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TIERED LEARNING ACTIVITIES IN GENERAL MATHEMATICS: EFFECTS ON MATHEMATICS PERFORMANCE AND LEARNERS' EXPERIENCES

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ABSTRACT
This study explored the impact of Tiered Learning Activities on Grade 11 learners' mathematics performance in General Mathematics. Forty-eight learners from Sta. Rita National High School, Iloilo were grouped into three proficiency levels: Tier 1 (Slow), Tier 2 (Average), and Tier 3 (Advanced) based on the Enhanced Regional Unified Numeracy Test (E-RUNT). A pre-experimental posttest-only design was used, and a researcher-made posttest measured performance after the intervention. Results showed differences in mathematics performance across groups, with higher tiers achieving better scores. The Kruskal–Wallis test revealed a significant difference (p < 0.05), and pairwise comparisons confirmed significant differences among the tiers. Learners' reflections indicated improved engagement, collaboration, and confidence. The findings suggest that Tiered Learning Activities effectively address diverse learner needs through differentiated instruction. The study recommends integrating this approach into mathematics teaching to enhance performance and support inclusive learning.

INDEX TERMS: *Tiered Learning Activities, Mathematics Performance, Grade 11 Learners, Differentiated Instruction*

I. INTRODUCTION

Mathematics is a fundamental subject in secondary education that develops learners' critical thinking, analytical reasoning, and problem-solving skills necessary for everyday life and future careers (Kilpatrick, Swafford, & Findell, 2001). However, many students find mathematics challenging due to its abstract nature, often resulting in low engagement and poor academic performance (Boaler, 2016). This issue has become more evident in recent years as learners exhibit varying levels of readiness and proficiency in the classroom.

In the Philippines, mathematics performance has remained a persistent concern. In the 2018 Programme for International Student Assessment (PISA), Filipino students scored significantly below the minimum proficiency level, with less than 20% reaching the expected standard and more than half performing at very low levels (Department of Education, 2019). Similar results were observed in the Trends in International Mathematics and Science Study (TIMSS), where the Philippines consistently ranked low among participating countries (Mullis et al., 2004; Kelly, 2002). These findings highlight the continuing challenges in mathematics education and the need for more effective instructional approaches.

One of the major concerns in teaching General Mathematics is addressing the diverse learning needs of students. Differentiated instruction, as proposed by Tomlinson (2014), allows teachers to adjust content, process, and learning activities based on students' readiness levels. A key strategy under this approach is tiered learning activities, where learners are given tasks with varying levels of complexity while targeting the same learning objectives. This approach is grounded in Vygotsky's (1978) Zone of Proximal Development, which emphasizes that learners develop best when tasks are slightly above their current ability but achievable with proper support.

Tiered learning activities encourage active engagement by allowing students to work on tasks suited to their ability levels while still working toward common learning goals. This promotes meaningful learning experiences and supports the development of higher-order thinking skills (Tomlinson & Imbeau, 2010). Studies have shown that tiered instruction can improve learners' understanding and academic performance in mathematics (Callahan, 2008; Espin et al., 2015).

In the context of Sta. Rita National High School in Iloilo, results of the Enhanced Regional Unified Numeracy Test (E-RUNT) revealed that many Grade 11 learners fall under the Not Proficient, Low Proficient, and Nearly Proficient levels, with only a few reaching Proficient and Highly Proficient levels. This indicates a wide range of learner abilities in General Mathematics classrooms, highlighting the need for appropriate instructional interventions.

Given these challenges, the researcher is motivated to implement Tiered Learning Activities for Grade 11 learners during the 2024–2025 school year to determine its impact on their mathematics performance. The findings of this study may provide valuable insights for improving instructional practices and addressing learning gaps in mathematics education.

II. LITERATURE REVIEW

A. Learning Difficulties in Mathematics

Mathematics is a complex subject that involves various domains such as arithmetic, algebra, geometry, probability, statistics, and calculus. It requires the integration of multiple cognitive abilities including number sense, symbol decoding, memory, visuospatial skills, and logical reasoning. Difficulties in any of these areas may lead to challenges in learning mathematics. Because of its complexity, understanding mathematical cognition and learning processes has been a major focus of researchers from different fields.

Mathematics plays a critical role in human development as it forms the foundation of knowledge in science and technology. Early acquisition of mathematical skills, particularly in primary education, has been shown to significantly influence students' academic and professional success (Clisens et al., 2009; Lubinski et al., 2014; Acharya, 2017), as well as their performance in reading and science in later years (Clisens et al., 2013). However, despite the global need to improve mathematical literacy, many students continue to experience difficulties in learning mathematics (Sinay & Nahornick, 2016).

Mathematics learning difficulties may stem from a mathematics disability, which is considered a neurodevelopmental disorder linked to dysfunction in specific brain regions responsible for mathematical processing. These include the parietal lobe, prefrontal cortex, dorsal basal ganglia, temporal lobe, and hippocampus (Soares et al., 2018). Students with such disabilities often struggle in key areas of mathematics performance (Hannell, 2013).

Research shows that learners with mathematics difficulties may experience problems in grouping concepts, place value understanding, and basic operations such as addition and subtraction. They may also exhibit difficulties in visual and auditory perception, including distinguishing numbers and symbols, reversing digits, understanding spatial relationships, recalling mathematical facts, identifying patterns, and solving word problems (Jamaris, 2014; Hannell, 2013). These difficulties vary depending on the learner's developmental progress and cognitive processing abilities.

Aside from cognitive factors, environmental influences such as low motivation, behavioral issues, attention difficulties, and ineffective teaching strategies may also contribute to or worsen mathematics learning difficulties (Szücs & Goswami, 2013). These factors highlight the importance of appropriate instructional approaches that address learner diversity.

To address these challenges, the integration of technology and instructional support strategies has been recommended. Assistive technologies such as equation-writing software, virtual manipulatives, and talking calculators can help learners with mathematics difficulties access and understand mathematical concepts more effectively. Educators are encouraged to align instructional strategies and accommodations with learners' specific needs, particularly in areas such as memory, information processing, and executive functioning, to improve learning outcomes (Szücs & Goswami, 2013).

B. Tiered Activities and Differentiated Activities

Tiered activities are instructional strategies under differentiated instruction that provide varying levels of challenge and support based on students' abilities and readiness levels. Through this approach, teachers modify the content, process, and learning tasks to address diverse learner needs within a classroom setting. This strategy is designed to ensure that all learners, regardless of ability level, can engage meaningfully with the lesson and achieve learning goals.

Research has shown that tiered activities significantly improve student learning outcomes. VanTassel-Baska and Stambaugh (2006) found that students who participated in tiered mathematics activities performed better on post-assessments compared to those who received traditional instruction. Similarly, Tomlinson et al. (2003) reported that tiered instruction in science classrooms led to higher conceptual understanding and increased student engagement compared to homogeneous instruction. These findings suggest that tiered activities promote deeper learning and active participation.

In addition to academic achievement, tiered instruction has been found to enhance student autonomy and self-regulation. Love et al. (2008) revealed that learners engaged in tiered tasks demonstrated greater independence, goal-setting behavior, and self-management skills. Likewise, Kulik and Kulik (2006) confirmed through meta-analysis that tiered instruction benefits both high-achieving and struggling learners across subject areas, making it an effective instructional approach for diverse classrooms.

In mathematics education specifically, several studies highlight its positive impact. Mokhtar and Burhan (2019) found that students exposed to tiered instruction achieved significantly higher mathematics scores and showed greater motivation. Hu et al. (2017) also reported improved achievement and increased interest in mathematics among students receiving tiered instruction. In addition, Lee et al. (2019) found that tiered instruction improved both mathematics performance and student attitudes toward the subject.

Tiered activities also promote productive struggle, where learners engage in tasks slightly beyond their current ability with appropriate support. This process encourages persistence, confidence, and a growth mindset (Wong & Bukalov, 2020). However, effective implementation requires careful planning, as tiered activities are most suitable for lessons that allow extended student exploration and require significant instructional preparation (Wong & Bukalov, 2020).

Further evidence from Tomlinson (2014) showed that multi-tiered instruction in mathematics improved student performance, with an average score increase of 8.42 points (11.13%). Students also reported higher confidence, reduced anxiety, and greater enjoyment in learning mathematics. Similarly, Gregory and Chapman (2007) and Heacox (2002) emphasized that tiered instruction enhances engagement, inclusivity, and motivation by addressing individual learner needs. Basham et al. (2010) further noted that it promotes independent and self-directed learning skills.

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Moreover, Richards and Omdal (2007) found that tiered instruction significantly improves performance among learners with low prior knowledge by matching tasks to their readiness levels. This supports its effectiveness in addressing learning gaps and improving academic achievement.

In the broader context of differentiated instruction, Tomlinson (2001) found that tailoring instruction increases student engagement, motivation, and self-confidence. Tomlinson et al. (2003) also reported that students feel more valued and included when learning activities are differentiated. Furthermore, differentiated activities enhance critical thinking and problem-solving skills by encouraging learners to engage in higher-order thinking processes (Tomlinson & Allan, 2000; Salazar & Gumanoy, 2025). It has also been found to be beneficial for learners with special educational needs, as it promotes inclusion and supports diverse learning requirements (Marden & Bray, 2011).

Overall, existing literature consistently highlights that tiered and differentiated instructional strategies improve academic performance, engagement, motivation, and learner autonomy across different contexts. However, despite the strong evidence internationally, there remains a need for localized studies examining the effectiveness of tiered learning activities in teaching General Mathematics at the Senior High School level. This study therefore seeks to address this gap by investigating the impact of tiered learning activities on the mathematics performance of Grade 11 learners.

C. General Mathematics

General Mathematics is a foundational subject in senior high school that aims to develop learners' critical thinking, analytical reasoning, and problem-solving skills applicable to real-life situations. Existing literature emphasizes that students' performance in General Mathematics is influenced by instructional strategies, learner understanding, and curriculum relevance.

Several studies highlight the importance of instructional design in improving mathematics learning outcomes. Lumabit and Sagge (2024) developed and evaluated an inquiry-based learning module for Grade 11 learners and found that inquiry-based instructional materials significantly enhanced student engagement and conceptual understanding. Their findings suggest that well-designed instructional materials aligned with learner needs can improve mathematics achievement.

In addition, learner difficulties in mathematics have been widely documented. Quinio and Cuarto (2023) found that misconceptions in procedural knowledge and incorrect formula application are major causes of poor performance among senior high school students. Their study emphasizes the need for instructional interventions that strengthen conceptual understanding and provide diagnostic feedback to address learning gaps.

Broader curriculum-related challenges were also identified by Tanquilan and Lomibao (2025), who conducted a systematic review on the mathematics learning experiences of non-STEM students. The study revealed preparedness gaps, cognitive barriers, and instructional limitations that hinder learners' success in General Mathematics and their transition to higher education STEM courses. The authors recommended targeted support and curriculum adjustments to address these challenges.

Similarly, Tañola and Lomibao (2024) reviewed contemporary learning strategies in mathematics education and found that cognitive-based approaches such as scaffolding, visual representations, and instructional technology positively influence learners' comprehension and retention of mathematical concepts. Their findings support the use of learner-centered instructional strategies to improve mathematics performance.

Overall, the reviewed literature highlights that student achievement in General Mathematics is shaped by multiple factors, including instructional approaches, misconceptions, and learning readiness. These findings support the need for targeted instructional interventions such as tiered learning activities, which may help address diverse learner needs and improve academic performance in mathematics.

D. Students' Achievement and Performance in Mathematics

Mathematics is widely regarded as one of the most essential subjects in education, as it develops learners' problem-solving skills, logical reasoning, and analytical thinking needed for academic and real-life applications. In the Philippines, the K to 12 Mathematics Education Learning Competencies (MELCs) guide the teaching and learning of mathematics, ensuring that learners acquire essential skills aligned with national standards (DepEd, 2019). Despite these efforts, mathematics performance among Filipino learners continues to be a major concern.

International large-scale assessments reveal persistent challenges in mathematics achievement. In the 2018 Programme for International Student Assessment (PISA), Filipino students ranked among the lowest-performing groups across participating countries. Less than 20% of students reached the minimum proficiency level (Level 2), while more than 50% performed below Level 1 proficiency (Department of Education, 2019 as cited by Bernardo et al., 2022). This indicates that a majority of learners lack the necessary mathematical skills compared to their global counterparts.

PISA defines mathematical literacy as the ability to formulate, apply, and interpret mathematics in various contexts, including real-life, societal, and scientific situations (OECD, 2019). It involves mathematical processes such as reasoning, applying concepts, and interpreting results. However, most Filipino learners struggle to demonstrate these competencies. According to OECD (2019), Level 1 proficiency only involves basic and routine mathematical tasks, yet more than half of Filipino students perform even below this level. Performance disparities are also evident between school types, with private school students performing better than those in public schools.

Mathematics remains a critical subject in national development, as it supports scientific and technological advancement and contributes to economic growth (Tobias & Diego, 2022). It is also considered essential for individual success (Tomlinson, 2014). However, both PISA and TIMSS results consistently show declining mathematics achievement among learners (OECD, 2019; Mullis et al., 2019).

Several factors contribute to low mathematics performance, including inadequate instructional resources, negative learner attitudes, and difficulty in understanding and solving mathematical problems within limited time (Van Geel et al., 2019). Studies have also reported that Filipino students generally exhibit poor or unsatisfactory performance in mathematics (Azucena et al., 2022; Capuno et al., 2019; Pentang et al., 2020), further supported by low National Achievement Test scores in mathematics (DepEd, 2019).

In response to these challenges, educators have explored various instructional approaches such as constructivist teaching, mastery learning, and systematic instructional strategies. These approaches aim to improve conceptual understanding and learner engagement in mathematics. However, despite these efforts, gaps in student achievement remain evident, highlighting the need for more effective and targeted instructional interventions.

Overall, the literature suggests that mathematics performance is influenced by multiple factors, including curriculum implementation, instructional strategies, and learner readiness. These persistent challenges emphasize the need for innovative and differentiated instructional approaches that can address diverse learner needs and improve mathematics achievement.

III. PURPOSE OF THE STUDY

The study aimed to assess the effectiveness of Tiered Learning Activities in Strengthened Senior High School Curriculum in General Mathematics.

Specifically, the study aimed to answer the following questions:

1. What is the level of mathematics performance of learners with varying level of proficiency in General Mathematics after exposure to tiered learning activities?
2. Is there a significant difference in the level of mathematics performance of learners with varying level of proficiency in General Mathematics after exposure to tiered learning activities?
3. What are the experiences of learners in utilizing tiered learning activities in strengthened senior high school curriculum in General Mathematics?

IV. THEORETICAL FRAMEWORK

This study is anchored on the theory of Differentiated Instruction, primarily advocated by Carol Ann Tomlinson (2014), which emphasizes the adaptation of instruction to meet learners' varying readiness levels, interests, and learning profiles. Differentiated instruction is a learner-centered approach that promotes equity in education by ensuring that students engage with the same essential learning competencies but through tasks that vary in complexity, support, and mode of expression. Tomlinson (2014) explains that effective differentiation allows learners to work at appropriate levels of challenge while still achieving common learning goals, thereby promoting meaningful understanding and academic growth.

In this approach, instruction is modified in terms of content, process, and product. Content refers to what students learn, process refers to how students engage with the learning material, and product refers to how students demonstrate their understanding. Teachers play a crucial role in diagnosing learners' readiness levels and designing learning experiences that are responsive to these differences. Through this, instruction becomes more flexible, inclusive, and responsive to diverse learners in the classroom.

One important application of differentiated instruction is tiered learning activities, which are structured tasks designed at varying levels of difficulty but aligned with the same learning objectives. Tiered instruction allows students to work on activities that match their current level of understanding while still focusing on the same key concepts. Struggling learners are provided with more guided and simplified tasks, while advanced learners are challenged with more complex and higher-order thinking activities. This ensures that all learners are meaningfully engaged and appropriately challenged.

In relation to this, this study is also supported by the 7E's Instructional Model developed by Eisenkraft (2003), which extends the traditional learning cycle into Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend. This model promotes active learning by allowing students to construct knowledge through inquiry, exploration, and application. Eisenkraft (2003) emphasized that extending the learning cycle strengthens conceptual understanding and encourages deeper engagement with the subject matter. In this study, the 7E's model serves as the instructional structure in implementing tiered learning activities in General Mathematics, guiding learners through a systematic and interactive learning process.

Furthermore, this study is grounded on Lev Vygotsky's Scaffolding Theory**,** particularly the concept of the Zone of Proximal Development (ZPD), which highlights that learners develop understanding more effectively when they receive appropriate guidance and support. Vygotsky (1978) explained that learning occurs best when students are assisted in performing tasks slightly beyond

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their independent ability, with support gradually removed as competence increases. Scaffolding in this study is reflected in the tiered learning approach, where instructional support is adjusted based on learners' readiness levels to promote gradual mastery and independence.

This study is also related to Thorndike's Connectionism Theory, particularly the Law of Readiness, which states that learning is more effective when students are mentally and emotionally prepared to engage in a task. Thorndike (1913) emphasized that readiness influences motivation, participation, and learning success. In this context, tiered instruction ensures that learners are given tasks that are appropriate to their level, preventing frustration from overly difficult tasks and boredom from overly easy ones. This alignment with readiness enhances engagement, confidence, and performance in mathematics.

Moreover, the study is similar to the PACE (Presentation, Attention, Co-Construction, Extension) model, which is a differentiated instructional approach that organizes learners according to proficiency levels and provides appropriate learning experiences for each group (Snyder, 2019). In PACE-based instruction, students are guided through progressively challenging tasks, similar to tiered learning activities. Both approaches emphasize that learners progress best when instruction is tailored to their current level of understanding, with opportunities for advancement through structured support.

In summary, this study integrates the principles of Differentiated Instruction by Tomlinson, the 7E's Instructional Model by Eisenkraft, Vygotsky's Scaffolding Theory, Thorndike's Law of Readiness, and the PACE instructional approach. These theories collectively support the use of tiered learning activities as an effective instructional strategy in General Mathematics. Through guided, structured, and differentiated learning experiences, students are expected to develop stronger conceptual understanding, higher engagement, and improved mathematics performance.

V. CONCEPTUAL FRAMEWORK

This study is guided by the conceptual model as shown in the paradigm.

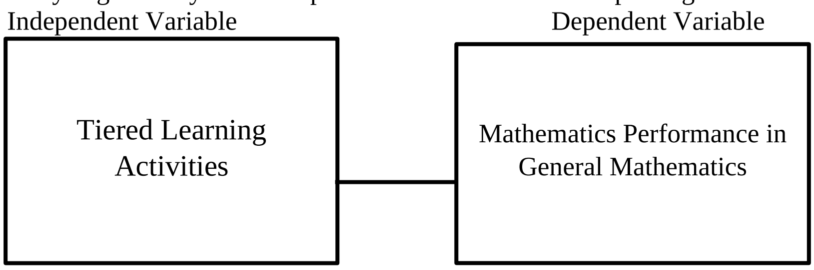

Figure 1. The Effect of Tiered Learning Activities in Strengthened Senior High School Curriculum in General Mathematics to the Academic Proficiency Level of Grade 11 Learners

The figure shows the use of tiered learning activities in Strengthened Senior High School Curriculum in General Mathematics. The independent variable is the tiered learning activities while the dependent variable is the mathematics performance of Grade 11 learners.

VI. METHODOLOGY

A. Research Design

This study utilized pre-experimental post-test design, a type of research design in which a single group is exposed to an intervention and measured on the outcome variable after the intervention, without the use of pretest or control groups for comparison (Creswell & Creswell, 2018).

In addition, the study employed qualitative thematic analysis guided by Vygotsky's Scaffolding Theory. Learners' written responses were examined through a scaffolding learning progression to identify patterns, which were then organized into emerging themes and subthemes based on their levels of understanding and Zone of Proximal Development (ZPD), emphasizing learning as a process supported through interaction and guided assistance (Vygotsky, 1978; Braun & Clarke, 2006).

B. Subjects of the Study

The study involved 48 Grade 11 Academic learners of Sta. Rita National High School for the School Year 2025–2026. The selected section was handled by the teacher-researcher to facilitate the implementation of Tiered Learning Activities and to manage the different stages of the intervention throughout the conduct of the study.

C. Research Instrument

To gather the data needed in this study, a standardized mathematics test, the Enhanced Regional Unified Numeracy Test (E-RUNT), and a researcher-made 40-item multiple-choice test were used. These instruments were designed to assess students' numeracy skills and mathematics performance, with each correct answer given one point and a maximum possible score of 40.

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The researcher formally sought permission from the School Head of Sta. Rita National High School before the conduct of the study to ensure adherence to ethical standards and institutional policies. After approval, an orientation was conducted to inform the selected Grade 11 Academic learners about the purpose, procedures, and expectations of the study, ensuring their informed participation.

The study was implemented for approximately eight (8) weeks. The Enhanced Regional Unified Numeracy Test (E-RUNT) was first administered to determine learners' initial proficiency levels and to classify them into Tier 1, Tier 2, and Tier 3. Based on this classification, learners were exposed to Tiered Learning Activities designed using the 7E's Instructional Model (Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend), with tasks differentiated according to their readiness levels while maintaining the same learning competencies in General Mathematics.

To ensure proper control and monitoring of the implementation, members of the research panel were invited to observe the class during the conduct of the lessons and activities.

Throughout the intervention, lessons were systematically delivered using tiered activities aligned with the Strengthened Senior High School Curriculum. Formative assessments and feedback were provided after each activity to monitor learner progress. After the intervention, a 40-item researcher-made post-test was administered to measure the learners' mathematics performance. The entire process followed a structured timeline to ensure consistency, reliability, and accurate assessment of the effectiveness of Tiered Learning Activities.

D. Data Analysis

After the intervention, the data gathered were analyzed using the Statistics Package for Social Sciences (SPSS) software with a 0.05 level of significance. Descriptive statistics such as mean and standard deviation were used to summarize the learners' mathematics performance. For inferential statistics, the Kruskal-Wallis test and post hoc pairwise comparison were employed to determine significant differences in performance across the identified groups.

In addition, qualitative data from learners' written responses and reflections were analyzed to identify emerging themes and subthemes related to their learning experiences. This analysis was guided by Vygotsky's Scaffolding Learning Progression, which served as the framework for interpreting learners' cognitive development and collaborative learning during tiered learning activities (Vygotsky, 1978; Wood, Bruner, & Ross, 1976).

VII. RESULTS AND DISCUSSIONS

The findings of the present study are presented in this section.

Table 1

Results of the Mathematics Performance in General Mathematics of Grade 11 Learners after the exposure to Tiered Learning Activities.

Category	N	Mean	Description	SD
Tier 1 (Slow)	16	18.63	Moderate	4.22
Tier 2 (Average)	20	27.75	High	3.55
Tier 3 (Advance)	12	34.00	Very High	2.56

Note: *Very High (32.01 - 40.00); High (24.01 - 32.00); Moderate (16.01 - 24.00) ; Low (8.01 - 16.00) ; Very Low (0.00 - 8.00)*

The findings revealed that the mathematics performance of the participants varied across the three tiers after the implementation of Tiered Learning Activities. Learners in Tier 1 (Slow) obtained a "Moderate" level of performance (M = 18.63, SD = 4.22), while those in Tier 2 (Average) achieved a "High" level (M = 27.75, SD = 5.55). Meanwhile, learners in Tier 3 (Advanced) demonstrated a "Very High" level of performance (M = 34.00, SD = 2.56). This indicates a progressive increase in mathematics performance as learners move from lower to higher tiers.

This outcome suggests that learners in Tier 1 were able to develop a basic understanding of the concepts, although some variability in their scores implies the need for additional support. On the other hand, learners in Tier 2 showed stronger comprehension and were able to apply mathematical concepts more effectively. Learners in Tier 3 exhibited a high level of mastery, as reflected in their consistently high scores.

Overall, the findings imply that Tiered Learning Activities were effective in enhancing learners' mathematics performance across different ability levels. The results further suggest that such an approach helps address diverse learning needs and contributes to reducing performance gaps among learners. These findings are supported by previous studies, which emphasize that differentiated instruction enables teachers to match tasks to learners' readiness levels, thereby improving understanding and academic performance (Tomlinson, 2014; Heacox, 2012; Subban, 2006; Santangelo & Tomlinson, 2012).

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Table 2

The table 2 presents the results of the Kruskal–Wallis Test used to determine whether there is a significant difference in mathematics performance among learners grouped according to proficiency levels (Tier 1 – Slow, Tier 2 – Average, and Tier 3 – Advanced).

Kruskal–Wallis Test Results Across Proficiency Levels

Proficiency	N	Mean Rank	x^2	df	p
Total	48		36.03	2	.000
Tier 1 (Slow)	16	9.38			
Tier 2 (Average)	20	36.68			
Tier 3 (Advance)	12	41.04			

Table 2 presents the results of the Kruskal–Wallis H test conducted to determine whether there were significant differences in posttest scores among the three proficiency categories—Slow, Average, and Advanced. The analysis revealed a statistically significant difference in posttest performance across these groups, $H(2)=36.03, p<.001$. This indicates that the distribution of scores was not the same for all proficiency levels. In other words, learners' proficiency levels were associated with distinct variations in their posttest outcomes. The result suggests that as proficiency increases, posttest scores tend to improve, implying that higher proficiency corresponds to better performance.

Table 3

Pairwise Comparisons on the Mathematics Performance of the Participants Across Proficiency Levels

Proficiency	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.
Slow-Average	-17.000	4.688	-3.691	.000	.001
Slow-Advance	-31.667	5.337	-5.933	.000	.000
Average-Advance	-14.367	5.103	-2.815	.005	.015

Note: p>.05, not significant

The findings revealed that there were statistically significant differences in mathematics performance among the three proficiency groups (Slow, Average, and Advanced) as shown in the pairwise comparisons with Bonferroni adjustment. Specifically, the Slow and Average groups differed significantly ($z = -3.69$, $p = .001$), as well as the Slow and Advanced groups ($z = -5.93$, $p < .001$), and the Average and Advanced groups ($z = -2.82$, $p = .015$). This indicates that learners in higher proficiency levels consistently achieved better posttest scores than those in lower levels.

This outcome suggests that mathematics performance increases as proficiency level improves, with the Slow group obtaining the lowest scores, followed by the Average group, and the Advanced group achieving the highest. The results imply that tiered instruction produces varying effects depending on learners' readiness levels, highlighting its role in addressing individual differences in learning.

Overall, the findings confirm that proficiency level is significantly associated with learners' posttest achievement. These results support previous studies which emphasize that differentiated and tiered instruction can lead to significant differences in performance across learner groups, as instruction is tailored according to students' abilities (Maryani et al., 2025; Salaver & Quimpo, 2024; Lawson, 2018).

Table 4

Identified Themes and Core Ideas on Learners' Experiences utilizing Tiered Learning Activities in Strengthened Senior High School Curriculum in General Mathematics.

Themes	Core Ideas
Challenges and Difficulties	• Learners experienced difficulty with numbers, particularly when performing complex calculations.
Team Support and Comprehension	• Learners were able to share ideas and support one another through clear communication.
Enjoyment and Engagement Confidence and Growth	• Learners find engaging in activities and solving mathematical problems enjoyable, deriving satisfaction particularly when challenges are successfully overcome through comprehension and collaborative teamwork. • Learners exhibit greater adaptability and confidence as they develop the skills to successfully complete tasks and solve mathematical problems.

VIII. CONCLUSIONS AND RECOMMENDATIONS

The following were the findings of the study:

1. The learners' mathematics performance after exposure to Tiered Learning Activities showed improvement across all tiers, with a progressive increase in achievement from Tier 1 to Tier 3, indicating that learners in higher tiers demonstrated higher levels of mastery while those in lower tiers also exhibited gains in understanding and performance after the intervention.

2. A significant difference existed in the learners' mathematics performance across varying proficiency levels after exposure to Tiered Learning Activities, indicating that the learners differed significantly in their post-test performance. The post hoc pairwise comparison revealed that significant differences existed between Tier 1 and Tier 2, Tier 1 and Tier 3, and Tier 2 and Tier 3, implying that learners across all tiers demonstrated statistically different levels of mathematics performance after the intervention, with Tier 3 consistently obtaining the highest performance followed by Tier 2 and Tier 1.
3. The insights gathered from learners' feedback on their experiences in utilizing tiered learning activities under the Strengthened Senior High School Curriculum in General Mathematics highlight the following: challenges and difficulties, team support and comprehension, enjoyment and engagement, and confidence and growth.

CONCLUSION

Based on the findings gathered and observations made by the researcher, the following conclusions were drawn:

1. Grade 11 learners in General Mathematics demonstrated varying levels of proficiency, indicating differences in readiness and learning needs among students. These differences highlight the importance of using instructional strategies such as tiered learning activities that address diverse learning abilities in the classroom.
2. Tiered Learning Activities have the potential to enhance the mathematics performance of Grade 11 learners by providing differentiated tasks that correspond to students' levels of readiness. This instructional approach allows learners to engage in meaningful learning experiences suited to their abilities
3. Tiered Learning Activities were shown to be more effective than a uniform instructional approach. The study indicated that providing differentiated tasks positively impacted learners' performance, with all tiers showing measurable gains in mathematics achievement.
4. Implementing Tiered Learning Activities motivated learners to engage more actively in learning, enhancing collaboration, participation, and confidence. Learners were able to overcome challenges and apply mathematical concepts more effectively when scaffolded according to their readiness.
5. The implementation of Tiered Learning Activities fostered collaboration, participation, and engagement among learners. Themes identified from learners' experiences—Challenges and Difficulties, Team Support and Comprehension, Enjoyment and Engagement, and Confidence and Growth—show that learners gradually overcame challenges, shared ideas with peers, and actively participated in solving mathematical problems.
6. Tiered Learning Activities also enhanced learners' confidence and growth. By scaffolding tasks according to learners' readiness levels, students developed greater independence, improved problem-solving abilities, and strengthened their critical thinking skills, while enjoying and actively participating in mathematics learning.
7. Learners developed greater confidence and growth through tiered tasks. By progressively tackling activities suited to their level, they strengthened critical thinking, problem-solving skills, and independence, reflecting the scaffolding learning progression emphasized in Vygotsky's Zone of Proximal Development (1978).
8. The findings imply that Tiered Learning Activities are an effective instructional strategy for diverse classrooms. They help reduce achievement gaps, promote academic growth across all proficiency levels, and provide opportunities for learners to engage actively in meaningful learning experiences. Teachers can implement tiered instruction to scaffold tasks according to students' readiness, enabling learners to progress from guided understanding to independent mastery (Wood, Bruner, & Ross, 1976; Tomlinson, 2017; Santamaria, 2009).
9. Meanwhile, some variability in posttest improvement, particularly in Tier 1, suggests that individual learner responses to tiered tasks may differ. This indicates that while tiered instruction is highly effective, continued monitoring and support are necessary to maximize outcomes for all learners.

RECOMMENDATIONS

The researcher formulated the following recommendations as drawn from the findings and conclusions made in the study:

1. Mathematics teachers should implement Tiered Learning Activities to address learners' varying proficiency levels, providing scaffolded tasks for struggling learners and challenging tasks for advanced learners.
2. Teachers should monitor learners' progress during tiered activities and provide additional support or enrichment as needed to maximize understanding and problem-solving skills.
3. Collaborative learning should be emphasized within tiered instruction to foster teamwork, peer support, and comprehension among learners.
4. Learners are encouraged to actively participate in tiered tasks, collaborate with peers, and approach challenges with a growth mindset to enhance confidence and mastery in mathematics.
5. School administrators should provide professional development and training on differentiated instruction and tiered learning strategies to ensure effective classroom implementation.
6. Schools should allocate resources, materials, and instructional tools that support tiered learning, such as leveled exercises, manipulatives, and technology-assisted activities.
7. Future researchers may explore the long-term effects of Tiered Learning Activities on mathematics performance, engagement, and higher-order thinking skills, as well as its applicability across other subjects and learning environments.

8. Tiered Learning Activities should be integrated as a key strategy in the mathematics curriculum to promote equitable learning opportunities, reduce achievement gaps, and enhance learners' engagement, performance, and confidence.

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