

Original Article

# Reading and Numeracy Skills of Kindergarten Pupils in Bangued, Abra

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**Abstract.** *Early childhood education plays a crucial role in developing foundational literacy and numeracy skills that prepare children for formal schooling. This study determined the reading and numeracy skills of kindergarten pupils in Bangued District, Division of Abra, during the School Year 2023–2024 and examined their relationship with selected pupil-related and teacher-related factors. The study employed a descriptive–correlational research design involving 252 kindergarten pupils and 26 kindergarten teachers from public elementary schools in the district. Data were gathered using a socio-demographic questionnaire and a validated teacher-made test measuring pupils’ reading and numeracy competencies based on the Most Essential Learning Competencies. Statistical tools used included frequency, percentage, weighted mean, and simple correlation analysis. Findings revealed that the kindergarten pupils demonstrated an outstanding level of performance in both reading ( $M = 21.41$ ) and numeracy skills ( $M = 21.24$ ). Significant relationships were found between reading skills and selected pupil-related factors such as sex, birth order, parents’ educational attainment, occupation of the mother, parents’ monthly income, and home partner. Similarly, teacher-related factors including age, civil status, teaching experience, status of appointment, and training and seminars attended were significantly associated with pupils’ reading and numeracy performance. However, only selected pupil variables showed significant relationships with numeracy skills. The results highlight the importance of family support and teacher professional competence in developing early literacy and numeracy competencies among kindergarten learners. The study recommends strengthening parental involvement, enhancing teacher training aligned with early childhood pedagogy, and sharing effective instructional practices to sustain and further improve pupils’ foundational skills in reading and numeracy.*

## Keywords

*early literacy, numeracy skills, kindergarten pupils, early childhood education, teacher-related factors*

## INTRODUCTION

Kindergarten teachers hold the key to unlocking a child's potential from the very start. How they nurture their early literacy and numeracy skills in kindergarten lays the foundation for their future academic success and lifelong learning. Kindergarten is an educational stage typically designed for children between the ages of five and six, preceding formal schooling in many educational systems worldwide. It serves as a bridge between preschool or early childhood education and primary or elementary school.

The primary goals of kindergarten are to provide children with a smooth transition into formal schooling, foster their social and emotional development, and lay the groundwork for future academic success. In Kindergarten, children engage in various activities that promote early literacy, numeracy, cognitive skills, and social interaction. Kindergarten is a preschool educational approach based on playing, singing, practical activities such as drawing, and social interaction as part of the transition from home to school.

The Philippines is a member of the Association of Southeast Asian Nations (ASEAN) and responded to the challenge of Education For All (EFA) goals and Work Plan on Education 2016-2020, mainly on Sustainable Development Goal (SDG) target 4.2: "By 2030 ensure that all girls and boys have access to quality early childhood development, care, and pre-primary education so that they are ready for primary education." In response, the Philippines Department of Education (DepEd), through its K-12 Program, has made Kindergarten Education mandatory in the Basic Education Curriculum, paving the way for the formulation of the new Kindergarten Curriculum Framework. (Aquino et al., 2017)

The transition to kindergarten is an important developmental milestone for young children. There is an assumption that children's access to Early Childhood Education (ECE) is best viewed as an investment for the future and an economic driver for the nation's well-being (Parker, 2016). Sims and Waniganayake (2015) expressed that Early Childhood Education provides a foundation upon which schooling builds to create employable, compliant, and responsible citizens of the nation. Parents often overlook the importance of kindergarten education in the Philippines. However, this stage of education is crucial for your child's future development. The lasting effect of early childhood education and care improves children's cognitive abilities and helps create a foundation for lifelong learning (Aquino et al., 2019).

The 'Kindergarten Curriculum Framework' emphasized that while early academic competencies in numeracy, literacy (reading and writing), or science are necessary and should not be overlooked, the enduring effects of social and emotional competencies are of even greater importance for the holistic development of a life-long learner. Tan Bautista et al. (2016). According to compelling Early Childhood Education research studies by Eggum-Wilkens et al. (2014), the framework argues that children learn best in supportive environments that encourage exploration and discovery through play and interaction (Bautista et al., 2016).

Contemporary kindergarten curriculum frameworks emphasize the importance of promoting children's holistic development, focusing on academic and non-academic learning areas (Bautista et al., 2016). Learning the basics of literacy and numeracy is crucial for your child's early development, which is why they are emphasized in kindergarten.

After five years of teaching kindergarten, the researcher has seen the learner's academic performance deteriorate at the elementary level. She also heard Grade I teachers complain about pupils' inability to read and write in English and do basic mathematical computation and analysis. Research by Igarashi and Suryadarma (2023) found that Filipino students' foundational mathematics and reading skills consistently regressed between 2003 and 2019. They also found that the decline between 2013 and 2019 was twice as severe as between 2003 and 2013. In numeracy, it was observed that most pupils could not differentiate shapes and sizes like big and small, short and tall, short and long, and cannot recognize numbers from 0-9.

Along with reading, most learners cannot recognize the alphabet and their sound. They cannot understand the upper-case and lower-case letters, especially critical letter forms like (p, b, d, and q). This prompted the researcher to determine kindergarten pupils' readiness, reading, and numeracy (Ugale, 2014). By knowing their performance in these basic skills, the researcher can determine their weaknesses and suggest what part of the education curriculum needs to be improved or enriched, especially with the readiness program for numeracy and reading.

The result of this study provided relevant insights and findings to prepare the child for the next ladder of education. It may enhance teachers' teaching strategies and techniques that affect the learning of reading and numeracy skills among kindergarten pupils. In addition, upon identifying the weaknesses of pupils, teachers know how to improve their instructional materials and teaching strategies to increase

the level of motivation of children in the learning process for higher levels of reading and numeracy competencies.

Likewise, this can benefit parents and empower them to guide their children in learning essential skills for reading and numeracy. For these reasons, the researcher recognized the need to evaluate the performance of kindergarten pupils in reading and numeracy skills.

### *Objectives of the Study*

This study aimed to determine the reading and numeracy skills of kindergarten pupils in Bangued District, Schools Division of Abra for the School Year 2023–2024. Specifically, it aimed to:

1. Determine the demographic profile of the kindergarten pupils and the profile of kindergarten teachers.
2. Assess the level of performance of kindergarten pupils in reading and numeracy skills.
3. Examine the relationship between the reading and numeracy skills of kindergarten pupils to pupil-related factors and teacher-related factors.

## **METHODS**

### *Study Design*

This study employed a descriptive–correlational research design to examine the reading and numeracy skills of kindergarten pupils and their relationship with selected pupil-related and teacher-related factors. The descriptive component was used to describe the profiles of the respondents and the level of pupils' performance in reading and numeracy skills, while the correlational component was utilized to determine the relationships between the pupils' basic skills performance and the identified independent variables. This design was appropriate for the study because it allowed the researcher to describe existing conditions and analyze the relationships among variables without manipulating them.

### *Population*

The respondents of the study consisted of 252 kindergarten pupils and 26 kindergarten teachers from public elementary schools in Bangued District, Division of Abra during the School Year 2023–2024. The pupil respondents were selected using Slovin's formula with a 5% margin of error from the total population of 680 kindergarten pupils, while total enumeration was applied to the kindergarten teachers. The pupils served as the primary respondents for assessing reading and numeracy skills, while the teachers provided information related to teacher-related variables that may influence the pupils' performance.

### *Instrument*

Data were gathered using a researcher-made questionnaire and assessment test. The instrument consisted of three parts. The first part collected information on the pupil-related factors, including sex, number of children in the family, birth order, parents' educational attainment, parents' occupation, family monthly income, and home partner. The second part gathered information on the teacher-related factors, including educational attainment, civil status, teaching experience, monthly salary, status of appointment, training programs and seminars attended, and area of concentration. The third part was a teacher-made test used to measure the reading and numeracy skills of kindergarten pupils based on the Most Essential Learning Competencies (MELCs). The instrument was validated by five experts in education, including a Curriculum Implementation Division Chief and master teachers, with a validity rating of 4.8, indicating that the instrument was highly valid.

### *Data Collection*

Prior to the conduct of the study, the researcher secured permission from the Schools Division Superintendent of Abra and coordinated with the Public Schools District Supervisor and school principals of the selected schools. After approval was obtained, the researcher oriented the respondents regarding

the purpose of the study and distributed informed consent forms to ensure voluntary participation. The questionnaires were then administered to the teachers, while the researcher personally conducted the reading and numeracy assessment among the kindergarten pupils. After the completion of the data gathering process, the responses were collected, checked, and organized for statistical analysis. Ethical considerations such as confidentiality, voluntary participation, and the protection of respondents' rights were strictly observed.

### *Data Analysis*

The data gathered in the study were analyzed using appropriate descriptive and inferential statistical tools. Frequency counts and percentage distribution were used to describe the demographic profile of the respondents. The weighted mean was used to determine the level of reading and numeracy skills of kindergarten pupils. Meanwhile, simple correlation analysis was utilized to examine the significant relationship between the pupils' reading and numeracy skills and the identified pupil-related and teacher-related variables. These statistical tools enabled the researcher to systematically interpret the data and address the objectives of the study.

## **RESULTS AND DISCUSSIONS**

### *1. Demographic Profile of the Kindergarten Pupils and the Profile of Kindergarten Teachers*

The demographic profile of the kindergarten pupils showed that the majority were female (55.6%), while 44.4% were male. Most of the pupils belonged to families with one to two children (68.66%), and a large proportion were firstborn children (42.06%). In terms of parents' age, most fathers (55.70%) and mothers (52.78%) were within the 30–39 years old age bracket. Regarding educational attainment, many fathers (36.90%) and mothers (36.11%) were high school graduates. A large percentage of fathers (76.6%) worked as skilled workers, while a number of mothers were also engaged in skilled occupations, with some employed as professional workers. In terms of income, many fathers (17.46%) earned not more than ₱2,000 monthly, while most mothers (42.06%) also earned not more than ₱2,000 per month. Furthermore, the majority of pupils (78.17%) were assisted by their mothers as home partners in studying their lessons at home.

The profile of the kindergarten teachers revealed that the teaching workforce was predominantly female (96.15%), and the majority were married (76.92%). In terms of educational attainment, most teachers (65.38%) had master's degree units, while a few had doctoral units. With respect to teaching experience, the majority (57.14%) had six to ten years of experience teaching kindergarten. Most teachers (96.15%) received a monthly salary within the range of ₱31,000 to ₱32,000, and nearly all (96.15%) held permanent appointments. Regarding professional development, most teachers had attended school-level seminars, and all had participated in district-level training programs, although only a few had attended seminars at the provincial, regional, or national levels. In terms of area of concentration, half of the teachers specialized in English, Mathematics, Filipino, Science, or Social Studies, while a small number had specialization in Special Education (SPED).

### *2. Level of Performance of Kindergarten Pupils in Reading and Numeracy Skills.*

The findings revealed that the kindergarten pupils in Bangued District, Abra demonstrated a high level of competence in both reading and numeracy skills, indicating that they had already developed the foundational skills necessary for early academic learning. In terms of reading, the pupils obtained an overall mean score of 21.41, which was interpreted as Outstanding. The pupils showed strong performance in identifying the letters of the alphabet, recognizing the letter or word that is different in a group, and identifying the beginning sound of a given word. These competencies indicate that the pupils had developed basic reading readiness skills such as letter recognition, sound awareness, and early decoding abilities. Such skills are essential in the early stages of literacy development because they enable children to connect sounds with letters and gradually construct meaning from written language. However, the competency identifying letter sounds to form a word received a Very Satisfactory rating, suggesting

that while pupils had already developed foundational reading abilities, additional reinforcement in phonics and word formation may still be necessary to further strengthen their reading proficiency.

**Table 1. Level of Reading and Numeracy Skills of Kindergarten Pupils in Bangued, Abra**

Competency	No. of Items	Mean	Descriptive Rating
<b>READING SKILLS</b>			
Identify the letters of the alphabet	4	3.38	Outstanding
Identify the letter or word that is different in a group	11	9.73	Outstanding
Identifies the beginning sound of a given word	6	5.21	Outstanding
Identify sounds of letters to form a word	4	3.10	Very Satisfactory
<b>Overall, All Reading Skills</b>	<b>25</b>	<b>21.41</b>	<b>Outstanding</b>
<b>NUMERACY SKILLS</b>			
Sort and classify objects according to one attribute	4	3.77	Outstanding
Identifying the sequence	4	3.23	Outstanding
Count Objects with one-to-one correspondence	7	6.32	Outstanding
Identify the number that comes before, after, or in between	3	2.46	Outstanding
Identify numbers or sets which has more or less	3	2.19	Very Satisfactory
Add quantities of up to 10 using concrete objects	2	1.72	Outstanding
Subtract quantities up to 10 using concrete objects	2	1.56	Outstanding
<b>Over Numeracy Skills</b>	<b>25</b>	<b>21.24</b>	<b>Outstanding</b>

Similarly, the results showed that the numeracy skills of kindergarten pupils were also at an Outstanding level, with an overall mean score of 21.24. The pupils performed well in several numeracy competencies, including sorting and classifying objects according to one attribute, identifying sequences, counting objects using one-to-one correspondence, identifying numbers that come before, after, or in between, and performing basic addition and subtraction of quantities up to ten using concrete objects. These competencies indicate that the pupils had developed an understanding of basic mathematical concepts and were able to apply them in simple problem-solving situations. However, the competency identifying numbers with more, less, or equal to receive a Very Satisfactory rating, suggesting that the concept may still be relatively challenging for some pupils and may require additional instructional support. Overall, the strong performance of the pupils in both reading and numeracy skills suggests that the teaching strategies and classroom practices implemented by kindergarten teachers effectively supported the development of early literacy and mathematical competencies. As emphasized by Pitogo et al. (2023), literacy and numeracy skills are essential for young learners because they enable them to understand their environment, process information, and make informed decisions in everyday situations.

### *3. Relationship Between the Reading and Numeracy Skills of Kindergarten Pupils to Pupil-Related Factors and Teacher-Related Factors.*

The analysis revealed that the reading skills of kindergarten pupils were significantly related to several pupil-related factors, indicating that certain socio-demographic characteristics influence early literacy development. Specifically, significant relationships were found between reading skills and sex, birth order, parents' educational attainment, mother's occupation, parents' monthly income, and home partner. The findings suggest that female pupils tended to perform better in reading than male pupils, which may be attributed to differences in cognitive processing and language development patterns among young learners. Previous studies have also reported that girls tend to engage both hemispheres of the brain in reading tasks, which may contribute to higher reading performance (Reilly, 2018). In addition,

the birth order of pupils was found to influence reading performance, with firstborn children demonstrating stronger reading skills, possibly because they receive greater parental attention and cognitive stimulation during early childhood.

**Table 2. Correlations Coefficients Between Reading and Numeracy Skills of Kindergarten Pupils and Pupil-Related Variables**

Pupil-Related Variable	Reading Skills		Numeracy Skills	
	r	Significant (2 tailed)	r	Significant (2 tailed)
Sex of Pupil	<b>.150*</b>	0.017	0.016	0.806
Number of Children	-0.051	0.423	0.007	0.917
Birth Order	<b>-.128*</b>	0.042	-0.037	0.563
Age of Father	-0.028	0.659	-0.001	0.992
Age of Mother	-0.012	0.853	-0.022	0.734
Educational Attainment of Father	<b>.249**</b>	0.000	<b>.234**</b>	0.000
Educational Attainment of Mother	<b>.260**</b>	0.000	<b>.248**</b>	0.000
Occupation of Father	-0.500	0.431	0.000	0.994
Occupation of Mother	<b>0.153**</b>	0.015	<b>0.123**</b>	0.050
Monthly Income of Father	<b>.182**</b>	0.004	<b>.212**</b>	0.001
Monthly Income of Mother	<b>.255**</b>	0.000	<b>.326**</b>	0.000
Home Partner	<b>-.147*</b>	0.020	-0.101	0.108

Note: \*\*Significant at 0.05

Furthermore, parents' educational attainment and family income were significantly associated with the reading skills of the pupils, suggesting that children from families with higher educational and economic backgrounds tend to demonstrate better literacy development. Parents with higher levels of education are more likely to provide learning materials, guidance, and supportive home learning environments that foster children's reading abilities. Similarly, the presence of a home partner, particularly a parent who regularly assists the child at home, was found to be associated with improved reading skills. Studies emphasize that parental involvement, such as shared reading activities and exposure to books at home, significantly enhances children's early literacy development (Dowdall et al., 2020).

In contrast, the findings indicated that numeracy skills were generally not significantly related to most pupil-related variables, suggesting that early mathematical competencies may develop independently of certain socio-demographic characteristics. However, a significant relationship was found between numeracy skills and parents' educational attainment, mother's occupation, and parents' monthly income. This implies that the educational and economic resources available within the household may influence children's opportunities to develop early numeracy skills. Children whose parents have higher levels of education and stable occupations may have greater access to learning materials and supportive learning experiences that promote mathematical thinking. These findings support previous studies which emphasize that parental education and socio-economic status contribute to children's academic performance and cognitive development (Nguyen, 2021; Masekera et al., 2023).

Table 3 also revealed that the reading and numeracy skills of kindergarten pupils were significantly related to several teacher-related factors, highlighting the importance of teacher characteristics in shaping early learning outcomes. Significant relationships were found between the pupils' basic skills and the teachers' age, civil status, teaching experience in kindergarten, training programs and seminars attended, and status of appointment.

**Table 3. Correlations Coefficients Between Reading and Numeracy Skills of Kindergarten Pupils and Teacher-Related Variables**

Teacher Related Variable	Reading Skills		Numeracy Skills	
	r	Significant (2 tailed)	r	Significant (2 tailed)
Sex of Teacher	0.013	0.836	-0.006	0.924
Age of Teacher	<b>.188**</b>	0.003	<b>.205**</b>	0.001
Civil Status	<b>.232**</b>	0.000	<b>.220**</b>	0.000
Educational Attainment	0.116	0.065	0.122	0.053
Years of Teaching Kindergarten	<b>.192**</b>	0.002	<b>.146*</b>	0.020
Monthly Income	-0.094	0.135	-0.032	0.618
Status of Appointment	<b>.142*</b>	0.024	0.114	0.072
Training programs and seminars attended	<b>-.248**</b>	0.00	<b>-.224**</b>	0.000
Area of Concentration	-0.004	0.952	-0.006	0.922

Note: \*\*Significant at 0.05

These findings suggest that teachers with greater professional experience and exposure to training opportunities tend to be more effective in facilitating the development of foundational literacy and numeracy skills among young learners. Experienced teachers may possess stronger classroom management skills, deeper understanding of early childhood pedagogy, and greater ability to address the diverse learning needs of pupils. Research has shown that teachers with longer teaching experience often demonstrate higher instructional effectiveness and are better able to support learners' academic development (Day et al., 2013).

Moreover, participation in training programs and seminars was found to significantly influence the development of pupils' basic skills, indicating that professional development opportunities play an important role in enhancing teachers' instructional competence. Training programs enable teachers to learn new teaching strategies, improve their pedagogical approaches, and adopt innovative methods that support children's learning. Studies have shown that continuous professional development enhances teachers' effectiveness and contributes to improved classroom practices (Sala, 2021). In addition, the status of appointment of teachers was found to be associated with pupils' reading skills, suggesting that permanently appointed teachers may demonstrate greater commitment and stability in implementing instructional practices that support literacy development. These findings underscore the importance of strengthening teacher qualifications, experience, and professional development programs in order to improve the reading and numeracy skills of kindergarten pupils.

## CONCLUSIONS AND RECOMMENDATIONS

Kindergarten pupils in Bangued District, Abra demonstrated an outstanding level of performance in reading and numeracy skills, indicating that they had developed strong foundational competencies for early learning. The results showed that pupil-related factors such as parents' educational attainment, mother's occupation, family income, and home partner were significantly related to pupils' reading and numeracy skills. In addition, teacher-related factors, including age, civil status, teaching experience, training programs and seminars attended, and status of appointment, were also significantly associated with pupils' basic skills performance, highlighting the influence of both family support and teacher characteristics on early academic development.

It is recommended that kindergarten teachers continue to strengthen instructional practices and share effective strategies in teaching reading and numeracy. Schools should provide continuous training and professional development programs for kindergarten teachers to improve instructional competence. Parents and home partners should also actively support pupils' learning at home, particularly in developing reading and numeracy skills.

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## Ethical Approval

Informed consent was obtained from all subjects involved in the study.

## Competing interest

The author declares no conflicts of interest.

## Data Availability

Data will be made available by the corresponding author on request.

## Declaration of Artificial Intelligence Use

In this work, the author utilized artificial intelligence (AI) tools and methodologies, CHATGPT to improve readability and grammar. After using this tool/service, the author evaluated and revised the content as necessary and take full responsibility for the published content.

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