

Implementation of Differentiated Strategies in Teaching and Academic Performance of Elementary Multigrade and Regular Learners

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Abstract — This study evaluates the effective implementation of differentiated strategies in improving the academic performance of multigrade and regular learners. A descriptive-correlational research design utilizing a survey on the extent of implementation of differentiated strategies in teaching Math by Tomlinson (2017) in his study, "How to Differentiate Instruction in Academically Diverse Classrooms". The researcher gathered the result of the 4th quarter grade of the learners in Math to indicate the academic performance. There are five (5) teachers, and 78 multigrade and regular learners enrolled in the school. The research results affirm the presence of a significant relationship between the extent of implementation of differentiated strategies in teaching Math and level academic performance of the multigrade and regular learners. The findings highlight that effective application of differentiated instruction, supported by teacher readiness, careful planning, engaging classroom practices, and adequate resources, significantly enhances learners' academic achievement, particularly in Mathematics. The consistently high ratings across all dimensions of differentiated instruction, along with the strong positive correlation found between its implementation and student performance, underscore the crucial role of equipping teachers with the necessary skills, resources, and support to address diverse learning needs in multigrade settings

Keywords — **Implementation, Differentiated Strategies, Teaching, Academic Performance, Elementary Multigrade, Regular Learners**

I. Introduction

Mathematics is considered one of the most difficult subjects for some of the pupils, especially in key stage 2. It takes a lot of understanding and analysis of the concepts for the grade level. It involves using logical reasoning and systematic approaches to solve problems and explore abstract concepts.

To promote effective mathematical learning, teachers must consider various factors, including pupils' confidence in mathematics (Azucena et al., 2022; Kunhertanti & Santosa, 2018). However, capturing the necessary type of confidence in mathematics is challenging, as pupils' overall assessments of their confidence in mathematics or specific topics within the mathematics

curriculum may not accurately reflect their actual confidence (Foster, 2016). After almost two years of being implemented distance learning, most of the pupils if not all struggled in achieving positive Mathematics performance, making them non-numerates in the numeracy performance conducted by the teachers.

At present, teachers and school leaders are taking steps on how the pupils can recover the learning losses during the pandemic. Going back to the end of the school year activities, the Department of Education launched the National Learning Camp as one of the strategies to address learning gaps especially in Mathematics. After assessing the performance of the pupils, it was revealed that there are many factors which contribute to the inability of the pupils to achieve the desired competencies for the grade. One of which is the confidence of the pupils to tackle mathematical problems and analyzing such to arrive at the correct solutions. It was found out that it is necessary to deal with the problem of pupils' confidence in mathematics and develop effective strategies to enhance mathematics education in the school. By doing so, students can better develop their mathematical thinking and problem-solving skills, leading to improved performance in mathematics and other academic areas.

Moreover, it was found out that during the 1st quarter of this school year, there are still pupils who found difficulty in remembering the lessons learned, they cannot grasp and recall their homework, and some concepts were forgotten even a day or two pasts. Teachers are fully aware of the decline in education that has occurred during the past few months. Because of the pandemic, all pupils' learning gaps widened. Their learning gaps were most noticeable in mathematics, where most needed help solving integer-based problems or equations. Nevertheless, it can be addressed through an intervention (Azucena et al., 2022; Pentang et al., 2020; Pentang, 2021).

The school sought more interventions to bridge the gap and achieve pupils' learning outcomes, especially during the transition to face-to-face classes. The priorities and action steps include expanding the implementation of limited face-to-face classes, identifying learning gaps, and profiling and clustering learners based on learning needs. Developing learning time is one of the strategies to address learning gaps and accelerate learning (Suprayogi, 2017). Other instructional strategies, such as peer tutoring, problem-based learning, and gaming, may be used in differentiated instruction (Altemueller & Lindquist, 2017; Smale-Jacobse et al., 2019). Differentiated instruction was chosen to help students recover quickly, bridge learning gaps, and improve academic performance. The confidence was added to understand the level of difficulty that they have while answering. Differentiated instruction was used because teachers knew how capable those students were; their potential could not be ignored. It was partially implemented in the 1st 8 weeks of classes where key stage 1 teachers use differentiated instruction in teaching literacy and numeracy. Moreover, multigrade classes have adapted this teaching strategy considering that a teacher is catering two or more grade levels in one class.

Differentiated instruction is a strategy that can effectively meet the diverse needs of all students, leading to improved student achievement (Parsons et al., 2018; Valiandes & Neophytou,

2018). This approach considers learners' unique strengths and differences in today's classrooms and provides them with hands-on learning opportunities (Civitillo et al., 2016). When teaching mathematics, differentiated instruction promotes greater student engagement and interaction among classmates (Mbugua & Muthomi, 2014).

Thus, it is in the above premise that the researcher decided to conduct this study to evaluate the effectiveness of differentiated mathematics instruction in improving the performance of the Grades 3 & 4 pupils of Consolacion Elementary School, Isabel I District, Leyte Division for school year 2023-2024. A proposed improvement plan will be formulated based on the result of the study.

This study determines the significant relationship between the implementation of differentiated strategies in teaching Math and academic performance of multigrade and regular learners in Talisay Elementary School, Capoocan II District, Leyte Division. The findings of the study were the basis for the proposed improvement plan.

Further, it sought to answer the following sub-problems:

1. What is the extent of implementation of differentiated strategies in teaching Math?
2. What is the level academic performance of the multigrade and regular learners?
3. Is there a significant relationship between the extent of implementation of differentiated strategies in teaching Math and level academic performance of the multigrade and regular learners?
4. What instructional supervisory plan can be proposed based on the findings of this study?

II. Methodology

Design. This study employed descriptive-correlational research design to determine the significant relationship between the extent of implementation of differentiated strategies in teaching Math and academic performance of multigrade and regular learners. This study is descriptive because it describes the variables- the extent of implementation of differentiated strategies in teaching Math and academic performance of multigrade and regular learners. Further, this is also correlational because it finds the relationship between the dependent and independent variables. The research was conducted at Talisay Elementary School, located in Barangay Talisay, Capoocan, Leyte, under the Schools Division of Leyte. The school was situated along the coastal area and was accessible through all modes of land transportation. It was categorized as a small combi school managed by a School Head, with one Teacher I and four Teacher III positions. Some teachers handled two grade levels, while others handled only one. The school had internet access, and meetings were usually conducted in the principal's office. A playground area and the barangay gym were utilized for school programs and activities. Classrooms were well-maintained, and

garbage bins were placed in every corner to promote cleanliness among the pupils. This study utilized the survey on the extent of implementation of differentiated strategies in teaching Math by Tomlinson (2017) in his study, "How to Differentiate Instruction in Academically Diverse Classrooms". The researcher gathered the result of the 4th quarter grade of the learners in Math to indicate the academic performance.

Sampling. The respondents of this study were the five (5) teachers, and 78 multigrade and regular learners enrolled in the said locale. Complete enumeration was employed in selecting the respondents of the study.

Research Procedure. After the research had been approved, data gathering followed. Letter requests to conduct the study were submitted to the proper authorities for approval. First, a letter request was submitted to the Schools Division Superintendent for approval to proceed with data gathering among the identified respondents. After the approval of the SDS, permission letters were also submitted to the Public Schools District Supervisor and the School Principal. After securing all necessary approvals, the researcher proceeded with the data gathering. The researcher conducted an orientation for the respondents together with their parents. During the orientation, the respondents were informed about the study's goals and their right to confidentiality. Anonymized data were used solely for research purposes, minimizing any burden on participants. Data were stored securely and were made accessible only to the research team, reinforcing confidentiality. Participation was purely voluntary, with the freedom to withdraw at any time. The presentation of findings maintained strict transparency, highlighting participants' views without bias or alterations. Furthermore, consent was obtained from the parents of the learners, allowing their children to be included in the study. Grades of the learners in quarter 4 were gathered and used in the study. The results were collected, tallied, and were submitted for statistical treatment.

Ethical Issues. The researcher obtained the necessary written permission from the authorities to conduct the study. While developing and checking the survey used in the study, the use of offending, discriminatory, or other undesirable terminology was eschewed. The names of the respondents and other personal information were not included in this study to ensure confidentiality. The respondents were also voluntarily participating. Orientation was done for the respondents. During orientation, concerns and issues were clarified, and consent to be part of the study was signed. The researcher-maintained objectivity in discussing and analyzing the results. All authors whose works were cited in this study were correctly quoted and were acknowledged in the reference.

Treatment of Data. The quantitative responses were tallied and tabulated. The data were treated statistically using the following tools: Simple Percentage and Weighted Mean were employed to determine the significant relationship between the extent of implementation of differentiated strategies in teaching Math and academic performance of multigrade and regular learners. Pearson r was used to determine the significant relationship between the dependent and independent variables.

III. Results and Discussion

Table 1
Extent of Implementation of Differentiated Strategies in Teaching Multigrade

	A. Teacher Readiness	Weighted Mean	Interpretation
1	I understand the principles of differentiated instruction.	5.00	Strongly Agree
2	I have received professional development or training in differentiated strategies.	5.00	Strongly Agree
3	I can identify the different learning styles of my students.	4.30	Strongly Agree
4	I feel confident implementing differentiated instruction in my classroom.	4.30	Strongly Agree
5	I can effectively plan lessons that incorporate differentiated strategies.	4.30	Strongly Agree
	Mean	4.58	Strongly Agree
	B. PLANNING AND INSTRUCTIONAL DESIGN		
1	I plan lessons based on the readiness levels of my students.	4.30	Strongly Agree
2	I set clear objectives that accommodate different learning needs.	4.50	Strongly Agree
3	I modify content delivery based on student learning profiles.	4.30	Strongly Agree
4	I use flexible grouping strategies during instruction.	4.70	Agree
5	I provide tiered assignments or tasks to suit varying levels of student ability.	4.30	Strongly Agree
	Mean	4.42	Strongly Agree
	C. Classroom Practice		
1	I vary instructional strategies to engage all learners.	4.30	Strongly Agree
2	I use a range of assessment data to guide my differentiated instruction.	4.70	Strongly Agree
3	I allow students to express understanding in different formats (e.g., oral, written, creative).	4.00	Agree
4	I regularly integrate student interests into lessons to enhance engagement.	4.35	Agree
5	I differentiate homework assignments based on student needs.	4.35	Strongly Agree
	Mean	4.34	Strongly Agree
	D. Student's Engagement		
1	Students are more motivated when tasks are tailored to their interests and abilities.	4.70	Strongly Agree
2	Differentiated strategies increase student participation in class.	4.30	Strongly Agree
3	My students show improvement in academic performance with differentiated instruction.	4.30	Strongly Agree
4	Students are more confident when instruction aligns with their learning preferences.	4.30	Strongly Agree
5	Differentiated instruction helps build a more inclusive learning environment.	4.50	Strongly Agree
	Mean	4.42	Strongly Agree
	E. Resources		
1	I have access to sufficient resources to implement differentiated strategies.	4.05	Agree
2	School leadership supports the use of differentiated instruction.	5.00	Strongly Agree
3	I collaborate with colleagues to share ideas and strategies for differentiation.	4.70	Strongly Agree
4	I use technology to support differentiated instruction.	4.10	Agree
5	I receive feedback from my supervisor on my use of differentiated strategies.	5.00	Strongly Agree

	Mean	4.57	Strongly Agree
	F. Challenges		
1	I find it difficult to manage time when planning for differentiated instruction.	5.00	Strongly Agree
2	Large class sizes make it challenging to implement differentiated strategies.	4.00	Agree
3	I need more training on effective differentiation techniques.	5.00	Strongly Agree
4	It is challenging to assess students with different learning outcomes.	5.00	Strongly Agree
5	I believe differentiated instruction is essential for student success.	5.00	Strongly Agree
	Mean	4.80	Disagree
	Grand Mean	4.52	STRONGLY AGREE

Legend:

4.21- 5.00 – Strongly Agree

3.41- 4.20 – Agree

2.61-3.40 - Undecided

1.81- 2.60- Disagree

1.00-1.80- Strongly Disagree

The data on the extent of implementation of differentiated strategies in teaching multigrade learners revealed consistently high ratings across all dimensions, with a grand mean of 4.52, interpreted as Strongly Agree. Teacher Readiness (4.58), Planning and Instructional Design (4.42), Classroom Practice (4.34), Student Engagement (4.42), and Resources (4.57) all reflected a strong agreement among teachers regarding their confidence, preparedness, and actual application of differentiated instruction. However, the Challenges dimension obtained the highest mean of 4.80, also interpreted as Strongly Agree, which suggests that while teachers are committed to implementing differentiated strategies, they face significant obstacles, such as time constraints, large class sizes, and a need for more training. These results imply that differentiated instruction is widely accepted and practiced in the school, but addressing persistent challenges is crucial to further enhance its effectiveness and sustainability.

Table 2
Academic Performance of Learners

No.	Interpretation	Scale	Frequency	Percentage
5	Outstanding	90-100	48	62
4	Very Satisfactory	85-89	10	13
3	Satisfactory	80-84	20	25
2	Fairly Satisfactory	75-79	0	0
1	Did Not Meet Expectations	Below 75	0	0
	Total		78	100
	Average		89.13	Very Satisfactory

The data on the academic performance of learners showed highly encouraging results, with an average score of 89.13, interpreted as Very Satisfactory. A majority of the learners, representing

62%, achieved Outstanding performance, while 13% were rated as Very Satisfactory, and 25% as Satisfactory. Notably, no learners fell under the Fairly Satisfactory or Did Not Meet Expectations categories, indicating that all learners performed within or above satisfactory levels. These results suggest that the differentiated strategies implemented in the classroom positively contributed to enhancing student performance, allowing learners across varying levels of ability to meet or exceed expected academic standards in Math.

Table 4
Test of Relationship

Variables Correlated	r	Computed value or t	Table Value @.05	Decision on Ho	Interpretation
Implementation of Differentiated Strategies to Academic Performance	0.72	2.995	0.764	Reject Ho	Significant Relationship (Strong)

The statistical test of relationship between the implementation of differentiated strategies and the academic performance of learners revealed a computed r-value of 0.72, interpreted as a strong positive relationship. The computed t-value of 2.995 exceeded the critical table value of 0.764 at a 0.05 level of significance, leading to the rejection of the null hypothesis and confirming a significant relationship. These results imply that the effective implementation of differentiated strategies in teaching multigrade learners is significantly associated with improved academic performance. The strong correlation suggests that differentiated instruction plays a crucial role in addressing diverse learner needs, thereby enhancing their achievement in Mathematics.

IV. Conclusion

The research results affirm the presence of a significant relationship between the extent of implementation of differentiated strategies in teaching Math and level academic performance of the multigrade and regular learners. The findings highlight that effective application of differentiated instruction, supported by teacher readiness, careful planning, engaging classroom practices, and adequate resources, significantly enhances learners' academic achievement, particularly in Mathematics. The consistently high ratings across all dimensions of differentiated instruction, along with the strong positive correlation found between its implementation and student performance, underscore the crucial role of equipping teachers with the necessary skills, resources, and support to address diverse learning needs in multigrade settings. Accordingly, strengthening teacher training programs, ensuring resource availability, and providing ongoing professional development are essential in sustaining effective differentiated instruction. Equally important is addressing persistent challenges such as time management, class size, and the need

for continuous instructional support to ensure that both teachers and learners can fully benefit from these strategies, leading to improved academic outcomes.

V. Recommendations

1. Apply the recommended instructional supervision plan to attain the research goal.
2. Schools should formally adopt differentiated instruction as a core strategy in Math classes, ensuring that all learners—whether in multigrade or regular settings—receive instruction tailored to their learning readiness, interests, and learning profiles.
3. Teachers should undergo regular professional development focused on differentiated Math instruction, including strategies such as tiered tasks, flexible grouping, math learning centers, compacting, and enrichment activities, especially relevant in diverse and mixed-ability classrooms.
4. Instructional leaders and school heads should monitor implementation by incorporating differentiation-specific indicators in classroom observations, lesson plan reviews, and coaching conversations, to ensure teachers are applying these strategies effectively and consistently.
5. Encourage the creation and sharing of differentiated lesson plans, activity sheets, manipulatives, and digital resources across grade levels and subject areas, particularly for topics in Math that require remediation or enrichment.
6. Recognize that both multigrade and regular classrooms benefit from differentiated approaches. Provide context-specific support that helps teachers manage varying needs in each setup, including classroom structuring techniques, peer-assisted learning, and self-paced modules.
7. Encourage the use of diagnostic, formative, and summative assessment data to guide teachers in identifying learners' strengths and needs, and in designing appropriate differentiated tasks that support individual progress, and
8. Future researchers are encouraged to replicate this study to incorporate other locales and other variables beyond the ones identified in this study.

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AUTHOR'S PROFILE



MS. DARYL JANE RUBILLOS

Daryl Jane Rubillos, born on June 02, 1996, in Brgy Damula-an, Albueria, Leyte, is a dedicated educator known for her commitment to nurturing continuous learning and empowerment among her students. Her journey in education began at Albueria South Central School, where she was deployed for her practice teaching followed by her secondary education at Damula-an National High School.

During the first year of her college days at Visayas State University-Baybay, Daryl Jane was just an ordinary student until she decided to dream and that leads her to be more hard working and serious in her study which later resulted in becoming a university scholar, which helped her finish her degree financially. She earned her bachelor's degree year 2016 and passed the licensure examination for the teachers' year 2017.

After graduating, she went looking for a job at a private school where she was hired that same year after graduating. It was a contractual job for three years at Ormoc Sacred Heart Child Development Center, Brgy. Punta Ormoc, City, where she was a grade two adviser and a pre-school teacher every morning.

During pandemic time, year 2021 she was hired by the Department of Education, Division of Leyte as an elementary teacher in Barugo I District, Brgy. Barugo Leyte for three years.

Despite the demands of being a full-time mom to her two sons, Benryl Timothy and Benryl Hezekiah Benito, Daryl Jane has consistently pursued professional growth. Her commitment to lifelong learning led her to enroll in a Master of Arts in Education (MAEd) program, majoring in Elementary Education. She successfully completed the academic requirements for her MAEd in December 2024, driven by her diverse experiences and the support of different groups she encountered through her sports and academic journey.

Currently, Daryl Jane is an esteemed multigrade teacher of Grade 3 and 4 at Talisay Elementary School at Capoocan II District, Capoocan, Leyte. Her dedication to education, combined with her rich background in community involvement, continues to inspire her students and peers, highlighting her unwavering commitment to making a meaningful impact in the educational landscape.