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Pupils' Numeracy Skills and Mathematics Performance

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Abstract— *To better one's Mathematics performance, numeracy skills must be mastered as they form part of the basic foundations in Mathematics. This study was conducted to the two hundred fifty-one (251) Grade 1 pupils at Iponan Elementary School of West II District, Division of Cagayan de Oro City, during School Year 2022-2023. It sought to determine the numeracy skills of the pupils based on their pre-test and mid-year assessment test, determine the mathematics performance of the pupils during the First and Second Quarter, and determine the significant relationship between the numeracy skills and the Mathematics performance of the pupils during the First and Second Quarter. The primary research instrument employed for this study was the ASER TOOL – Annual Status of Education Report materials in determining the numeracy skills of the pupils. The numeracy skills of the pupils were computed. Statistical treatments such as frequency, percentage, mean, standard deviation, and t-test were employed to determine the significant difference between the numeracy skills and the mathematics performance of the Grade 1 pupils in Mathematics during the First and Second Quarters. The results showed the numeracy skills in the pupils was at advanced level. The pupils' performance in Mathematics was at outstanding level. There exists a significant difference between the numeracy skills and Mathematics performance among the pupils. It is recommended that teachers and parents shall continue in providing the guidance and assistance to the pupils.*

Keywords— *Mathematics Performance: Numeracy Skills: Pupils.*

I. INTRODUCTION

One of the key abilities that a pupil must achieve is numeracy. From their Elementary Years, pupils were taught by their teachers the basic procedures in problem solving and how to apply it as a living skill in daily life. Being numerate entails being able to identify numbers with confidence, having counting abilities, being able to recognize numbers, being able to use simple operations and problem-solving, and being able to apply these techniques to understand complex concepts. The key to understanding and developing in Mathematics is mastering them. It is one of the teachers' primary areas of concentration, along with literacy, because these two are the newly emerging issues of the Department of Education here in the Philippines.

Based on the Division Memorandum No.765 s, 2019, the policy directives and administration of the Mid-Year Reading Assessment using ASER Tool - Literacy and Numeracy, the Division of Cagayan de Oro City has adopted the ASER instrument from the KKKK (Kaabag sa Kalambuan pinaagi sa Kabtangan sa Katilingban) Project- Enrich Program of Xavier Science Foundation, Child Fund Philippines. The Assessment Result helps pupils use developmentally appropriate methods and strategies to raise their reading and Mathematics proficiency. ASER indicates, (The Annual Status of Education Report, 2019). One goal is to test pupils, particularly those in Grades 1 and 2 on Mathematical skills in order to monitor learning progress from year to year. To determine a child's level of understanding of a particular level, the exams are given individually. The competencies reflected in the adapted tool are congruent to the competencies in MELCS (Most Essential Learning Competencies). Pupils' numeracy skills were examined using a tool during their pre-test assessment and mid-year assessment.

Numeracy skills are the foundation of all future Mathematics studies, according to Eason (2018). Early Mathematics' instruction is important since it is the period of development when pupils are most receptive to learning. Before Elementary years, Mathematics instruction and intervention were required. These pupils, particularly the at-risk ones, require the chance to lay a solid foundation early on. Early childhood is the greatest age to start teaching early Mathematics and numeracy abilities since young learners' brains are naturally open to logic and Mathematical skills. In accordance with Petersen (2019), numeracy refers to a person's general knowledge of numbers and fundamental Mathematical ideas. These include abilities to count, compare and contrast, describe shapes and locations, and solve problems.

DepEd should prioritize improving numeracy in every learner as the agency is being urged to prioritize better numeracy in early school years according to a joint research center funded by the Australian government and tasked with providing government advice on how to strengthen the fundamental education system in the face of a pandemic. The Department of Education and the Assessment, Curriculum and Technology Research Center have been collaborating on a review of the K–12 curriculum, and the center is providing technical assistance to the organization for large-scale assessments, including the PISA (Programme of International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study). "A focus on foundational competencies in literacy and numeracy to me is most important," ACTRC Philippine Director Dr. Marie Therese Bustos. Bustos, who is a professor at the UP, further emphasized the significance of raising K–3 kids' reading and Mathematics proficiency, noting international examinations

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that revealed Filipino pupils are falling behind peers abroad. For her, concerns about their poor performance began while pupils were still young. Early Mathematics instruction increases the likelihood of academic and personal success.

According to a World Bank research published last year, bullying and health problems like malnutrition are associated with the low performance of Filipino pupils on the international lender's learning evaluations in the subjects of Mathematics, Science, and Reading. Filipino pupils and educators had to make the rapid transition to conducting classes via distance learning due to the pandemic and health protocols. As educators, we may help pupils develop their Mathematics skills by creating a range of remediation programs and resources.

The goal of this study was to evaluate the Mathematics' performance of the Grade 1 pupils at Iponan Elementary School, West II District, Division of Cagayan de Oro City using their numeracy skills based on their pre-test assessment and mid-year assessment test. The researcher is interested in learning whether there is a connection between the numeracy skills of Grade 1 pupils based on their pre-test and mid-year assessment test and their performance in Mathematics for the First and Second Grading Periods of the School Year 2022-2023.

This study is anchored on the adopted program of the Department of Education using the ASER Tool from the KKKK (Kaabag sa Kalambuan pinaagi sa Kabtangan sa Katilingban) - Project-Enrich Program of Xavier Science Foundation Child Fund Philippines which aims to improve the numeracy performance of the pupils. For students to build logical reasoning and thinking skills in their daily activities, math literacy is crucial. To solve puzzles and understand time, money, patterns, and shapes for tasks like cooking, reading invoices, following directions, and even playing sports, we need to be numerate. Numeracy, like literacy, is the most important key for pupils to access in everyday life and make sense of the world. They will be better equipped to decide what steps to take in their life if they are able to quantify and measure their environment in various ways. Numeracy enhancement is one of the focuses of the Department of Education (DepEd).

The Annual Status of Education report or ASER Assessment Tool as stated in the Division Memorandum 765 s., 2019 is designed to be used as a classroom-based assessment tool to calculate and represent pupils' performance in literacy and numeracy skills. The knowledge obtained from the assessment help the teacher advisers to create and supply appropriate numeracy activity and instructions for learners. The test helps to identify if the child is at beginning level, can recognize numbers or can perform the basic arithmetic skills. At the school level, the information from the ASER assessment help school heads plan for appropriate school programs or activities for improved student learning outcomes.

II. Methodology

A. Research Design

In this study, the descriptive research method was chosen to assess the Pupils' Numeracy Skills and Mathematics Performance since it deals mostly with the collection of data required for evaluating and analyzing the numeracy skills based on their pre-test and mid-year assessment test and Mathematics performance of Grade 1 pupils in Iponan Elementary School, West II District, Division of Cagayan de Oro City. A descriptive research design was utilized to describe features of a population or being examined. It does not address how, when, or why the qualities developed. Rather, it responds to the "what" inquiry. The description is used to calculate frequencies, averages, and other statistical data. A survey investigation will be conducted as part of descriptive research. These serve as the logical foundation for determining how data will be collected, how analysis will occur, and how data will be interpreted.

B. Respondents and Sampling Procedure

The respondents of this study were the 251 Grade 1 pupils of Iponan Elementary School, Division of Cagayan de Oro City. The researcher utilized universal sampling, which entailed taking all Grade 1 pupils. The researcher employed documentary analysis, in which the researcher evaluated papers to give voice and meaning surrounding and provide assessment. Iponan Elementary School was part of a large school with seven sections of pupils as respondents.

C. Statistical Treatment

The study used the following statistical analysis to process the data. The frequency, percentage, mean, standard deviation, and t-test were used to interpret and analyze the results. T-test was used to establish a significant difference between the pupils' numeracy skills and the Mathematics performance of the Grade 1 pupils.

III. Results and Discussion

Problem 1. What is the numeracy skill of the pupils based on:

1.1 Pre-test Assessment; and

1.2 Mid-year Assessment?

Table 1 displays data on pupils' numeracy skills in Mathematics based on pretest assessment. It registered an overall mean of 3.23 (SD=0.97) with the interpretation of proficient level. Data revealed that one hundred-six (106) out of two hundred fifty-one (251) or 42% of the pupils were at Basic Skills -Subtraction Mastery level, one-hundred thirty-eight (138) out of two hundred fifty-one (251) or 55% of the pupils were at Number Recognition (10-99) Mastery level, seven (7) out of two hundred fifty-one (251) or 3% of the pupils were at Number Recognition (1-9) Mastery level and none at Beginner Level. This implies that majority of the pupils were only able to achieve the second highest level of mastery in numeracy skills in Mathematics.

This indicates that the pupils must engage in remedial activities in order to get the highest level of numeracy abilities in Mathematics and have a higher chance of succeeding. Teachers may provide additional activities and ask assistance from the pupil's parent or guardian for follow-up at home so that what the pupil learn from school will be re-enforced at home through studying and review. Basic skills are the

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foundation of learning for a child. It will guide them in learning higher topics and concepts in mathematics as they go to study the higher level of the curriculum in Mathematics. Therefore, it is just fitting that teachers and parents will help each other in making sure that all the needed skills and competencies are mastered by the pupils.

TABLE 1. Pupils' Numeracy Skills on Pretest Assessment

Numeracy Level	Frequency	Percentage	Mean	SD	Interpretation
Basic Skills-Subtraction	106	42%	3.23	0.97	Proficient
Number Recognition (10-99)	138	55%			
Number Recognition (1-9)	7	3%			
Beginner	0	0			
Total	**251**	**100%**			

Note: 3.26-4.00 Advanced 2.51-3.25 Proficient 1.76-2.50 Approaching Proficient 1.00-1.75 Developing

Understanding and using arithmetic concepts in all facets of life is known as numeracy. Numeracy abilities include the ability to comprehend numbers, count, solve mathematical problems, estimate, measure, sort, identify patterns, add and subtract, and perform other operations. Math and numeracy skills are necessary for both children and adults to carry out daily tasks like problem-solving, information analysis, pattern recognition, and decision-making. Early math proficiency is a stronger indicator of academic success in elementary school. It is evident that early arithmetic success has a significant impact on subsequent math success. Parents, early childhood instructors, administrators, district officials, and curriculum writers will find this information useful (Guhl, 2019).

The findings of Layug et al (2021) indicated that the following interventions were used by the teachers: parent and student conferences, one-on-one tutorials, redoing activities with poor scores, home visits, providing supplemental materials and activities, reducing the number of activities, and remedial classes. As a result, depending on the quantity of teachers who use them, the efficacy of these interventions might range from being somewhat effective to being highly effective. It is said that initiatives to improve pupils' numeracy abilities are successful. The teacher's tool for countering the low numeracy rate among students are these interventions.

TABLE 2. Pupils' Numeracy Skills on Midyear Assessment

Numeracy Level	Frequency	Percentage	Mean	SD	Interpretation
Basic Skills-Subtraction	146	58%	3.47	0.87	Advanced
Number Recognition (10-99)	101	40%			
Number Recognition (1-9)	4	2%			
Beginner	0	0			
Total	**251**	**100%**			

Note: 3.26-4.00 Advanced 2.51-3.25 Proficient 1.76-2.50 Approaching Proficient 1.00-1.75 Developing

Table 2 exhibits data on pupils' numeracy skills in Mathematics based on midyear assessment. It registered an overall mean of 3.47 (SD=0.87) with the interpretation of Advanced Level. Data revealed that one hundred forty six (146) out of two hundred fifty-one (251) or 58% of the pupils were at Basic Skills -Subtraction Mastery level, one-hundred-one (101) out of two hundred fifty-one (251) or 40% of the pupils were at Number Recognition (10-99) Mastery level, four (4) out of two hundred fifty-one (251) or 2% of the pupils were at Number Recognition (1-9) Mastery level and none at Beginner Level. This implies that majority of the pupils were able to achieve the highest level of mastery in numeracy skills in Mathematics. This means that the pupils were able to make adjustments in learning mathematics that made them able to improve their numeracy skills level. This indicates that the pupils' efforts in engaging in remedial activities in order to get the highest level of numeracy abilities in Mathematics and have a higher chance of succeeding was effective. Teachers provision of additional activities and asking assistance from the pupil's parent or guardian for follow-up at home so that what the pupil learn from school will be re-enforced at home through studying and review was successful. Basic skills are the foundation of learning for a child. It will guide them in learning higher topics and concepts in mathematics as they go to study the higher level of the curriculum in Mathematics. Therefore, it is just fitting that teachers and parents will help each other in making sure that all the needed skills and competencies are mastered by the pupils. Janubas (2022) stated that pupils or learners usually have difficulty at the beginning of the school year due to various adjustments that are needed. Thus, teachers and parents may work together to aid the pupils needs and struggles.

Table 3 showcases data on pupils' overall numeracy skills in Mathematics. It registered an overall mean of 3.35 and SD=0.92 with the description of Basic Skills Subtraction and interpreted as Advanced Level. This implies that the majority of the pupils were able to achieve the highest level of numeracy skills in Mathematics. This means that the pupils are on track in acquiring the needed numeracy skills level that are required in their grade level. Vacalares (2022) stated that numeracy skills are important in learning higher Mathematics concepts and topics. Therefore, it must be given appropriate emphasis and attention.

TABLE 3. Overall Pupils' Numeracy Skills

Type of Assessment	Mean	SD	Description	Interpretation
Pretest Assessment	3.23	0.97	Number Recognition (10-99)	Proficient
Mid-year Assessment	3.47	0.87	Basic Skills-Subtraction	Advanced
Overall Mean	**3.35**	**0.92**	Basic Skills-Subtraction	**Advanced**

Note: 3.26-4.00 Advanced 2.51-3.25 Proficient 1.76-2.50 Approaching Proficient 1.00-1.75 Developing

In the same table, the highest rated variable is Midyear Assessment with the mean score of 3.47 and SD of 0.87 described as Basic Skills Subtraction and interpreted as advanced. This implies that majority of the pupils have

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achieve the highest level of numeracy skills during the midyear assessment. This means that the pupils were able to reach the highest level of numeracy skills. Still remedial activities must be done as there are still pupils that are struggling or at the lower level of numeracy skills. Janubas (2022) claimed that consistent implementation of extra activities like remedial classes can boost pupils' numeracy skills and minimize their struggles. Thus, teacher and parents may help each other in providing such activities.

Meanwhile, the lowest rated variable is the pretest assessment with the mean score of 3.23 and Sd of 0.97 with the description of Number recognition (10-99) and interpretation of Proficient. This implies that there was a need to implement extra activities like remedial classes to aid the pupils' least mastered numeracy skills. Moreover, it means that parents and teachers' assistance is definitely of great help. Layug et al (2021) stressed the importance of conducting extra activities so that pupils will have better chances on improving the areas that they are weak. Teachers must be patient in doing these activities as it is beneficial to struggling pupils.

Problem 2. What is the Mathematics performance of the pupils as to:

2.1 First Quarter?

2.2 Second Quarter?

Table 4 shows the pupils' Mathematics performance for the first quarter. It registered an overall mean of 89.44 with SD=3.24 with the interpretation of very satisfactory level. Moreover, ninety-one (91) out of two hundred fifty-one (251) or 36% of the pupils were at outstanding level, one hundred-one (101) out of two hundred fifty-one (251) or 40% of the pupils were at very satisfactory level, forty-eight (48) out of two hundred fifty-one (251) or 19% of the pupils were at satisfactory level, and eleven (11) out of two hundred fifty-one (251) or 5% of the pupils were at fairly satisfactory level. This implies that the pupils were only able to achieve second highest level of academic performance in Mathematics during the first quarter.

TABLE 4. Pupils' Mathematics performance in First Quarter

Numeracy Level	Frequency	Percentage	Mean	SD	Interpretation
Outstanding	91	36%			
Very Satisfactory	101	40%			
Satisfactory	48	19%	89.44	3.24	Very Satisfactory
Fairly Satisfactory	11	5%			
Did not Meet Expectations	0	0%			
Total	**251**	**100%**			

Note: 90 -100 Outstanding 85-89 Very Satisfactory 80-84 Satisfactory
75-79 Fairly Satisfactory 74 and Below Did not Meet Expectations

This means that the pupils were able to achieve the second highest level of performance in Mathematics for the first quarter. During the first quarter of the school year the pupils are still on the process of adjusting to the learning environment that they are in. The pupils need to adjust to their teachers, their classmates and even to the new normal of learning. This is now the part wherein the pupils are trying to be independent from their parents in acquiring new knowledge and skills for themselves. Thus, it is important for the teachers to guide and assist the pupils during and in the duration of their adjustment period. This can be sometimes time, effort and patience consuming but these are the things that the pupils need to make them feel at ease and confident that they can do it knowing that their teachers are there for them.

Society views mathematics as the cornerstone of scientific and technological knowledge, which is essential to a country's social and economic progress. In reality, research indicate that mathematics as a topic has varying effects on all facets of human existence. Nearly all of the articles we analyzed mentioned instructional strategies, instructor attitudes, and pupils' attitudes toward mathematics as important variables. Also, there seems to be consistency in the idea that parents and instructors can positively impact classroom dynamics, pupils' prior math achievement, and gender-related variables (Ayebale, et al., 2020). Thus, it is important that parents and teachers should work hand in hand in making sure that pupils are given and provided vital assistance in their learning environment.

According to the study by Chand et al (2021), the pupils exhibited a bad attitude toward mathematics. Also, it was discovered that students typically do worse in mathematics exercises as a result. Yet, it was discovered that as far as the teaching of mathematics and the delivery of the subject matter was concerned, school teachers were generally positive, have good quality, performing, and completely qualified. The researchers made a number of important recommendations, including the use of technology to teach mathematics, the introduction of internal exams, projects, and partnerships with parents in the study of mathematics.

TABLE 5. Pupils' Mathematics Performance in Second Quarter

Numeracy Level	Frequency	Percentage	Mean	SD	Interpretation
Outstanding	119	48%			
Very Satisfactory	91	36%			
Satisfactory	38	15%	91.06	2.74	Outstanding
Fairly Satisfactory	3	1%			
Did not Meet Expectations	0	0%			
Total	**251**	**100%**			

Note: 90 -100 Outstanding 85-89 Very Satisfactory 80-84 Satisfactory
75-79 Fairly Satisfactory 74 and Below Did not Meet Expectations

Table 5 displays the pupils' Mathematics Performance for the Second quarter. It registered an overall mean of 91.06 with of SD=2.74 with the interpretation of outstanding level. Moreover, one hundred nineteen (119) out of two hundred fifty-one (251) or 48% of the pupils were at outstanding level, ninety-one (91) out of two hundred fifty-one (251) or 36% of the pupils were at very satisfactory level, thirty-eight (38) out of two hundred fifty-one (251) or 15% of the pupils were at satisfactory level, and three (3) out of two hundred fifty-one (251) or 1% of the pupils were at fairly satisfactory level. This implies that the pupils were only able to achieve highest level

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of academic performance in Mathematics during the second quarter.

This means that as the school year progresses the pupils are now able to adjust their studies, learning environments and classmates. This is because the pupils were able to achieve the highest level of academic performance in Mathematics in the second quarter. Thus, the teachers' and parents' efforts and assistance did not go in vain. Despite this progress, the teachers and parents shall continue in assisting the pupils as they are learning things that are still new and stranger to them that will make them feel confused and experience difficulties.

According to the findings of the Peng et al (2022) study, pupils' academic achievement is significantly impacted by the autonomy, emotion, and ability support that parents and instructors give their children. The level of learning engagement mediates the relationship between achievement and support. Students' focus on achieving their goals might change how they engage in their own learning, which in turn can change how much assistance from parents and teachers has an impact on their academic progress. Support from parents and teachers interact to affect student learning engagement. The researchers further suggested that optimization is required to support children' academic growth in order to address their basic psychological requirements and foster interaction between home and school. When designing an appropriate achievement target orientation and a positive learning concept, parents and teachers should also take into account the impact of learning engagement and the learning process. Moreover, the results on the study of Lee and Yuen (2019) highlighted complex aspects of teacher care that are beneficial to pupils' academic performance and personal development, such as teachers' roles as essential knowledge transmitters, caretakers, pedagogues, advisors, and role models. Teachers must therefore consider how important their efforts and presence are to a child's growth.

TABLE 6. Overall Pupils' Mathematics Performance

Quarter	Mean	SD	Interpretation
First Quarter	89.44	3.24	Very Satisfactory
Second Quarter	91.02	2.74	Outstanding
Overall Mean	**90.23**	**2.99**	**Outstanding**

Note: 90 -100 Outstanding 85-89 Very Satisfactory 80-84 Satisfactory
75-79 Fairly Satisfactory 74 and Below Did not Meet Expectations

Table 6 shows the pupils' Overall Mathematics Performance. It registered an overall mean of 90.23 with of SD=2.99 with the interpretation of outstanding level. This implies that the pupils' Mathematics performance was at the highest level or Outstanding level. This means that the pupils were able to master the majority if not all of the competencies for the first and second quarter. Chand et al (2021) claimed that with the presence and efforts of the teachers in teaching Mathematics as well as in providing innovations and extra activities the pupils can certainly improve and achieve better performance.

In the same table, the highest rated variable is second quarter Mathematics performance with the mean score of 91.02 and SD of 2.74 with the interpretation of Outstanding level. This implies that the pupils were able to adjust in learning Mathematics concepts allowing them to have better performance. This means that once the pupils have settled in the activities and process of learning Mathematics it is easier for them to learn and understand it. Calam (2022) claimed that pupils in whatever grade level requires adjustments in terms of their set of classmates and teachers. But once they are able to adjust with their learning environment, they become inspired and motivated to achieve a higher level of output and performance.

Meanwhile, the lowest rated variable is first quarter Mathematics performance with the mean score of 89.44 and SD of 3.24 with the interpretation of Very Satisfactory. This implies that the pupils need assistance and follow-up from their teacher and parents as they are still adjusting to their learning environment. Remedial activities may be implemented specially to those pupils that are struggling in terms of their performance and in understanding the concepts in Mathematics that is presented to them. Vacalares (2022) claimed that pupils with struggles towards Mathematics must be given attention and assistance as the subject is important to their learning development and in progressing to higher grade level. The spiral concepts in learning Mathematics indicate that simple concepts must be understood and mastered before proceeding to much higher and challenging level.

Problem 3. Is there a significant difference between pupils' numeracy skills based on their pre-test and mid-year assessment results?

TABLE 7. Test Difference between Pretest and Midyear Assessment

	Midyear Assessment			
	t-value	**p-value**	**Decision**	**Interpretation**
Pretest Assessment	2.547	0.000	Reject Ho	Significant

Note: *significant at p<0.05 alpha level S – significant
NS – not significant

Table 7 presents the test difference between the pupils' pretest and midyear assessment scores. It registered a t-value of 2.547 and p-value of 0.000 which is lower than the critical value at 0.05 level of significance. This implies that significant difference was registered between the two (2) assessment and that they are connected to each other. Thus, the null hypothesis is rejected. This means that both pretest and midyear assessment tests are essential to the pupils' development and achievement in Mathematics. The pupils should learn and master the competencies covered in both stages of the assessments as it will prepare and allow them to perform better on the next level of assessments. Lessons in whatever subjects are usually arranged and connected with each other and less mastery in any of it can cause challenges to the pupils' part. Thus, the teachers must be vigilant in detecting these challenges to provide remedies and assistance. Lee and Yuen (2019) and Jaudian (2022) both agreed that teachers form part on the progress and achievements of the pupils. They should never wane on their efforts and in providing better learning experiences to the pupils.

Problem 4. Is there a significant difference between pupils' Mathematics performance as to the First and Second Quarter?

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TABLE 8. Test Difference First and Second Quarter Mathematics Performance

	Second Quarter			
	t-value	**p-value**	**Decision**	**Interpretation**
First Quarter	2.611	0.000	Reject Ho	Significant

Note: *significant at p<0.05 alpha level S – significant NS – not significant

Table 8 presents the test difference between the pupils' first quarter and second quarter Mathematics performance. It registered a t-value of 2.611 and p-value of 0.000 which is lower than the critical value at 0.05 level of significance. This implies that significant difference was registered between the two (2) quarter Mathematics performance and that they are connected to each other. Thus, the null hypothesis is rejected. This means that both first quarter and second quarter Mathematics performance are essential to the pupils' development and achievement in Mathematics. Concepts in Mathematics as well as pupils' performance per quarter form part of the final grade or level of Mathematics performance that they will get by the end of the school year. Therefore, it is fitting that the pupils must maintain better and consistent performance. This can be achieved with the assistance and guidance of the teachers and parents. Thus, everyone must do their own part of the said situation. Peng et al (2022) and Janubas (2022) agreed that teachers and parents must be consistent in aiding and assisting their pupils on their studies and school activities to ensure that better performance is achieved as well as the letting the pupils feel and realized that they are not alone in their challenges and studies.

Problem 5. Is there a significant difference between pupils' numeracy skills and Mathematics performance?

TABLE 9. Test Difference between Numeracy Skills and Mathematics Performance

	Mathematics Performance			
	t-value	**p-value**	**Decision**	**Interpretation**
Numeracy Skills	2.783	0.000	Reject Ho	Significant

Note: *significant at p<0.05 alpha level S – significant NS – not significant

Table 9 presents the test difference between the pupils' numeracy skills and Mathematics performance. It registered a t-value of 2.783 and p-value of 0.000 which is lower than the critical value at 0.05 level of significance. This implies that significant difference was registered between the two (2) variables which are numeracy skills and Mathematics performance and that they are connected to each other. Thus, the null hypothesis is rejected. This means that numeracy skills and Mathematics performance are essential to the pupils' development and achievement in Mathematics. Numeracy skills is one of the most important skills that pupils should learn and master as they form part of the pupils' foundation and development which can be utilized in solving more challenging problems or learning higher concepts in Mathematics. This must be given emphasis by the teachers by providing assistance and extra activities to pupils to have more time practicing and mastering the lessons and concepts being presented to the pupils.

This means that numeracy skills of pupils have a direct connection with their performance in mathematics. As the pupils' numeracy skills increases their chances of performing better or high in Mathematics as well as acquiring new skills is also high. Teachers and parents shall continue in providing guidance and assistance to the pupils at school and at home to ensure that what is taught and learned at school is being re-enforced at home. Furthermore, teachers may provide additional or remedial activities to those pupils that are still struggling both in their numeracy skills and performance in mathematics.

Most elementary mathematics classes continue to be dominated by teacher-led learning. Under such guidance, the teacher hardly ever has time to attend to every pupil. Many pupils may subsequently continue to perform below the expected level in mathematics, lose interest in the subject, and ultimately stop up trying to learn it. In actuality, pupils don't seem to be as interested in learning mathematics. So, one of the biggest issues is how to Increase pupils' interest in and aptitude for mathematics, especially for the underachievers. Yeh et al, (2019) recommended that teachers and parents shall work together to make sure that pupils have consistent follow-up on their lessons so that their interest in learning specially in Mathematics is maintained. Underperforming pupils definitely needs more attention and guidance therefore teachers and parents should be critical on dealing with them. Both parties must keep in mind that earlier development of the child is crucial to their future endeavors and success. Thus, challenges and weaknesses in the earlier stage should be addressed to have a better and solid learning foundations. According to the findings of Balala, et al (2021), early numeracy activities and skills were significantly and favorably connected to attitudes, engagement, and achievement in mathematics. Also, the results of the mediational analyses revealed that the relationship between early numeracy activities and skills and mathematics achievement was significantly mediated by confidence in mathematics. The study's conclusions emphasize the critical part early numeracy activities and abilities play in improving students' attitudes toward, engagement with, and success in mathematics.

Like literacy, numeracy is essential for pupils to access and comprehend their surroundings. They will be better equipped to decide what steps to take in their life if they are able to quantify and measure their environment in various ways. According to Latipan and Mendez's study from 2022, there is a moderate correlation between the degree of numeracy skills and the variables influencing numeracy skills. The teacher component, in terms of pr'moting cooperation and engagement, was one of the factors that had an impact on pupils' level of numeracy abilities. The outcome suggested that some steps needed to be made, particularly for classroom teachers. Following that, it was suggested that teachers support and encourage teachers in promoting the use of cooperation and participation in the classroom in order to improve students' numeracy skills.

A variety of abi'ities that involve numbers make up numeracy skills. Learn to interpret, comprehend, and explain their significance to others. These range from simpler mathematical operations like addition, subtracting, multiplying, and dividing to more complicated ones like

trigonometry, algebra, or geometry. When numeracy proficiency levels rise, having poor numeracy abilities might become a hindrance to learning. In addition to making it more difficult to acquire and comprehend math ideas, poor numeracy abilities also make it more difficult to stay up with higher level concepts and classes. Thus, teachers and parents may help each other to ensure that pupils learn and master their numeracy skills to better their academic performance specially in Mathematics (Max, 2021).

IV. Conclusions and Recommendations

Conclusions

Based on the preceding findings, the following conclusions are made;

1. The pupils' overall numeracy skills level was at advanced level. However, constant follow-up, guidance and assistance must still be implemented to the pupils especially those that are struggling.
2. The pupils' overall Mathematics performance was at outstanding level. However, constant follow-up, guidance and assistance must still be implemented to the pupils especially those that are struggling.
3. Significant difference was established between the pupils' pretest and midyear assessment on their numeracy skills was registered.
4. Significant difference was established between the pupils' first quarter and second quarter Mathematics performance was registered.
5. Significant difference was established between the pupils' numeracy skills and Mathematics performance was registered.

Recommendations

Based on the preceding conclusions, the following recommendations were drawn:

1. It is suggested that pupils need to undergo remedial activities provided by teacher in order for them to master numeracy skills to have a chance to better numeracy skills right after the pretest was conducted and evaluated.
2. Teachers may provide additional activities and ask assistance from parents for constant follow-up at home so that what the pupil learned from school will be re-enforced at home through studying and review that will lead to better academic performance. This can be done at the start of the first quarter knowing the pupils are still on their adjustment period.
3. Progress and reports on the pupils' numeracy skills tests and assessments must be taken seriously and that teachers and parents may help each other in ensuring that better performance will be achieved.
4. Progress and reports on the pupils' Mathematics performance must be taken seriously and that teachers and parents may help each other in ensuring that better performance will be achieved.
5. Numeracy skills and Mathematics performance of pupils are connected to each other and that it can affect each other. Teachers may utilize ASER Tool as guide in the achievement of academic performance in Mathematics. Teachers are encouraged to continue assisting the pupils as they are learning things that are still new and stranger to them that will make them confuse and experience difficulties. May the teachers regularly monitor the numeracy skills of the pupils and develop a reward system for pupils who have achieved the highest percentage of numeracy skills at the end of every remediation program.

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