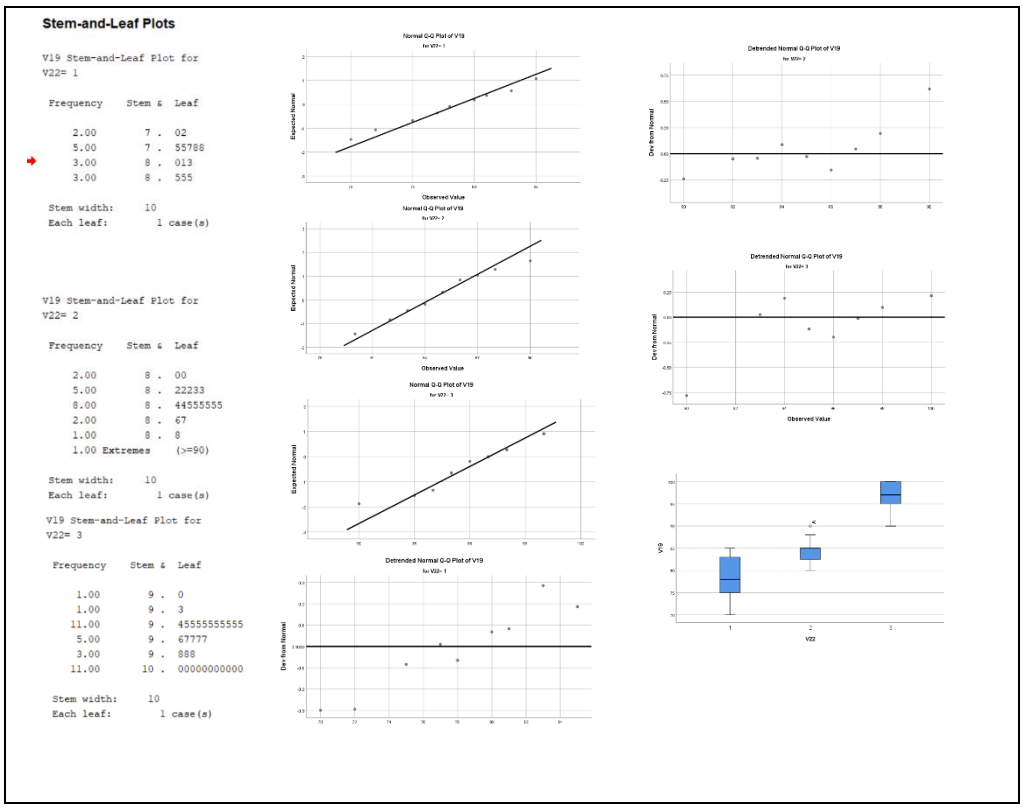
Table 3. Results of Normality Test

Tests of Normality		
V22	Kolmogorov-Smirnov[a]	Shapiro-Wilk

		Statistic	df	Sig.	Statistic	df	Sig.
V19	1	.126	13	.200*	.940	13	.452
	2	.175	19	.128	.957	19	.517
	3	.213	32	.001	.866	32	.001

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



The Stem-and-Leaf Plot shows the distribution of student scores across learning styles. The auditory group scores range from 70 to 85, with concentration around 75–78. The visual group ranges from 80 to 90, with concentration around 84–85. The kinesthetic group ranges from 90 to 100, with concentrations at 95 and 100. Normality was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The results indicate that the auditory and visual groups are normally distributed, while the kinesthetic group shows a deviation from normality ($p < 0.05$). Due to the violation of the normality assumption in the kinesthetic data, non-parametric tests were applied for further analysis. The results of the Mann-Whitney U Test are presented in the following section.

Table 4. Ranking Results for Kinesthetic and Visual Groups

Ranks

	Learning Styles	N	Mean Rank	Sum of Ranks
TGT	visual	19	10.03	190.50
	kinestetik	32	35.48	1135.50
	Total	51		

Following the identification of non-normal distribution within the kinesthetic group, Mann-Whitney U tests were conducted to examine differences in learning outcomes

between groups under the Teams Games Tournament (TGT) model. The results indicate a substantial difference between kinesthetic and visual learners, with the kinesthetic group obtaining a higher mean rank (35.48) compared to the visual group (10.03).

Table 5: Mann-Whitney U Test Statistics (Visual vs. Kinesthetic)

Statistical Metric	Value
Mann-Whitney U	0.500
Wilcoxon W	190.500
Z-Score	-5.973
Asymp. Sig. (2-tailed)	.000

The results in Table 5 indicate a statistically significant difference between the two groups ($U = 0.500$, $p < 0.05$), suggesting that learning outcomes differ between kinesthetic and visual learners.

Table 6: Rank Distribution for Kinesthetic and Auditory Cohorts

Learning Modality	N	Mean Rank	Sum of Ranks
Auditory	13	7.00	91.00
Kinesthetic	32	29.50	944.00
Total	45		

The disparity is even more pronounced in this pairing; kinesthetic students maintained a Mean Rank of 29.50, while auditory students recorded a drastically lower Mean Rank of 7.00. The corresponding test statistics in Table 7 corroborate this trend ($U = .000$, $p < .005$), indicating a highly significant advantage for kinesthetic engagement over auditory processing within the TGT pedagogical structure. The results show that the kinesthetic group achieved a higher mean rank (29.50) compared to the auditory group (7.00), indicating a difference in performance between the two groups. Following the comparative assessment, a Spearman's Rank-Order Correlation was performed was conducted to examine the relationship between learning styles and student performance within the P5-integrated TGT model. The results are presented in Table 8.

Tabel 8. Hasil Uji Korelasi antara Gaya belajar dan TGT

Correlations

			Gaya Belajar	TGT
Spearman's rho	Gaya Belajar	Correlation Coefficient	1.000	0.886**
		Sig. (2-tailed)	.	.000
		N	64	64
	TGT	Correlation Coefficient	0.886**	1.000
		Sig. (2-tailed)	.000	.
		N	64	64

**. Correlation is significant at the 0.01 level (2-tailed).

To examine the relationship between student learning styles and the achievement of the Profil Pelajar Pancasila (P5) within the TGT framework, a Spearman's Rank-Order Correlation was conducted. The analysis yielded a Spearman's rho of 0.886, indicating a strong positive relationship between learning styles and student learning outcomes. The significance value ($p = 0.000$) is below 0.05, indicating that the correlation is statistically significant. The associated significance value ($p = 0.000$) is well below the alpha = 0.0$ threshold, confirming that the relationship is statistically significant at a 99% confidence level. This result implies that the probability of this correlation occurring by chance is less than 1%.

Table 9. ANOVA Test Results

ANOVA					
TGT					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3832.977	2	1916.488	185.871	.000
Within Groups	628.961	61	10.311		
Total	4461.938	63			

A One-Way Analysis of Variance (ANOVA) was conducted to examine differences in learning outcomes among the three learning style groups. The results indicate a statistically significant difference between groups ($F = 185.871$, $p < 0.05$), suggesting that learning outcomes vary across learning styles. However, the ANOVA test does not specify which groups differ significantly. Therefore, post hoc multiple comparison tests were conducted. The results are presented in the following subsection

Table 10. Post Hoc Test Results

Multiple Comparisons						
Dependent Variable: V19						
Tukey HSD						
(I) V22	(J) V22	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-5.494*	1.156	.000	-8.27	-2.72
	3	-18.262*	1.056	.000	-20.80	-15.73
2	1	5.494*	1.156	.000	2.72	8.27
	3	-12.768*	.930	.000	-15.00	-10.53
3	1	18.262*	1.056	.000	15.73	20.80
	2	12.768*	.930	.000	10.53	15.00
*. The mean difference is significant at the 0.05 level.						

Following the significant ANOVA result, a Tukey HSD post hoc test was conducted to perform pairwise comparisons among the three learning style groups. The results indicate significant differences between all group pairs. The kinesthetic group showed higher mean scores compared to the visual group ($MD = 12.768$, $p < 0.05$) and the auditory group ($MD = 18.262$, $p < 0.05$). In addition, the visual group performed higher than the auditory group ($MD = 5.494$, $p < 0.05$). These results indicate that there are significant differences in learning outcomes across all learning style groups. Following the post hoc analysis, a simple linear regression analysis was conducted to examine the predictive relationship between learning styles and the achievement of the Profil Pelajar Pancasila. The results are presented in Table 11.

Table 11. Linear Regression Analysis

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.

1	(Constant)	-5.326	.453		-11.764	.000
	V19	.085	.005	.907	16.911	.000

a. Dependent Variable: V22

To examine the predictive relationship between learning styles and the achievement of the Proyek Penguatan Profil Pelajar Pancasila (P5), a simple linear regression analysis was conducted. The results indicate a significant predictive relationship between learning styles and P5 achievement ($\beta = 0.907$, $p < 0.05$). The t-test result ($t = 16.911$, $p < 0.05$) confirms that learning styles significantly predict P5 achievement. The unstandardized coefficient ($B = 0.085$) indicates that increases in learning style alignment are associated with increases in P5 achievement scores The constant value of -5.326 represents the intercept of the regression model.

CONCLUSION

At a conceptual level, this study advances an instructional alignment perspective, emphasizing that the effectiveness of cooperative game-based learning is contingent upon the congruence between instructional design and students' cognitive modalities. This represents the primary contribution (novelty) of the study, namely the integration of TGT, P5 outcomes, and differentiated learning styles into a unified analytical framework. Furthermore these findings affirm that the effectiveness of the TGT model is not uniform but is strongly mediated by the alignment between instructional design and students' cognitive modalities. Theoretically, these findings reinforce the importance of differentiated instruction within cooperative learning environments, particularly in the context of character-based education such as P5. Practically, the results imply that educators need to adapt the TGT model through multimodal instructional strategies, including visual scaffolding, structured verbal interaction, and reflective learning activities, to ensure equitable participation across diverse learners.Therefore, achieving the intended P5 outcomes such as collaboration, independence, and critical reasoning necessitates instructional adjustments that ensure all learners can actively engage according to their cognitive strengths. Despite its contributions, this study has several limitations. The research was conducted within a single school context with a relatively limited sample size, which may restrict the generalizability of the findings. In addition, the quantitative approach employed in this study does not fully capture the complexity of student engagement and learning processes during TGT implementation. Future research is recommended to extend this study through experimental designs across diverse educational settings, incorporate qualitative approaches to explore student learning experiences in greater depth, and develop a validated instructional model that explicitly links learning styles, TGT strategies, and P5 outcomes. Such efforts are essential to strengthen both the theoretical and practical foundations of differentiated cooperative learning.

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