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DETERMINANTS IN READING COMPREHENSION AND NUMERICAL ABILITIES OF GRADE 5 PUPILS IN JICONTOL ELEMENTARY SCHOOL

Elena B. Cillo[1], Marcelino D. Bula[2], Mercy D. Giba[3], Joylyn A. Herbon[4], Karim F. Dulay[5], Felix D. Robin Jr.[6], Kem T. Busa[7], Constantina R. Agda[8], Arianne B. Godes[9], Arlyn F. Anabo[10], Janice Dyan G. Quilona[11]

[1]MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[2] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[3] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[4] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[5] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[6] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[7] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[8] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[9] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[10] MAEd Student, Graduate School, Eastern Samar State University-Can-avid
[11] MAEd Adviser, Graduate School, Eastern Samar State University-Can-avid

ABSTRACT

This study aimed to identify the factors related to the reading comprehension abilities and numerical abilities through the demographic profile of the respondents in term of age, sex, family background, economic status, technological devices use and academic performance; the reading comprehension level of the respondents in terms of literal, inferential and evaluative; and the numerical abilities level of the respondents in terms of emergent, perceptual, figurative and counting. A quantitative-correlational research design was used in this study. The respondents of the study were the 25 Grade-5 pupils of Jicontol Elementary School Dolores II District. In order to collect data and provide answers to the research hypothesis, a survey questionnaire were given to the pupils on reading comprehension abilities and numerical abilities questions and validated through an initial testing at a nearby school. Spearman Rank of Correlation were used to determine the relationship between demographic profile, reading comprehension abilities and numerical abilities of the respondents. The findings aim to provide interventions that improve reading comprehension and numerical abilities of the learners.

KEYWORDS: *Comprehension1, Literal2, Emergent3, Counting4,*

INTRODUCTION

Background of the Study

According to the Survey conducted by the Business World Online (2022), the Philippines scored the lowest in reading comprehension with a mean score of 340 points, below the survey average of 487 points; while it was the second lowest in science at 357 and in Math at 353, below the average of 489 points in both subjects. According to a World Bank (WB) report (2022), 91% of Filipino children aged 10 still struggle to read simple texts, indicating that there is a deterioration in the quality of education in the country. As stated by Asia News Network (2023), the Philippines rank 2nd to worst in Grade 5 students' reading, and math skills in South-east Asia. The Philippines was ahead only of Laos, last in rank, in the reading assessment component, where students got an average score of 275.

In the 2018 Programme for International Student Assessment (PISA), the Philippines scored lowest in Reading out of 79 countries. The PISA further showed that only one in five Filipino learners aged 15 achieved at least the minimum proficiency level in Overall Reading Literacy. In the PISA 2018 International Report, Filipino students' average score in mathematical literacy was 353 points, significantly lower than the Organization for Economic Cooperation and Development (OECD) average of 489 points, indicating a below Level 1 proficiency (OECD, 2019).

Frederick Sotto Perez, president of the Reading Association of the Philippines, said this was the first time that the country joined the Program for International Student Assessment (PISA) of the Organization for Economic Cooperation and Development (OECD). The country joined the global survey which will "provide us baseline data for our curriculum," he said. One reason why the country ranked poorly in this survey is that the texts (in the exam) are mainly informational and the evaluation of the text and understanding revolved on informational text and not narrative, to which our students are used to in the Philippines, according to Perez. People are alarmed by

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the results. This alarm may lead us to a more reflective education which we want to pursue.

Perez said children should be taught expository texts that focus on information, at the age of 9. "Reading ability is developed through practice. We can only develop fluent readers if we provide them with text, print and digital, and we practice them through teacher modeling, shared practice towards independent practice," he said.

Another reason for Filipino students ranking last in the exam is poor connectivity in far-flung areas, Perez said, noting that the country lacks reading materials. "There's no internet, books are mainly children's books, and there are no encyclopedias and other digital texts," he said.

Books and printed text are very essential. Reading culture may be promoted in schools through extended literacy projects, book talks of teachers. Schools should be active in fostering a reading culture by making their libraries functional. Students must also be taught to discern the credibility of a text which was one aspect that PISA tested, Perez added.

"I think it's important we know how to evaluate sources, that is being taught in high school, check the facts and actually cross-check," he said. Even in social media, for example, we see our students always sharing online without discerning what kind of texts they are sharing with other people. Teachers and parents must also be guided in handling digital literacy, Perez said as he emphasized that all educators should be "reading teachers."

All teachers should undergo reading instruction strategy training. Our students to be able to do research should know how to read articles and facts, evaluate them, citation, distinguishing fact from opinion. But if our teachers for example in science, social studies, or math are not equipped in helping our students develop those skills, the blame goes to our reading teachers.

In this effect, the proponent aims to find out the determinants of the reading comprehension and numerical abilities level of pupils and whether these factors have a significant relationship with the academic performances involved.

Objectives of the Study

This study aims to identify the factors related to the reading comprehension level and numerical abilities of Grade 5 pupils in Jicontol Elementary School.

Specifically, it aims to address the following research questions:

1. What is the demographic profile of the respondents in terms of:
   a. age
   b. sex
   c. family background
   d. economic status
   e. technological devices access and uses
   f. academic performance?
2. What is the reading comprehension level of the respondents in terms of:
   a. literal
   b. inferential
   c. evaluative?
3. What is the numerical ability level of the respondents in terms of:
   a. emergent
   b. perceptual
   c. figurative
   d. counting?

METHODOLOGY

Research Design

The research design to be employed in this study is a quantitative correlational design, which allows for the examination of relationships between variables and the measurement of their association (Johnson & Christensen, 2014). The study aims to investigate the relationship between the independent variables, including age, sex, technological device used, economic status, and academic performance, and the dependent variable, which is the reading comprehension level and the numerical ability level of the Grade 5 pupils from Jicontol Elementary School.

Quantitative research involves the collection and analysis of numerical data to identify patterns, trends, and associations (Creswell, 2014). In this study, data collected using structured questionnaires or surveys will be administered to participants. The questionnaires include items related to the independent and dependent variables, allowing for the quantification and measurement of the variables of interest (Babbie, 2017).

The correlational design is suitable for exploring relationships between variables without manipulating them (Fraenkel & Wallen, 2015). It allows researchers to assess the strength and direction of associations using statistical analysis techniques. Through correlation analysis, the study will examine how changes in independent variables relate to variations in reading and numeracy patterns.

To determine the relationship between independent and dependent variables, appropriate statistical methods such as correlation coefficients or regression analysis can be employed (Hair et al., 2019).

Locale of the Study

This study was conducted at the Jicontol Elementary School, Dolores II District, Barangay Jicontol, Dolores, Eastern Samar.

Respondents of the Study

This study covered the Grade 5 pupils of Jicontol Elementary School using the Total Enumeration sampling technique, which involves inviting all Grade 5 pupils to participate. This approach was chosen to ensure a comprehensive representation of the population and to minimize potential biases. By using this sampling procedure, the researcher aims to provide a more accurate and reliable depiction of the pupil population's characteristics (Thomas, 2022).

Research Instruments

The research instrument is divided into three sections. The first section aims to gather the demographic profile of the respondents. This section includes relevant questions to understand the characteristics of the participants. The second

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section is a 10-item questionnaire that tackles levels for reading comprehension abilities and the third section is a 12-item questionnaire that tackles levels for numerical abilities. This questionnaire will be validated through an initial testing at Malobago Elementary School.

Data Gathering

Data collection for the research followed a systematic process to ensure the quality and reliability of the data collected from Jicontol Elementary School Grade 5 teachers, Dolores II District. The researcher first secured the necessary clearances and permits from the Eastern Samar Schools Division Office and the head of the said school. A formal request letter to carry out the study was submitted to the concerned authorities to maintain ethical standards and institutional regulations.

After approval, the survey questionnaire was expert validated and pilot tested. Education and research field experts were critiquing the instruments for their clarity, relevance, and reliability. Pilot testing was done using a small sample of multigrade teachers from a non-participating school to further fine-tune the instruments before full implementation.

After data collection, the researchers coded, categorized, and analyzed the data using appropriate statistical parameters for quantitative answers. All the data collected was processed under complete confidentiality so that respondents' identities were not disclosed.

Analysis of Data

The data to be gathered will be tabulated, organized, and analyzed using appropriate descriptive and inferential statistics, namely: frequency counts and percentages.

These statistical tools will be used in analyzing and interpreting the data in the survey questionnaire. In interpreting the responses of the respondents for their comprehension and numeracy level, the weighted mean with their corresponding verbal description will be used.

To determine the relationship between the demographic profile and the reading comprehension and numeracy level of the pupil-respondents, Spearman Rank of Correlation will be identified using SPSS statistical software.

Ethical Considerations

This study adheres to the institutional guidelines in conducting research. Respondents will be fully informed of what will be asked of them, how the data will be used, and what consequences there could be. The researcher will assist the respondents in data gathering to provide explanations including understanding their rights to access to their information and the right to withdraw at any point.

RESULTS

Demographic Profile of the Respondents

The demographic profile of the respondents is summarized in Table 1

Table 1. Demographic Profile of the Respondents

Category	Frequency	Percentage (%)
Age		
10 years old	10	40%
11 years old	12	48%
12 years old	3	12%
Sex		
Male	14	56%
Female	11	44%
Family Background		
With both parents	18	72%
Single-parent household	7	28%
Economic Status		
Low-income	15	60%
Middle-income	10	40%
Technological Device Use		
With access to devices	19	76%
Without access to devices	6	24%
Academic Performance		
Outstanding	5	20%
Very Satisfactory	8	32%
Satisfactory	10	40%
Needs Improvement	2	8%

The demographic profile reveals that the majority of the respondents are aged 11 years (48%), with an almost equal distribution of male (56%) and female (44%) pupils. Most pupils come from households with both parents present (72%), while a significant proportion (60%) belongs to low-income families. Access to technological devices is high (76%), which is essential for modern educational practices.

Studies by UNESCO (2022) and Delacruz (2020) indicate that socioeconomic status and access to technology are critical factors influencing academic success. The high percentage of

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pupils with device access suggests a positive opportunity for technology-based learning, though the economic divide remains a challenge for equal educational outcomes.

Reading Comprehension Levels

Table 2 summarizes the reading comprehension levels of the respondents across three domains.

Table 2. Reading Comprehension Levels

Domain	Mean Score	Interpretation
Literal	4.10	Often Practiced
Inferential	3.20	Sometimes Practiced
Evaluative	2.80	Rarely Practiced

The data show that pupils perform best in literal comprehension (Mean = 4.10, Often Practiced), indicating their ability to understand straightforward information. Inferential comprehension scored lower (Mean = 3.20, Sometimes Practiced), reflecting challenges in drawing conclusions or making inferences. Evaluative comprehension (Mean = 2.80, Rarely Practiced) is the least developed skill.

These findings align with the study by Snow (2020), which emphasizes that while pupils excel in basic comprehension, higher-order thinking skills require explicit instruction and practice. The results suggest the need for interventions that promote critical reading and analysis, such as guided reading strategies and exposure to diverse text types.

Numerical Ability Levels

Table 3 presents the numerical ability levels of the respondents.

Table 3. Numerical Ability Levels

Domain	Mean Score	Interpretation
Emergent	4.25	Always Practiced
Perceptual	4.00	Often Practiced
Figurative	3.15	Sometimes Practiced
Counting	3.80	Often Practiced

Pupils excel in emergent numeracy (Mean = 4.25, Always Practiced) and perceptual skills (Mean = 4.00, Often Practiced). Counting is also strong (Mean = 3.80, Often Practiced), while figurative numeracy (Mean = 3.15, Sometimes Practiced) indicates room for improvement in abstract numerical reasoning.

These results support Piaget's theory of cognitive development, which emphasizes that children progress from concrete to abstract thinking. Studies by Geary (2021) highlight the importance of foundational numeracy in preparing students for higher-level mathematical tasks. Teachers are encouraged to incorporate manipulative and real-world problem-solving scenarios to enhance figurative reasoning skills.

Correlation Analysis

Table 4 displays the correlation coefficients between demographic factors and the respondents' reading comprehension and numerical ability levels.

Table 4. Correlation Analysis

Variable	Reading Comprehension	Numerical Ability
Age	0.35 (Weak Positive)	0.42 (Moderate Positive)
Sex	0.18 (No Significant Correlation)	0.10 (No Significant Correlation)
Family Background	0.50 (Moderate Positive)	0.46 (Moderate Positive)
Economic Status	0.68 (Strong Positive)	0.72 (Strong Positive)
Technological Device Use	0.62 (Strong Positive)	0.65 (Strong Positive)

The analysis reveals that economic status and technological device use exhibit strong positive correlations with both reading comprehension (r = 0.68 and 0.62, respectively) and numerical ability (r = 0.72 and 0.65, respectively). Family background also shows a moderate positive relationship with academic outcomes.

These findings align with the conclusions of Clements and Sarama (2020), who highlight the critical role of economic and technological resources in shaping educational success. The weak correlation of age and no significant correlation of sex suggest that demographic factors alone are not sufficient predictors of academic performance, underscoring the importance of environmental and instructional factors.

CONCLUSIONS

Based on the findings, the following conclusions were drawn:

1. Demographic factors, particularly economic status and technological access, significantly influence pupils' reading comprehension and numerical abilities.
2. Pupils excel in foundational skills but require targeted interventions to improve higher-order comprehension and numerical reasoning.
3. The integration of technology and differentiated teaching strategies can address learning gaps effectively.

RECOMMENDATIONS

Based on the conclusions, the following recommendations are proposed:

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1. Implement targeted interventions for inferential and evaluative reading comprehension and advanced numerical skills. Incorporate technology-aided instruction to enhance engagement.
2. Develop programs that provide technological resources and training for teachers to address learning gaps effectively.
3. Encourage at-home learning support by providing reading materials and fostering a supportive environment for academic growth.
4. Conduct longitudinal studies to explore the long-term impacts of demographic factors on academic performance. Investigate the effectiveness of specific interventions in improving comprehension and numeracy skills.

Conflict of Interest

The authors assure that there is no conflict of interest in this study. All data were collected and analyzed in an unbiased way, so individual connections, pecuniary profit, or organizational affiliation did not influence the outcomes. The study was conducted purely for academic and instructional purposes with the primary aim of identifying determinants in reading comprehension and math skills of Grade 5 students of Jicontol Elementary School. Ethical practices were strictly followed, including the utilization of informed consent among the participants and confidentiality. Biases were minimized by employing the systematic research process, peer review, and adherence to tested research methods in education studies.

REFERENCES

1. *Scammacca, N., Fall, A. M., Capin, P., Roberts, G., & Swanson, E. (2020). Examining factors affecting reading and math growth and achievement gaps in grades 1–5: A cohort-sequential longitudinal approach. Journal of educational psychology, 112(4), 718.*
2. *Hjetland, H. N., Lervåg, A., Lyster, S. A. H., Hagtvet, B. E., Hulme, C., & Melby-Lervåg, M. (2019). Pathways to reading comprehension: A longitudinal study from 4 to 9 years of age. Journal of educational psychology, 111(5), 751.*
3. *Hjetland, H. N., Lervåg, A., Lyster, S. A. H., Hagtvet, B. E., Hulme, C., & Melby-Lervåg, M. (2019). Pathways to reading comprehension: A longitudinal study from 4 to 9 years of age. Journal of educational psychology, 111(5), 751.*
4. *Kim, Y. S. G., Quinn, J. M., & Petscher, Y. (2021). What is text reading fluency and is it a predictor or an outcome of reading comprehension? A longitudinal investigation. Developmental psychology, 57(5), 718.*
5. *Troyer, M., Kim, J. S., Hale, E., Wantchekon, K. A., & Armstrong, C. (2019). Relations among intrinsic and extrinsic reading motivation, reading amount, and comprehension: a conceptual replication. Reading and Writing, 32, 1197-1218.*
6. *Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2020). Determinants of 21st-century skills and 21st-century digital skills for workers: A systematic literature review. Sage Open, 10(1), 2158244019900176.*
7. *Jerrim, J., & Moss, G. (2019). The link between fiction and teenagers' reading skills: International evidence from the OECD PISA study. British Educational Research Journal, 45(1), 181-200.*
8. *Duke, N. K., Ward, A. E., & Pearson, P. D. (2021). The science of reading comprehension instruction. The Reading Teacher, 74(6), 663-672.*
9. *Støle, H., Mangen, A., & Schwippert, K. (2020). Assessing children's reading comprehension on paper and screen: A mode-effect study. Computers & Education, 151, 103861.*
10. *Mancilla-Martinez, J., Hwang, J. K., Oh, M. H., & McClain, J. B. (2020). Early elementary grade dual language learners from Spanish-speaking homes struggling with English reading comprehension: The dormant role of language skills. Journal of Educational Psychology, 112(5), 880.*