

Think-Pair-Share Strategy on Enhancing Students' Engagement and Performance in Tech-Voc Electrical Installation and Maintenance

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Abstract— This study focused on the Think-Pair-Share Strategy in teaching Technical Vocational Electrical Installation and Maintenance program. It aimed to determine the level of Think-Pair-Share, level of students' engagement and students' performance. Furthermore, the study investigated the significant relationship between the Think-Pair-Share strategy and students' engagement and performance. To establish the connection between these variables, a descriptive research approach was used. The study's participants consisted of 84 grade 11 students enrolled in the Tech-Voc EIM program at Ibayiw Integrated National High School. A total population sampling technique was used to select the respondents. Data collection involved survey questionnaires, written tests, and performance tasks. The findings revealed that students exhibited a very high level of agreement regarding their engagement with the Think-Pair-Share strategy. This high level of engagement was particularly evident in their behavioral, emotional, and cognitive engagement, suggesting that Think-Pair-Share effectively fostered active participation, collaboration, and skill development. Additionally, students demonstrated proficiency in their written test scores and excellence in their performance task scores, showing that Think-Pair-Share contributed positively to both knowledge acquisition and practical skill development. Regarding the relationship between the Think-Pair-Share strategy and students' engagement and performance, the study found a significant relationship between certain aspects of Think-Pair-Share and student engagement. Specifically, the collaborative, skills development, and feedback reinforcement aspects of Think-Pair-Share positively influenced emotional and cognitive engagement. However, no significant relationship was found between the Think-Pair-Share strategy and students' academic performance, as reflected in their written test scores or performance task outcomes. In conclusion, while the Think-Pair-Share strategy did not have a direct statistically significant impact on students' academic performance, it played a crucial role in enhancing student engagement, particularly in emotional and cognitive aspects. This underscores the value of Think-Pair-Share in creating a dynamic and supportive learning environment that encourages active participation, reflection, and deeper learning. Based on these findings, it is recommended that Tech-Voc teachers consistently integrate the Think-Pair-Share strategy into their teaching methods and explore its application in other subjects to improve overall learning outcomes. Additionally, school leaders should provide teachers with ongoing professional development to maximize the benefits of Think-Pair-Share, and future research should explore qualitative insights into students' experiences with Think-Pair-Share in Tech-Voc education.

I. INTRODUCTION

Effective teaching strategies are essential to ensure students not only understand theoretical concepts but also apply them

in practical situations, particularly in Technical Vocational Livelihood (TVL) Track. One of the courses under TVL track is Electrical Installation and Maintenance (EIM) NCII, which consist of competencies that a student must achieve to enable him or her to install and maintain electrical wiring, lighting and related equipment. This will require students to be both cognitively and practically engaged to achieve success. However, traditional teaching methods may not always be sufficient in motivating students to actively participate and perform at their best in such hands-on subjects.

One instructional strategy gaining increasing attention for its potential to foster active learning is the Think-Pair-Share (TPS) strategy introduced by Frank Lyman (1981). TPS strategy is designed to boost classroom engagement, particularly among shy students (Mundelsee & Jurkowski, 2021). It encourages students to first reflect individually, then discuss their ideas with a partner, and ultimately feel more comfortable participating in class by raising their hand to share their thoughts.

As highlighted by Kharbach (2024), TPS is a collaborative learning technique that promotes critical thinking and student engagement by encouraging learners to first reflect on a topic (Think), discuss their ideas with a partner (Pair), and then share their thoughts with the class (Share). This process not only enhances communication and social skills but also deepens understanding of the material through peer interaction.

In the context of the Tech-Voc education, where both knowledge and practical skills are required, TPS can help students to increase group participation, enhance group work, improve critical thinking skills, and receive necessary feedbacks, thereby enhancing students' engagement and performance in EIM subject.

This study will provide insights into teaching practices that could be utilized to improve the learning experiences of senior high school students in technical and vocational fields. Findings from this study may offer tech-voc teachers' valuable strategies to enhance students' engagement and performance, not only in EIM but also in other Tech-Voc subjects, aligning instructional practices with the practical demands of technical education.

1.1 Statement of the Problem

Problem/s which were addressed by the research

The aim of the study was to determine the relationship between think-pair-share strategy and the students' engagement and performance in Tech-Voc Electrical Installation and Maintenance subject.

Specifically, it sought to answer the following questions:

1. What is the level of using the think-pair-share strategy among TVL EIM students in terms of:
 - 1.1 participative;
 - 1.2 collaborative;
 - 1.3 skills development; and
 - 1.4 feedback reinforcement?
2. What is the level of students' engagement in terms of:
 - 2.1 behavioral;
 - 2.2 emotional; and
 - 2.3 cognitive?
3. What is the level of students' performance in terms of:
 - 3.1 written test; and
 - 3.2 performance task?
4. Is there a significant relationship between using Think-Pair-Share strategy and the students' engagement?
5. Does the use of the Think-Pair-Share technique have a strong correlation with the students' results?

II. METHODOLOGY

To ascertain the connection between these factors, a descriptive study design was used. The study's participants consisted of 84 grade 11 students enrolled in the Tech-Voc EIM program at Ibayiw Integrated National High School. A total population sampling technique was used to select the respondents. Data collection involved survey questionnaires, written tests, and performance tasks.

III. RESULTS AND DISCUSSION

This part presents the data collected, providing a comprehensive analysis and perceptive interpretation to address problem regarding on the relationship between the Think-Pair-Share strategy and the students' engagement and performance.

Level of Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance

In this study, Think-Pair Share Strategy in Tech-Voc Electrical Installation and Maintenance was described in terms of participative, collaborative, skills development, and feedback reinforcement and was determined by the mean and standard deviation.

Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Participative

As shown in table 1, the students show a *very high* level of participation as teachers utilize Think-Pair-Share strategy in teaching supported by the grand ($M=4.41$, $SD=0.65$). This indicate students' strong agreement on how think-pair-share strategy had helped them to be more participative on the teaching and learning process.

Students tend to increase their participation and feel much motivated to participate as teachers implement Think-Pair-

Share strategy in the class discussion. Just the same, the teachers encourage and assist students to be more engage in the class discussion so that they will not fear being judge or rejected. With this, students' participation on think-pair-share strategy was enhanced with the encouragement and motivation from teachers so as they feel comfortable in sharing their ideas.

TABLE 1. Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Participative

STATEMENT	Mean	SD	Remarks
I am encouraged to participate more in the Think-Pair-Share strategy in class discussions.	4.40	0.67	Strongly Agree
I feel more comfortable sharing my ideas with my partner during TPS activities.	4.40	0.67	Strongly Agree
I actively engage in the discussion with my peers when using TPS.	4.27	0.70	Strongly Agree
I was assisted by my teacher to express my thoughts without fear of judgment.	4.40	0.69	Strongly Agree
I believe my participation level has increased since implementing TPS.	4.45	0.61	Strongly Agree
I was motivated to contribute my opinions in class.	4.43	0.64	Strongly Agree
I notice that other students participate more when we use the TPS method.	4.48	0.57	Strongly Agree
Grand Mean	4.41		
SD	0.65		
Verbal Interpretation			Very High

The above findings were supported by Guenther and Abbott (2024), according to them, Think-Pair-Share (TPS) does not only increased student participation but also enhanced the quality of discussions. Students reported that TPS had a positive impact on their learning, with the time spent on "thinking" and "pairing" being particularly valuable.

Also, Main (2023) noted that TPS fosters a more engaging and inclusive classroom environment by encouraging both independent thought and teamwork. This strategy encouraged students' thoughts to be shared, discussed, and refined with peers. TPS appears to be a valuable instrument for Tech-Voc Teachers seeking to move beyond passive learning model and create a classroom where active participation and sense of belongingness are fostered. Further, TPS allows independent thinking skills among the students.

Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Collaborative

As presented in Table 2, the students show very high level of collaboration as teacher utilizes Think-Pair Share Strategy in teaching supported by the grand mean ($M=4.34$, $SD=0.65$). This indicates students' strong agreement on how think-pair share strategy helped them to be more collaborative in EIM class.

Students in Tech-Voc EIM perceived that Think-Pair Share strategy was highly effective in fostering collaboration. In using TPS, it was reported positive experiences with teamwork, shared responsibility, peer learning, and a sense of community. Moreover, it indicates that TPS is a valuable pedagogical tool or promoting collaborative learning in the context of Tech-Voc EIM.

TABLE 2. Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Collaborative

STATEMENT	Mean	SD	Remarks
I collaborate effectively with my partner during TPS activities.	4.44	0.64	Strongly Agree
I believe that the Think-Pair-Share strategy promotes teamwork among students.	4.31	0.67	Strongly Agree
I enjoy working with classmates in a paired setting.	4.24	0.65	Strongly Agree
I consider that TPS fosters a sense of community in the classroom.	4.33	0.70	Strongly Agree
I know that the TPS method encourages us to share responsibilities in group tasks.	4.30	0.61	Strongly Agree
I believe group work is more productive when using the TPS strategy.	4.42	0.64	Strongly Agree
I find that I learn more from my peers through collaborative efforts in TPS.	4.33	0.58	Strongly Agree
Grand Mean	4.34		
SD	0.65		
Verbal Interpretation	Very High		

Meanwhile, the study conducted by Aeni (2020) affirmed the above findings that the implementation of TPS, a cooperative learning strategy, encourages students to collaborate in small groups.

Another literature that supported the above findings was noted by Hegwood (2024), it was highlighted that Think-Pair-Share promotes collaboration by encouraging students to share diverse perspectives across various subjects.

Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Skills Development

As shown in Table 3, the students show very high level of skills development when teacher utilizes the think-pair share strategy in teaching Tech-Voc EIM and supported by the grand mean ($M=4.25$, $SD=0.68$). This indicates strong agreement on how the think-pair share strategy had helped the students to develop their skills during the teaching and learning process.

TABLE 3. Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Skills Development

STATEMENT	Mean	SD	Remarks
I was challenged by The Think-Pair-Share strategy to think deeply about the subject matter.	4.32	0.62	Strongly Agree
I feel that TPS helps me analyze and evaluate information better.	4.25	0.69	Strongly Agree
I think engaging in TPS prompts me to consider different perspectives.	5.21	0.66	Strongly Agree
I believe my critical thinking skills have improved in using TPS.	4.24	0.63	Strongly Agree
I was encouraged to ask questions and seek clarification on complex topics.	4.15	0.76	Agree
I find it easier to develop logical arguments through the TPS method.	4.37	0.61	Strongly Agree
I practice problem-solving skills effectively in carrying out TPS	4.18	0.76	Agree
Grand Mean	4.25		
SD	0.68		
Verbal Interpretation	Very High		

The students in Tech-Voc EIM show that the Think-Pair-Share strategy is a valuable tool for developing various essential skills. This is seen as effective in promoting deeper thinking, analyzing, and evaluating information, considering different perspectives, and developing logical arguments. While students generally agree that TPS encourages questioning and problem-solving, the impact on these specific skills might be perceived as slightly less pronounced compared to the others.

Study by Sari et al. (2019) supported the above findings that enhancing critical thinking and cognitive learning outcomes requires a transformation in teaching methods and components that influence learning. They added that, TPS can improve both critical thinking skills and classroom learning outcomes.

Additionally, Think-Pair-Share encourages students to exchange ideas and acquire crucial interpersonal skills, thereby fostering classroom debate and unity, according to Stokes (2024).

Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Feedback Reinforcement

As shown in table 4, the students show very high level of feedback reinforcement when teacher utilizes the Think-Pair-Share strategy in teaching Tech-Voc EIM grade 11 students. It was supported by the grand mean ($M=4.21$, $SD=0.63$). Thus, this indicates strong agreement on how the TPS strategy had helped the students to receive feedback reinforcement with their teacher.

TABLE 4. Level of using Think-Pair-Share Strategy in Tech-Voc Electrical Installation and Maintenance in terms of Feedback Reinforcement

STATEMENT	Mean	SD	Remarks
I appreciate receiving immediate feedback from my partner during TPS.	4.43	0.54	Strongly Agree
I observe that the Think-Pair-Share method helps me identify areas for improvement in my understanding.	4.23	0.64	Strongly Agree
I find the feedback received from peers during TPS valuable.	4.11	0.65	Agree
I think that TPS facilitates constructive criticism among classmates.	3.95	0.63	Agree
I feel more confident in my learning when I receive feedback through TPS.	4.07	0.63	Agree
I recognized that TPS helps me adjust my approach to the subject matter.	4.31	0.62	Strongly Agree
I believe peer feedback in TPS enhances my learning experience.	4.38	0.55	Strongly Agree
Grand Mean	4.21		
SD	0.63		
Verbal Interpretation	Very High		

Students of Tech-Voc EIM perceive that Think-Pair-Share strategy as valuable method for receiving and utilizing feedback to reinforce learning. They highly value the immediate feedback from their partners and teacher; recognize that TPS helps them identify areas for improvement. While peer feedback is generally considered valuable and contributes to learning confidence and adjustments in approach, the perception of TPS facilitating constructive criticism is slightly

less strong. This could suggest that the nature and delivery of peer feedback might need further attention.

Study by Yang et al. (2021) supported the above findings, according to them effective application of feedback can greatly enhance student achievement, with substantial evidence supporting this claim. Also, students often respond to teacher feedback in ways that do not align with teachers' expectations, revealing discrepancies in perceptions about the feedback's quantity and quality.

Moreover, in the study by Hasan (2024), it has been affirmed the influence of teacher feedback on students' academic performance, emphasizing the need for timely grading and feedback systems to enhance student achievement. It has been concluded as that fostering a classroom culture that prioritizes constructive feedback contributes to students' academic success and progression.

Another study by Henderson et al. (2019) highlighted the importance of providing effective feedback before and after assessment submissions to enhance students' subsequent performance, which supported the relevance of giving feedback when using TPS in teaching and learning process.

Level of Students' Engagement

In this study, students' engagement was described in behavioral, emotional and cognitive engagement and was determined by the mean and standard deviation.

Level of Students' Engagement in terms of Behavioral Engagement

As shown in Table 5, the students show very high behavioral engagement when teacher utilizes Think-Pair-Share strategy in teaching Tech-Voc EIM grade 11 students and supported by the grand mean ($M=4.31$, $SD=0.66$). This indicates that students had the strong agreement that the TPS helped them to behaviorally engaged during the teaching and learning processes in EIM context.

TABLE 5. Level of Students' Engagement in terms of Behavioral Engagement

STATEMENT	Mean	SD	Remarks
I actively participate in class activities and discussions.	4.49	0.52	Strongly Agree
I pay attention during lessons when TPS is used.	4.29	0.65	Strongly Agree
I contribute to group discussions promptly.	4.23	0.73	Strongly Agree
I show enthusiasm when engaging in TPS activities.	4.19	0.63	Agree
I frequently volunteer to share my ideas during TPS.	4.35	0.61	Strongly Agree
I engage in follow-up discussions with my partner after TPS.	4.30	0.70	Strongly Agree
I complete tasks assigned during TPS with diligence.	4.31	0.69	Strongly Agree
Grand Mean	4.31		
SD	0.66		
Verbal Interpretation	Very High		

Students actively participate in class activities, pay attention, contribute to the discussions, and complete assigned task diligently. They also frequently volunteer to share ideas and engage in follow-up discussions, demonstrating a high level of engagement. While enthusiasm is still rated positively,

it is slightly less so than other measured categories. Thus, the data suggest that TPS strategy is valuable pedagogical approach in fostering behavioral engagement in the classroom.

Study by Monteiro et al. (2021) supported the above findings that students who perceived their teachers as providing effective feedback demonstrated higher levels of behavioral engagement and identification with their school. Moreover, even after accounting for individual perceptions of feedback, a supportive classroom environment continued to positively impact student engagement.

Also, the empirical findings of Guenther and Abbott (2024) found out that the Think-Pair-Share (TPS) strategy significantly boosted student participation and enhanced the quality of classroom discussions. Students reported that TPS positively influenced their learning, particularly valuing the "thinking" and "pairing" phases.

Thus, they suggest that students should recognize first the benefits of having dedicated time in order for them to process the information independently before engaging with their peers, ultimately contributing to a more significant and impactful learning experiences.

Level of Students' Engagement in terms of Emotional Engagement

As shown in Table 6, the students show very high level of emotional engagement when teacher uses think-pair-share strategy in teaching Tech-Voc EIM grade 11 students and this is supported by the grand mean ($M=4.27$, $SD=0.69$). This indicates strong agreement that TPS helped the students emotionally engaged during the teaching-learning process in the context of EIM.

Students strongly indicate that the Think-Pair-Share strategy is effective in promoting emotional engagement. They experience positive emotions such as excitement, enjoyment, and motivation when using TPS. Also, they feel connected to their peers and believe that TPS enhances their over-all learning enjoyment. While students generally look forward to TPS sessions, the level of enthusiasm might be slightly lower compared to other emotional responses. Thus, it can be suggested that the TPS is a valuable pedagogical approach for fostering emotional engagement in the classroom.

TABLE 6. Level of Students' Engagement in terms of Emotional Engagement

STATEMENT	Mean	SD	Remarks
I feel excited about learning when using the Think-Pair-Share strategy.	4.30	0.63	Strongly Agree
I enjoy collaborating with classmates during TPS activities.	4.21	0.67	Strongly Agree
I feel that I am connected to my peers once using TPS	4.26	0.67	Strongly Agree
I feel positive emotions when sharing ideas in TPS.	4.29	0.70	Strongly Agree
I am motivated to learn more when participating in TPS.	4.31	0.69	Strongly Agree
I look forward to TPS sessions in class.	4.20	0.69	Agree
I believe that TPS enhances my enjoyment of the learning process.	4.29	0.73	Strongly Agree
Grand Mean	4.27		
SD	0.69		
Verbal Interpretation	Very High		

Study by Wilson (2023) supported the above findings that to enhance emotional engagement, teachers should prioritize building positive relationships and fostering a student-centered learning environment. Moreover, Bowerman (2023) noted that emotional engagement as a complex yet observable phenomenon. Emotions act as signals that communicate students' feelings to those around them, making it essential to create an environment that supports these emotions, particularly for students aged 11 to 18, who often experience intense feelings and thoughts.

Another study which supported the findings by Walden University (2023) defines emotional engagement as a student's involvement and enthusiasm for school activities. When students are emotionally engaged, they are more inclined to participate and find enjoyment in their involvement. The students with higher emotional engagement scores tend to perform better on achievement tests.

Level of Students' Engagement in terms of Cognitive Engagement

TABLE 7. Level of Students' Engagement in terms of Cognitive Engagement

STATEMENT	Mean	SD	Remarks
I invest effort into understanding the material when using TPS.	4.51	0.59	Strongly Agree
I find myself thinking critically about the content during TPS.	4.20	0.69	Agree
I challenge myself to learn more when I am engaged in TPS.	4.23	0.75	Strongly Agree
I reflect on my learning outcomes after participating in TPS.	4.12	0.66	Agree
I understand that the TPS strategy prompts me to make connections between concepts.	4.15	0.68	Agree
I engage in deep thinking about the subject matter during TPS.	4.36	0.66	Strongly Agree
I seek additional resources to enhance my understanding after TPS.	4.35	0.66	Strongly Agree
Grand Mean	4.27		
SD	0.68		
Verbal Interpretation	Very High		

As presented in Table 7, the students show very high level of cognitive engagement when teacher utilizes Think-Pair-Share strategy in teaching Tech-Voc EIM grade 11 students and supported by the grand mean ($M=4.27$, $SD=0.68$). This indicates that the TPS is a valuable pedagogical approach for fostering cognitive engagement in the classroom among EIM grade 11 students.

Students invest significant effort, engage in deep thinking, and actively seek additional resources to enhance their understanding. While critical thinking, reflection, and making connections between concepts are present, they are perceived slightly less strongly. The high score for seeking additional resources, demonstrates that students are taking ownership of their learning.

In relation to the above findings, literature by Tran (2024) emphasizes the significance of cognitive engagement in the learning process, as it fosters deeper understanding and sustained interest in classroom topics. By grasping this concept, both teaching and learning can become more effective. Cognitive engagement is defined as a psychological

state where learners are motivated to comprehend and apply knowledge, often extending their efforts beyond mere requirements.

Study by Sesmiyanti (2018) emphasizes the significance of student engagement in the learning process, highlighting that active participation from students is crucial. Cognitive engagement, which entails students actively thinking during academic tasks, is essential for motivating them to enhance their learning abilities and to be active participants in the classroom. The study reinforces the idea that cultivating the cognitive engagement is the key to unlocking the students' potential and creating effective educational setting.

Level of Students' Performance

In this study, students' performance was described in terms of written test and performance task and was determined by frequency, percentage, mean score and standard deviation.

Level of Students' Performance in terms of Written Test

TABLE 8. Level of Students' Performance in terms of Written Test

Score	Frequency	Percentage	Descriptive Value
41 – 50	15	18%	Excellent
31 – 40	48	57%	Proficient
21 – 30	21	25%	Satisfactory
11 – 20	0	0	Needs Improvement
1. 10	0	0	Poor
Mean Score	34.35		
SD	5.43		
Descriptive Value	Proficient		

As presented in Table 8, the students show proficient level in terms of written test as to their performance in Tech-Voc Electrical Installation and Maintenance subject and supported by the mean score ($M=34.35$, $SD=5.43$). This indicates that the implementation of TPS appears to have contributed to positive performance in terms of their written test.

Majority of the students achieve proficient and excellent scores which reveal positive trend or results. While the absence of students in "Needs Improvement" and "Poor" categories is strong indicator of effective use of think-pair-share strategy.

Several studies supported the above findings that Think-Pair-Share (TPS) has an effect on students' performance. Adawiyah et al. (2023) found a significant correlation between creative thinking skills, student motivation, and learning outcomes when using the Remap-STAD learning model. Segun et al. (2022) demonstrated the effectiveness of both teacher's lesson study and cooperative learning strategies, including TPS, in improving student performance, particularly in circle geometry.

Level of Students' Performance in terms of Performance Task

TABLE 9. Level of Students' Performance in terms of Performance Task

Performance Task	Mean Score	SD	Descriptive Value
Performance Task 1	21.48	2.54	Excellent
Performance Task 2	21.20	1.99	Excellent
Performance Task 3	21.20	1.63	Excellent
Grand Mean Score	21.29		
SD	2.06		
Descriptive Value	Excellent		

As presented in Table 9, the students show excellent level of performance in terms of their performance task when the teacher utilizes the Think-Pair-Share strategy during the teaching-learning process and this supported by the grand mean ($M=21.29$, $SD=2.06$). This indicates that the TPS is a valuable pedagogical tool for fostering the performance task scores among students in EIM context.

Students consistently achieved excellent performance across the three performance tasks. This indicates a strong grasp of practical skills being assessed and suggest that they have acquired necessary skills. TPS appears to have effectively prepared students for practical application of their knowledge and skills.

Different literature supported the above findings, noting that the Think-Pair-Share (TPS) strategy is as a valuable pedagogical tool for enhancing student performance. Turner (2024) and Lynch (2024) highlight the structured approach of TPS, where individual reflection precedes paired discussion and then whole-class sharing, fostering both individual understanding and collaborative learning.

Cahyani (2020) specifically notes its effectiveness in improving speaking performance through peer interaction, while Martin (2023) emphasizes the importance of the "think" time in promoting equitable participation and thoughtful contributions.

Fairbrother et al. (2022) expands the discussion to include undergraduate medical education, focusing on TPS's foundation in constructivist learning theory and its potential to improve critical thinking, teamwork, and the application of clinical knowledge, particularly in the context of online learning.

Significant Relationship Between the Use of TPS Strategy and Students' Engagement

This study investigates the potential impact of the Think-Pair-Share (TPS) strategy on various facets of student engagement within the classroom. Quantitative data were subjected to statistical analysis using Pearson's Product-Moment Correlation Coefficient (Pearson's R) via the Minitab 14 software to determine the nature and strength of this relationship. The ensuing discussion will center on the significant findings from this analysis, as presented in the following table, providing insights into how TPS may influence different dimensions of student involvement in the learning process.

Below is the table presenting the significant relationship between the use of TPS strategy and students' engagement as behavioral, emotional, and cognitive.

As presented in Table 10, it shows the significant relationship between the use of TPS strategy and students' engagement.

No statistically significant correlations were found between the 'participative' aspect of TPS and any of the student engagement variables such as behavioral, emotional, and cognitive. All p-values are greater than 0.05.

Another significant positive correlation was found between collaborative aspect and emotional engagement ($r=0.282$, $p=0.0009$) and cognitive engagement ($r=0.258$, $p=0.018$). This suggests that more 'Collaborative' TPS is linked to greater

emotional and cognitive participation. However, no significant correlation was found between collaborative aspect and behavioral engagement.

TABLE 10. *Significant Relationship Between the Use of TPS Strategy and Students' Engagement*

TPS Strategy (IV)	Students' Engagement (DV)		
	Behavioral	Emotional	Cognitive
Participative:			
Pearson Correlation	0.027	0.197	0.130
p-value	0.806	0.072	0.240
N	84	84	84
Collaborative:			
Pearson Correlation	0.112	0.282	0.258
p-value	0.309	0.009*	0.018*
N	84	84	84
Skills Development:			
Pearson Correlation	0.130	0.137	0.257
p-value	0.240	0.216	0.018*
N	84	84	84
Feedback Reinforcement:			
Pearson Correlation	0.030	0.023	0.262
p-value	0.790	0.833	0.016*
N	84	84	84

Note: * $p < .05$

Between skills development and cognitive engagement there is a statistically significant positive correlation found ($r=0.262$, $p=0.016$). This indicates that higher levels of skills development TPS are associated with higher levels of cognitive engagement. However, no significant correlations were found among skills development TPS, behavioral and emotional engagement.

Lastly, a statistically significant positive correlation was found ($r=0.262$, $p=0.016$). Between feedback and cognitive this shows the higher levels of feedback reinforcement TPS are associated with higher levels of cognitive engagement. While, between feedback reinforcement TPS, behavioral and emotional engagement found no significant correlations.

These findings indicate that focusing on collaborative activities, skill development, and effective feedback during TPS implementation can significantly enhance students' engagement, particularly in terms of emotional and cognitive aspects.

The above findings were supported by the study conducted by Nafisah et al. (2024) regarding the student involvement in classrooms, particularly in response to the limitations of traditional teaching methods that often result in passive learning. It was found out that TPS can effectively increase student participation in the classroom, and the authors recommend that teachers consider adopting cooperative teaching models.

Another support which will contradict the above findings by Aeni (2020) revealed that students were enthusiastic about the teaching process when TPS was used. The technique positively impacted their speaking performance, suggesting that TPS can be an effective alternative method for teaching English speaking skills.

Significant Relationship Between the Use of TPS Strategy and Students' Performance

To test the relationship between the Use of TPS strategy and students' performance data were treated statistically in

Minitab 14 using Pearsons R. The major findings were presented in the following table.

As shown in Table 11, it shows the significant relationship between the use of TPS strategy and students' performance in terms of written test and performance task.

No statistically significant correlations were found between the participative aspect of TPS and either written test ($r=0.035$, $p=0.751$) or performance task scores ($r=0.085$, $p=0.443$). All p -values are greater than 0.05.

Also, no statistically significant correlations were found between the collaborative aspect of TPS and either written test scores ($r=0.087$, $p=0.432$) or performance task scores ($r=0.182$, $p=0.097$). All p -values are greater than 0.05.

TABLE 11. Significant Relationship Between the Use of TPS Strategy and Students' Performance

Task Based Approach (IV)	Students' Performance (DV)	
	Written Test	Performance Task
Participative:		
Pearson Correlation	0.035	0.085
p-value	0.751	0.443
N	84	84
Collaborative:		
Pearson Correlation	0.087	0.182
p-value	0.432	0.097
N	84	84
Skills Development:		
Pearson Correlation	0.058	0.033
p-value	0.600	0.765
N	84	84
Feedback Reinforcement:		
Pearson Correlation	0.166	0.177
p-value	0.131	0.107
N	84	84

Note: * $p < .05$

Further, no significant correlations were found between the skills development aspect of TPS and either written test scores ($r=0.058$, $p=0.600$) or performance task scores ($r=0.033$, $p=0.765$). All p -values are greater than 0.05.

Lastly, no significant correlations were found between the feedback reinforcement aspect of TPS and either written test scores ($r=0.166$, $p=0.131$) or performance task scores ($r=0.177$, $p=0.107$). All p -values are greater than 0.05.

In summary, there were no statistically significant correlations between any of the measured aspects of TPS strategy (participative, collaborative, skills development, and feedback reinforcement) and students' performance as measured by either written tests or performance tasks.

The study by Assuah et al. (2022) looked at how the Think-Pair-Share (TPS) learning method affected the academic achievement of middle school pupils. It demonstrated that the students in the TPS group performed significantly better than those in the control group. The study concluded that TPS positively influences students' achievement in algebraic expressions and helps develop leadership, communication, decision-making, and problem-solving skills.

IV. CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, the following conclusions are drawn:

There is a significant relationship between the Think-Pair-Share (TPS) strategy and students' engagement, specifically in the emotional and cognitive aspects, as indicated for the collaborative, skills development, and feedback reinforcement aspects of TPS. Resulting in the partial rejection of the null hypothesis, this means that certain elements of the TPS strategy do influence specific areas of student engagement, suggesting that while not all aspects are strongly related, TPS can still contribute meaningfully to enhancing how students emotionally and cognitively engage in learning activities. These findings highlight the importance of strategically implementing TPS components to target and strengthen key areas of student engagement.

There is no significant relationship between the Think-Pair-Share (TPS) strategy and students' performance as to written and performance task scores. Resulting in the acceptance of the null hypothesis, this means that the use of TPS does not have a measurable effect on students' academic performance in terms of test results and practical tasks, suggesting that while it may enhance engagement, it does not directly translate to higher performance outcomes in assessments.

Based on the findings and conclusions drawn, the following recommendations are hereby suggested:

Tech-Voc Teachers may consistently and broadly integrate TPS into their teaching-learning process and explore its potential application in other subjects that could further help students enhance their learning outcomes across the curriculum.

School heads may provide teachers with ongoing professional development on effective TPS strategies and support research efforts to identify and control potential confounding variables.

Tech-Voc Master Teachers may evaluate the alignment between the assessments and the skills developed through TPS.

Future researchers may conduct qualitative study to gain a deeper understanding or insights into students' experiences with TPS in the context of Tech-Voc EIM.

REFERENCE

- [1]. Adawiyah, R., Irawan, F., Zubaidah, S., & Arsih, F. (2023). The relationship between creative thinking skills and learning motivation in improving student learning outcomes. AIP Conference Proceedings. <https://doi.org/10.1063/5.0112425>
- [2]. Aeni, Y. K. (2020). The Use Of Think Pair Share Technique In Teaching Speaking. Project (Professional Journal of English Education), 3(5), 570. <https://doi.org/10.22460/project.v3i5.p570-576>
- [3]. Assuah, C. K., Mantey, G. K., & Osei, L. (2022). The effect of think-pair-share learning on junior high school students' achievement in algebraic expressions: Pre-test-Post-test non-equivalent control group design. Asian Journal of Probability and Statistics, 46–55. <https://doi.org/10.9734/ajpas/2022/v20i2418>
- [4]. Bowerman, M. J. (2023, May 10). 3 crucial types of engagement. Edutopia. <https://www.edutopia.org/article/building-sustaining-student-engagement>
- [5]. Cahyani, F. (2020). The use of think pair share technique to improve students' speaking performance. <https://www.semanticscholar.org/paper/The-Use-of-Think-Pair-Share-Technique-to-Improve-Cahyani/a0ec49e69c9d93880bdaa433268ddd9c8a92948e>

- [6]. Fairbrother, H. E., Carpenter, P. B., Cunha, S. R., & Khamees, D. (2022). Innovations in Active Education Techniques: Team Based Learning, Flipping the Classroom, and Think-Pair-Share. IntechOpen. <https://doi.org/10.5772/intechopen.107498>
- [7]. Guenther, & Abbott. (2024c). Think-Pair-Share: Promoting Equitable participation and In-Depth discussion. STFM Journals; PRIMER. <https://journals.stfm.org/primer/2024/guenther-2023-0024/>
- [8]. Hasan. (2024). Teachers' Feedback and Its Impact on Students' Performance in Education. ResearchGate. https://www.researchgate.net/publication/379535152_Teachers%27_Feedback_and_Its_Impact_on_Students%27_Performance_in_Education
- [9]. Hegwood. (2024). Think-Pair-Share Strategy: How This Fun Activity Enhances Student Engagement. Prodigy. <https://www.prodigygame.com/main-en/blog/think-pair-share-learning-strategy/>
- [10]. Henderson, M., Ryan, T., Boud, D., Dawson, P., Phillips, M., Molloy, E., & Mahoney, P. (2019). The usefulness of feedback. *Active Learning in Higher Education*, 22(3), 229–243. <https://doi.org/10.1177/1469787419872393>
- [11]. Kharbach, M., PhD. (2024, June 3). What is The Think Pair Share Strategy? https://www.educatorstechnology.com/2024/06/what-is-think-pair-share-strategy.html#google_vignette
- [12]. Main, P. (2023, February 5). Think, pair, share: A teachers guide. Structural Learning. <https://www.structural-learning.com/post/think-pair-share-a-teachers-guide>
- [13]. Monteiro, V., Carvalho, C., & Santos, N. N. (2021). Creating a supportive classroom environment through effective feedback: effects on students' school identification and behavioral engagement. *Frontiers in Education*, 6. <https://doi.org/10.3389/educ.2021.661736>
- [14]. Mundelsee, L., & Jurkowski, S. (2021). Think and pair before share: Effects of collaboration on students' in-class participation. *Learning and Individual Differences*, 88, 102015. <https://doi.org/10.1016/j.lindif.2021.102015>
- [15]. Mundelsee, L., & Jurkowski, S. (2021). Think and pair before share: Effects of collaboration on students' in-class participation. *Learning and Individual Differences*, 88, 102015. <https://doi.org/10.1016/j.lindif.2021.102015>
- [16]. Nafisah, S. L., Suwartono, T., Noviyanti, E., & Rahmi, A. C. S. (2024). Enhancing students' participation in English language classes using the 'Think Pair Share' cooperative learning model. *EDUKATIF JURNAL ILMU PENDIDIKAN*, 6(1), 241–251. <https://doi.org/10.31004/edukatif.v6i1.5810>
- [17]. Sari, R. Y., Rosidin, U., & Viyanti, V. (2019). The effect of critical thinking skills of junior high school students cognitive learning through Think Pair Share (TPS). *Neliti*. <https://www.neliti.com/publications/118773/the-effect-of-critical-thinking-skills-of-junior-high-school-students-cognitive>
- [18]. Segun, Ayanwoye, & Olajumoke. (2022). Effects Of Lesson Study And Think-Pair-Share Instructional Strategies On Students' Academic Performance In Circle Geometry. ResearchGate. https://www.researchgate.net/publication/364753956_EFFECTS_OF_LESSON_STUDY_AND_THINK-PAIR-SHARE_INSTRUCTIONAL_STRATEGIES_ON_STUDENTS%27_ACADEMIC_PERFORMANCE_IN_CIRCLE_GEOMETRY
- [19]. Sesmiyanti, S. (2018). Student's cognitive engagement in learning process. *Journal Polingua Scientific Journal of Linguistics Literature and Education*, 5(2), 48–51. <https://doi.org/10.30630/polingua.v5i2.34>
- [20]. Stokes, E. C. (2024, September 18). Think Pair Share – How to unleash its power in your classroom. Teachwire. <https://www.teachwire.net/news/think-pair-share/>
- [21]. Tran, A. (2024, June 26). What is Cognitive Engagement | Best Examples and Tips | 2024 Updates - AhaSlides. AhaSlides. <https://ahaslides.com/blog/cognitive-engagement/>
- [22]. Walden University. (2023, February 2). The importance of emotional engagement in elementary education. Walden University. <https://www.waldenu.edu/online-bachelors-programs/bs-in-elementary-education/resource/the-importance-of-emotional-engagement-in-elementary-education>
- [23]. Wilson. (2023, May 2). Deepening students' emotional engagement - Moreland University. Moreland University. <https://moreland.edu/resources/blog-insights/emotional-engagement-in-hybrid-learning>
- [24]. Yang, L., Chiu, M. M., & Yan, Z. (2021). The power of teacher feedback in affecting student learning and achievement: insights from students' perspective. *Educational Psychology*, 41(7), 821–824. <https://doi.org/10.1080/01443410.2021.1964855>