

Enhancing Literacy and Numeracy Instruction in Multigrade Classrooms

Zandra Marie C. Maquiling

School of Graduate Studies, St. Louise de Marillac College of Sorsogon, Sorsogon City, Philippines

E-mail: zandramariemaquiling90@gmail.com

Abstract— This study investigates the teaching of reading and numeracy in multigrade classes within the context of Magallanes, Sorsogon. It addresses four primary questions: the levels of reading and numeracy among learners, strategies employed by teachers, encountered difficulties, and proposed interventions. Employing quantitative methods, the research utilized documentary analysis for assessment results and survey questionnaires with Likert scales for teaching strategies and challenges. Purposive sampling was conducted among 181 students across five elementary schools, with 11 multigrade teachers surveyed. Findings revealed the following: Literacy Assessment: A significant number of learners across all grade levels, particularly in Grade 1 and Grade 6 in English, require a full refresher course. The readiness for grade-level work is highest in Grades 4 and 5 for Filipino language. There is a noticeable challenge in English language proficiency, especially in Grades 5 and 6. Numeracy Proficiency: The average numeracy proficiency across all grade levels is 32.08, with Grade 4 having the highest average score and Grade 3 the lowest. The skill of ‘Visualizing and Modeling’ has the highest average score across all grades, while the skill of ‘Applying and Connecting’ appears to be the most challenging for learners. Teaching Strategies: Flexible Grouping, Integrative Learning, and Constructivism are the most utilized by multigrade teachers. Technology Integration is the least utilized strategy. Challenges: The most significant difficulty encountered by multigrade teachers is fitting comprehensive content into limited lesson hours. Limited resources and materials, and learners’ difficulties in understanding complex texts, decoding words, and grasping context, are also major challenges.

The Comprehensive Rapid Literacy Assessment and the Albay Numeracy Assessment Tool revealed significant challenges in both reading management and numeracy skills across all grade levels, indicating a major need for support and intervention. While multigrade teachers frequently utilize strategies such as Flexible Grouping, Integrative Learning, and Constructivism, there is a noticeable gap in the utilization of Technology Integration. The most pressing challenges for multigrade teachers are fitting comprehensive content into limited lesson hours and dealing with limited resources and materials.

This research contributes to the understanding of multigrade classroom dynamics and provides practical insights for enhancing literacy and numeracy instruction. Further studies are suggested to explore additional factors impacting learning outcomes and the efficacy of teaching strategies in multigrade settings.

Keywords— teaching, reading, numeracy, multigrade classes, intervention

I. INTRODUCTION

The provision of quality learning experiences to all students, regardless of geographical location or resource constraints, remains an utmost goal in the domain of education. Innovative approaches such as multigrade classes have emerged to address the challenges of providing education in remote and underserved areas as nations strive for inclusive and equitable educational systems. These classes involved the instruction of students from different age groups and grade levels within a single classroom, often by a lone teacher (Cakir and Firat, 2022). This educational scheme has acquired attention as a means to maximize limited resources

while nurturing collaboration and personalized learning experiences.

Throughout history, multigrade teaching has been perceived as a practical response to resource restrictions (Kivunja and Sims, 2015). However, the effectiveness and quality of multigrade education have been subjects of debate, with concerns raised regarding teacher workload, curriculum coverage, and student learning outcomes. Despite these challenges, multigrade classes remain widespread in many parts of the Philippines, especially in rural and island communities where geographic seclusion and limited infrastructure create

significant barriers to education access (Tayoni and Abocejo, 2023). The Department of Education (DepEd) has considered the significance of such type of teaching in support of educational access and has provided guidelines and support mechanisms to improve its implementation (Llego, 2023).

Understanding the effects of multigrade classes on basic academic competencies, such as reading and numeracy, becomes crucial in the changing landscape of educational practices. Those competencies serve as the foundation for lifelong learning and socioeconomic advancement, making their acquisition a primary objective of educational efforts (Awgichew, 2022). Elementary school years are a critical period in a child's educational journey, laying the foundation for future academic success and lifelong learning. During this formative stage, the acquisition of reading and numeracy skills holds importance since those serve as building blocks to critical thinking problem solving, and future learning (Brown, 2014). Therefore, assessing the effectiveness of multigrade teaching in enhancing these critical skills is significant for reviewing or creating new educational policies, practices, and interventions aimed at promoting learner's success and educational equity.

Multigrade education, also known as multi-age or multi-level education, is a type of educational model in which students of different ages and grade levels are placed in the same classroom, with one teacher responsible for teaching and managing the diverse group. This approach to education has been widely implemented in various countries, particularly in rural and remote areas, as a means to address budget constraints and limited resources. However, the effectiveness of this model has been a subject of debate and controversy among educators and policymakers.

As a teacher in a multigrade classroom, the researcher has first-hand experience of the challenges and opportunities that come with this educational model. The classroom was a mix of students from different grades, ranging from first to fourth grade. At first, the researcher was skeptical and overwhelmed by the thought of teaching a diverse group of students with varying academic abilities and levels of maturity. However, as she embarked on this journey, she was surprised to find that multigrade education has its unique advantages.

Theoretical frameworks such as Vygotsky's sociocultural theory and Bruner's scaffolding theory provide a solid foundation for understanding the dynamics of multigrade classrooms. These theories emphasize the importance of social interaction and peer learning in facilitating cognitive development and academic achievement. In a multigrade classroom, students could interact and learn from their peers of different ages and abilities, leading to a more inclusive and collaborative learning environment.

Empirical evidence also supports the benefits of multigrade education. A study conducted by UNESCO in Tanzania found that students in multigrade classrooms had similar or even higher academic achievement compared to their peers in single-grade classrooms. This highlights the potential of multigrade education in promoting equal opportunities and breaking the cycle of educational disadvantage for students in rural and remote areas.

However, the success of multigrade education is highly dependent on the skills, training, and support provided to teachers. In a multigrade classroom, teachers are required to have a deep understanding of the curriculum, effective classroom management strategies, and the ability to differentiate instruction to meet the diverse needs of students. Unfortunately, many teachers are not adequately trained or prepared to teach in a multigrade setting, leading to a lack of confidence and effectiveness in their teaching.

One of the key factors that determine the success of multigrade education is the relationship between multigrade teaching and student reading and numeracy levels. A critical review of existing literature reveals mixed findings on this relationship, with some studies reporting positive outcomes while others show no significant difference between multigrade and single-grade classrooms. However, it is important to note that the success of multigrade education in promoting student learning is not solely dependent on the educational model, but also on other contextual factors such as teacher training, curriculum, and resources.

As an educator and researcher, the researcher believed that it is crucial to critically investigate the intricacies of multigrade education to provide valuable insights to educators, policymakers, and researchers. This research aims to shed light on the potential of multigrade education in promoting inclusive, accessible, and high-

quality education for all learners. It is essential to recognize the diverse needs and strengths of students in a multigrade classroom and adopt a student-centered approach to teaching and learning.

Multigrade education is a complex and challenging educational model, but it also offers unique opportunities for promoting inclusive and collaborative learning environments. By critically examining the relationship between multigrade teaching and student reading and numeracy levels, this research aims to contribute to the ongoing discussions on the effectiveness of multigrade education. The researcher positively thinks that this study will encourage further research and dialogue on this topic and ultimately lead to the improvement of multigrade education for the benefit of all learners.

This paper sought to explore the complex dynamics of multigrade classes and their influence on the reading and numeracy levels of learners. Through a comprehensive exploration of existing literature, empirical studies, and educational policy documents, it aimed to focus on the advantages and challenges associated with multigrade teaching, identify factors influencing learning outcomes, and provide insights into effective strategies for implementation. By analyzing evidence from varied contexts and synthesizing findings from various studies, it strived to contribute to a sophisticated insight into the diverse impact of the multigrade classes scheme on student academic achievement. The concept of multigrade teaching, where students from different grades are taught together in the same classroom, has been gaining attention in recent years. This approach is often implemented in rural areas or in small schools with limited resources, where it is not feasible to have separate classrooms for each grade. However, the effectiveness of this teaching arrangement has been a subject of debate among educators and policymakers. This paper sought to delve into the complex dynamics of multigrade classes and their influence on the reading and numeracy levels of learners.

One of the key advantages of multigrade teaching is that it promotes peer learning and collaboration among students of different ages and abilities. This allows for a diverse range of perspectives and experiences, which can enhance the learning experience for all students. Additionally, multigrade classes can foster a sense of community and belonging among students, as they work together towards a common goal. These factors have

been shown to positively impact student engagement and academic achievement.

However, multigrade teaching also presents a unique set of challenges. One of the main concerns is the lack of individual attention and support for students, as the teacher has to manage a wide range of abilities and learning needs. This can lead to students falling behind or not reaching their full potential. Furthermore, the curriculum and teaching materials may not cater to the diverse needs of students in multigrade classes, which can hinder their learning and progress.

To better understand the factors influencing learning outcomes in multigrade classes, this paper examined existing literature, empirical studies, and educational policy documents. It was found that teacher training and support play a crucial role in the success of multigrade teaching. Teachers who are equipped with the necessary skills and strategies are better able to manage the diverse needs of students and create an inclusive learning environment. Therefore, investing in the professional development of teachers is essential for the effective implementation of multigrade classes.

Furthermore, the paper highlighted the importance of adapting teaching methods and materials to suit the needs of multigrade classes. This includes using a variety of teaching approaches, such as peer learning, cooperative learning, and differentiated instruction, to cater to the diverse needs and abilities of students. Additionally, developing or adapting curriculum materials that are specifically designed for multigrade classes can also enhance student learning outcomes.

This paper has provided a comprehensive exploration of the advantages and challenges of multigrade teaching, identified factors influencing learning outcomes, and provided insights into effective strategies for implementation. Analyzing evidence from varied contexts and synthesizing findings from various studies, has contributed to a sophisticated understanding of the diverse impact of multigrade classes on student academic achievement. It is evident that while multigrade teaching has its challenges, it also has the potential to be a highly effective and inclusive approach to education. Therefore, policymakers and educators must consider the recommendations proposed in this paper when implementing and supporting multigrade classes.

In the succeeding sections, this paper commences with an experience through the context of multigrade education, guiding through theoretical frameworks, empirical evidence, and practical insights to uncover the intricacies of such an educational model. By critically investigating the relationship between multigrade teaching and student reading and numeracy levels, this research aimed to provide valuable insights to educators, policymakers, and researchers aspiring to promote inclusive, accessible, and high-quality education for all learners.

II. OBJECTIVES

This study aimed to assess the teaching of reading and numeracy in multigrade classes at Magallanes, Sorsogon.

Specifically, it identified the reading and numeracy levels of learners enrolled in multigrade classes. The different strategies employed by multigrade teachers in teaching literacy and numeracy in multigrade classes. The difficulties encountered by teachers and learners in developing numeracy and reading skills and the proposed interventions for effective implementation of literacy and numeracy teaching in multigrade classes.

III. METHODOLOGY

The researcher explored how a recent study employed the quantitative method to understand reading and numeracy levels in a school setting.

Through this method, the researcher can obtain a clear viewpoint about CRLA and ALNAT from the teacher and school respondents. The said method enabled the researcher to attain the needed data based on the experiences of the teachers using the assessment tool in determining the reading and numeracy level of multigrade learners.

The primary respondents were 181 students who were officially enrolled in School Year 2023-2024 in five identified public elementary schools in Magallanes, Sorsogon.

The use of purposive sampling was deemed appropriate for this study as it allowed the researchers to select participants who met the specific criteria of being enrolled in the specified schools and currently studying in the identified school year.

IV. RESULTS AND DISCUSSION

1. Reading and Numeracy Levels of Multigrade Learners

The Comprehensive Rapid Literacy Assessment has assessed the reading proficiency of the learners using the Central Bikol for Grades 1-3, Filipino for Grades 2-6, and English for Grades 3-6. Table 1a shows the distribution of the 181 multigrade learners according to their pre-test reading proficiency levels for each required language.

The results of the Comprehensive Rapid Literacy Assessment along central Bicol language for grade one, two, and three learners have recently been revealed and they paint an interesting picture of the current state of literacy among these young students. The assessment, which was conducted in various schools in the central Bicol region, aimed to provide a comprehensive understanding of the reading abilities of grade one, two, and three learners in the local language.

Among the 33 grade one learners who took the assessment, 19 are classified as full refreshers, 3 as moderate refreshers, 6 as light refreshers, and 5 as non-refreshers. This indicates that a majority of grade one learners in the central Bicol region need some form of remedial reading instruction. The high number of full refreshers suggests that these students are significantly behind their peers in terms of reading skills.

Moving on to the results for grade two learners, out of the 29 students who take the assessment, 9 are classified as full refreshers, 3 as moderate refreshers, 10 as light refreshers, and 7 as grade ready. While there is a slight improvement compared to the results for grade one, it is still clear that a significant number of grade two learners require remedial reading instruction. However, it is encouraging to see that there are also a good number of students who are considered grade-ready.

Finally, the results for grade three learners show that out of the 32 pupils who took the assessment, 5 are classified as full refreshers, 8 as moderate refreshers, 11 as light refreshers, and 8 as grade ready.

Similar to the results for grade two, there is a slight improvement here compared to the results for grade one. However, it is still concerning to see that a significant number of grade three learners require remedial reading instruction.

The results of this assessment highlight the need for targeted and effective remedial reading programs in the central Bicol region.

Furthermore, these results also shed light on the importance of early intervention in promoting literacy among young learners.

The results of the Comprehensive Rapid Literacy Assessment along central Bicol language for grade one, two, and three learners reveal the pressing need for remedial reading instruction in the region.

The results of the Comprehensive Rapid Literacy Assessment for grade two students, along with the Filipino language, have recently been revealed, and they show a mixed picture of the reading skills of these young learners. Similarly, the results for the reading assessment for grade three students have also been released. These results are concerning, especially considering that these pupils are in the third grade and should have developed a basic level of reading proficiency by now.

Moving on to the results for grade four students, the data show that out of the 22 students who are assessed, only 1 has been classified as a full refresher, 3 as moderate refreshers, 8 as light refreshers, and 10 as grade ready. This shows that number of students need a refresher in reading.

The results for grade five students show that out of the 30 students who were assessed, 9 have been categorized as full refreshers, 4 as moderate refreshers, 6 as light

refreshers, and 11 as grade-ready. These results are worrisome that a significant number of students are not at their expected reading level.

Finally, the results for grade six students have been released, and they reveal that out of the 35 students who are assessed, 11 have been classified as full refreshers, 8 as moderate refreshers, 9 as light refreshers, and 7 as grade-ready. These results are the most concerning as these students are in their final year of primary education, and they should have a strong grasp of reading skills by now.

Overall, the results of the Comprehensive Rapid Literacy Assessment for grade two to six students, along with the Filipino language, show that there is a need for improvement in reading skills among these young learners. The fact that a significant number of students are classified as full refreshers or moderate or light refresher is alarming and calls for immediate action.

It is essential to identify the root causes of this issue and address them effectively. The government and education authorities must work together to provide adequate resources and support to teachers to help them improve the reading skills of their students.

Furthermore, there should be a focus on developing a strong foundation in the early grades, as it is crucial for future academic success. Reading is a fundamental skill that is necessary for learning in all subjects, and if students do not have a strong foundation in reading, it will hinder their progress in other areas as well.

Table 1a. Reading proficiency of the multigrade learners based on the results of the Comprehensive Rapid Literacy Assessment

Grade Level	Number of Learners	Language	Full Refresher	Moderate Refresher	Light Refresher	Grade Ready
1	33	Central Bicol	19	3	6	5
2	29	Central Bicol	9	3	10	7
		Filipino	9	2	9	9
3	32	Central Bicol	5	8	11	8
		Filipino	5	7	13	7
		English	7	4	13	8
4	22	Filipino	1	3	8	10
		English	2	6	7	7

5	30	Filipino	9	4	6	11
		English	13	5	8	4
6	35	Filipino	11	8	9	7
		English	14	9	8	4

In addition, parents and caregivers also play a vital role in promoting literacy skills among children. They should be encouraged to read with their children and provide a reading-friendly environment at home. This will not only improve the reading skills of children but also foster a love for reading.

The results of the Comprehensive Rapid Literacy Assessment for grade two to six students, along with the Filipino language, have highlighted the need for a concerted effort to improve the reading skills of young learners. There is a need for collaboration between the government, education authorities, teachers, parents, and caregivers to address this issue effectively.

The ability to read is a fundamental skill that is essential for academic success and overall development. It is the foundation upon which all other subjects and skills are built. That is why it is crucial for educators to regularly assess the literacy levels of their students to identify areas of improvement and provide necessary interventions. Recently, a Comprehensive Rapid Literacy Assessment was conducted for grade three to six learners, along with an English language assessment, to determine their reading levels. The results have revealed some interesting findings.

The assessment was conducted on 32 grade three learners, 22 grade four learners, 30 grade five learners, and 35 grade six learners. The reading tools used are specifically designed to assess the pupils' reading fluency, accuracy, and comprehension.

The results show that out of the 32 grade three learners, 7 are classified as full refreshers, meaning they have a low grasp of reading skills and are not ready to tackle more challenging texts.

4 students are classified as moderate refreshers, indicating they have basic reading skills but need some improvement. 13 students are classified as light refreshers, meaning they have good reading skills and require follow-up. Lastly, 8 pupils are grade-ready, which means they are able to read at grade level.

Moving on to grade four, the results show that out of the 22 pupils, 2 are classified as full refreshers, 6 as moderate refreshers, 7 as light refreshers, and 7 as grade-ready., the number of pupils who are still under the grade category is low.

For grade five, out of the 30 pupils, 13 are full refreshers, 5 were moderate refreshers, 8 are light refreshers, and 4 are grade-ready. The number of pupils who are grade-ready is still few, indicating that they still need extra support and interventions to improve their reading skills.

Lastly, for grade six, the results show that out of the 35 pupils, 14 are full refreshers, 9 are moderate refreshers, 8 are light refreshers, and 4 are grade-ready.

There is still a considerable number of pupils who are in the full refresher category, indicating that they still need support to improve their reading skills.

These results highlight the importance of early literacy interventions and continuous assessment to ensure that students are on track with their reading skills. It also emphasizes the need for targeted interventions for pupils.

Moreover, the results also reveal the need for a holistic approach to literacy, as the English language assessment showed that some students may have a good grasp of reading skills in their native language but struggle with English.

The results of the Comprehensive Rapid Literacy Assessment and English language assessment for grade three to six learners have shed light on the current reading levels of students.

While there have been improvements in some areas, there is still a need for continued efforts and targeted interventions to ensure that all students are equipped with the necessary reading skills to succeed academically and in life.

Table 1b. Numeracy proficiency of the multigrade learners based on the results of analysis of the Albay Numeracy Assessment Tool

	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	AVE.
Knowing and understanding	36.31	35.81	26.11	26.55	41.69	39.93	34.40
Computing and solving	33.93	30.94	27.74	29.67	34.90	41.07	33.04
Estimating	27.00	26.25	19.17	34.25	35.25	36.22	29.69
Visualizing and modeling	28.14	29.55	29.96	55.33	43.13	49.87	39.33
Representing and communicating	24.75	31.75	11.25	63.75	37.75	34.67	33.99
Conjecturing and reasoning	33.72	36.88	44.58	24.50	30.50	44.00	35.70
Proving and decision-making	25.88	27.31	36.25	20.13	12.25	34.53	26.06
Applying and connecting	20.08	19.71	25.97	29.05	25.59	26.42	24.47
Average	28.73	29.77	27.63	35.40	32.63	38.34	32.08
Numeracy Proficiency	NMS	NMS	NMS	NMS	NMS	NMS	NMS

Data from grade one to grade six pupils in multigrade classes are gathered and analyzed to determine their numeracy levels. The results are reflected in Table 1b, which show the average performance of students in six different indicators: knowing and understanding, visualizing and modeling, representing and communicating, conjecturing and reasoning, proving and decision-making, and applying and connecting.

Upon closer examination of the data, it can be gleaned that the overall average of the students' numeracy level is 32.08, which is interpreted as Needs Major Support (NMS). This means that the majority of students in multigrade classes are struggling with their numeracy skills and require significant help and support from their teachers.

Looking at each indicator, it can be observed that the highest average score is 39.33, which falls under the NMS category. This refers to the pupils' ability to visualize and model mathematical concepts. While this may seem like a positive result, it still indicates that there is a need for improvement in this area. The lowest average score, on the other hand, is 24.47, which pertains to the pupils' ability to apply and connect mathematical concepts. This result is alarming as it shows that students have difficulty applying what they have learned to real-life situations.

Moreover, the data also reveal that the indicator with the lowest average score, at 26.06, is proving and decision-making. This means that students have difficulty justifying their solutions and making informed decisions based on mathematical concepts. This result is alarming as it shows that students are not only struggling with solving math problems but also in understanding and analyzing them critically.

The data also show that all six indicators fall under the NMS category, which further emphasize the need for major support in all areas of numeracy.

The results of this study highlight the challenges faced by students in multigrade classes when it comes to developing their numeracy skills. It also sheds light on the need for teachers to provide appropriate support and interventions to help students improve their numeracy levels. This can be done by utilizing various teaching strategies, such as hands-on activities, group work, and differentiated instruction, to cater to the diverse learning needs of students.

The data presented in Table 1b clearly show that students in multigrade classes require significant support in developing their numeracy skills. It is the responsibility of both teachers and the education system to address this issue and provide the necessary support to ensure that students are equipped with the essential skills to excel in mathematics and life.

In recent years, there has been an increase in the implementation of multi-grade classrooms in developing countries, including the Philippines. This approach is seen as a solution to address the lack of resources and teachers in remote areas. However, the effectiveness of this approach has been a topic of debate among educators and policymakers. Thus, it is crucial to evaluate the impact of multi-grade classrooms on students' academic performance.

To shed light on this issue, a study was conducted to determine the numeracy level of pupils in multi-grade classrooms in the Philippines. The study used Table 1b, which show the average numeracy level of pupils in different grades. The results are quite alarming, as they

highlighted the need for major support for students in multi-grade classrooms.

According to the data, the average numeracy level of grade one students was 28.73, which is interpreted as Needs Major Support (NMS). This means that these students lack the necessary skills and knowledge in numeracy, which is a fundamental subject in their academic journey. Similarly, grade two students also show a low average numeracy level of 29.77, indicating that they also require major support in this subject.

Moving on to grade three, the average numeracy level is 27.63, which is significantly lower than the previous grades. This finding is concerning as grade three is a crucial stage in a student's academic development, where they are expected to have a strong foundation in numeracy.

The trend continues in grade four, with an average numeracy level of 35.40, which is still below the expected level. The same can be said for grade five, with an average of 32.63, and grade six, with an average of 38.34. These results suggest that students in multi-grade classrooms are not receiving the necessary support to improve their numeracy skills, leading to a significant gap in their academic performance compared to students in traditional classrooms.

The overall average numeracy level for students in multi-grade classrooms is 32.08, which falls under the category of Needs Major Support. This means that the majority of students in these classrooms require significant assistance to improve their numeracy skills. It is a clear indication that the current approach of multi-grade classrooms is not effective in providing quality education to students.

The data in Table 1b highlights the urgent need to address the issue of multi-grade classrooms in the Philippines. The results clearly show that students in these classrooms are not receiving the necessary support to excel in numeracy, which is a crucial subject in their academic journey. It is high time for policymakers and educators to come up with effective solutions to improve the quality of education in multi-grade classrooms.

With these findings, it can be implied that interventions on the numeracy proficiency level of the multigrade

learners should be implemented. According to Victoria State Government – Department of Education (2024), Being numerate involves more than mastering basic mathematics. Numeracy involves connecting the mathematics that students learn at school with the out-of-school situations that require the skills of problem-solving, critical judgment, and sense-making related to applied contexts. As an intervention, various instructional strategies aimed at enhancing numeracy proficiency in multigrade classrooms were employed. These include differentiated instruction, peer tutoring, technology integration, and other approaches to improving numeracy skills among multigrade learners.

In the literature reviewed by Tomlinson, et al (2013) on differentiated instruction, it appears important for teachers to consistently, defensibly, and vigorously adjust curriculum and instruction in response to student readiness, interest, and learning profile. As one of the objectives of the present study, several recommendations for supporting more teachers to use differentiated instruction are presented in the study by Sitabkhan et al (2022). These recommendations included both increasing professional development and the use of classroom materials.

2. Teaching Strategies Employed by the Multigrade Teachers

Generally, all multigrade teachers have always used varied teaching strategies in teaching reading and numeracy skills as presented in Table 2. With the computed coefficient of variation of 0.06, the top 3 strategies being utilized are flexible grouping, integrated curriculum, and assessment of learning. In flexible learning, teachers organize students into flexible groups based on their readiness levels, interests, or learning profiles.

This approach allows for targeted instruction and personalized learning experiences. As to integrated curriculum, multigrade teachers integrate subjects whenever possible. A Math lesson might incorporate reading comprehension or Science concepts. This approach maximizes instructional time and connections between subjects. In terms of assessment of learning, Regular formative assessments help teachers understand student progress and adjust instruction accordingly. Multigrade teachers use ongoing assessments to inform their teaching practices.

Table 2. Extent of the utilization of teaching strategies by multigrade teachers

Strategies	Mean	Rank
Flexible Grouping	4.91	2
Integrative learning	4.91	2
Constructivism	4.91	2
Collaborative Learning	4.82	4
Differentiated Instruction	4.73	5
Real-Life Contexts	4.45	7
Peer Tutoring	4.45	7
Literacy and Numeracy Centers	4.45	7
Small-Group Instruction	4.27	9
Technology Integration	4.18	10

Multigrade classrooms have become a common occurrence in today's education system, especially in developing countries. These classrooms consist of pupils from different grade levels being taught by a single teacher. While this setup may have its challenges, it also presents an opportunity for teachers to employ various teaching strategies to effectively handle literacy and numeracy among their diverse students. In a recent study conducted by a group of researchers, the extent of utilization of teaching strategies employed by Multigrade teachers in handling literacy and numeracy in Multigrade classrooms was examined.

The study involved Multigrade teachers from different schools in a developing country. The teachers were asked to rate the extent to which they used different teaching strategies in their classrooms on a scale of 1 to 5, with 1 being the least utilized and 5 being the most utilized. The results were then analyzed, and the strategies were ranked accordingly.

The findings of the study revealed that flexible grouping, integrative learning, and constructivism were the top three most utilized teaching strategies by Multigrade teachers in handling literacy and numeracy. These strategies received a mean rating of 4.91, 4.91, and 4.91, respectively, placing them in the 2nd rank.

Flexible grouping is a strategy where students are grouped based on their skills and abilities rather than their grade levels. This allows the teacher to tailor the instruction to the specific needs of each group. Integrative learning, on the other hand, involves connecting different subjects and concepts to create a more holistic understanding among students. This strategy allows students to see the connections between different concepts, making learning more meaningful. Lastly, constructivism is a teaching approach that

focuses on students' active construction of knowledge through hands-on activities and real-life experiences.

The fourth most utilized teaching strategy by Multigrade teachers in handling literacy and numeracy is Collaborative Learning, with a mean rating of 4.82, placing it in the 4th rank. This strategy involves students working together in small groups to solve problems, complete tasks, or create projects.

Differentiated Instruction, with a mean rating of 4.73, is ranked 5th in the study. This teaching strategy involves tailoring instruction to meet the diverse needs of students. Multigrade classrooms are known to have students with varying learning abilities, and differentiated instruction allows teachers to cater to these differences effectively.

Real-life contexts, peer tutoring, and literacy and numeracy centers received a mean rating of 4.45, placing them in the 7th rank. These strategies provide students with opportunities to apply their learning in real-life situations, collaborate with their peers, and receive one-on-one support, respectively.

Small-group instruction, with a mean rating of 4.27, is ranked 9th in the study. This strategy involves dividing the class into smaller groups for instruction, allowing the teacher to provide more individualized attention to students.

Lastly, technology integration, with a mean rating of 4.18, is ranked 10th. While technology can be a powerful tool in enhancing learning, its use in Multigrade classrooms may be limited due to the lack of resources in developing countries.

The study reveal that Multigrade teachers utilize a variety of teaching strategies to handle literacy and numeracy in their classrooms. However, it is important to note that the utilization of these strategies may vary depending on the context and resources available. Therefore, it is crucial for teachers to constantly reflect on their teaching practices and choose the most appropriate strategies for their students' needs.

As an implication, multigrade teachers are equipped with knowledge and skills in the delivery of instruction with the use of these teaching strategies. However, only two of them have training in multigrade teaching as stated in Table 1. With this, there is still a need to allot a budget for the professional development of these teachers through training and benchmarking. In the study of Ballesteros and Ocampo (2016), sixteen practices were applied by the multigrade teachers which can be utilized by the teacher-respondents of the present

study. These practices include the use of a Daily Lesson Log (DLL), a "To Do List", shifting Lessons, the use of para-teacher or little teachers, cooperative learning and peer Tutoring, multiple intelligences class, Instructional Materials (IMs) resource sharing, organizing Instructional Materials (IMs), indigenizing the curriculum, attending INSETs, a collaborative effort between parents and teachers in promoting projects, the partition of class, the use of anecdotal record, treatment of the minority pupils and maximization of idle time.

The present study strongly suggested that the teacher has to adopt many techniques and approaches to help learners of different grades in the same classroom. Approaches vary according to the natural, social, and economic environment, the status of the society, culture, educational background of the society, educational background of the parents, annual educational expenditure of a student, and educational management.

3. Difficulties Encountered in Reading and Numeracy Skills Development

Table 3. Difficulties encountered by multigrade teachers in developing reading and numeracy skills

Difficulties	Mean	Rank
Teachers often struggle with fitting comprehensive content into limited lesson hours, hindering in-depth understanding and practice.	3.18	1
Limited resources and materials can hinder effective teaching and learning.	3.00	2
Learners face difficulties in understanding complex texts, decoding words, and grasping context.	2.91	3
Connecting abstract numeracy concepts to real-life situations can be challenging for learners.	2.73	4.5
Some students lack the foundational skills necessary for numeracy and reading development.	2.73	4.5
Sustaining learners' interest and motivation in numeracy and reading can be an ongoing struggle.	2.64	6
Fear of mathematics can impact learners' engagement and confidence.	2.45	7
Remote learning setups may pose challenges in providing personalized support.	2.36	8
The time allocated for numeracy and reading instruction may not be adequate to cover essential concepts thoroughly.	2.18	9
The learning activities are not aligned with the competencies, leading to discrepancies in teaching priorities.	1.64	10

Multigrade classrooms have become common in many educational settings, especially in developing countries where resources are limited. These classrooms consist of students from different grade levels being taught by one teacher. While this approach may have its benefits, it also presents various challenges for both teachers and students. Table 3 highlights the difficulties encountered in a multigrade classroom setting, and its extent, based on a recent study.

The first and most significant difficulty faced by teachers in multigrade classrooms is fitting comprehensive content into limited lesson hours. With students from different grade levels, it can be challenging to cover all the necessary content within the allocated time. As a result, teachers often struggle to provide in-depth understanding and practice for their students. This difficulty is ranked the highest, with a mean rating of 3.18 out of 4.

Following closely is the issue of limited resources and materials. In a multigrade classroom, teachers may not have access to enough resources and materials to support their teaching. This can hinder effective teaching and learning, as students may not have the necessary tools to fully grasp the concepts being taught. This challenge is ranked second, with a mean rating of 3.00.

The third difficulty highlighted in the study is the struggle that students face in understanding complex texts, decoding words, and grasping context. In a multigrade classroom, students of different grade levels may have varying levels of reading abilities. This can make it challenging for teachers to cater to the individual needs of each student. This difficulty is ranked third, with a mean rating of 2.91.

Another challenge faced by both teachers and students in a multigrade classroom is connecting abstract numeracy concepts to real-life situations. Many students struggle to see the practical application of what they are learning, leading to a lack of interest and motivation. This difficulty is ranked 4.5th, with a mean rating of 2.73.

Furthermore, some students may lack the foundational skills necessary for numeracy and reading development. In a multigrade classroom, teachers may not have the time or resources to provide individualized support to these students. This challenge is also ranked 4.5th, with a mean rating of 2.73.

Sustaining learners' interest and motivation in numeracy and reading can also be an ongoing struggle in a multigrade classroom. With a wide range of abilities and learning styles, it can be challenging for teachers to keep all their students engaged. This difficulty is ranked sixth, with a mean rating of 2.64.

Moreover, fear of mathematics is a common issue that can impact students' engagement and confidence in a multigrade classroom. This fear can stem from a lack of understanding or previous negative experiences with the subject. This challenge is ranked seventh, with a mean rating of 2.45.

With the recent shift to remote learning, another difficulty faced by teachers in a multigrade classroom is providing personalized support to their students. In a traditional classroom setting, teachers can easily observe

and address individual needs, but this is not always possible in a remote setup. This challenge is ranked eighth, with a mean rating of 2.36.

Furthermore, the time allocated for numeracy and reading instruction may not be adequate to cover essential concepts thoroughly. In a multigrade classroom, teachers may have to prioritize certain topics, leaving other concepts not fully explored. This difficulty is ranked ninth, with a mean rating of 2.18.

Lastly, the study also highlighted the discrepancy in teaching priorities due to the misalignment of learning activities with competencies. In a multigrade classroom, teachers may have to juggle between different grade levels, making it challenging to align teaching methods with each student's learning needs. This difficulty is ranked tenth, with a mean rating of 1.64.

The challenges faced in a multigrade classroom setting can significantly impact both teachers and students. These difficulties can hinder effective teaching and learning, leading to lower academic performance and disengaged students. Educational institutions need to address these issues and provide teachers with the necessary support and resources to overcome them. Additionally, innovative teaching methods and personalized learning approaches can also help alleviate these difficulties and create a more conducive learning environment for all students.

These results indicate that teachers should be knowledgeable in motivating their learners to do well in reading and numeracy. As concluded in the study of Sharma and Sharma (2018), there is a significant relationship between motivation and academic achievement among multigrade students over time. Various motivational factors, such as intrinsic motivation, self-efficacy, and goal orientation may influence learning outcomes in multigrade classrooms.

On the other hand, having insufficient time allotted to acquiring the most essential skills may be one of the contributing factors to having low proficiency levels in both reading and numeracy as also found in the study of Mohammed & Amponsah (2018). With this, a curriculum review intended for a multigrade class scheme should be done to select the most essential knowledge and skills on reading and numeracy and to provide corresponding adequate time allotment.

A one-year intervention program on multigrade teaching for learners' reading and numeracy development is proposed.

V. CONCLUSIONS AND RECOMMENDATIONS

Based on the preceding findings, the researcher concludes that the Comprehensive Rapid Literacy Assessment and the Albay Numeracy Assessment Tool reveal significant challenges in both reading and numeracy skills across all grade levels, particularly in English language proficiency and the application of numeracy skills, indicating a major need for support and intervention in these areas. While multigrade teachers frequently utilize strategies such as Flexible Grouping, Integrative Learning, and Constructivism, there is a noticeable gap in the utilization of Technology Integration, suggesting an opportunity for further enhancement of teaching practices. The most pressing challenges for multigrade teachers are fitting comprehensive content into limited lesson hours and dealing with limited resources and materials while aligning learning activities with competencies is of lesser concern. A one-year intervention program on teaching reading and numeracy development of the learners under a multigrade class scheme.

Finally, the researcher offers the following recommendations based on the findings and conclusions made: (1) An intervention program focused on enhancing English language proficiency and numeracy skills, incorporating strategies such as personalized learning plans, additional tutoring support, and the use of interactive educational technology to be implemented to help meet the diverse learning needs of students across all grade levels and improve overall proficiency.

(2) Further support for multigrade teachers in refining their instructional approaches through targeted professional development sessions be focused on enhancing their understanding and implementation of practices to better meet the diverse needs of multigrade classrooms. Further enrichment of their pedagogical repertoire and additional contributions to improve learning outcomes for multigrade learners through a collaborative environment where teachers can share best practices and resources should be done consistently.

(3) A flexible curriculum be implemented to allow for the integration of various subjects into thematic units, thereby maximizing the use of limited lesson hours and resources. (4) The proposed one-year intervention

program is highly recommended for review and implementation.

REFERENCES

- [1] ADELMAN, H. & TAYLOR, L. (2017). Addressing barriers to learning: in the classroom and schoolwide. University of California, Los Angeles. Retrieved from: <https://files.eric.ed.gov/fulltext/ED586985.pdf>
- [2] AKDAŞ MS & KALMAN M. (2021). Challenges Affecting Teaching-Learning Processes in Multi-Grade Classes: A Comparison of Pre-Pandemic and Peri-Pandemic Periods. *Advances in Global Education and Research*, Vol. 4
- [3] ALBERTO, R., GABINETE, S. & RAÑOLA, V. (2016). Issues and challenges in teaching mother tongue-based multilingual education in grades II and III: The Philippine experience. Retrieved from: <https://ssrn.com/abstract=2768558> or <http://dx.doi.org/10.2139/ssrn.2768558>
- [4] ALHASSAN, A. K. & ABOSI, C.O. (2017). Teachers' pedagogical competence in adapting curricula for children with learning difficulties in primary schools in Ghana. Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1164845.pdf>
- [5] APUKE OD. (2017). Quantitative research methods: A synopsis approach. *Arabian Journal of Business and Management Review (Kuwait Chapter)*, 6(10).
- [6] AQUINO, M. G. & DE VERA, P. (2018). Development of learning material for grade 7 struggling readers. *TESOL International Journal*, 13(1).
- [7] ASHFAQ, M.S., YOUSUF, M. I. & ARSHAD DAHAR, M. A. (2018). Effects of multi-grade teaching and learning at primary level schools. *International Journal of Advanced Research*, 6(6).
- [8] AWGICHEW, S. (2022). Functionality of literacy and numeracy in first cycle primary school: a look in to the curriculum and instructional process. *International Journal of Education & Literacy Studies*, 10(3)
- [9] BALLESTEROS M & OCAMPO RO. (2016). Best practices of multigrade teaching in Luna, Apayao, Philippines. *International Journal of Novel Research in Education and Learning*, 3(6), pp. 61-73.
- [10] BALTA, N., FUKKINK, R., & AMENDUM, S. J. (2023). The effect of job-embedded professional

- development on teacher and student outcomes: a multi-level meta-analysis. *International Educational Review*, 1(1), 1-23.
- [11] BONGALA J, BOBIS V, CASTILLO JM, & MARASIGAN AC. (2020). Pedagogical strategies and challenges of multigrade schoolteachers in Albay, Philippines. *International Journal of Comparative Education and Development*, 22(4)
- [12] BOWMAN, M. (2014). Teacher mentoring as a means to improve schools. *BU Journal of Graduate Studies in Education*, 6(1). Retrieved from: <https://files.eric.ed.gov/fulltext/EJ1230726.pdf>
- [13] BROWN, C.S. (2014). Language and literacy development in the early years foundational skills that support emergent readers. *The Language and Literacy Spectrum*, Vol. 24
- [14] ÇAKIR, P. & FIRAT, Ş., N. (2022). The opinions of primary school teachers who taught in multi-grade classrooms on multigrade class instructional practices. *Journal of Educational Leadership and Policy Studies*, 6(1)
- [15] CARDINO, J. M. & CRUZ, R. O. (2020). Understanding of learning styles and teaching strategies towards improving the teaching and learning of mathematics. *LUMAT: International Journal on Math, Science and Technology Education*
- [16] CAULFIELD, J. (2020). How to do thematic analysis. <https://www.scribbr.com/methodology/thematic-analysis/>
- [17] COMMUNITY TOOL BOX. (2023). Implementing Effective Interventions. Retrieved from <https://ctb.ku.edu/en/best-change-processes/implementing-effective-interventions/overview>
- [18] CORRAL, J. (2018). The impact of a peer-teaching instructional approach on a student's self-confidence. (Doctoral dissertation). Retrieved from <https://scholarcommons.sc.edu/etd/4926>
- [19] CRONIN Z. (2019). To mix or not to mix: A critical review of literature on mixed-age groups in primary schools. *Cambridge Open-Review Educational Research e-Journal*, Vol. 6, pp. 165–179
- [20] CRUZ, J. A. & MADARANG, A. (2023). Leadership and management practices of multi-grade school heads in the division of Camarines Norte. *Iconic Research and Engineering Journals*, 7(2).
- [21] CUSTODIO, Z. (2021). Teacher's guide in teaching learners in difficult circumstances. Retrieved from: https://www.researchgate.net/publication/359186093_Teacher's_Guide_in_Teaching_Learners_in_Difficult_Circumstances/download
- [22] DAWADI, S., SHRESTHA, S., & GIRI, R. A. (2021). Mixed-Methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education*, 2(2), 25-36
- [23] ENGIN, G. (2018). The opinions of the multigrade classroom teachers on multigrade class teaching practices (Multiple case analysis: Netherlands-Turkey example). *International Journal of Progressive Education*, 14(1)
- [24] ERDEN, H. (2020). Teaching and learning in multi-graded classrooms: Is it sustainable? *International Journal of Curriculum and Instruction*, Vol. 12.
- [25] FUNTUA, I. A. (2015). The impact of multigrade teaching approach in the teaching of basic science. *PEOPLE: International Journal of Social Sciences*, 1(1).
- [26] GEDIK, O. & AKYOL, H. (2022). Reading difficulty and development of fluent reading skills: An action research. *International Journal of Progressive Education*, 18(1)
- [27] GGI INSIGHTS. (2024). Levels of Education: A Comprehensive Understanding. Retrieved from: <https://www.graygroupintl.com/blog/levels-of-education>
- [28] GHAVIFEKR, S. & ROSDY, W.A.W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science (IJRES)*, 1(2), 175-191.
- [29] GINSBURG, L., MANLY, M., & SCHMITT, MJ. (2006). The components of numeracy. National Center for the Study of Adult Learning and Literacy. Retrieved from: <https://files.eric.ed.gov/fulltext/ED495440.pdf>
- [30] JAKACHIRA, G. & MUCHABAIWA, W. (2023). The conundrum of multi-grade Teaching in Zimbabwe's satellite primary schools: Quality multi-grade Education crisis. *Cogent Education*, 10.
- [31] JAMALDINI, M. A., ASIF, M. & SULTAN, G. A. (2022). The negative effect of multi-grade teaching on the teachers' performance at primary school

- level in district Mastung, Balochistan. Pakistan Languages and Humanities Review, 6(1)
- [32] JONES, C. AND NILAS, L. (2022). Fostering a respectful and engaging classroom environment. John Wesley Powell Student Research Conference. 3. Retrieved from: <https://digitalcommons.iwu.edu/jwprc/2022/edstudies/3>
- [33] KALENDER, B. AND ERDEM, E. (2021). Challenges faced by classroom teachers in multigrade classrooms: A case study. Journal of Pedagogical Research, 5(4).
- [34] KIVUNJA, C. & SIMS, M. (2022). Perceptions of multigrade teaching: a narrative inquiry into the voices of stakeholders in multigrade contexts in rural Zambia. Higher Education Studies; Vol. 5, No. 2; 2015
- [35] KIVUNJA, C. AND WOOD, D. (2012). Multigrade pedagogy and practice: Accelerating millennium development goals for Sub-saharan Africa. International Journal of Learning and Change, 18(11).
- [36] KRAUSE, N. W. (2019). The relationship between multigrade classrooms and reading and mathematics achievement in WELS elementary schools. Graduate Thesis. Martin Luther College. Retrieved from: <https://mlc-wels.edu/library/wp-content/uploads/sites/14/2019/08/N.Krause-thesis-final.pdf>
- [37] LAPUZ, M. C. (2015). Delights and difficulties multi-grade teachers in rural schools. International Journal of Engineering and Technical Research, 3(7)
- [38] LLEGO, M. A. (2023). DepEd inclusive education policy framework. TeacherPH: Professional Learning Online Community of Teachers and for Teachers.
- [39] MAIER, A., DANIEL, J., OAKES, J., & LAM, L. (2017). Community schools as an effective school improvement strategy: a review of the evidence. learning policy institute. Retrieved from: https://learningpolicyinstitute.org/sites/default/files/product-files/Community_Schools_Effective_REPORT.pdf
- [40] MOHAMMED I & AMPONSAH O. (2018). Predominant factors contributing to low reading abilities of pupils at Elsie Lund Basic School in the Tamale Metropolis, Ghana. African Educational Research Journal Vol. 6(4), pp. 273-278