



**ASSESSING THE NUMERACY SKILLS AMONG KINDERGARTEN
LEARNERS IN THE COASTAL SCHOOLS OF RAPU-RAPU
WEST DISTRICT**

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ABSTRACT

Developing numeracy skills at an early year will give children an important foundation for their learning and development. It helps them prepare for daily life, including general problem-solving and handling money. Being numerate, helps them know and describe the world around them and make meaning of these encounters. This study assessed the numeracy skills among the kinder learners using the Kinder Report Card, evaluated the level of the challenges in improving the numeracy skills of kinder learners along learners' resources such as manipulative, TV, etc. and teacher preparation, recommend measures to address the above challenges; and prepared developmentally appropriate materials to improve the numeracy skills of kinder learners. This study was pursued using the descriptive survey design through the quantitative-qualitative technique. On quantitative technique, a survey questionnaire administered to 15 school heads and 15 kinder teachers while analysis of the kinder report card of the 317 kinder learners from quarter 1 to quarter 3 formed part of the qualitative. The study revealed that the numeracy skills of the kinder learners based on the kinder report card was from beginning to consistent. There is an "often" level of challenges in improving the numeracy skills of kinder learners along learners' resources such as manipulative, TV, etc. and teacher preparation. The respondents proposed

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several measures to address the above challenges. The researcher prepared developmentally appropriate learning resources in numeracy in the form of worksheets/activity sheets.

Keywords: *Numeracy Skills, Kinder Learners, Challenges, Coastal Schools*

INTRODUCTION

Developing numeracy skills at an early age will surely give young learners a better foundation for their learning and development. It also helps them prepare for daily life, including solving simple problem and handling money. Being numerate means a lot for them because it helps them becomes familiar with the community and world around them. Every encounter in the world of numeracy is, therefore, an essential skill needed to succeed in their daily life.

It is said that numeracy is the ability to comprehend and apply basic math concepts in real-world scenarios. Basic math concepts generally considered are addition, subtraction, multiplication, and division. Every day, people make a variety of decisions that may require numerical problem-solving, understanding, and processing (Hojnoski, 2019). Developing a mentally organized way of thinking is critical for the holistic development of children because these skills will enable logical reasoning. This will also lead to better comprehension of the world around them. Thus, to make this happen, there is a need to provide high-quality numeracy education at an early age (Mburu, 2018).

One of the Australian educational researchers believes that numeracy includes knowledge, skills, behaviors, and attitudes that the learners need to apply in various situations. According to him, this includes the acknowledgment of the different aspects of mathematics in daily life and the tendency to use mathematical knowledge and skills in a meaningful way. It is a critical skill that builds bridges between mathematics and the real world. It is not the same as mathematics

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or alternative to mathematics because numeracy encompasses several factors that the learners need to know and use Math in different situations (Tout et al., 2020). Likewise, numeracy requires the learners to use their knowledge and skills to solve numerical issues in real-life situations (Sabidin et al., 2017).

Moreover, the kindergarten teachers play an important role in transforming young learners into responsible person. The skills instilled in children in their childhood years is vital to support them while reaching the primary school. Thus, to fulfil the children's needs under their care, they must do everything possible to develop the competencies needed. Hence, the needs to know and identify teaching-learning modalities particularly in the public schools. Citing for instance some previous literature on the challenges encountered by the kindergarten teachers such as insufficient to unavailable instructional materials for kindergarten classroom use (Owuso, 2021) or the limited supply of to no available literacy and numeracy learning materials (Mercader et al., 2021).

The Philippine government has just started with its K to 12 programs institutionalizing the kindergarten education. K to12 or simply referred to K+12 is equivalent to 13 years of basic education curriculum where kindergarten is a part of it. There are plantilla position/items for teachers which aims to provide equal opportunities for all learners to accessible, mandatory, and compulsory. The RA 10157 is a well-defined policy of the Philippine government pursued to effectively promote the physical, emotional, cognitive, and social skills stimulation and formation of necessary values to all five (5)-year old Filipino children. This will prepare them sufficiently for Grade One. This is a decision recognizing that kindergarten education is vital to the development of the Filipino child. It is also believed that the young mind's absorptive capacity is at its sharpest during this period.

DepEd Order No. 47 of 2016 and DepEd Order No. 20 of 2018 are the succeeding issuances re-iterated its aims to make education responsive to the needs and diversity of learners at any circumstances. The schools and communities are using developmentally appropriate

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materials and culturally sensitive practices to enhance the teaching and learning. This is taking cognizant that immerse the learners into meaningful learning experiences by engaging them thru a play-based, and child-centered activities which is one of the principles of developmentally appropriate practices.

Response was made by coastal schools in Rapu-Rapu West observing the directive from the Department of Education (DepEd) national office. Consequently, this intensifies resource mobilization, generation as well as budget re-alignment/ adjustment of funds. With the decision is the felt need to assess the numeracy skills among the kinder learners of the coastal schools in Rapu-Rapu West District as bases in the preparation of developmentally appropriate materials to improve their numeracy skills. This is taking cognizant of the fact that almost all the issuances of DepEd (orders, circulars, memos, and the like) will encourage feedback from implementers.

In passing, Batan is one of a coastal barangay in Rapu-Rapu, Albay with a population of 1,145 according to the 2020 census of population. The barangay represented 3.17 percent of the total population of the municipality where it is located (PhilAtlas, 2023). It is almost isolated for weeks during rainy season and stormy weather. Most barangays are situated in the coastal areas without internet connectivity, banks, and the absence of electricity. These adversities require a descriptive analysis of actual teaching-learning experiences of the kindergarten teachers and pupils. Hence, strongly justifies the conduct of inquiry.

MATERIALS AND METHODS

The questionnaire-checklist (Appendix B) consisted of three parts. Part A dealt on the profile of the respondents to solicit personal and professional background of the respondents while Part I was on numeracy skills of kinder learners using the Kinder Report Card. Part II focused on the level of the challenges in improving the numeracy skills of kinder learners along

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learning resources such as manipulatives, TV, etc. and teacher preparation. Part III was measures to address the above challenges.

Moreover, in Part II and III, pre-determined indicators were prepared by the researcher based on her personal teaching experience and the review of related literature and studies. Also, a documentary analysis was done, in which the numeracy skills rating of the kinder learners based on the Kinder Report Card, was interpreted for analysis and discussions.

This study was pursued using the descriptive survey design using documentary analysis through the quantitative-qualitative technique. According to Creswell (2018), it is oftentimes referred to mixed methods research which involves collecting quantitative and qualitative data, and analysis of the data integrates both forms of data. Quantitative data is information about quantities, and therefore numbers while qualitative data is descriptive, and regards phenomenon which can be observed but not measured, such as language (Mcleod, 2023). As explained by Hassan (2022), descriptive research describes or documents the characteristics, behaviors, attitudes, opinions, or perceptions of a group or population being studied such as the numeracy skills of the kinder learners.

Moreover, survey design is a research method where it collected and analyzed data from a group of people (Bhandari, 2023) such as the level of the challenges in improving the numeracy skills of the kinder learner. Likewise, survey design allows the study for a variety of methods to select the participants, collect the data needed, and utilize various methods of instrumentation (Singleton & Straits, 2019). Thereby, justifies the use of questionnaire, document(ary) analysis, narrative story (inquiry), and focus group discussion techniques.

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RESULTS AND DISCUSSION

The salient findings of the study on assessment of the numeracy skills of kinder learners among the coastal schools in Rapu-Rapu West District are presented and discussed in this section. The presentation of the discussion was based on the specific problems mentioned in the earlier section of this study.

Numeracy Skills of Kinder Learners using the Kinder Report Card

Table 1 shows the numeracy skills of kinder learners from quarter 1 to quarter 3 using the kinder report card. It appears that in quarter 1, majority of the 317 kindergarten learners in Rapu-Rapu West District Schools obtained a "beginning" rating in 19 numeracy skills indicators in the kinder report card. As written in the Kinder Report Card, "beginning" rating shows that kinder learners are rarely demonstrates the expected competency. They rarely participate in class activities and/or initiates independent works. Although they show interest in doing tasks, but they still need close supervision. Kindergarten class is a big step for learners as they are now in big kids' school. Majorities have little trouble adjusting, so they feel disoriented at first. Although, most of them have been in day care or nursery schools, or they have older siblings at the school, still they feel a little bit apprehensive. It's a new classroom, a new teacher, and a new set of classmates, so it takes time for them to get comfortable in the unfamiliar surroundings. This justifies the reasons why majority of them got a "beginning" rating in their report card during this quarter.

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Table 1

Numeracy Skills of Kinder Learners

NUMERACY SKILLS		QUARTER 1			QUARTER 2			QUARTER 3			
		B	D	T	B	D	T	B	D	C	T
1.	Identifies colors	281	36	317	98	219	317	23	112	182	317
2.	Identifies shapes	267	50	317	173	144	317	18	198	101	317
3.	Sorts objects according to shape, size, and/or color	312	5	317	119	198	317	21	163	133	317
4.	Compares and arrange objects according to a specific attribute (e.g., size, length, quantity, or duration)	306	11	317	165	152	317	23	220	74	317
5.	Recognizes and extends patterns	299	18	317	138	179	317	28	187	102	317
6.	Tells the names of days in a week	287	30	317	154	163	317	21	207	89	317
7.	Tells the months of the year	274	43	317	101	216	317	14	119	184	317
8.	Distinguishes the time of day and tells time by the hour (using analog clock).	314	3	317	174	143	317	12	204	101	317
9.	Rote counts up to 20 The child can count up to: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Others: _____.	314	3	317	99	218	317	10	159	148	317
10.	Counts objects up to 10 The child can count up to: 1 2 3 4 5 6 7 8 9 10 Others: _____.	313	4	317	151	166	317	16	191	110	317
11.	Recognize numerals up to 10 The child can recognize numerals up to: 1 2 3 4 5 6 7 8 9 10 Others: _____.	314	3	317	123	194	317	14	171	132	317

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Numeracy Skills of Kinder Learners

NUMERACY SKILLS		QUARTER 1			QUARTER 2			QUARTER 3			
		B	D	T	B	D	T	B	D	C	T
12.	Writes numerals up 10 The child can write numerals up to: 1 2 3 4 5 6 7 8 9 10 Others: _____	308	9	317	148	169	317	14	191	112	317
13.	Sequences numbers	311	6	317	133	184	317	20	177	120	317
14.	Identify the placement of objects (e.g. 1st, 2nd, 3rd, etc) in a given set.	310	7	317	130	187	317	20	177	120	317
15.	Solves simple addition problems	309	8	317	134	183	317	18	197	102	317
16.	Solves simple subtractions problems	305	12	317	140	177	317	19	204	94	317
17.	Groups sets of concrete objects of equal quantities up to 10 (i.e., beginning multiplication)	304	13	317	163	154	317	19	216	82	317

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18.	Separates sets of concrete objects of equal quantities up to 10 (i.e., beginning division)	303	14	317	151	166	317	19	219	79	317
19.	Measures length, capacity, and mass of objects using nonstandard measuring tools	306	11	317	143	174	317	28	212	77	317

Legend:

B = Beginning

C = Consistent

D = Developing

T = Total

However, in the second quarter, there is an improvement in their achievement as most of them obtained a “developing” rating. As seen in the Kinder Report Card, this rating means that they are sometimes demonstrating competency and participate with minimal supervision. They also progress continuously in doing assigned tasks. It is good to note that 219 or 69.08% of the kinder learners identifies colors while 218 or 68.77% “can count up to: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, & 20”. Likewise, 216 or 68.14% of the kinder learners can tell the months of the year while 198 or 62.46% can “sorts objects according to shape, size, and/ or color”. Analyzing further the rating of the kinder learners in the second quarter, it can be observed that the four “developing” indicators on numeracy skills were “distinguishes the time of day and tells time by the hour (using analog clock) (144 or 45.42%); 143, identifies shapes (143 or 45.11); compares and arrange objects according to a specific attribute (e.g., size, length, quantity, or duration) (152 or 47.95%); and groups sets of concrete objects of equal quantities up to 10 (i.e., beginning multiplication) (154 or 48.58%). Second quarter is the period where the kinder learners are already familiar with their environment and classmates. It is also the time where they develop their self-confidence and gain friends. These will be their motivational factors that help them to study and participate in their class activities or lessons. In the study of Abdullah

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et al. (2019), they believe that self-confidence is a very important aspect for someone to be able to develop their potential. It is a feeling of trust in one's abilities, qualities, and judgment. If learners have good self-confidence, then they can develop their full potential. Hence, the kinder learners should have this before entering the kindergarten class because children with self-confidence are able to feel good about their studies and be a good model to others.

In the third quarter, a significant improvement was observed particularly on the topics obtained a "consistent" rating. This only shows that during this quarter, some of the kindergarten learners always demonstrate the expected expectancy, participate in the different activities, work independently, and performs tasks, advance in some aspects. During this period, the majority of the kinder learners can "tells the months of the year" with a frequency of 184 or 58.04% and 182 or 57.41% can "identifies colors". Likewise, 148 or 46.69% can "count up to: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, & 20"; 133 or 41.96% can "sorts objects according to shape, size, and/ or color"; and 132 or 41.64% can recognize numerals up to: 1, 2, 3, 4, 5, 6, 7, 8, 9 & 10. However, there are still indicators on numeracy skills registered a rating of beginning but this is minimal only compared to majority who obtained a rating of "developing" and "consistent". Kinder learners who enter kindergarten schools have different stages of readiness, some master kindergarten skills with relative ease while others struggle to master those skills.

Furthermore, there are five numeracy indicators which majority of the kinder learners (54.62% to 58.05%) are still developing, particularly on: "compares and arrange objects according to a specific attribute (e.g., size, length, quantity, or duration) (220 or 58.05%); "separates sets of concrete objects of equal quantities up to 10 (i.e., beginning division)" (219 57.78%); "groups sets of concrete objects of equal quantities up to 10 (i.e., beginning multiplication) (216 or 56.99%); "measures length, capacity, and mass of objects using nonstandard measuring tools" (212 or 55.94%); and "tells the names of days in a week (207 or 54.62%). Hence, there is a need to prepare developmentally appropriate material on this topic

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to further enhance the kinder learners' numeracy skills. An example of this is the development of worksheets/activity sheets.

According to Krisdiana et al. (2019), to improve the critical thinking skills of the kindergarten pupils, the teacher should utilize the worksheets and activity sheets. The learners will become excellent if they continue to use the cited materials. To make learning more successful, the teachers should use audio visual materials (Widodo, 2019). It will also help to develop more the numerical abilities of the learners as well as their critical thinking skills. Further, Liu (2018) suggests that the teachers should assist their learners and encourage them to love math. The attitude of the teachers has significant effect on the numeracy skills of the learners.

For Harris & Petersen (2019), early math and numeracy are the general understanding of numbers and basic mathematical concepts. These are skills such as counting, comparing, and contrasting, describing shapes and positions and problem solving. Learners who are exposed to and master early math abilities at a young age are more likely to succeed in school and those who enter with low in math skills tend to continue to perform below their peers in later grades.

The result of this study is significance to the kinder learners and the community. This will serve as bases for the department to craft plans and programs that will help the kinder learners in the coastal schools to enhance their numeracy skills. The intervention should be given to the learners before entering in kindergarten class to make them proficient in numeracy. Because the researcher believed that in building a strong foundation, one should start this at an early age.

Level of the Challenges in Improving the Numeracy Skills of Kinder Learners

Numeracy skills are important for kinder pupils as they lay the foundation for a future academic career. It promotes logical thinking, which is a valuable skill for all subjects. By

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developing strong numeracy skills, kindergarten pupils can set themselves up for future success. However, there are several challenges in developing the cited skills. This portion discusses the analyses and interpretations of the level of the challenges in improving the numeracy skills of kinder learners along learners’ resources such as manipulative, TV, etc. and teacher preparation.

Learners’ Resources such as Learning Resources, TV, Counters and Blocks.

Table 2.a shows the level of the challenges in improving the numeracy skills of kinder learners along learners’ resources such as manipulative, TV, etc. It can be noted that all challenges obtained a numerical rating equivalent to adjectival description of “often”. Incidentally, “manipulative materials for numeracy development (i.e. counters, blocks, measuring tools, etc.)” was rated the highest response with a weighted mean of 3.77 and adjectival description of “often”. It only shows that these are not available in some of the kindergarten schools in Rapu-Rapu West District. These manipulatives are a great way to teach the kinder pupils to learn how to count. The lack of manipulative materials for numeracy development in kindergarten classrooms can cause extreme distress on the part of the pupils and teachers. The kinder pupils are unable to learn to their fullest potential because they are not being given the proper resources particularly

Table 2.a
Level of the Challenges in Improving the Numeracy Skills
of Kinder Learners along Learners’ Resources
such as Manipulative, TV, etc.

N=30

Challenges	5		4		3		2		1		Total Weighted Mean	Adjectival Interpretation
	f	x	f	x	f	x	f	x	f	x		

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1. Multimedia materials (projectors, speakers, TV monitors) available in the school.	4	0.67	13	1.73	8	0.80	5	0.33	0	0	3.53	Often
2. Manipulative materials for numeracy development (i.e. counters, blocks, measuring tools, etc.)	8	1.33	10	1.33	9	0.90	3	0.20	0	0	3.76	Often
3. Activity sheets/worksheets for numeracy.	6	1.00	13	1.73	8	0.80	3	0.20	0	0	3.73	Often
4. Developmentally appropriate learning materials necessary for effective teaching and learning.	7	1.17	9	1.20	13	1.30	2	0.06	0	0	3.73	Often
5. Availability of textbooks for numeracy.	5	0.83	12	1.60	10	1.00	3	0.20	0	0	3.63	Often

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Legend:

Scale	Range	Adjectival Interpretation
5	4.24 – 5.04	Always
4	3.43 – 4.23	Often
3	2.62 – 3.42	Seldom
2	1.81 – 2.61	Rarely Met
1	1.00 – 1.80	Never Met

in the locale of the study where most of the families are struggling to find enough money to spend on learning resources that will be used in their child schooling.

Having manipulative materials is very important because according to Ruan et al. (2020), using concrete objects for addition is an effective and engaging way for young children to develop strong numeracy skills and to continue building on this foundation as children progress in their mathematical education. Using concrete objects allows children to learn through hands-on experiences, which can be more engaging and memorable than simply learning through abstract concepts (Hakim et al., 2019). Hence, the cited objects on numeracy development must be available also in the kindergarten schools to help them develop their numeracy skills.

Further, the two challenges with the same numerical rating of 3.73 were “often” noted on “activity sheets/worksheets for numeracy” and “developmentally appropriate learning materials necessary for effective teaching and learning. Access to developmentally appropriate learning materials is one of the priorities set by the Department of Education to improve the numeracy skills of kindergarten pupils. Worksheets and activity sheets are the modern way of making kinder pupils learn by creative and related play structures. It has been used in teaching practices for a long time and a well-designed worksheets/activity sheets have had positive impact on kindergarten pupils’ early numeracy skills. Moreover, worksheets/activity sheets are used to measure the learner’s activity in understanding to integrate or perform what they've learned.

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These sheets are one of the teaching materials used to enhance the teacher's function and are critical to the learning process' efficacy (Lacsá, 2022). However, based on the result of this study, these are one of the challenges in improving the numeracy skills of the kindergarten learners. Hence, appropriate solutions must be given by the Department of Education by increasing the budget in developing/producing these worksheets/activity sheets.

Ensuring that every institution has appropriate learning materials and technology is a key strategy for reaching target of delivering quality education. According to the Education 2030 Framework for Action, '[e]ducation institutions and programmes should be adequately and equitably resourced, with ... books, other learning materials, open educational resources and technology that are non-discriminatory, learning conducive, learner friendly, context specific, cost effective and available to all learners – children, youth and adults' (Education 2030, 2016).

Nonetheless, "multimedia materials (projectors, speakers, TV monitors) available in the school" was rated the lowest rating with a numerical rating of 3.53. The finding of the study shows that multimedia materials are commonly used or available in Rapu-Rapu West District Schools. The application of multimedia teaching in early childhood education is common nowadays. Multimedia technology is at the heart of the globalization process that affects that teaching-learning in the early childhood education. In research conducted by Zhang and Huang (2022), they found that the application of multimedia technology in teaching activities enriches the teaching content and can help generate interactive responses in the learning process. In Zulfitrá's research (2020), he presented a kindergarten in Indonesia that used multimedia technology to teach children literacy. The kindergarten combines learning courses with information technology. In the implementation of teaching, kindergarten teachers use multimedia technology to base themselves on game activities and use different teaching methods in literacy teaching according to the actual situation of children and the creativity of teachers. Children can learn the alphabet by recognizing the names of objects and animals around them and recognizing the sounds of animals. In addition, in order to deepen the children's understanding, the teacher

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also prepared a video of the course. When the children watched the video, the classroom atmosphere became focused and interesting (Zulfitriah 2020). Multimedia technology helps children understand abstract things faster and make abstractions concrete. Multimedia teaching augments the meaning of reality and creates an authentic learning environment suitable for various learning styles with positive impact (Urip, Hari & Wahyu 2017).

Teacher Preparation. A well-organized lesson and classroom environment has something to do with teacher preparation. Kindergarten teachers have primary roles in bringing desirable change in their instruction and learners' behavior. To achieve the objectives of the lesson, several strategies were used by the teacher. Although teaching is difficult, yet much more challenging because different methods and strategies were used to get the attention of the learners with different behavior.

Table 2.b presents the level of the challenges in improving the numeracy skills of kinder learners along teacher preparation. As seen in the Table, all challenges obtained a numerical rating with an adjectival description of "often". It appears that the top two challenges were observed on "awareness and knowledge about the way to teach numeracy" (3.97) and "appropriate training in handling the kinder learners" (3.96). This only shows that the teachers handling the kindergarten teachers have limited knowledge and training in handling the kindergarten classes. In a statement made by former DepEd Secretary Luistro, he said that "we must adhere to quality standards in preparing our young learners; it therefore follows that our teachers must be equipped with the required standard as regards competence and qualifications". The result of the study is an eye opener to the Department of Education that before placing a teacher that will handle a kindergarten classes, they must ensure that they have appropriate knowledge and training in teaching numeracy skills in kindergarten.

This study is also similar to the study of Caingcoy (2022) when he noted that using varied strategies to teach numeracy skills is important for catering to individual student needs, improving engagement and understanding, accommodating diversity, and promoting creativity. Moreover,

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 Agaton & Cuero (2021) emphasized that teachers who use a range of strategies can help students develop a strong foundation in numeracy skills that will serve them well throughout their academic and personal life. Therefore, the kinder teachers in the locale of the study should also use different teaching strategies to make their learners attentive and create meaningful learning.

Table 2.b
Level of the Challenges in Improving the Numeracy Skills
of Kinder Learners along Teacher Preparation
N=30

Challenges	5		4		3		2		1		Total Weighted Mean	Adjectival Interpretation
	f	x	f	x	f	x	f	x	f	x		
1. Awareness and knowledge about the way to teach numeracy.	7	1.17	18	2.40	2	0.20	3	0.20	0	0	3.97	Often
2. Appropriate materials for teaching.	6	1.00	17	2.27	6	0.60	1	0.07	0	0	3.94	Often
3. Appropriate training in handling the kinder learners.	8	1.33	16	2.13	3	0.30	3	0.20	0	0	3.96	Often
4. Teacher is not a pre-school	6	1.00	17	2.27	3	0.30	4	0.27	0	0	3.84	Often

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education major.												
5. Newly-hired teacher.	4	0.67	18	2.40	4	0.40	4	0.27	0	0	3.74	Often

Legend:

Scale	Range	Adjectival Interpretation
5	4.24 – 5.04	Always
4	3.43 – 4.23	Often
3	2.62 – 3.42	Seldom
2	1.81 – 2.61	Rarely Met
1	1.00 – 1.80	Never Met

Moreover, “newly-hired teacher” got the lowest numerical rating of 3.74. It only shows that the majority of the teachers handling the kindergarten classes are teaching for several years already. Hence, they are expected to have appropriate knowledge on how to teach numeracy. But it seems that this is not an indicator that being in a service for several years means that they are knowledgeable enough to teach numeracy to kindergarten pupils. In the teaching process of early childhood teachers, children explore topics in-depth according to teaching requirements and interests and use the knowledge base they build to solve complex, daily matters and problems in a targeted manner (Zhang and Huang, 2022). At the same time, teachers need to use different ways on how to deliver their lessons effectively by using toys and manipulatives materials.

Teaching can be a challenging but rewarding profession that allows the teacher to guide their pupils as they learn about numeracy. Learning about the teaching preparation process and why it's so crucial can help the kindergarten teacher develop the skills and strategies to improve as a teacher. The Indeed Editorial Team (2023) shared that it is important to prepare for teaching classes so that they can lead productive, engaging lessons for their pupils and maximize the effectiveness of their time and resources. While preparation for teaching can include aspects like

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lesson planning and creating daily activities, it can also involve the initial or ongoing training they receive to gain skills and competency as a teacher. Together, these types of preparation can help them sharpen their teaching skills and philosophies and perform effectively in their role.

Measures to Address the Challenges

Facing challenges and navigating one's way through them will build resilience capacity. Knowing that if one can overcome obstacles, learning from struggles and mistakes will build a solid foundation for success in their later life. In improving the numeracy skills of kinder learners, there are several measures needed to prepare to address the different challenges.

Table 3 shows the measures to address the challenges. As seen from the Table, 28 of the respondents recommend to "prioritize the procurement of essential kindergarten learning resources for numeracy skills development" followed by "prioritize the procurement of multimedia materials (projectors, speakers, TV monitors) necessary for effective delivery of the lessons" according to 20 respondents. The cited measures are of great help in making the teaching-learning of numeracy in kindergarten classes more effective and efficient. With the development and progress of multimedia, compared with traditional teaching methods, multimedia teaching brings more convenience and role to teachers in children's teaching activities. Likewise, using multimedia materials is a powerful tool to attract pupils' attention, especially in teaching numeracy.

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Table 3

Measures to Address the Challenges

N=30

Measures	Freq.	Rank
1. Prioritize the procurement of essential kindergarten learning resources for numeracy skills development.	28	1
2. Prioritize the procurement of multimedia materials (projectors, speakers, TV monitors) necessary for effective delivery of the lessons.	20	2
3. Allocate budget on the production of developmentally appropriate learning materials.	13	5
4. Send kinder teachers to seminars and trainings on early childhood education.	17	4
5. Provide learning resources in the school to improve the numeracy skills of learner.	19	3
6. Utilize LAC sessions to develop appropriate learning materials.	12	6

The use of manipulatives in teaching kindergarten learners has gained acceptance. It is used in teaching a wide variety of topics in mathematics such as in sorting, ordering, distinguishing patterns, recognizing shapes, and understanding relationships among them. As recommended by Mercader et al., (2021), there is an urgent need to design and produce basic learning materials to aid in the development of literacy and numeracy skill areas.

Rank 3 of the measures recommend by 19 of the respondents was “provide learning resources in the school to improve the numeracy skills of learner”. In the public schools, particularly in teaching the early numeracy skills, it is known that there are different learning resources prepared by the kinder teachers. Most of them have different shapes, colors and sizes

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that support the learning of the learners. The purpose of these learning resources is to make lessons in early numeracy interesting, learning easy and enable teachers to easily express the concepts of each competency.

As cited in DepEd Order No. 47, s. of 2016, the learning resources, and instructional materials are materials that teachers use to help their students meet the learning standards. The active interaction with these materials and people around them is the key to better learning for kindergarten learners. As they interact with the world around them, they learn how to get along with others. These materials help kindergarten learners to enhance their knowledge skills and as well as gives them fun and enjoyment. However, the teacher should always bear in mind that all instructional materials used in teaching the kindergarten learners should be fit for purpose, well-chosen, and safe to use. Likewise, to maximize the utilization of these materials, it should be properly organized in the classroom. Finally, these materials should be given care by introducing to the learners how to use them properly.

Moreover, 17 or 56.67% of the respondents proposed to "send kinder teachers to seminars and trainings on early childhood education". The training provided to the kindergarten teachers should be aligned according to their professional and competency needed to develop. Their professional growth is vital to ensure that the objectives of the lessons were met. Therefore, the teachers should attend seminars/training to enhance their teaching skills and strategies which is very important in attending to the individual needs of the learners.

This study is related to the study of Ajani et al. (2018), who believed that the teachers' skills in delivering educational instruction will be enhanced if they participate actively in professional development programs. Also, to effectively develop their teaching strategies, they should be efficient in using different approaches in delivering their lessons. It will surely promote effective learning and enhance the academic performance of learners. Further, this study was also supported by the findings of Zaidi et al. (2018). According to them, continuous professional

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development given to the teachers plays a significant role in increasing their teaching practices and varied teaching strategies for a meaningful teaching-learning outcomes.

Further, “utilize LAC sessions to develop appropriate learning materials” obtained the lowest frequency of 12. It is known to all that LAC is a school-based professional development conducted every 2nd Friday of the month. It is believed that the Learning Action Cell could contribute to the improvement of teachers’ teaching/instructional practices, as well as their competence in pedagogy and content knowledge. Moreover, in DepEd Order no. 35 series of 2016, Learning Action Cell (LAC) is one of the professional development programs of the Department of Education to develop the potential of the teachers. On the part of the kindergarten teachers, DepEd Order no. 47, series 2016 mandated the school heads to organize and monitor the LAC sessions for all Kindergarten to Grade 3 teachers to ensure that continuous and cost-effective in-service training and teacher development was given. Also, the Department encouraged the trained kindergarten teachers to share the collaborative learning sessions with the other kindergarten teachers.

In passing, the proposed measures to address the challenges in manipulative materials and teachers’ preparation would help the Rapu-Rapu West District Schools to choose what is best according to their resources. Creating a strong numeracy foundation for children in every school is not an easy task. With the collaborative effort of the DepEd officials, school heads, teachers, and parents, all these challenges would be addressed.

Developmentally appropriate materials to improve the numeracy skills of kinder learners.

Helping kinder learners develop their understanding of basic numeracy skills are both important goals in early childhood education. Preparing developmentally appropriate materials to improve their numeracy skills will allow the kinder learners to learn and grow, ensuring their overall development.

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In teaching early numeracy, developmentally appropriate materials are vital to the teaching learning process. It has a direct impact on the learners' learning competencies, such as the ability to learn, positive attitudes towards learning and quality strategies to learn and perform well in school. It is also an effective tool for the kinder teacher to deliver the lesson efficiently and effectively. Hence, the utilization of instructional materials will bridge the teaching and the learning process.

Under Section 10.3 of Republic Act 10533, the production and development materials as confirmed by Br. Armin Luistro FSC, Dr. P.B. Licuanan and Sec. E. J. Villanueva, aims to encourage the production and development of locally produced materials. For the benefit of the learners the government (DepEd and other agencies) are encouraging teachers to develop self-instructional materials suited to the level of understanding of the students. As supported by Article 3 of the Processional Code of Ethics for Teachers, the teacher plays a great part in mentoring and developing the youth. One of these is by providing proper, suitable and simplified materials to master the learning competencies.

Further, the competencies included in the developmentally appropriate materials prepared by the researcher are: Describe objects based on attributes/properties (shapes, size, its use and functions) (**MKSC-00-4**); Tell the number of days in a week (**MKC_00-10 7**); Tell the names of the days in a week, months in a year (**MKME-00-8**); Tell time by the hour (**MKME-00-7**); and Compare objects based on their size, length, weight/mass, big/little, longer/shorter, heavier/lighter (**MKME-00-2**).

It is hoped that the developmentally appropriate materials prepared by the researcher will be fully utilized in the District/Division to improve the numeracy skills of kinder learners. The source of funds in preparing those materials should come from the Monthly Maintenance and Other Operating Expenses (MOOE) downloaded by the Department of Education to the schools concerned.

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CONCLUSION

Based on the findings of the study, the following conclusions were made: (1) The numeracy skills of the kinder learners on the 19 indicators in the kinder report card were from beginning to consistent. (2a) The level of challenges in improving the numeracy skills of the kinder learners along learners' resources such as manipulative, TV, etc. was often met in the coastal schools of Rapu-Rapu West District. (2b) The level of challenges in improving the numeracy skills of the kinder learners along teacher preparation was often met in the coastal schools of Rapu-Rapu West District. (3) The respondents proposed to prioritize the procurement of essential kindergarten learning resources and multimedia materials for numeracy skills development. (4) The developmentally appropriate materials prepared by the researcher in the form of worksheet/activity sheet on numeracy skills were composed of topic, materials, objective, procedures, and evaluation.

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