

# Constructivist Teaching Approach and Academic Performance of Grade 7 Students

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## Abstract

This study examined the influence of constructivist teaching approaches on the academic performance of Grade 7 students in Mathematics in selected public secondary school. The research was anchored on the premise that the use of constructivist teaching strategies—such as learner-centered instruction, collaborative learning, authentic and real-life tasks, teacher facilitation, and assessment for learning— can support meaningful learning and enhance students’ understanding of mathematical concepts. A descriptive–correlational research design was employed to determine the level of utilization of constructivist teaching approaches and their relationship with students’ academic performance. Data were collected using a validated questionnaire administered to Grade 7 students, while students’ academic performance was obtained from their Mathematics grades based on written works and performance tasks. Descriptive statistics and correlation analysis were used to analyze the data. The findings revealed that the utilization of constructivist teaching approaches in Mathematics instruction was generally not strongly evident in classroom practices. Likewise, the influence of these instructional approaches on students’ academic performance was found to be limited. These results suggest that although constructivist teaching strategies are recognized as important for promoting active and meaningful learning, their implementation in classroom instruction may still require strengthening. The study highlights the need for professional development programs that support teachers in effectively integrating constructivist strategies into mathematics instruction in order to enhance student engagement, improve conceptual understanding, and promote better academic outcomes.

**Keywords:** Constructivist Teaching Approach, Mathematics Instruction, Academic Performance, Learner-Centered Learning, Collaborative Learning

## INTRODUCTION

The quality of mathematics education is largely influenced by the effectiveness of teaching approaches that facilitate meaningful learning experiences and actively engage students in the learning process. In contemporary classrooms, teachers are not merely transmitters of knowledge but facilitators who guide learners in developing critical thinking, analytical reasoning, and problem-solving skills essential for academic success. However, persistent challenges in students’ academic performance in mathematics continue to be observed, particularly when instructional strategies fail to promote active participation and deeper conceptual understanding. Studies highlight that learner-centered approaches, collaborative

learning, and meaningful engagement significantly enhance students' mathematical achievement and motivation (Sumitha, 2023; Rahman, 2019; Gupta, 2021). Consequently, the adoption of effective instructional approaches, such as the constructivist teaching approach, has become a critical priority in improving mathematics education and student learning outcomes.

At the global level, improving the quality of mathematics education remains a key concern among educational systems striving to prepare learners for the demands of the 21<sup>st</sup> century. International frameworks such as the United Nations Sustainable Development Goals (SDG 4) emphasize the importance of inclusive and equitable quality education that promotes lifelong learning opportunities for all (United Nations, 2023). In line with this, global educational research underscores the effectiveness of student-centered instructional approaches, particularly constructivist teaching strategies, in enhancing students' conceptual understanding, problem-solving abilities, and engagement in mathematics (Gupta, 2021; Gervacio & Galigao, 2025). Countries that integrate inquiry-based learning, collaborative activities, and authentic problem-solving tasks demonstrate improved student performance and deeper mathematical comprehension. These global perspectives highlight the importance of aligning instructional practices with learner-centered pedagogies to achieve meaningful and sustainable learning outcomes.

These global priorities are also reflected in the Philippine educational context, where improving students' performance in mathematics continues to be a significant concern. Educational reforms such as Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, emphasize the need to develop critical thinking, creativity, and problem-solving skills through learner-centered teaching approaches (Violon & Violon, 2024). Despite these initiatives, results from international assessments such as the Programme for International Student Assessment (PISA) reveal that Filipino students continue to perform below global standards in mathematics (OECD, 2019). These findings indicate the need to strengthen instructional practices and adopt innovative teaching approaches that actively engage students and improve their understanding of mathematical concepts. As such, the integration of constructivist teaching approaches becomes essential in addressing these learning gaps and enhancing academic performance. Within this context, the constructivist teaching approach has emerged as an effective pedagogical strategy that promotes active learning and meaningful knowledge construction. Rooted in the theories of Piaget and Vygotsky, constructivism emphasizes that students learn best when they actively engage with content, collaborate with peers, and connect new knowledge with prior experiences. Instructional practices such as learner-centered instruction, collaborative learning, authentic tasks, teacher facilitation, and assessment for learning enable students to explore mathematical concepts more deeply and apply them in real-life situations (Lamon, 2022; Vintere, 2018). Research indicates that students exposed to constructivist teaching strategies demonstrate improved academic performance, higher engagement, and stronger problem-solving skills compared to those taught using traditional methods (Gyan et al., 2021; Boadu & Boateng, 2024). Conversely, the absence of such approaches may result in passive learning, limited understanding, and lower academic achievement.

Despite its potential benefits, the implementation of constructivist teaching approaches presents several challenges in classroom settings. Teachers may encounter constraints such as limited instructional resources, insufficient training, and diverse student learning needs that affect the effectiveness of these approaches (Llurag, 2024; Oginni, 2022). Additionally, variations in students' abilities, attitudes, and engagement levels may influence how they respond to constructivist strategies. These challenges highlight the importance of examining how constructivist teaching approaches are utilized in actual classroom contexts and how they influence students' academic performance in mathematics.

At the local level, similar concerns are evident among Grade 7 students in public secondary schools within the Division of Camarines Sur. Classroom observations and assessment results indicate that many students experience difficulties in understanding fundamental mathematical concepts, particularly in areas involving basic operations, fractions, and problem solving. These challenges suggest that traditional teaching methods may not sufficiently address students' learning needs, thereby reinforcing the need to explore more effective instructional approaches that promote active engagement and deeper understanding.

Given these considerations, it becomes essential to examine the influence of constructivist teaching approaches on students' academic performance in mathematics. Understanding how instructional practices such as learner-centered instruction, collaborative learning, authentic tasks, teacher facilitation, and assessment for learning contribute to students' learning outcomes can provide valuable insights for improving teaching effectiveness. Generating empirical evidence on this relationship is particularly important in guiding the development of teacher training programs and instructional interventions aimed at enhancing mathematics education.

Accordingly, the present study investigates the influence of constructivist teaching approaches on the academic performance of Grade 7 students in Mathematics at Juan F. Triviño Memorial High School, Pasacao District, Division of Camarines Sur. The findings of this study aim to contribute to the improvement of instructional practices, support the professional development of teachers, and promote meaningful learning experiences that enhance students' academic achievement in mathematics.

### **Research Objectives**

This study determined the influence of the constructivist teaching approach on the academic performance of Grade 7 students in Mathematics at Juan F. Triviño Memorial High School, Pasacao District, Division of Camarines Sur during the School Year 2025–2026. Specifically, the following objectives were attained: (1) the level of utilization of constructivist teaching approach in teaching Mathematics in terms of learner-centered instruction, collaborative learning, authentic and real-life tasks, teacher as facilitator, and assessment for learning; (2) the level of academic performance of Grade 7 students in Mathematics in terms of written works and performance tasks; (3) the significant relationship between the utilization of constructivist teaching approaches and students' academic performance in Mathematics; (4) the extent to which constructivist teaching approaches influence students' academic performance in Mathematics; and (5) the teachers' training program developed to enhance the utilization of constructivist teaching approaches and improve the academic performance of Grade 7 students in Mathematics based on the findings of the study.

### **METHODOLOGY**

This study employed the descriptive–correlational research method. The descriptive method was utilized because it enabled the researcher to systematically describe and analyze the characteristics and conditions of the respondents without manipulating any variables, thereby providing a clear and accurate portrayal of the phenomenon under investigation (Mills & Gay, 2018). In this study, the descriptive approach was applied to determine the level of teachers' utilization of the constructivist teaching approach in Mathematics in terms of learner-centered instruction, collaborative learning, authentic and real-life tasks, teacher as facilitator, and assessment for learning. Likewise, the descriptive method was used to determine

the level of students' academic performance in Mathematics based on written works and performance tasks.

The correlational method was employed because it allowed the researcher to determine the degree and direction of relationships between variables without establishing causal relationships (Mills & Gay, 2018). In this study, the correlational approach was utilized to examine the significant relationship between teachers' utilization of constructivist teaching approaches and students' academic performance in Mathematics. This enabled the researcher to identify whether variations in instructional practices were associated with changes in students' learning outcomes.

Furthermore, the Spearman Rank Correlation was used to determine the strength and direction of the relationship between the utilization of constructivist teaching approaches and students' academic performance. Pearson correlation is appropriate for examining linear relationships between continuous variables and is widely applied in educational research (Field, 2018;

Pallant, 2020). In addition, the Coefficient of Determination ( $r^2$ ) was computed to determine the extent to which the independent variable (constructivist teaching approach) influenced the dependent variable (students' academic performance). This statistical measure quantified the proportion of variance in students' performance that could be explained by the teachers' instructional approach, providing a clearer interpretation of the practical significance of the findings (Khan & Ali, 2019; Park & Lee, 2021). Moreover, descriptive statistics such as mean and weighted mean were employed to summarize and interpret the data. The mean was used to determine the average level of students' academic performance, while the weighted mean was utilized to assess the level of teachers' utilization of constructivist teaching approaches based on Likert-scale responses. The use of weighted mean is appropriate for ordinal data as it provides a central value representing the overall tendency of responses across multiple indicators (Salkind & Frey, 2020).

A 4-point Likert Scale was employed to measure the level of utilization of constructivist teaching approaches in Mathematics, with the following interpretations:

Weight — Scale Interval — Interpretation 4 — 3.26–4.00 — Always 3

— 2.51–3.25 — Often

2 — 1.76–2.50 — Seldom

1 — 1.00–1.75 — Never

The instrument used in the study was a researcher-made questionnaire, which was developed based on relevant literature on constructivist teaching approaches, instructional effectiveness, and mathematics achievement. Researcher-developed instruments are appropriate when the tool needs to be aligned with the specific objectives and context of the study (Creswell & Creswell, 2018). The instrument underwent expert validation to ensure content and construct validity. It was also pilot-tested to determine clarity and feasibility. Reliability testing yielded a Cronbach's alpha coefficient of 0.810, indicating very good internal consistency and reliability of the instrument (Robertson & Evans, 2020).

The respondents of the study consisted of 155 Grade 7 students enrolled at Juan F. Triviño Memorial High School, Pasacao District, Division of Camarines Sur during the School Year 2025–2026. The respondents were selected using stratified random sampling to ensure proportional representation of students across different groups. Stratified sampling was employed because it enhances the representativeness of the sample and improves the generalizability of the findings by ensuring that all relevant subgroups are adequately represented (Fraenkel, Wallen, & Hyun, 2023; Creswell & Creswell, 2018).

In terms of data collection, the researcher first secured permission from the school authorities before conducting the study. The validated questionnaires were then distributed to the respondents, and the purpose of the study was clearly explained. Ethical considerations such as voluntary participation, confidentiality, and anonymity were strictly observed throughout the data collection process. All completed questionnaires were retrieved and checked for completeness prior to data analysis.

Finally, the findings of the study served as the empirical basis for the development of a teacher training program aimed at strengthening the utilization of constructivist teaching approaches and improving students' academic performance in Mathematics. The development of the proposed program followed a modified ADDIE model, specifically the Analysis, Design, and Development phases, to ensure that the intervention was systematically grounded in the results of the study and aligned with evidence-based educational program development (Biech, 2017; Branch, 2020).

## RESULT AND DISCUSSION

Distribution of respondents of the study. Table 1 presents the distribution of the respondents according to the total population and actual number of participants involved in the study conducted at Juan F. Triviño Memorial High School, Pasacao District, Division of Camarines Sur. Out of the total population of 252 Grade 7 students, a total of 155 students participated in the study. This represents 100% of the selected sample, ensuring adequate representation of the target population for the School Year 2025–2026.

The respondents were selected using stratified random sampling to ensure proportional representation of students. This sampling method allowed the researcher to capture variations in students' academic performance and their perceptions of teachers' utilization of constructivist teaching approaches. The total number of respondents (155) reflects a sufficient sample size for conducting both descriptive and inferential statistical analyses, particularly in examining relationships between instructional approaches and academic performance.

**Table 1**  
**Distribution of Respondents**

<b>Respondents</b>	<b>N</b>	<b>n</b>	<b>%</b>
Total	252	155	100

*Note. N = Total population; n = number of respondents; % = percentage distribution.*

The use of stratified random sampling ensured that the respondents were adequately represented in the study, thereby strengthening the reliability and validity of the findings. By proportionately selecting students from the total population, the sampling technique minimized bias and allowed for a more accurate analysis of the relationship between teachers' utilization of constructivist teaching approaches and students' academic performance. This method is particularly appropriate when the researcher aims to obtain a representative sample that reflects the characteristics of the entire population (Fraenkel et al., 2023; Creswell, 2018).

Furthermore, the inclusion of Grade 7 students from a single institution provided a focused context for examining how constructivist teaching approaches influence mathematical performance. The controlled setting allowed the researcher to account for consistency in school policies, curriculum implementation, and instructional delivery, which are important factors in educational research. Previous studies have emphasized that instructional strategies, particularly learner-centered and constructivist approaches,

significantly influence students’ engagement and academic achievement in mathematics (Mills & Gay, 2018).

Overall, the distribution of respondents ensures that the study is grounded on a representative and reliable sample of Grade 7 students. This strengthens the credibility of the findings and supports the validity of conclusions drawn regarding the influence of teachers’ utilization of constructivist teaching approaches on students’ academic performance in Mathematics.

**Level of Utilization of Constructivist Teaching Approach**

Tables 2A to 2F present the level of utilization of constructivist teaching approaches as perceived by the respondents in terms of different instructional dimensions. The data provide an overview of how constructivist strategies are implemented in Mathematics classes of Grade 7 students at Juan F. Triviño Memorial High School. Specifically, the results describe the extent to which learner-centered instruction, collaborative learning, authentic and real-life tasks, teacher facilitation, and assessment for learning are practiced in the teaching–learning process.

**Learner-Centered Instruction**

Learner-Centered Instruction. Table 2A presents the level of utilization of constructivist teaching approaches in terms of learner-centered instruction. The results show that the overall average weighted mean is 2.29, interpreted as Disagree (DA), indicating that learner-centered practices are not consistently utilized in the mathematics classroom. Among the indicators, “I understand Mathematics lessons better when I am actively involved in learning” obtained the highest weighted mean of 2.51 (DA), while “My prior knowledge is considered when new Mathematics lessons are taught” recorded the lowest weighted mean of 2.15 (DA).

**Table 2A**  
**Level of Utilization of Constructivist Teaching Approaches in terms of Learner-Centered Instruction\*\***

<b>Indicators</b>	<b>WM</b>	<b>Int.</b>	<b>Rank</b>
I am encouraged to share my ideas in my Mathematics class.	2.19	DA	4
I am given the opportunity to solve Mathematics problems in my own way.	2.28	DA	3
My prior knowledge is considered when new Mathematics lessons are taught.	2.15	DA	5
I actively participate in activities in my Mathematics class.	2.33	DA	2
I understand Mathematics lessons better when I am actively involved in learning.	2.51	DA	1
<b>Average Weighted Mean</b>	<b>2.29</b>	<b>DA</b>	

The findings indicate that although students recognize the value of active involvement, learner-centered strategies such as integrating prior knowledge and encouraging independent problem-solving are not fully practiced. This suggests that instruction remains largely teacher-centered, limiting opportunities for students to construct knowledge actively. Similar findings were reported by Alhassan (2018), Chen and Yang (2019), and Pratiwi et al. (2022), who emphasized that inconsistent application of learner-centered strategies leads to passive learning and lower engagement.

From a theoretical perspective, these results support Constructivist Learning Theory (Piaget; Vygotsky),

which posits that learners actively construct knowledge through experience and interaction (Kurt, 2021). The limited use of learner-centered approaches restricts students’ ability to develop deeper conceptual understanding and independent thinking skills.

**Collaborative Learning**

Collaborative Learning. Table 2B presents the level of utilization of constructivist teaching approaches in terms of collaborative learning. The overall average weighted mean is 2.23 (DA), indicating that collaborative practices are infrequently implemented. The highest-rated indicator is “Learning Mathematics becomes easier when there is cooperation in class” with a weighted mean of 2.38 (DA), while the lowest is “I am able to share my ideas and learn from my classmates” with 2.06 (DA).

**Table 2B Level of Utilization of Constructivist Teaching Approaches in terms of Collaborative Learning**

Indicators	WM	Int.	Rank
I work together with my classmates in solving Mathematics problems.	2.21	DA	3
Group activities help me understand difficult Mathematics lessons better.	2.33	DA	2
I am able to share my ideas and learn from my classmates.	2.06	DA	5
Learning Mathematics becomes easier when there is cooperation in class.	2.38	DA	1
My classmates help me when I have difficulty in Mathematics.	2.17	DA	4
<b>Average Weighted Mean</b>	<b>2.23</b>	<b>DA</b>	

The results reveal that collaborative learning opportunities are limited, with minimal emphasis on peer interaction and shared problem-solving. This suggests that students are not fully engaged in cooperative learning experiences that enhance understanding. Similar findings were noted by Li et al. (2019) and Sari et al. (2020), who reported that collaborative strategies are often underutilized despite their positive impact on learning outcomes.

These findings align with Social Constructivism, which emphasizes that learning occurs through interaction and collaboration (Vygotsky). The limited use of collaborative learning reduces opportunities for students to co-construct knowledge and develop communication and teamwork skills.

**Authentic and Real-Life Tasks**

Authentic and Real-Life Tasks. Table 2C shows the level of utilization of constructivist teaching approaches in terms of real-life applications. The overall average weighted mean is 2.34 (DA), indicating limited integration of real-life contexts in mathematics instruction. The highest indicator is “I can solve Mathematics problems that I can use in daily life” (2.37, DA), while the lowest is “Mathematics activities show how Mathematics is used outside the classroom” (2.30, DA).

**Table 2C Level of Utilization of Constructivist Teaching Approaches in terms of Authentic and Real-Life Tasks**

Indicators	WM	Int.	Rank
Mathematics lessons are related to real-life situations.	2.33	DA	4
I can solve Mathematics problems that I can use in daily life.	2.37	DA	1

I understand Mathematics better when there are examples from real life.	2.35	DA	2.5
Mathematics activities show how Mathematics is used outside the classroom.	2.30	DA	5
Mathematics lessons become more interesting when connected to real life.	2.35	DA	2.5
<b>Average Weighted Mean</b>	<b>2.34</b>	<b>DA</b>	

The findings suggest that real-life applications are not consistently incorporated, limiting students’ ability to connect mathematical concepts to everyday experiences. This may reduce engagement and practical understanding. Studies by Putra et al. (2019) and Zhang et al. (2020) support this result, emphasizing that authentic tasks improve retention and problem-solving skills.

Anchored in Experiential Learning Theory (Dewey), learning becomes meaningful when connected to real-life experiences. The limited use of authentic tasks indicates a gap in making mathematics relevant and applicable to students’ lives.

**Teacher as Facilitator**

Teacher as Facilitator. Table 2D presents the utilization of constructivist teaching approaches focusing on the teacher’s role. The overall average weighted mean is 2.43 (DA). The highest indicator is “My teacher listens to and respects my ideas in class” (2.72, A), while the lowest is “My teacher asks questions that deepen my thinking” (2.19, DA).

**Table 2D Level of Utilization of Constructivist Teaching Approaches in terms of Teacher as Facilitator**

Indicators	WM	Int.	Rank
My teacher guides me to discover answers on my own.	2.49	DA	2
My teacher asks questions that deepen my thinking.	2.19	DA	5
My teacher supports me when I have difficulty.	2.35	DA	4
Indicators	WM	Int.	Rank
My teacher encourages me to explain my answers.	2.40	DA	3
My teacher listens to and respects my ideas.	2.72	A	1
<b>Average Weighted Mean</b>	<b>2.43</b>	<b>DA</b>	

The results indicate that while teachers demonstrate supportive behaviors, deeper facilitative strategies such as inquiry and critical questioning are less evident. This suggests partial implementation of constructivist facilitation. Similar findings were reported by Chai et al. (2017) and Lim et al. (2019), highlighting the importance of guided inquiry in enhancing learning.

These findings support Constructivist Learning Theory, which emphasizes the teacher’s role as a facilitator guiding students toward knowledge construction.

**Assessment for Learning**

Assessment for Learning. Table 2E shows the level of utilization of assessment practices. The overall average weighted mean is 2.40 (DA). The highest indicator is “Tests help improve my learning” (2.63, A),

while feedback-related indicators received lower ratings.

**Table 2E**

**Level of Utilization of Constructivist Teaching Approaches in terms of Assessment for Learning**

Indicators	WM	Int.	Rank
My teacher checks my understanding during lessons.	2.33	DA	4
Feedback helps improve my performance.	2.28	DA	5
I learn from my mistakes.	2.35	DA	3
Assessments help me understand my learning.	2.42	DA	2
Tests improve my learning, not just grades.	2.63	A	1
<b>Average Weighted Mean</b>	<b>2.40</b>	<b>DA</b>	

The findings reveal that formative assessment practices are not consistently implemented, limiting opportunities for feedback and reflection. Studies by Huda et al. (2019) and Wahyuni (2022) similarly found that assessment for learning is often underutilized in mathematics classrooms.

These results align with Constructivist and Experiential Learning Theories, which emphasize reflection and feedback as essential components of meaningful learning.

**Summary of Utilization**

Summary of Utilization of Constructivist Teaching Approaches. Table 2F presents the overall summary. The overall average weighted mean is 2.34 (DA), indicating low utilization of constructivist teaching approaches.

**Table 2F**

**Summary of Utilization of Constructivist Teaching Approaches**

Aspects	AWM	Int.	Rank
Learner-Centered Instruction	2.29	DA	4
Collaborative Learning	2.23	DA	5
Authentic and Real-Life Tasks	2.34	DA	3
Teacher as Facilitator	2.43	DA	1
Assessment for Learning	2.40	DA	2
<b>Overall AWM</b>	<b>2.34</b>	<b>DA</b>	

The results indicate that while some constructivist practices are present, they are generally underutilized. Teacher facilitation ranks highest, but critical components such as collaboration and learner-centered instruction remain limited. This suggests that mathematics instruction still leans toward traditional approaches.

These findings are consistent with studies by Nasution et al. (2018) and Fadli (2023), which reported challenges in implementing constructivist teaching. Anchored in Constructivist Learning Theory, Social Constructivism, and Experiential Learning Theory, the results highlight the need for more interactive, student-centered, and experiential instructional strategies to enhance engagement and learning outcomes.

### Level of Students' Academic Performance in Mathematics

Students' Academic Performance. Table 3 presents the level of academic performance of Grade 7 students in Mathematics along Written Works, Performance Tasks, and the overall average.

**Table 3 Summary Table on the Level of Students' Academic Performance in Mathematics**

Aspects	SD	Mean	Int.
Written Works	6.11	32.48	D
Performance Tasks	1.52	31.39	D
Overall Average	3.82	31.94	D

The results indicate that students demonstrated a Developing level of academic performance across all aspects of Mathematics. Written Works obtained the highest mean score, suggesting slightly better performance in conceptual and paper-based tasks. Meanwhile, Performance Tasks obtained the lowest mean score, indicating greater difficulty in applying mathematical concepts in practical or activity-based tasks. The overall average further confirms that students are performing below the approaching proficiency level, highlighting the need for improvement in both theoretical understanding and practical application. These findings suggest that students are struggling in both conceptual understanding and application of mathematical skills. The minimal difference between Written Works and Performance Tasks reflects a consistent pattern of low performance across learning domains. This implies that learners may lack mastery of fundamental mathematical concepts and problem-solving strategies, which could affect their future academic progress if not addressed.

These results are supported by previous studies emphasizing challenges in mathematics learning. For instance, Hwang and Tu (2021) reported that students tend to remain at the Developing level when instruction is predominantly teacher-centered. Similarly, Chen et al. (2020) found that limited engagement in active learning contributes to low mathematics proficiency. Holmes et al. (2019) highlighted that integrating applied and contextual tasks improves students' performance, while Luckin et al. (2016) emphasized the importance of scaffolding and guided instruction in enhancing learning outcomes. Moreover, Roll and Wylie (2016) pointed out that formative assessment plays a significant role in improving student achievement, and Crompton and Burke (2023) noted that learner-centered approaches increase mathematics performance.

From a theoretical perspective, these findings support Constructivist Learning Theory, which posits that students learn best when actively constructing knowledge through engagement and experience (Kurt, 2021). Social Constructivism further explains that collaborative learning and guided support enhance understanding, particularly in applied tasks. Additionally, Cognitive Load Theory suggests that students may struggle with complex mathematical concepts without structured guidance, while Self-Regulated Learning Theory highlights the importance of goal setting, monitoring, and reflection in improving academic performance. These perspectives collectively suggest that increasing active engagement, scaffolding, and learner-centered strategies is essential to improve students' mathematics proficiency.

**Relationship between Utilization of Constructivist Teaching Approaches and Students’ Academic Performance**

Constructivist Teaching Approaches and Academic Performance. Table 4 presents the relationship between the utilization of constructivist teaching approaches and students’ academic performance in Mathematics as measured through Written Works and Performance Tasks.

**Table 4 Relationship Between Utilization of Constructivist Teaching Approaches and Students’ Academic Performance**

Variables	Academic Performance	r-value	Strength	p-value	Int.
Learner-Centered Instruction	Written Works	0.167	Very Weak	0.037	Significant
	Performance Tasks	0.328	Weak	<.001	Significant
Collaborative Learning	Written Works	0.103	Very Weak	0.204	Not Significant
	Performance Tasks	0.206	Weak	0.010	Significant
Authentic & Real-Life Tasks	Written Works	0.193	Very Weak	0.016	Significant
	Performance Tasks	0.200	Weak	0.012	Significant
Teacher as Facilitator	Written Works	0.155	Very Weak	0.053	Not Significant
	Performance Tasks	0.202	Weak	0.012	Significant
Assessment for Learning	Written Works	0.172	Very Weak	0.032	Significant
	Performance Tasks	0.252	Weak	0.002	Significant

The results indicate that the utilization of constructivist teaching approaches has a generally weak but significant relationship with students’ academic performance, particularly in Performance Tasks. Most variables showed stronger correlations with Performance Tasks than Written Works, suggesting that constructivist strategies are more effective in enhancing applied and activity-based learning rather than traditional written assessments. Among the approaches, Learner-Centered Instruction and Assessment for Learning consistently demonstrated significant relationships across both performance measures. These findings imply that active learning strategies, collaboration, and real-life applications contribute more effectively to students’ practical understanding of mathematics. However, their influence on written performance remains limited, possibly due to insufficient integration of these strategies in traditional assessments.

These results support previous studies indicating that constructivist teaching approaches enhance problemsolving and applied skills more than rote learning outcomes (Huda et al., 2019; Suryani, 2020; Putri et al., 2021). Similarly, Astuti et al. (2023) and Prasetyo et al. (2022) emphasized that contextual and interactive learning improves student engagement and performance in applied tasks.

From a theoretical standpoint, the findings align with Constructivist Learning Theory, which emphasizes active knowledge construction through experience (Piaget; Vygotsky, as cited in Kurt, 2021). Social Constructivism highlights the importance of collaboration and interaction, explaining stronger results in

Performance Tasks. Furthermore, Experiential Learning Theory supports the effectiveness of real-life and authentic tasks in promoting deeper understanding and application of knowledge.

**Extent of Influence of Constructivist Teaching Approaches on Students’ Academic Performance**  
 Constructivist Teaching Approaches and Academic Performance. Table 5 presents the extent to which constructivist teaching approaches influence students’ academic performance using the coefficient of determination ( $r^2$ ).

**Table 5 Extent of Influence of Constructivist Teaching Approaches on Students’ Academic Performance**

Variables	Academic Performance	r-value	r <sup>2</sup> (%)	Strength
Learner-Centered Instruction	Written Works	0.167	2.79	Very Weak
	Performance Tasks	0.328	10.76	Weak
Collaborative Learning	Written Works	0.103	1.06	Very Weak
	Performance Tasks	0.206	4.24	Weak
Authentic & Real-Life Tasks	Written Works	0.193	3.72	Very Weak
	Performance Tasks	0.200	4.00	Weak
Teacher as Facilitator	Written Works	0.155	2.40	Very Weak
	Performance Tasks	0.202	4.08	Weak
Assessment for Learning	Written Works	0.172	2.96	Very Weak
	Performance Tasks	0.252	6.35	Weak

The results show that constructivist teaching approaches have a very weak to weak influence on students’ academic performance. The percentage of variance explained is consistently higher in Performance Tasks than in Written Works, indicating that constructivist strategies are more effective in improving applied learning outcomes. Among the approaches, Learner-Centered Instruction and Assessment for Learning demonstrated relatively higher influence, particularly in performance-based assessments.

These findings suggest that while constructivist strategies contribute to learning, they explain only a small portion of students’ academic performance. Other factors such as prior knowledge, study habits, instructional quality, and learning resources may also significantly affect student outcomes.

These results are consistent with studies showing that constructivist approaches have stronger effects on applied tasks than traditional assessments (Huda et al., 2019; Wahyuni, 2022; Fadli, 2023). Additionally, research indicates that performance-based and experiential learning environments yield higher engagement and understanding compared to conventional methods.

From a theoretical perspective, the findings support Constructivist Learning Theory, which emphasizes active engagement in knowledge construction. Social Constructivism explains the role of collaboration in enhancing applied learning, while Experiential Learning Theory highlights the importance of realworld

tasks in improving performance. These theories collectively explain why constructivist approaches have greater influence on performance-based tasks than on written assessments.

### **School Training Program Developed to Strengthen the Utilization of Constructivist Teaching Approaches and Improve Students' Academic Performance**

This framework presents a structured roadmap for developing a school-based training program aimed at strengthening the utilization of constructivist teaching approaches and improving students' academic performance in Mathematics anchored on the Analysis–Design–Development (ADD) Model. The program operationalizes the Constructivist Mathematics Instruction Enhancement Program (C-MIEP) as an institutional intervention designed to enhance teachers' pedagogical competence and promote meaningful and equitable learning outcomes among Grade 7 students. The framework integrates empirical findings, instructional needs, and national educational standards to ensure that the program is responsive, evidencebased, and aligned with current educational reforms.

**Analysis Phase.** The Analysis Phase establishes the empirical and contextual foundation of the program by examining teachers' instructional practices, students' academic performance, and the factors influencing mathematics learning in the classroom. Findings from the present study revealed that the utilization of constructivist teaching approaches—including learner-centered instruction, collaborative learning, authentic and real-life tasks, teacher facilitation, and assessment for learning—was not consistently evident in classroom practice. Moreover, the results indicated that these instructional approaches showed limited influence on students' academic performance, suggesting that their implementation may not yet be fully optimized to support meaningful learning.

Further analysis identified several instructional gaps, including limited opportunities for collaborative problem-solving, insufficient integration of real-life mathematical applications, and the need for more effective formative assessment practices that guide student learning. Although students demonstrated varying levels of academic performance, the findings suggest that enhancing instructional strategies can further improve conceptual understanding and engagement in mathematics.

To contextualize these findings, relevant educational frameworks and policies were examined, including the Department of Education's MATATAG Agenda, which emphasizes strengthening foundational learning and supporting teachers in delivering quality instruction, as well as the Philippine Professional Standards for Teachers (PPST), which highlights the importance of learner-centered pedagogy, assessment for learning, and continuous professional development. The synthesis of empirical findings and policy directions underscored the need for a structured school-based training program that enhances teachers' ability to effectively implement constructivist teaching strategies. These insights served as the basis for the development of the Constructivist Mathematics Instruction Enhancement Program (CMIEP).

**Design Phase.** The Design Phase translates the analytical insights into a coherent training program framework that defines objectives, structures activities, and aligns interventions with institutional standards and instructional goals. The primary objective of the Constructivist Mathematics Instruction Enhancement Program (C-MIEP) is to strengthen teachers' competence in utilizing constructivist teaching approaches and improve students' academic performance in mathematics. The program focuses on key instructional dimensions, including learner-centered instruction, collaborative learning, authentic and real-life tasks, teacher facilitation, and assessment for learning.

The program design incorporates structured professional development activities such as training workshops, collaborative lesson planning sessions, mentoring activities, and instructional material

development workshops. These activities are intended to support teachers in designing engaging and meaningful learning experiences, facilitating collaborative and inquiry-based learning, integrating real-life applications of mathematical concepts, and implementing formative assessment practices that provide continuous feedback to students.

Additionally, the program integrates professional learning communities (PLCs), where teachers engage in collaborative reflection, share best practices, and develop instructional resources that enhance student engagement and achievement. The design also includes demonstration teaching sessions and reflective discussions to allow teachers to apply and evaluate constructivist strategies in real classroom contexts. The training program is structured as a two-day school-based activity to be conducted at Juan F. Triviño Memorial High School, involving Grade 7 mathematics teachers, school administrators, department heads, and master teachers. The design aligns with the Philippine Professional Standards for Teachers (PPST) and supports DepEd initiatives aimed at improving instructional quality and student learning outcomes. Through this structured design, the program ensures that instructional interventions are both contextually relevant and aligned with national education priorities.

**Development Phase.** The Development Phase operationalizes the designed framework into an implementation-ready training program through the conduct of the Constructivist Mathematics Instruction Enhancement Program (C-MIEP). The program consists of a series of structured sessions and workshops conducted over two days, focusing on strengthening teachers' instructional competence in constructivist teaching.

The first session introduces the foundations of constructivist teaching in mathematics, emphasizing learner-centered instruction and the role of teachers as facilitators of learning. The second session focuses on designing student-centered and collaborative learning activities, including problem-solving and inquiry-based tasks that promote active student engagement. Subsequent sessions highlight the integration of authentic and real-life mathematical tasks, enabling teachers to connect mathematical concepts to everyday experiences and enhance students' understanding.

Further sessions emphasize assessment for learning, where teachers are trained to design formative assessment tools and provide constructive feedback that supports continuous learning. Workshops on developing constructivist-based lesson plans and assessment tools are also conducted, allowing teachers to apply their learning and produce practical instructional materials.

The program culminates in the presentation of outputs and collaborative reflection, where participants share their developed lesson plans, teaching strategies, and assessment tools. These outputs serve as a foundation for sustaining professional learning communities within the school and promoting continuous instructional improvement.

To ensure sustainability, the program incorporates support mechanisms such as mentoring, instructional coaching, peer collaboration, and continuous monitoring of students' academic performance. Expected outcomes of the program include improved teacher competence in constructivist teaching, increased implementation of learner-centered and collaborative strategies, enhanced use of formative assessment practices, and improved student engagement and academic performance in mathematics.

Although long-term implementation and evaluation extend beyond the scope of the present study, the program provides a practical and evidence-based framework for improving mathematics instruction. The final synthesis consolidates the program's rationale, objectives, implementation structure, and expected outcomes into a comprehensive school-based initiative that supports continuous improvement in teaching practices and promotes meaningful learning experiences in mathematics.

### Conclusion

1. The utilization of constructivist teaching approaches in Grade 7 Mathematics is not strongly manifested. The Teacher as Facilitator emerged as the most observable dimension, the critically low ranking of Collaborative Learning and Learner-Centered Instruction indicates that the classroom remains largely traditional and teacher-directed.
2. The study concludes that the academic performance of Grade 7 students in Mathematics remains at a Developing proficiency level, characterized by a significant struggle to master both theoretical concepts (Written Works) and practical applications (Performance Tasks). This consistent underperformance indicates a fundamental gap in conceptual understanding and higher-order thinking skills.
3. The study concludes that there is a significant relationship between the utilization of constructivist teaching approaches and the academic performance of Grade 7 students in Mathematics. The findings affirm that when instructional practices shift toward learner-centered instruction, collaborative engagement, and authentic real-life tasks, students are more likely to move beyond the Developing proficiency level toward deeper conceptual understanding.
4. The study concludes that while constructivist teaching approaches are significantly associated with Grade 7 Mathematics performance, their overall influence is limited, particularly regarding written assessments. The very weak to weak values indicate that constructivist strategies function as a supportive scaffolding rather than a sole determinant of academic success.
5. The study concludes that the modest influence of constructivist strategies on student performance is not a failure of the theory itself, but rather an indication of the need for a structured, systematic enhancement of teacher capacity.

### Recommendation

1. School administrators should organize targeted workshops and Learning Action Cells (LAC sessions) specifically focused on Constructivist Instructional Design. Training should prioritize the bottom-ranked dimensions, particularly Collaborative Learning and Learner-Centered Instruction, to help teachers transition from lecturers to true facilitators.
2. Mathematics teachers should move away from traditional lecture-based models and adopt the role of a facilitator. This includes using Socratic questioning and scaffolding to guide students through complex problem-solving rather than simply providing answers, thereby reducing the cognitive load on students. To improve scores in Performance Tasks, the curriculum should include contextualized, real-life applications of Mathematics. Students should be given projects that require them to apply algebraic or geometric concepts to community-based scenarios, making the subject matter more relevant and less abstract.
3. School heads and Mathematics coordinators should encourage the adoption of inquiry-based lesson plans that prioritize learner-centered activities. Instead of traditional direct instruction, lessons should begin with a hook or a real-life problem that requires students to discover mathematical rules through exploration. Teachers should consciously design collaborative learning opportunities where students engage in mathematical dialogue. By structuring groups that allow for negotiated meaning, students can support each other's conceptual growth, effectively turning the classroom into a community of inquiry.

4. Schools should implement programs that teach students Self-Regulated Learning (SRL) strategies. Based on your findings, individual study habits play a large role in success; therefore, training students in goal setting, time management, and self-monitoring will empower them to better utilize the constructivist environment provided by the teacher.
5. School administrators should conduct a thorough needs assessment (Analysis) before launching the training program for teachers. This should involve observing teachers in their actual Mathematics classes to identify specific barriers such as classroom management issues or lack of resources that hinder the use of collaborative and authentic tasks.
6. Curriculum planners and education program developers should design instructional programs that emphasize effective teaching strategies, formative assessment practices, and student-centered learning approaches in mathematics to enhance learning outcomes.
7. Future researchers may explore additional variables such as students' motivation, learning engagement, classroom environment, and teacher professional competence to further understand factors influencing mathematics achievement among economically diverse students.
8. The proposed Teachers' Training Program to Enhance Teachers' Utilization of Constructivist Approach should be implemented and pilot-tested to strengthen instructional practices, support teachers' professional development, and improve students' mathematics performance through structured training, mentoring, and continuous instructional monitoring.

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