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RESPONSIVE PRACTICES OF PRIMARY GRADE TEACHERS IN ADDRESSING NUMERACY SKILLS GAPS OF GRADES 1-3 LEARNERS IN THE SCHOOLS DIVISION OF ZAMBALES, PHILIPPINES

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ABSTRACT

The study determined the responsive practices of primary grade teachers in addressing the numeracy skills gaps of grades 1-3 learners in the Schools Division of Zambales and basis of crafting the responsive numeracy skills teaching model. The study used survey questionnaires as a research tool to collect data. The findings revealed that teacher-respondents assessed the numeracy skills of the learners as numerates and perceived that their responsive practices in addressing the numeracy skills gaps of the learners were practiced. There was a significant relationship between the numeracy skills of learners and responsive practices in addressing numeracy skills gaps of the learners as perceived by the teachers. The developed model aimed to address the numeracy skills gaps of primary grade learners in the School Division of Zambales.

Keywords: Responsive Practices, Numeracy Skills Gaps, Numeracy Skills, Primary Grade Learners, and Math Fluency.

1. INTRODUCTION

Primary school educators are facing challenges in addressing numeracy gaps among learners due to the impact of the pandemic. Improving numerical ability and mathematical literacy is essential in ensuring students' success in their academic journey. By recognizing and addressing these gaps, educators can better support their learners' development and academic achievement in mathematics. Primary school is the right time for pupils to acquire mathematical skills that are essential in their everyday lives. Early mathematics has a strong impact on later academic achievement, especially mathematical achievement (Guhl, 2019).

Globally and locally, there is a concern about learner performance in numeracy, with many learners not performing well in calculations (Mabena, Mokgosi, & Ramapela, 2021). Mathematics is seen as the basis of scientific and technical knowledge essential for the socio-economic development of the nation, affecting all aspects of human life (Ayebale, Habaasa, & Tweheyo, 2020). To improve learner numeracy, teachers must be aware of practices that affect their learners' performance in numerical work and actively address these gaps (Salminen, Khanolainen, Koponen, Torppa & Lerkkanen, 2021). Early development of numeracy skills sets the foundation for the future development of mathematical abilities, making it crucial to address these issues at the primary school level.

The pandemic has had a significant impact on primary school education, particularly in the area of numeracy. The shift to full face-to-face courses prompted educators to identify gaps in pupils' numeracy caused by the disruptions in learning during the pandemic. According to Sison (2022), many primary teachers are struggling to help their learners improve their performance, especially in mathematics. This struggle is exacerbated by the fact that learners' performance

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during modular printed learning is far below the expected level compared to traditional classroom learning. Addressing these numeracy gaps has become a challenge for primary school principals and teachers. They need to consider basic numeracy skills to bridge the gaps and ensure that learners can recognize and understand the value of numbers while performing mathematical operations (Ramos, 2022). Numerical ability is essential as it impacts learners' ability to arrive at correct answers in mathematical problems and sentences (Padonan, 2022).

Based on the results of the numeracy assessment at the start of classes in the 2022-2023 school year, pupils demonstrated low performance in addition, subtraction, multiplication and division of numbers. This scenario concerned the researcher so much that it led her to consider learners' numericy skills when conducting this research. In addition, the responsive practices of primary grade teachers were taken into account when addressing learners' numeracy gaps. Administrators and teachers need to work together to address gaps in learners' numeracy. They use different procedures to ensure that they apply appropriate approaches and strategies in dealing with learners' difficulties (Ednilao, 2022).

The Department of Education by issuing DepEd Order No. 12, sp. 2021 or the amendment to DepEd Regulation No. 030, p. 2020 identified the need to address gaps in education to meet the required core competencies of learners. Thus, it was appropriate to consider responsive practices in addressing learner numeracy gaps. With this premise, it was appropriate to conduct a study on the sensitive practices of primary grade teachers to address the numeracy gaps of learners in the Zambales Division of Schools. This study served as the basis for developing a model based on the findings of the study.

2. METHODOLOGY

This study employed the descriptive method of research and utilized the purposive sampling technique in the selection of primary grade teachers at the Schools Division of Zambales as respondents of the study during the School Year 2022-2023.

This study utilized researcher-made questionnaires as the main instrument for gathering data. For the reliability of the questionnaire, a pilot test was conducted on 30 primary grade teachers in the Schools Division of Zambales. The results of the pilot test and the suggestions were noted and incorporated into improving the instrument. The developed survey questionnaire was reliability tested using Cronbach's Alpha Reliability where the coefficient was calculated and was compared to the acceptable alpha coefficient value of greater than or equal to 0.7 (Sig < 0.7) (Taber, 2017).

The questionnaire was composed of two (2) parts. Part I focused on the numeracy gaps of learners in terms of addition, subtraction, multiplication, and division of whole numbers. Part II dealt with the responsive practices of primary grade teachers to address numeracy gaps of learners in terms of math drills, 4F's mastery, time tests, and mental computations.

After the validation of the instrument, the researcher prepared a letter addressed to the Schools Division Superintendent, Division of Zambales, Philippines, requesting permission to conduct the study in the schools division. Upon the approval of the request letter, the researcher prepared a letter addressed to the Public Schools District Supervisor (PSDS) and principals requesting permission to distribute the questionnaires to the primary grade teacher-respondents. The teacher-respondents were requested for their voluntary participation in the study. The data gathered were tallied, tabulated, analyzed, and

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interpreted using descriptive statistics (percentage, frequency counts, and mean), and one-way analysis of variance (ANOVA).

3. RESULTS AND DISCUSSIONS

3.1 Level of Numeracy Skills of Learners as Perceived by the Teacher-Respondents

3.1.1 Addition of Numbers

Table 1, Level of Numeracy Skills of Learners in terms of Addition of Numbers as Perceived by Teacher-Respondents

Addition of Numbers		Teacher-respondents		
		WM	DE	Rank
1	The learners can add two addends with 1-digit numbers.	2.76	NU	1
2	The learners can add three addends with 1-digit numbers.	2.63	NU	3
3	The learners can add two addends with 2-digit numbers without regrouping.	2.66	NU	2
4	The learners can add two addends with 2-digit numbers with regrouping.	2.56	NU	5
5	The learners can add three addends with 2-digit numbers without regrouping.	2.58	NU	4
6	The learners can add three addends with 2-digit numbers with regrouping.	2.45	NU	7
7	The learners can add three addends with 3-digit numbers without regrouping.	2.55	NU	6
8	The learners can add three addends with 3-digit numbers with regrouping.	2.33	NE	9
9	The learners can add 1- to 2- digit numbers mentally without and with regrouping.	2.38	NE	8
10	The learners can add 2- to 3-digit numbers mentally with multiples of tens and hundreds.	2.26	NE	10
OWM		**2.52**	**NU**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
NU=Numerate NE=Nearly Numerate NO=Non-Numerate

The teacher-respondents assessed the numeracy of learners in adding two addends with 1-digit numbers as numerate, manifested on the highest recorded weighted mean value of 2.76 (rank 1) while learners' numeracy in adding 2-to 3-digit numbers mentally with multiples of tens and hundreds were assessed as nearly numerate, had the lowest weighted mean of 2.26 (rank 10). The computed overall weighted mean was 2.52 and described as numerate.

Attaining numeracy in adding numbers is a key for students to access and make sense of their world. Being able to add and measure their environment in different ways will help them to make wiser judgments about the kind of actions to take in their lives in the future. Being able to add required to effectively manage and respond to mathematical demands posed by diverse situations, involving objects, pictures, numbers, symbols, formulas, diagrams, maps, graphs, tables and text. Adding two addends in 1-digit numbers serves as a foundation in attaining numeracy in adding numbers of elementary learners.

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3.1.2 Subtraction of Numbers

Table 2. Level of Numeracy Skills of Learners in terms of Subtraction of Numbers as Perceived by Teacher-respondents

Subtraction of Numbers		Teacher-respondents		
		WM	DE	Rank
1	The learners can subtract 1-digit numbers with 1-digit numbers.	2.70	NU	1
2	The learners can subtract 2-digit numbers with 1-digit numbers without regrouping.	2.56	NU	2
3	The learners can subtract 2-digit numbers with 1-digit numbers with regrouping.	2.54	NU	3
4	The learners can subtract 2-digit numbers with 2-digit numbers without regrouping.	2.51	NU	4
5	The learners can subtract 2-digit numbers with 2-digit numbers with regrouping.	2.46	NU	5
6	The learners can subtract 3-digit numbers with 1-digit numbers without regrouping.	2.38	NU	7
7	The learners can subtract 3-digit numbers with 2- to 3-digit numbers with and without regrouping.	2.43	NU	6
8	The learners can subtract 4-digit numbers with 1- to 4-digit numbers without and with regrouping.	2.27	NE	9
9	The learners can subtract mentally 1- to 2-digit numbers without and with regrouping.	2.31	NE	8
10	The learners can subtract mentally 2- to 3- digit numbers with multiples of tens and hundreds.	2.20	NE	10
OWM		**2.44**	**NU**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
NU=Numerate NE=Nearly Numerate NO=Non-Numerate

The teacher-respondents assessed the numeracy of learners in subtracting 1-digit numbers with 1-digit numbers as numerate, manifested on the highest recorded weighted mean value of 2.70 (rank 1) while learners' numeracy in subtracting mentally 2- to 3- digit numbers with multiples of tens and hundreds were assessed as nearly numerate, had the lowest weighted mean of 2.20 (rank 10). The computed overall weighted mean was 2.44 and described as numerate.

Number sense is so important for elementary math learners because it promotes confidence and encourages flexible thinking. It allows learners to create a relationship with numbers and be able to talk about math as a language. Subtracting 1-digit number is fundamental combinatory and repetitions to represent subtraction values. According to Fuson (2020) that many children in elementary grade will use the direct modelling solution procedures called "Simple Subtraction Situations", but many other children will use the more sophisticated procedures in the "Levels of Solution Procedures".

3.1.3 Multiplication of Numbers

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Table 3. Level of Numeracy Skills of Learners in terms of Multiplication of Numbers as Perceived by Teacher-Respondents

	Multiplication of Numbers	Teacher-respondents		
		WM	DE	Rank
1	The learners can multiply 1-digit numbers by 1-digit numbers.	2.47	NU	1
2	The learners can multiply 2-digit numbers by 1-digit numbers without regrouping.	2.31	NE	2.5
3	The learners can multiply 2-digit numbers by 1-digit numbers with regrouping.	2.31	NE	2.5
4	The learners can multiply 2-digit numbers by 2-digit numbers without regrouping.	2.22	NE	4
5	The learners can multiply 2-digit numbers by 2-digit numbers with regrouping.	2.21	NE	5
6	The learners can multiply 3-digit numbers by 1-digit numbers without regrouping.	2.15	NE	7
7	The learners can multiply 3-digit numbers by 1-digit numbers with regrouping.	2.18	NE	6
8	The learners can multiply 3-digit numbers by 2-digit numbers without regrouping.	2.05	NE	8.5
9	The learners can multiply 3-digit numbers by 2-digit numbers with regrouping.	2.05	NE	8.5
10	The learners can multiply mentally 1- to 2-digit numbers by 1-digit numbers with products up to 100.	2.00	NE	10
OWM		**2.20**	**NE**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
NU=Numerate NE=Nearly Numerate NO=Non-Numerate

The teacher-respondents assessed the numeracy of learners in multiplying 1-digit numbers by 1-digit numbers as numerate, manifested on the highest recorded weighted mean value of 2.47 (rank 1) while learners' numeracy in multiplying mentally 1- to 2-digit numbers by 1-digit numbers with product up to 100 were assessed as nearly numerate, had the lowest weighted mean of 2.00 (rank 10). The computed overall weighted mean was 2.20 and described as nearly numerate.

Without full mastery of the multiplication in digit numbers, learners struggle as they start to tackle division, fractions, and problems with larger numbers. They use so much of their working memory on simple calculations that they have little brain space left for understanding new concepts. Multiplication can be clearly explained to students by the basics of adding a number, with respect to another number, repeatedly. Multiplication is the main tool for many forms of math such as algebra, calculus, equations and more. The ability to rehearse and understand multiplications up to and including 12 by the final year of primary school will enable learners to confidently and skillfully tackle more complex mathematical subjects.

The study of Lemaire & Siegler (2015) showed substantial continuities in learning multiplication. At all 3 points of measurement, children used multiple strategies, used retrieval

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most often on the same classes of problems, and used repeated addition on the most difficult problems. Stable individual differences were also apparent.

3.1.4 Division of Numbers

Table 4. Level of Numeracy Skills of Learners in terms of Division of Numbers as Perceived by Teacher-respondents

	Division of Numbers	Teacher-respondents		
		WM	DE	Rank
1	The learners can divide 1-digit numbers by 1-digit numbers without a remainder.	2.35	NE	1
2	The learners can divide 1-digit numbers by 1-digit numbers with the remainder.	2.17	NE	3
3	The learners can divide 2-digit numbers by 1-digit numbers without a remainder.	2.23	NE	2
4	The learners can divide 2-digit numbers by 1-digit numbers with the remainder.	2.11	NE	4
5	The learners can divide 2-digit numbers by 2-digit numbers without a remainder.	2.10	NE	5
6	The learners can divide 2-digit numbers by 2-digit numbers with the remainder.	1.98	NE	7
7	The learners can divide 3-digit numbers by 1-digit numbers without a remainder.	2.06	NE	6
8	The learners can divide 3-digit numbers by 1-digit numbers with the remainder.	1.93	NE	9
9	The learners can divide 3-digit numbers by 2-digit numbers without a remainder.	1.94	NE	8
10	The learners can divide mentally 1- to 2-digit numbers by 1-digit numbers without remainder.	1.87	NE	10
OWM		**2.07**	**NE**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
NU=Numerate NE=Nearly Numerate NO=Non-Numerate

The teacher-respondents assessed the numeracy of learners in dividing 1-digit numbers by 1-digit numbers without a remainder as nearly numerate, manifested on the highest recorded weighted mean value of 2.35 (rank 1) while learners' numeracy in dividing mentally 1- to 2-digit numbers by 1-digit numbers without remainders were assessed as nearly numerate, had the lowest weighted mean of 1.87 (rank 10). The computed overall weighted mean was 2.07 and described as nearly numerate.

Learning division is an essential step as students prepare for more advanced math concepts. Division builds on the addition, subtraction, and multiplication skills your child has already learned. After students master basic division facts, they will learn long division with multi-digit numbers and remainders.

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Summary: Level of Numeracy Skills of Learners as Perceived by Teacher- Respondents

Table 5. Summary on the Level of Numeracy Skills of Learners as Perceived by Teacher-respondents

Dimensions		Teacher-respondents		
		OWM	DE	Rank
1	Addition of Numbers	2.52	NU	1
2	Subtraction of Numbers	2.44	NU	2
3	Multiplication of Numbers	2.20	NE	3
4	Division of Numbers	2.07	NE	4
Grand Mean		**2.31**	**NU**	

Legend: OWM= Overall Weighted Mean DE=Descriptive Equivalent
NU=Numerate NE=Nearly Numerate NO=Non-Numerate

It can be noted that the teacher-respondents assessed the numeracy skills of learners as numerate in terms of adding numbers, as manifested with the highest overall weighted mean of 2.52 (rank 1) and subtracting numbers, with an overall weighted mean of 2.44 (rank 2). While their learners are nearly numerate in terms of multiplying numbers, with an overall weighted mean of 2.20 (rank 3); and dividing numbers, with the lowest overall weighted mean of 2.07 (rank 4). Overall, teacher-respondents assessed the numeracy skills of students as numerate, manifested on the computed grand mean value of 2.31.

3.2 Perceived Responsive Practices of Teacher-Respondents to Address Numeracy Skills Gap of Learners

3.2.1Math Drills

Table 6. Responsive Practices of Teacher-Respondents to Address Numeracy Skills Gap of Learners in terms of Math Drills

Math Drills		Teacher-respondents		
		WM	DE	Rank
1	The teachers explain the process of math drills to their learners.	3.46	HP	1
2	The teachers provide samples in the execution of the math drills to their learners.	3.28	HP	3.5
3	The teachers utilize various learning activities in developing the speed and accuracy of the computations of their learners.	3.29	HP	2
4	The teachers use meta cards and drill cards during the math drill for their learners.	3.28	HP	3.5
5	The teachers use slides in developing the speed and accuracy of computations of their learners.	3.24	P	6
6	The teachers use online/offline quizzes in developing the speed and accuracy of computations of their learners.	2.99	P	10
7	The teachers incorporate a racing game for every correct answer of their learners to improve their speed and accuracy in computations.	3.25	HP	5
8	The teachers instruct their learners to write on the air their answers to the math drills.	3.10	P	8

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9	The teachers give three seconds to their learners in answering their numeracy activities.	3.02	P	9
10	The teachers ensure the availability of the assessment instrument to gauge the numeracy progress of their learners.	3.14	P	7
OWM		**3.21**	**P**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
HP=Highly Practiced P=Practiced MP=Moderately Practiced N=Not Practiced

The teachers perceived highly practiced in explaining the process of math drills to their learners, as manifested with the highest overall weighted mean of 3.46 (rank 1) while practiced in using online/offline quizzes in developing the speed and accuracy of computations of their learners, as manifested with the lowest overall weighted mean of 2.99 (rank 10). Overall, teacher-respondents perceived practiced to address numeracy skills gap of learners in terms of math drills, as manifested on the computed overall weighted mean of 3.21.

Manalaysay (2023) stated that drill practice in mathematics can enhance mastery of the fundamental operations, the deepening of the mastery will enable an individual to apply it in the simplest situations at home and in real life situations. In the teaching learning process, instructional strategies play a vital role. It augments the memory level of the learners and makes the teaching learning process exciting. At present, in the Philippine education system, intervention activities are highly regarded as tools for remediating poor achievements of the learners and making discussion more interesting. One study concluded that remediation activities affect students' academic performance. More interestingly, the use of drill can make the start of every discussion interesting and motivating. It is important that children master the basic facts during primary years.

3.2.2 4F's Mastery

Table 7. Responsive Practices of Teacher-respondents to Address Numeracy Skills Gap of Learners in terms of 4F's Mastery

4F's Mastery		Teacher-respondents		
		WM	**DE**	**Rank**
1	The teachers explain the process of 4F's mastery to their learners.	3.39	HP	1
2	The teachers provide samples in the execution of the 4F's mastery to their learners.	3.21	P	4
3	The teachers utilize different numeracy activities in developing the speed and accuracy of their learners.	3.22	P	3
4	The teachers use window cards during the 4F's mastery of their learners.	3.26	HP	2
5	The teachers use slides in the 4F's mastery of their learners to develop their speed and accuracy in computations.	3.14	P	6
6	The teachers use online/offline quizzes in the 4F's mastery of their learners to develop their speed and accuracy in computations.	2.90	P	10
7	The teachers incorporate a score-to-beat game in the 4F's mastery of their learners to improve their speed and accuracy in computations.	3.17	P	5
8	The teachers instruct their learners to write their answers on a sheet of bond paper in the 4F's mastery.	3.09	P	8

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9	The teachers give at least five minutes to their learners in their 4F's mastery by using window cards.	3.03	P	9
10	The teachers have prepared assessment materials to gauge the numeracy progress of their learners.	3.10	P	7
OWM		**3.15**	**P**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
HP=Highly Practiced P=Practiced MP=Moderately Practiced N=Not Practiced

The teachers perceived highly practiced in explaining the process of 4F's mastery to their learners, as manifested with the highest overall weighted mean of 3.39 (rank 1) while practiced in using online/offline quizzes in the 4F's mastery of their learners to develop their speed and accuracy in computations, as manifested with the lowest overall weighted mean of 2.90 (rank 10). Overall, teacher-respondents perceived practiced to address numeracy skills gap of learners in terms of 4F's mastery, as manifested on the computed overall weighted mean of 3.15.

Belleza (2022) stated that numeracy skills are important mathematical skills that include a variety of capabilities to understand and analyze numerical information, to make the right conclusions and decisions, and apply in daily life the concepts and ideas of mathematics. The study showed that the numeracy skills of learners were low prior to the intervention. After the exposure to the enhanced mathematics learning kit and 4F's mastery with parental involvement at homes, results showed a considerable increase of numeracy skills from low level before the intervention to high level after the intervention. The findings also revealed a significant difference between the pretest and post-test means scores of the non-numerate learners. Thus, an enhanced mathematics learning kit and 4F's mastery with parental involvement at homes can be used as effective intervention in improving the numeracy skills of the non-numerate learners, especially this new normal. Therefore, it is recommended that teachers should actively involve the parents and strengthen their capacity as learning facilitators of their children's self-learning modules in mathematics. Further, activities in the self-learning modules should be enhanced based on the cognitive level of the learners to develop their skills, 4F's mastery and higher understanding especially in teaching and learning Mathematics amid the pandemic times.

3.2.3 Timed-Test

Table 8. Responsive Practices of Teacher-respondents to Address Numeracy Skills Gap of Learners in terms of Timed-Test

Time Test		Teacher-respondents		
		WM	**DE**	**Rank**
1	The teachers explain the concepts of time tests to their learners.	3.30	HP	1
2	The teachers provide samples showing time test computations to their learners.	3.09	P	4.5
3	The teachers utilize various learning activities in developing the speed and accuracy of computations of their learners.	3.13	P	3
4	The teachers use worksheets and activity sheets during the time of test computations of their learners.	3.17	P	2
5	The learners use timed PowerPoint presentations in developing the speed and accuracy in computations of their learners.	3.05	P	6

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6	The teachers use timed interactive quizzes in improving the speed and accuracy of computations of their learners.	2.82	P	10
7	The teachers incorporate the time-to-beat game in improving the speed and accuracy of the computations of their learners.	3.09	P	4.5
8	The teachers instruct their learners to use their show me board in presenting their answers to the time test computations.	2.96	P	8
9	The teachers limit the time of their learners in answering their numeracy activities.	2.94	P	9
10	The teachers prepare assessment tools to gauge the numeracy progress of their learners.	3.04	P	7
OWM		**3.06**	**P**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
HP=Highly Practiced P=Practiced MP=Moderately Practiced N=Not Practiced

The teachers perceived highly practiced in explaining the concepts of time tests to their learners, as manifested with the highest overall weighted mean of 3.30 (rank 1) while practiced in using timed interactive quizzes in improving the speed and accuracy of computations of their learners, as manifested with the lowest overall weighted mean of 2.82 (rank 10). Overall, teacher-respondents perceived practiced to address numeracy skills gap of learners in terms of time test, as manifested on the computed overall weighted mean of 3.06.

Hunt & Sandhu (2017) suggest that the type of time pressure may need to be taken into account when designing assessments or activities in mathematics. Math anxiety may be particularly detrimental on math problems that rely more on working memory resources as the effects of time pressure or time test activity.

3.2.4 Mental Computations

Table 9. Responsive Practices of Teacher-respondents to Address Numeracy Skills Gap of Learners in terms of Mental Computations

Mental Computations		Teacher-respondents		
		WM	DE	Rank
1	The teachers explain the concepts of mental computations to their learners.	3.20	P	1
2	The teachers provide samples showing mental computations to their learners.	3.03	P	4.5
3	The teachers utilize various learning activities in developing the mental computation skills of their learners.	3.03	P	4.5
4	The teachers use flashcards during drill activities for their learners.	3.08	P	2
5	The teachers use PowerPoint presentations during the mental computations of their learners.	2.97	P	6
6	The teachers use interactive quizzes in improving the mental computation skills of their learners.	2.76	P	10

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7	The teachers incorporate the racing game in improving the mental computation skills of their learners.	3.05	P	3
8	The teachers instruct their learners to write their answers on their show my board.	2.92	P	9
9	The teachers call their learners and let them answer the given facts mentally.	2.93	P	8
10	The teachers provide the assessment to their learners to determine their progress in mental computations.	2.96	P	7
OWM		**2.99**	**P**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
HP=Highly Practiced P=Practiced MP=Moderately Practiced N=Not Practiced

The teachers perceived highly practiced in explaining the concepts of mental computations to their learners, as manifested with the highest overall weighted mean of 3.20 (rank 1) while practiced in using interactive quizzes in improving the mental computation skills of their learners, as manifested with the lowest overall weighted mean of 2.76 (rank 10). Overall, teacher-respondents perceived practiced to address numeracy skills gap of learners in terms of mental computations, as manifested on the computed overall weighted mean of 2.99.

Yang and Huang's (2014) research delved into the impact of teaching the vertical addition and subtraction algorithm on the development of mental computation skills in students. The study suggested that relying solely on the algorithmic approach to teach these mathematical operations may not effectively promote the growth of mental computation abilities among students.

Summary: Responsive Practices of Teacher-Respondents to Address Numeracy Skills Gap of Learners

Table 10. Summary on Responsive Practices of Teacher-respondents to Address Numeracy Skills Gap of Learners

Dimensions		**Teacher-respondents**		
		OWM	**DE**	**Rank**
1	Math Drills	3.21	P	1
2	4F's Mastery	3.15	P	2
3	Time Test	3.06	P	3
4	Mental Computations	2.99	P	4
Grand Mean		**3.10**	**P**	

Legend: WM=Weighted Mean DE=Descriptive Equivalent
HP=Highly Practiced P=Practiced MP=Moderately Practiced N=Not Practiced

The teacher-respondents perceived practiced to address numeracy skills gap of learners in all areas in terms of practicing math drills, manifested with the highest computed overall weighted mean of 3.21 (rank 1); 4F's mastery, manifested on the computed overall weighted mean of 3.15 (rank 2); time test, manifested on the computed overall weighted mean of 3.06 (rank 3); while mental computations, had the lowest computed overall weighted mean of 2.99 (rank 4). Overall, the teacher-respondents perceived practiced to address numeracy skills gap of their learners, as manifested on the computed grand mean of 3.10.

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The findings imply that teachers apply different strategies as a response to address numeracy gaps of their learners. They expose students to mathematics problems that include tasks or warm-up exercises, additions to homework assignments, or even test problems.

Haara, Engelsen, & Smith (2020) stated that the overall aim of the intervention model is to establish a recursive feedback dialogue between teachers and learners. Teachers keep on moving from traditional to responsive classroom approaches to align their strategies to the needs of time.

3.3. Test of Relationship between the Numeracy Skills of Learners and Responsive Practices as Perceived by Teachers

Table 11. Pearson Product Moment Coefficient of Correlation to Test Relationship between the Numeracy Skills of Learners and Responsive Practices as Perceived by Teachers

Sources of Correlations		Numeracy Skills	Responsive Practices	Decision/ Interpretation
Numeracy Skills	Pearson Correlation	1	0.749**	**High Positive Correlation Ho is Rejected**
	Sig. (2-tailed)		0.000	
	N	813	813	
Responsive Practices	Pearson Correlation	0.749**	1	
	Sig. (2-tailed)	0.000		
	N	813	813	
**. Correlation is significant at the 0.01 level (2-tailed).				

The computed Pearson r value of 0.749 denotes high positive correlation. The computed P-value 0.000 is less than (<) 0.01 level of significance, therefore the null hypothesis was rejected. Hence, there was a significant relationship between the numeracy skills of learners and responsive practices as perceived by teachers.

3.4. Developed Model based from the Findings of the Study

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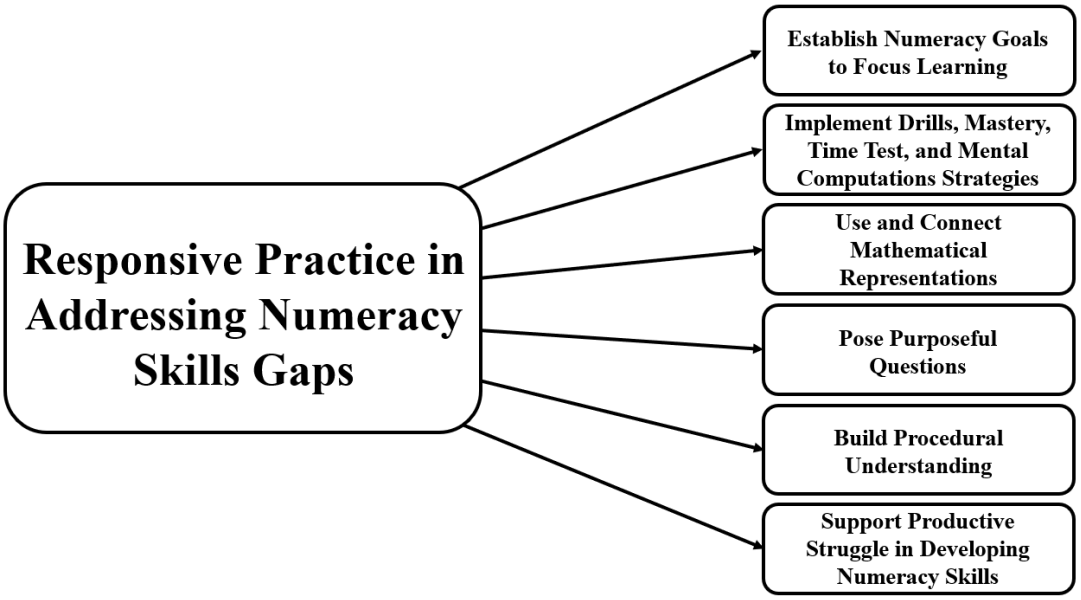

Figure 1. JOM Responsive Numeracy Skills Teaching Model

Establishing Numeracy Goals to Focus Learning. By establishing numeracy goals, teachers can provide a clear direction for learning and ensure that instructional efforts are focused on specific mathematical skills and concepts. This approach helps learners understand their learning targets, track their progress, and work towards mastering numeracy skills effectively. I**mplement Drills, Mastery, Time Test, and Mental Computation Strategies.** The implementation of drills, mastery, time tests, and mental computation strategies empowers learners to build confidence, improve their mathematical fluency, and apply these skills in real-life scenarios. By incorporating these strategies thoughtfully and providing ongoing support, teachers can help learners develop a strong foundation in numeracy that will serve them well in their academic and everyday lives. **Use and Connect Mathematical Representations.** Utilizing and connecting mathematical representations is a powerful approach to deepen learners' understanding of mathematical concepts. The use and connection of mathematical representations enable learners to approach mathematical concepts from multiple perspectives, fostering a richer understanding of the subject. **Pose Powerful Questions.** Posing powerful questions in mathematics empowers learners to actively engage in the learning process, develop higher-order thinking skills, and deepen their understanding of mathematical concepts. By crafting questions that stimulate curiosity, promote reasoning, and encourage collaboration, teachers can create a dynamic classroom where learners actively participate in mathematical exploration and discovery. **Build Procedural Understanding.** It requires a balanced approach that combines explicit instruction, guided practice, independent application, and targeted feedback. By providing learners with a strong foundation and ongoing support, teachers enable them to develop fluency and proficiency in mathematical procedures, equipping them with essential tools for problem-solving and mathematical reasoning. **Support Productive Struggle in Developing Numeracy Skills.** Supporting productive struggle in developing numeracy skills cultivates a classroom culture that values perseverance, critical thinking, and creativity. By providing challenging tasks, emphasizing

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the problem-solving process, and offering guidance, teachers can empower learners to develop a deeper understanding of mathematics and build their confidence as capable learners.

4. CONCLUSIONS

Based on the foregoing results of the study, the researcher concluded that:

1. The teacher-respondents assessed that learners are numerate.
2. The teacher-respondents perceived practiced to address numeracy skills gap of their learners.
3. There was a significant relationship between the numeracy skills of learners and the responsive practices as perceived by teachers.
4. The developed model aimed to address the numeracy skills gap of learners in the School Division of Zambales.

5. RECOMMENDATIONS

In view of the conclusions of the study, the following are recommended.

1. The teachers are encouraged to implement strategies in order to effectively teach multiplication and division of numbers to their learners to further increase numeracy skills of learners from nearly numerate to numerate.
2. Teachers may consider increasing the level of implementation on their responsive practices to further address the numeracy skills gap of their learners.
3. The developed model may be reviewed for possible adoption to address numeracy skills gap of learners in the Schools Division of Zambales.
4. Further studies on the responsive practices of teachers to address numeracy skills gap of learners involving other factors and in a different locale may be conducted to validate the findings obtained in this study.

REFERENCES

Ayebale, L., Habaasa, G., & Tweheyo, S. (2020). Factors affecting students' achievement in mathematics in secondary schools in developing countries: A rapid systematic review. Retrieved from Factors affecting students' achievement in mathematics in secondary schools in developing countries: A rapid systematic review - IOS Press

Belleza, M. J. (2022). Numeracy Level of Non-Numerate Learners through Enhanced Mathematics Learning Kits with Parental Involvement at Homes. *Psychology and Education: A Multidisciplinary Journal*, *3*(4).

DepEd Order No. 12, s. 2021. Amendment to DepEd Order No. 030, s. 2020.

Ednilao, M.A.G. (2022). Practices of Public Elementary School Teachers in Addressing Learning Gaps of Learners: Bases for an Action Plan. A Master's Thesis

Fuson, K. C., & Briars, D. J. (2020). Using a base-ten blocks learning/teaching approach for first- and second-grade place-value and multidigit addition and subtraction. *Journal for research in mathematics education*, *21*(3).

Guhl, P. (2019). The impact of early math and numeracy skills on academic achievement in elementary school. Retrieved from The Impact of Early Math and Numeracy Skills on Academic Achievement in Elementary School (nwciowa.edu)

Haara, F.O., Engelsen, K.S., & Smith, K. (2020). Moving from traditional to responsive mathematics classrooms: A proposition of an intervention model. Retrieved from Full article:

ISSN: 2582-0745
Vol. 7, No. 02; 2024

Moving from traditional to responsive mathematics classrooms: a proposition of an intervention model (tandfonline.com)

Hunt, T.E. & Sandhu, K.K. (2017). Endogenous and exogenous time pressure: Interactions with mathematics anxiety in explaining arithmetic performance. Retrieved from Endogenous and exogenous time pressure: Interactions with mathematics anxiety in explaining arithmetic performance - ScienceDirect

Lemaire, P., & Siegler, R. S. (2015). Four aspects of strategic change: contributions to children's learning of multiplication. *Journal of experimental psychology: General*, *124*(1).

Mabena, N., Mokgosi, P.N., & Ramapela, S.S. (2021). Factors contributing to poor learner performance in mathematics: A case of selected schools in Mpumalanga Province, South Africa. Retrieved from EJ1301930.pdf (ed.gov)

Manalaysay, J. A. (2023). Continuous Drill in Mathematics: A Spark for Mastery of Fundamental Operations.

Padonan, R.E. (2022). Factors Affecting the Numeracy Performance of Grade 6 Learners in the New Normal: Bases for an Action Plan. A Thesis Proposal

Ramos, M.E. (2022). Difficulties in Teaching and Learning as Perceived by Grade 2 Teachers During Full Face-to-Face Classes: Bases for an Action Plan. A Thesis Proposal

Salminen, J., Khanolainen, D., Koponen, T., Torppa, M., & Lerkkanen, M.K. (2021). Development of numeracy and literacy skills in early childhood – a longitudinal study on the roles of home environment and familial risk for reading and math difficulties. Retrieved from Frontiers | Development of Numeracy and Literacy Skills in Early Childhood—A Longitudinal Study on the Roles of Home Environment and Familial Risk for Reading and Math Difficulties (frontiersin.org)

Sison, R.E. (2022). Difficulties Encountered by Primary Grade Teachers in Improving the Literacy Skills in English of the Learners: Bases for an Action Plan. A Thesis Proposal

Yang, D.C. & Huang, K.L. (2014). An intervention study on mental computation for second graders in Taiwan. Retrieved from An Intervention Study on Mental Computation for Second Graders in Taiwan: The Journal of Educational Research: Vol 107, No 1 (tandfonline.com)