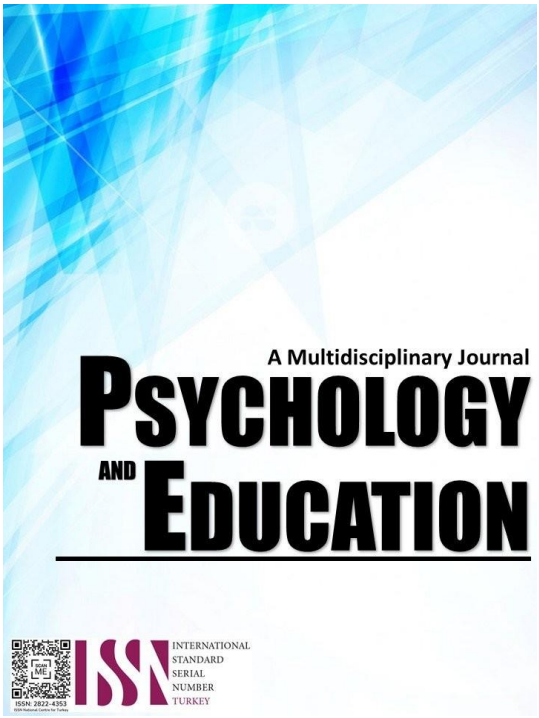
METACOGNITIVE READING STRATEGIES IN RELATION TO READING COMPREHENSION: BASIS FOR INTERVENTION



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Research Article

Metacognitive Reading Strategies in Relation to Reading Comprehension: Basis for Intervention

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Abstract

Reading comprehension is an essential skill vital for both academic achievement and lifelong learning (Hammad, 2023). It enables individuals to interpret written materials effectively, aiding them in overcoming classroom challenges and pursuing additional learning opportunities. Research has shown that metacognitive reading strategies, characterized by the deliberate awareness and regulation of cognitive processes while reading, can enhance comprehension (Serrano, 2020). This study determined the relationship between metacognitive reading strategies and reading comprehension among Grade 5 to Grade 6 pupils at selected public school in the District of Moises Padilla, during the 2023-2024 school year. A total of 147 pupils were used as respondents in the study. Data were collected through a metacognitive reading strategies questionnaire and the "Reading Comprehension Test (Phil-IRI for English)." Descriptive statistics revealed that learners have high level of metacognitive reading strategies. The mean scores for each strategy are, before reading 3.75, during reading 3.79, after reading 3.68, remembering 3.80 and the overall mean score is 3.75. In terms of reading comprehension, 53 learners were classified as independent readers, 77 learners at the instructional level, and 17 learners at the frustration level. The study found no significant differences in the extent of metacognitive reading strategies when learners were grouped according to sex (p-value = 0.352) and grade level (p-value = 0.577). However, a significant difference was noted based on the educational attainment of parents (p-value = 0.005). No significant differences were found in reading comprehension when learners were grouped by sex (p-value = 0.309) and grade level (p-value = 0.577). However, significant differences were observed when grouped according to the educational attainment of parents (p-value < 0.001). A significant relationship between the extent of metacognitive reading strategies and the level of reading comprehension, (G = 0.44, p < 0.001). The results provide critical insights for curriculum planners, educators, and policymakers in designing interventions and educational practices that support students' academic growth.

Keywords: *metacognitive, reading strategies, reading comprehension, and parental educational attainment*

Introduction

Reading comprehension is an essential skill vital for both academic achievement and lifelong learning (Hammad, 2023). It enables individuals to interpret written materials effectively, aiding them in overcoming classroom challenges and pursuing additional learning opportunities. Research has shown that metacognitive reading strategies, characterized by the deliberate awareness and regulation of cognitive processes while reading, can enhance comprehension (Serrano, 2020). These strategies empower readers to monitor their understanding, adjust their reading approaches, and evaluate their comprehension, ultimately improving overall reading proficiency.

The relationship between metacognitive reading strategies and reading comprehension has been the subject of much international research; nevertheless, there is a noticeable lack of contextualization of these findings in the context of Philippine education (Tinapay et al., 2021). Because of the unique culturally and linguistic environment of the Philippines, further study is needed to determine how students apply metacognitive reading methods and how these tactics affect their comprehension.

The Study set out to explore how the lack of funding affects elementary school students' ability to read. Thompson (2023) states that limited resources negatively affect the reading and academic outcomes of students, and more funding could reverse the adverse effects of the lack of money on reading scores.

The nature of a child's linguistic environment influences how and when they learn their languages. Children who grow up with multiple languages in the home environment learn the different languages simultaneously. Another scenario is when children are sequentially bilingual: first learning the home language and then learning the school language when going to school Bruggink et al. (2022). Additionally, Children who migrate at a later age may already be quite advanced in their mother tongue (and even know how to read and write), before they start to learn their new country's language.

In the local setting, teachers encounter challenges in identifying and effectively utilizing strategies for teaching reading comprehension. This can result struggling learners to develop their reading comprehension skills. The expertise and teaching abilities of teachers significantly influence learners' engagement in the classroom. Unfortunately, many teachers lack orientation in assisting struggling readers individually and may not have received adequate training in this area Reyes et al. (2023). As a result, even with sufficient reading resources, poor readers may not see improvement since teachers are not equipped with the necessary strategies and approaches.

The researcher's motivation for doing this study stems from the love of equipping pupils with efficient reading techniques. Through comprehending the metacognitive reading strategies that pupils use and how they affect comprehension, the researcher hopes to provide other educators with research-based methods to improve instruction.

The primary objective of this research is to explore the relationship between metacognitive reading strategies and reading comprehension of pupils in a school academic year 2024-2025.

Research Questions

This study aimed at determining the metacognitive reading strategies of elementary pupils in relation to their reading comprehension in a Public Elementary School during school year 2024-2025. Specifically, this research sought to answer the following questions:

1. What is the demographic profile of the pupils when grouped according to:
    1.1. Sex;
    1.2. Grade Level;
    1.3. Educational Attainment of Parents; and
    1.4. Average Family Income?
2. What is the extent of metacognitive reading strategies of pupils when taken as a whole and when grouped according to the following stages:
    2.1. Before Reading
    2.2. During Reading
    2.3. After Reading
3. What is the level of reading comprehension of pupils when taken as a whole and when grouped according to the following levels:
    3.1. Frustration
    3.2. Instructional
    3.3. Independent
4. Is there a significant difference in the metacognitive reading strategies of pupils when grouped according to:
    4.1. Sex;
    4.2. Grade level;
    4.3. Educational Attainment of Parents; and
    4.4. Average Family Income?
5. Is there a significant difference in the reading comprehension of pupils when grouped according to:
    5.1. Sex;
    5.2. Grade Level;
    5.3. Educational Attainment of Parents; and
    5.4. Average Family Income?
6. Is there a significant difference between the extent of metacognitive reading strategies of pupils and their level of reading comprehension?

Literature Review

According to the study on the exploration of metacognitive reading strategies spans a rich and multifaceted landscape, with seminal works shaping our understanding of cognitive processes during reading. Ismael (2021) foundational inquiry delves into the developmental nuances of metacognition and cognitive monitoring, establishing a theoretical framework that lays the groundwork for subsequent research. The investigation about training interventions for pupils with low metacognitive skills provides critical insights into the efficacy of interventions, offering a nuanced perspective on both immediate and sustained impacts. According to her, skilled readers use a variety of metacognitive strategies before, during, and after reading to enhance their understanding and retention of the material. Moreover, it was highlighted that metacognitive awareness and regulation are critical components of effective reading comprehension.

However, the findings also suggest areas for further exploration, particularly in how these strategies are influenced by demographic variables. For example, research by Fırat and Koyuncu (2023) indicates that metacognitive strategies can vary significantly based on factors such as age, gender, and socioeconomic status. Investigating these differences within the context of this study's demographic profile could provide deeper insights into the specific needs and strengths of different pupil groups.

A study by Elshout-Mohr, Van Daalen-Kapteijns, and Meijer (2021) found that both boys and girls use metacognitive strategies similarly when reading, suggesting that gender does not play a significant role in the extent of strategy use. Furthermore, Schneider and Artelt (2020) emphasize the importance of focusing on individual differences in metacognitive skills rather than gender-based differences, highlighting that effective interventions should target students' specific needs irrespective of their sex.

The finding of Kim et al. (2020) in their study showed that higher parental education levels are associated with more frequent use of advanced reading strategies among children. Similarly, a review by García and Weiss (2021) highlights the role of parental education in fostering children's cognitive and metacognitive skills.

Moreover, studies by Soriano-Ferrer et al. (2022) emphasize the link between socioeconomic status and metacognitive awareness. Similarly, Aikens and Barbarin (2020) underscore the role of financial stability in creating enriched learning environments conducive

to cognitive and metacognitive skill development. Overall, this study underscores the critical need for equity in educational opportunities. By addressing income-related disparities, schools can ensure that all pupils, regardless of family income, have the tools and skills needed for academic success.

According to a study by Garcia and Cain (2020), students at the instructional level benefit from guided reading practices that support their transition to independent reading. Additionally, the concept of the Zone of Proximal Development (ZPD) remains relevant, supporting the idea that instructional reading is crucial for moving students from their current ability to higher levels of comprehension through targeted support.

Furthermore, research by Hattie (2020) emphasizes the importance of differentiated instruction to meet the varying needs of students at different reading levels. Tailoring interventions to address the specific challenges of pupils at the frustration level can help bridge the gap and enhance overall reading comprehension.

Recent studies that show no substantial gender differences in reading comprehension among school-aged children (Gubbels et al., 2021). Educational strategies should therefore focus on other factors that might influence reading comprehension, such as teaching methods, reading materials, and the overall learning environment.

The study of Gubbels, Segers, and Verhoeven (2021) found that while there might be slight variations in reading strategies used by boys and girls, these do not translate into significant differences in comprehension levels. Another study by Solheim and Lundetræ (2022) suggests that gender does not significantly impact reading comprehension outcomes when controlling for other variables such as socio-economic status and prior academic performance.

Moreover, recent research by Petscher et al. (2021) shows minimal differences in reading comprehension between these grade levels when other factors are controlled. Educators should therefore focus on enhancing reading strategies and resources that benefit all pupils, regardless of grade level. Their findings also indicate that reading comprehension development is more strongly influenced by individual learning experiences and instructional quality than by grade level. Additionally, Scammacca et al. (2020) suggest that targeted reading interventions are equally effective for students in both grades.

Recent literature by Brito and Noble (2021) and Sénéchal and LeFevre (2022) posited that parental education influences children's literacy and academic outcomes through various mechanisms, including parental involvement, educational support at home, and the provision of a stimulating learning environment. Parents with higher educational levels are more likely to engage in literacy-promoting activities such as reading to their children, providing access to books, and encouraging educational pursuits. These activities contribute to the development of children's reading skills and overall academic performance. Moreover, parents with higher education levels may have better socio-economic status, enabling them to afford better educational resources and opportunities for their children (Dearing & Tang, 2020).

Learners living in a low family income such as little if any support at home as well as a lack of resources made available. Difficulties such as having lack of content to read, lack in technology to assist them or lack in parental or adult support all act as disadvantages when it comes to student reading comprehension (Tuell, 2021).

A study by Mokhtari and Reichard (2020) found that frequent use of metacognitive strategies is associated with higher reading comprehension levels. Paris and Winograd (2021) also emphasized that metacognitive strategies, such as planning, monitoring, and evaluating, are critical for successful reading comprehension. These strategies help students become more active and purposeful readers.

However, some studies present differing views. Samuels and Flor (2022) found no significant relationship between metacognitive strategy use and reading comprehension among high school students, suggesting that factors like prior knowledge and vocabulary might be more crucial. Brown and Palincsar (2023) argued that while metacognitive strategies are beneficial, their impact might be moderated by students' motivation and engagement levels, noting that highly motivated students showed improved reading comprehension regardless of their use of metacognitive strategies.

Methodology

Research Design

The research design used in this study was descriptive-correlational. Descriptive-correlational research aims to systematically describe the characteristics of a phenomenon and explore potential relationships between variables without manipulating them (Osada & Salvador-Carrillo, 2021). In this study, the descriptive aspect involves portraying the metacognitive reading strategies and reading comprehension levels of Grade 5 to 6 pupils in a Public Elementary School, District of Moises Padilla, during the school year 2024-2025. The correlational aspect seeks to examine potential associations between metacognitive reading strategies and reading comprehension.

Respondents

The subject and respondents of this study consist of elementary school pupils from Grade 5 to 6 in a Public Elementary School, during

the school year 2024-2025. The total population includes 147 pupils within this grade range. Sampling technique was not employed since the total population was utilized in the conduct of the study.

Instrument

Part I focused on gathering the profile of the respondents, encompassing demographic variables such as sex, grade level, and parents' educational attainment and employment status.

Part II of the instrument was adapted from Babayiğit's (2019) study, which measure the metacognitive reading strategies of Grade 5 to 6 pupils enrolled in school year 2024-2025. The comprehensive measure was categorized as follows: Never, Rarely, Sometimes, Often, and Always. To ensure validity of the research instrument, it was subjected to evaluation by three experts in the field of education. The validation process adhered to the criteria established by Good and Scates, using the Index of Item Objective Congruence (IOC). This index evaluates each item's appropriateness and relevance to the construct being measured. The expert panel carefully reviewed the content of the instrument to ensure its alignment with the study's objectives and its accuracy in measuring metacognitive reading strategies. The MRSI achieved an average validity score of 4.78, which is categorized as excellent, demonstrating the instrument's strong content validity.

For reliability, the instrument underwent pilot testing to evaluate its internal consistency. Cronbach's Alpha, a widely used reliability coefficient, was applied to measure how well the items in the instrument collectively assess the same underlying construct. The reliability analysis yielded a Cronbach's Alpha score of 0.90, which is interpreted as excellent, confirming that the instrument consistently produces reliable results.

Part III of the instrument was the "Reading Comprehension Test (Phil-IRI For Grade 4 to Grade 5 English) school year 2023-2024, conducted last March 2024 by the Department of Education (DepEd), is a widely accepted and standardized tool for evaluating reading comprehension skills. Its alignment with DepEd standards ensures the reliability and validity needed for a thorough assessment of the pupils' reading comprehension abilities.

Procedure

The initiation of this study involves a detailed and systematic process to ensure its ethical integrity and methodological rigor. First, securing the necessary permits and ethical clearances is paramount. This includes obtaining approval from the Public Schools District Supervisor, the administration of a Public Elementary School, and the Dean of the Graduate School. After the permission was granted, the research instruments were distributed. These include a questionnaire designed to assess metacognitive reading strategies and the standardized "Reading Comprehension Test (Phil-IRI for English)." Clear instructions were provided to respondents to ensure that they understand how to complete the instruments accurately. The survey questionnaires were gathered immediately after spending enough time with the respondents to finish the study. The data collected were then systematically encoded and were subjected to Statistical Package Social Sciences for thorough analysis to answer research questions.

Ethical Considerations

Ethical considerations were meticulously addressed by obtaining informed consent from the parents or guardians of the elementary pupils and seeking assent from the pupils themselves. This process requires clear communication of the research objectives, procedures, and the voluntary nature of participation to all stakeholders to ensure transparency and understanding. Access to survey data was strictly limited to the researchers, ensuring sensitive information remained secure. Respondents' names were also deliberately omitted from the final report to maintain anonymity. Such measures underscore the importance of respecting and protecting the rights and privacy of all participants involved.

Results and Discussion

Demographic Profile of the Respondents

This section details the demographic characteristics of the respondents, including sex, grade level, parents' educational attainment, and average family income. The data are presented in Table 1.

Table 1. *Demographic Profile of the Respondents*

Profile	*Category*	*f*	*%*
Sex	Male	78	53.06
	Female	69	46.94
	Total	147	100.00
Grade Level	Grade 5	60	40.82
	Grade 6	87	59.18
	Total	147	100.00
Educational Attainment of Parents	Elementary Level	6	4.08
	Elementary Graduate	15	10.20
	High School Level	23	15.65

Average Family Income	High School Graduate	61	41.50
	College Level	23	15.65
	College Graduate	16	10.88
	Post Graduate	3	2.04
	Total	147	100.00
	Less than Php. 9,100.00 per Month	67	45.58
	Php. 9,100 to Php. 18,200.00 per Month	63	42.86
	Php. 18,200 to Php. 36,400 per Month	14	9.52
	Php. 36,400 to Php. 63,700 per Month	3	2.04
	Total	147	100.00

As shown in Table 1, the demographic profile reveals a relatively balanced distribution of male and female respondents, with males slightly outnumbering males (53.06% vs. 46.94%). The respondents are predominantly in Grade 6 (59.18%), indicating a focus on older elementary students. The educational attainment of the parents shows that the majority have completed high school (41.50%), followed by those who have reached high school level but not graduated (15.65%) and those who have some college education (15.65%).

A significant portion of the respondents' families have an average income of less than Php. 9,100.00 per month (45.58%), with most families earning less than Php18,200.00 per month (42.86%). This suggests that the respondents primarily come from low-income backgrounds, which may influence their educational resources and opportunities.

The demographic data suggests several implications for understanding the context of the respondents' reading comprehension and metacognitive reading strategies. The prevalence of low-income families and the varying educational attainment levels of parents may impact the students' access to educational resources and support at home.

Extent of Metacognitive Reading Strategies of Pupils

This section provides an analysis of the extent of metacognitive reading strategies employed by the pupils. The data are summarized in Table 2, highlighting the overall mean scores and their interpretations for different stages of the reading process: before reading, during reading, after reading, and remembering.

Table 2. *Extent of Metacognitive Reading Strategies of Pupils when taken as a whole and when grouped according to Profile Variables*

Extent of Metacognitive Reading Strategies	*n*	*Mean*	*Interpretation*
Before Reading	147	3.75	High
During Reading	147	3.79	High
After Reading	147	3.68	High
Remembering	147	3.80	High
As a Whole	147	3.75	High

Legend: 4.20-5.00, Very High; 3.40-4.19, High; 2.60-3.39, Moderate; 1.80-2.59, Low; 1.00-1.79, Very Low

The data indicate that pupils employ metacognitive reading strategies to a high extent across all stages of the reading process. The mean scores for each category—before reading (3.75), during reading (3.79), after reading (3.68), and remembering (3.80)—all fall within the "high" range. The overall mean score is also high (3.75), suggesting a consistent and substantial use of metacognitive strategies by the respondents.

The high extent of metacognitive reading strategies employed by pupils signifies a strong awareness and application of these strategies during their reading activities. This finding is crucial for developing targeted interventions aimed at further enhancing reading comprehension skills. Since the strategies are already being used to a high extent, interventions can focus on refining these skills and addressing specific areas where pupils may need additional support.

The consistency in high scores across all stages of reading implies that pupils are not only preparing well before reading but are also actively monitoring their understanding during reading and employing strategies to retain information after reading. This comprehensive approach to metacognition is likely to contribute positively to their overall reading comprehension.

The results are in line with existing literature emphasizing the importance of metacognitive strategies in improving reading comprehension. According to Farraniva Acmed-Ismael (2021), skilled readers use a variety of metacognitive strategies before, during, and after reading to enhance their understanding and retention of the material. Moreover, it was highlighted that metacognitive awareness and regulation are critical components of effective reading comprehension.

Level of Reading Comprehension of Pupils

This section examines the reading comprehension levels of the pupils, categorizing them into independent, instructional, and frustration levels. The data are summarized in Table 3, which includes the frequency, mean scores, and interpretations for each comprehension level.

Table 3. *Level of Reading Comprehension of Pupils when taken as a whole and when grouped according to various levels*

Level of Reading Comprehension	*f*	*Mean*	*Interpretation*
Independent	53	14.53	Instructional
Instructional	77		
Frustration	17		
Total	147		

As shown in Table 3.1, the data reveal that out of 147 pupils, 77 or majority of the pupils are at the instructional reading level, 53 fall under the independent reading level, and 17 pupils are at the frustration reading level. The overall mean score of 14.53 is interpreted as instructional.

The distribution of reading comprehension levels among the pupils has several implications for instructional strategies and interventions. The presence of a significant number of pupils at the instructional level suggests a need for continued, targeted teaching strategies to support their reading development. These pupils require guided practice to transition to independent reading.

The 17 pupils at the frustration level highlighted the need for specialized interventions to address their specific challenges. These students likely struggle with reading tasks and may benefit from individualized instruction, remedial programs, or additional resources to help them improve their reading skills.

The fact that 53 pupils are at the independent level, yet still interpreted as instructional, indicates a gap between perceived reading independence and actual comprehension abilities. This suggests that while these pupils can read independently, there is room for improvement in their comprehension skills to achieve true independent reading proficiency.

The findings are consistent with recent research on reading comprehension levels in elementary students. According to a study by Garcia and Cain (2020), students at the instructional level benefit from guided reading practices that support their transition to independent reading.

Difference in the Metacognitive Reading Strategies of Pupils according to Sex

Table 4.1 explores whether there is a significant difference in the metacognitive reading strategies between male and female pupils.

Table 4.1. *Difference in the Metacognitive Reading Strategies of Pupils According to Sex*

Sex	*N*	*Mean Rank*
Male	78	70.93
Female	69	77.47
Total	147	

Computed Value (U): 2451.50
P-value: 0.352
Decision: Accept Ho
Interpretation: Not significant at 0.05 level of significance

The data indicate that the mean rank for male pupils is 70.93, while the mean rank for female pupils is 77.47. The computed value (U=2451.50) and the p-value (p=0.352) show that there is no significant difference in the metacognitive reading strategies between male and female pupils at the 0.05 level of significance.

The lack of a significant difference in the metacognitive reading strategies between male and female pupils suggests that both genders employ these strategies to a similar extent. This finding implies that interventions aimed at enhancing metacognitive reading strategies can be designed and implemented without the need for gender-specific adjustments.

The findings of this study are consistent with recent research indicating minimal gender differences in the use of metacognitive strategies. A study by Elshout-Mohr, Van Daalen-Kapteijns, and Meijer (2021) found that both boys and girls use metacognitive strategies similarly when reading, suggesting that gender does not play a significant role in the extent of strategy use. Furthermore, Schneider and Artelt (2020) emphasize the importance of focusing on individual differences in metacognitive skills rather than gender-based differences, highlighting that effective interventions should target students' specific needs irrespective of their sex.

Difference in the Metacognitive Reading Strategies of Pupils according to Grade Level

Table 4.2 below shows the difference in the metacognitive reading strategies of pupils according to grade level.

The data indicate that the mean rank for Grade 5 pupils is 92.59, while the mean rank for Grade 6 pupils is 61.18. The computed value (U=1494.50) and the p-value ($p<0.001$) indicates a significant difference in the metacognitive reading strategies between Grade 5 and Grade 6 pupils at the 0.05 level of significance.

The significant difference in the metacognitive reading strategies between Grade 5 and Grade 6 pupils suggests that grade level influences the use of these strategies. Grade 5 pupils have a higher mean rank, indicating they employ metacognitive reading strategies

to a greater extent than Grade 6 pupils.

Table 4.2. *Difference in the Metacognitive Reading Strategies of Pupils According to Grade Level*

Grade Level	*N*	*Mean Rank*
Grade 5	60	92.59
Grade 6	87	61.18
Total	147	

Computed Value (U): 1494.50
P-value: <0.001
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

This finding implies that as pupils progress to higher grades, there can be a decline in the use of metacognitive reading strategies. Educators need to consider this trend and implement interventions that maintain or even increase the use of these strategies as pupils advance in their education. Continuous reinforcement and development of metacognitive skills are essential to ensure pupils can effectively comprehend and retain reading material throughout their academic journey.

The findings align with recent research emphasizing the importance of maintaining metacognitive strategy instruction across different grade levels. A study by Moshman (2021) highlights that younger students often show higher levels of metacognitive strategy use, which can decline if not consistently supported through targeted instructional practices. Additionally, Blakey and Spence (2022) stress the need for ongoing metacognitive training to support students' reading comprehension skills as they advance in their education.

Difference in the Metacognitive Reading Strategies of Pupils According to Educational Attainment of Parents

Table 4.3 below shows the difference in the metacognitive reading strategies of pupils according to educational attainment of parents.

Table 4.3. *Difference in the Metacognitive Reading Strategies of Pupils According to Educational Attainment of Parents*

Educational Attainment of Parents	*N*	*Mean Rank*
Elementary Level	6	25.17
Elementary Graduate	15	55.93
High School Level	23	71.85
High School Graduate	61	72.59
College Level	23	84.39
College Graduate	16	97.19
Post Graduate	3	103.83
Total	147	

Computed Value (H): 18.32
P-value: 0.005
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The data above indicate the mean rank in the metacognitive reading strategies of pupils according to the educational attainment of their parents. The computed value (U=18.32) and the p-value (p=0.005) indicates a significant difference in the metacognitive reading of pupils according to educational attainment of parents at the 0.05 level of significance.

The analysis shows that the educational attainment of parents significantly impacts the metacognitive reading strategies employed by their children. The significant differences identified between the elementary level and higher levels of parental education, particularly college level and college graduate, suggest that higher parental educational attainment is associated with greater use of metacognitive reading strategies among pupils. This imply that parents with higher educational backgrounds are better equipped to foster and support the development of metacognitive skills in their children.

Educators and policymakers should consider these differences when designing and implementing reading programs and interventions. Tailoring support to account for variations in parental educational backgrounds can help ensure all pupils can develop strong metacognitive reading strategies, regardless of their parents' educational attainment.

Recent research supports the finding that parental educational attainment influences children's metacognitive reading strategies. A study by Kim and colleagues (2020) found that higher parental education levels are associated with more frequent use of advanced reading strategies among children. Similarly, a review by García and Weiss (2021) highlights the role of parental education in fostering children's cognitive and metacognitive skills. These studies underscore the importance of considering parental educational backgrounds in educational interventions aimed at improving pupils' reading comprehension.

Difference in the Metacognitive Reading Strategies of Pupils According to Average Family Income

Table 4.4 below shows the difference in the metacognitive reading strategies of pupils according to average family income.

The data indicate the mean rank in the metacognitive reading strategies of pupils according to the educational attainment of their parents. The computed value (U=18.32) and the p-value (p=0.005) indicates a significant difference in the metacognitive reading of

pupils according to educational attainment of parents at the 0.05 level of significance.

Table 4.4. *Difference in the Metacognitive Reading Strategies of Pupils According to Average Family Income.*

Family Income	*N*	*Mean Rank*
Php. 36,400 to Php. 63,700 per Month	61	94
Php. 18,200 to Php. 36,400 per Month	23	103.14
Php. 9,100 to Php. 18,200.00 per Month	15	68.76
Less than Php. 9,100.00 per Month	6	71.94
Php. 36,400 to Php. 63,700 per Month	61	94
Php. 18,200 to Php. 36,400 per Month	23	103.14
Php. 9,100 to Php. 18,200.00 per Month	15	68.76
Total	147	

Computed Value (H): 8.34
P-value: 0.04
Decision: Reject Ho
Interpretation: Significant at 0.05 level of significance

The data in Table 4.4 reveals a significant difference in the extent of metacognitive reading strategies used by pupils based on their family's average monthly income. Using the Kruskal-Wallis H test, the analysis yielded a computed value (H=8.34) and the p-value (p=0.04), which is below the 0.05 significance level, leads to the rejection of the null hypothesis, indicating that family income significantly influences pupils' use of metacognitive reading strategies. The mean ranks show that pupils from families earning Php. 18,200 to Php. 36,400 per month exhibit the highest strategy use (mean rank of 103.14). In contrast, those from families earning less than Php. 18,200 per month demonstrate lower strategy use, (mean rank = 68.76 and 71.94). Interestingly, pupils from the highest income group (Php. 36,400 to Php. 63,700 per month) have a slightly lower than the middle-income group (mean rank=94), suggesting a potential plateau effect or differences in strategy types across income levels.

These findings highlight that family income likely affects pupils' access to resources, such as books, technology, and educational support, which in turn impacts their ability to develop metacognitive reading strategies. Middle-income families may emphasize education and skill development as a pathway for upward mobility, explaining the higher strategy use observed in this group. However, the disparities in strategy use among income groups suggest the need for targeted interventions to support pupils from lower-income families. Schools and policymakers can address these gaps by providing access to resources, implementing explicit instruction in metacognitive strategies, and fostering parental involvement in education. Programs like think-aloud techniques, comprehension monitoring, and goal setting can help enhance reading skills among economically disadvantaged pupils.

Research supports these findings, with studies such as Soriano-Ferrer et al. (2022) which emphasize the link between socioeconomic status and metacognitive awareness. Similarly, Aikens and Barbarin (2020) underscore the role of financial stability in creating enriched learning environments conducive to cognitive and metacognitive skill development. Overall, this study underscores the critical need for equity in educational opportunities. By addressing income-related disparities, schools can ensure that all pupils, regardless of family income, have the tools and skills needed for academic success.

Difference in the Reading Comprehension of Pupils According to Sex

The table below examines whether there is a significant difference in the reading comprehension level of pupils when grouped according to sex.

Table 5.1. *Difference in the Reading Comprehension of Pupils when grouped according to Sex*

Sex	N	Mean Rank
Male	78	70.66
Female	69	77.78
Total	147	

Computed Value (U): 2430.50
P-Value: 0.309
Decision: Accept Ho
Interpretation: Not Significant at .05 level of significance

The analysis indicates that there is no significant difference in the reading comprehension levels of male and female pupils. The p-value (p=0.309) leads to the acceptance of the null hypothesis (Ho) at 0.05 level of significance. This suggests that gender does not play a significant role in the reading comprehension abilities of the pupils in this study.

The findings imply that interventions aimed at improving reading comprehension do not need to be gender-specific, as both male and female pupils demonstrate similar levels of comprehension. This aligns with recent studies that show no substantial gender differences in reading comprehension among school-aged children (Gubbels et al., 2021). Educational strategies should therefore focus on other factors that might influence reading comprehension, such as teaching methods, reading materials, and the overall learning environment.

Gubbels, Segers, and Verhoeven (2021) also support the finding of this study when they found that while there might be slight variations in reading strategies used by boys and girls, these do not translate into significant differences in comprehension levels. Another study

by Solheim and Lundetræ (2022) suggests that gender does not significantly impact reading comprehension outcomes when controlling for other variables such as socio-economic status and prior academic performance.

Difference in the Reading Comprehension of Pupils According to Grade Level

The table below examines whether there is a significant difference in the reading comprehension level of pupils when grouped according to grade level.

Table 5.2. *Difference in the Reading Comprehension of Pupils when grouped according to Grade Level*

Grade Level	*N*	*Mean Rank*
Grade 5	60	76.34
Grade 6	87	72.39
Total	147	

Computed Value (U): -0.144
P-Value: 0.206
Decision: Accept Ho
Interpretation: Not Significant at .05 level of significance

As shown in Table 5.2, the analysis indicates that there is no significant difference in the reading comprehension levels between Grade 5 and Grade 6 pupils. The p-value (p=0.577) is greater than the 0.05 significance level, leading to the acceptance of the null hypothesis (Ho). This suggests that the grade level does not significantly impact the reading comprehension abilities of the pupils in this study.

The findings imply that educational interventions aimed at improving reading comprehension can be applied uniformly across Grade 5 and Grade 6 pupils without needing to differentiate based on grade level. This is consistent with recent research that shows minimal differences in reading comprehension between these grade levels when other factors are controlled (Petscher et al., 2021). Educators should therefore focus on enhancing reading strategies and resources that benefit all pupils, regardless of grade level.

The research conducted by Petscher, Solari, and Folsom (2021) support the finding of this study that there is no significant difference in reading comprehension between Grade 5 and Grade 6 pupils. It indicates that reading comprehension development is more strongly influenced by individual learning experiences and instructional quality than by grade level. Additionally, Scammacca et al. (2020) suggest that targeted reading interventions are equally effective for students in both grades.

Difference in the Reading Comprehension of Pupils According to Educational Attainment of Parents

The table on the next page shows the difference in the reading comprehension of pupils when grouped according to educational attainment of parents.

Table 5.3. *Difference in the Reading Comprehension of Pupils when grouped according to Educational Attainment of Parents*

Educational Attainment of Parents	*N*	*Mean Rank*
Elementary Level	6	33.58
Elementary Graduate	15	48.47
High School Level	23	72.83
High School Graduate	61	68.02
College Level	23	93.17
College Graduate	16	104.88
Post Graduate	3	101.33
Total	147	

Computed Value (H): 26.67
P-Value: <0.001
Decision: Reject Ho
Interpretation: Significant at .05 level of significance

The Kruskal-Wallis test results indicate a significant difference in the reading comprehension levels of pupils based on the educational attainment of their parents. The computed value (H=26.67) and a p-value (p<0.001) lesser than 0.05 level of significance leads to the rejection of the null hypothesis (Ho). This suggests that parental education level significantly impacts the reading comprehension abilities of pupils.

The significant differences in reading comprehension scores based on the educational attainment of parents underscore the crucial role that parental education plays in the academic development of children. Pupils whose parents have higher educational attainment levels, particularly those with college or postgraduate education, tend to have better reading comprehension skills.

This finding aligns with recent literature which posits that parental education influences children's literacy and academic outcomes through various mechanisms, including parental involvement, educational support at home, and the provision of a stimulating learning environment (Brito & Noble, 2021; Sénéchal & LeFevre, 2022).

Parents with higher educational levels are more likely to engage in literacy-promoting activities such as reading to their children, providing access to books, and encouraging educational pursuits. These activities contribute to the development of children's reading skills and overall academic performance. Moreover, parents with higher education levels may have better socio-economic status,

enabling them to afford better educational resources and opportunities for their children (Dearing & Tang, 2020).

Difference in the Reading Comprehension of Pupils According to Average Family Income

The table on the next page shows the difference in the reading comprehension of pupils when grouped according to average family income.

Table 5.4. *Difference in the Reading Comprehension of Pupils when grouped according to Average Family Income*

Family Income	*N*	*Mean Rank*
Php. 36,400 to Php. 63,700 per Month	61	74.60
Php. 18,200 to Php. 36,400 per Month	23	61.23
Php. 9,100 to Php. 18,200.00 per Month	15	115.43
Less than Php. 9,100.00 per Month	6	135.33
Total	147	

Computed Value (H): 25.48
P-Value: <0.001
Decision: Reject Ho
Interpretation: Significant at .05 level of significance

Table 5.4 used the Kruskal-Wallis test which that reveals a significant difference in the reading comprehension levels of pupils based on family income. The computed value (H=25.48) and a p-value (p<0.001) lesser than 0.05 indicates that family income significantly influences pupils' reading comprehension.

The analysis demonstrates that pupils' reading comprehension is significantly affected by family income. Pupils from higher-income families tend to have better reading comprehension skills. This finding is consistent with existing research that indicates socio-economic status (SES) is a strong predictor of academic achievement, including reading proficiency (Bradley & Corwyn, 2021; Sirin, 2023).

Higher family income often correlates with greater access to educational resources, including books, tutoring, and enriching extracurricular activities. Additionally, higher-income families are more likely to provide a stable and supportive home environment conducive to learning (Duncan et al., 2022). These factors collectively enhance children's cognitive development and academic performance.

Relationship between the Extent of Metacognitive Reading Strategies and Level of Reading Comprehension of Pupils

The table below shows the difference in the reading comprehension of pupils when grouped according to average family income.

Table 6. *Relationship between the Extent of Metacognitive Reading Strategies and Level of Reading Comprehension of Pupils*

Extent of Metacognitive Reading Strategies	*Level of Reading Comprehension*			
	Independent	*Instructional*	*Frustration*	*Total*
Very High	20	10	1	31
High	25	39	10	74
Moderate	7	28	5	40
Low	1	0	0	1
Very Low	0	0	1	1
Total	53	77	17	147

Computed Value (G):0.44
P- Value: <0.001
Decision: Reject Ho
Interpretation: Significant at 5% level of significance

The computed value (G=0.44) and a p-value (<0.001) of less than 0.05 indicate that the null hypothesis, which posits no relationship between these variables, is rejected. This suggests that pupils who employ higher levels of metacognitive reading strategies tend to exhibit better reading comprehension.

The implications of these findings are multifaceted. Firstly, they highlight the importance of integrating metacognitive reading strategies into educational curricula. Schools can emphasize explicit instruction of these strategies to improve students' reading comprehension. Secondly, teacher training programs need to include components that equip educators with the skills to teach metacognitive strategies effectively. This can help teachers guide students in becoming more aware of their cognitive processes and employing strategies that enhance comprehension.

Several studies support these findings. Mokhtari and Reichard (2020) found that frequent use of metacognitive strategies is associated with higher reading comprehension levels. Paris and Winograd (2021) also emphasized that metacognitive strategies, such as planning, monitoring, and evaluating, are critical for successful reading comprehension. These strategies help students become more active and purposeful readers.

However, some studies present differing views. Samuels and Flor (2022) found no significant relationship between metacognitive strategy use and reading comprehension among high school students, suggesting that factors like prior knowledge and vocabulary

might be more crucial. Brown and Palincsar (2023) argued that while metacognitive strategies are beneficial, their impact might be moderated by students' motivation and engagement levels, noting that highly motivated students showed improved reading comprehension regardless of their use of metacognitive strategies.

Conclusions

Based on the findings of this study, the conclusions that were drawn are as follows:

The demographic analysis revealed a diverse group of pupils, with slight differences in the distribution of sex and grade level. The educational attainment of parents varied significantly, indicating a broad spectrum of parental educational backgrounds, which could influence pupils' academic performance and reading habits. Similarly, the average family income showed a wide range, suggesting different socio-economic contexts that might affect the pupils' access to reading materials and educational support. In order to overcome differences in the demographic profiles of students, such as socioeconomic status and parental education, schools and policymakers may customize educational initiatives. Leveling the playing field can be achieved by targeted assistance for lower-income households and equal access to educational resources. Programs may additionally assist parents who have less education by providing them with tools and workshops that improve their capacity to support their kids' education.

The pupils demonstrated a high extent of metacognitive reading strategies across all stages of reading (before, during, and after reading), which underscores the importance of these strategies in enhancing reading comprehension. The consistent high scores across all stages indicate that the pupils are actively engaging in planning, monitoring, and evaluating their reading processes. Include clear teaching of metacognitive reading techniques in the curriculum. Teachers need to give students frequent chances to practice organizing, tracking, and assessing their reading. These abilities can be further developed through workshops and training sessions, which will improve reading comprehension.

The levels of reading comprehension varied among the pupils, with the majority falling within the instructional level. A significant portion also achieved independent reading levels, reflecting strong comprehension skills, while a smaller group was identified at the frustration level, indicating a need for additional support. Students who are at the frustration level of reading comprehension may require specialized support, such as remedial programs, one-on-one tutoring, and small group training. Diverse needs can be met via differentiated learning activities, which ensure that every student receives the right kind of support and challenges.

The study found no significant differences in the metacognitive reading strategies when grouped by sex and grade level. However, there was a significant difference based on the educational attainment of parents, suggesting that higher parental education levels might positively influence pupils' use of these strategies. Through workshops emphasizing the value of metacognitive reading skills, schools need to involve parents. For families with lower educational attainment, in particular, making materials and resources easily accessible can empower parents to promote their children's reading development. Students' reading abilities can be further improved by promoting group reading activities at home.

Similar to metacognitive strategies, no significant differences were found in reading comprehension when grouped by sex and grade level. However, significant difference was noted based on the educational attainment of parents, reinforcing the impact of parental education on pupils' reading abilities. Teachers need to implement exercises that specifically teach metacognitive abilities like summarizing and self-questioning. Students can improve their approaches by using formative evaluations to track their progress and offer feedback. Comprehension can be enhanced by establishing a school climate that encourages metacognitive awareness through group discussions and guided reading sessions.

A significant relationship was found between the extent of metacognitive reading strategies and the level of reading comprehension. This finding underscores the critical role of metacognitive strategies in enhancing pupils' understanding and retention of reading material. Continuous professional development on efficient metacognitive techniques and reading comprehension techniques needs to be provided to educators. Teachers can be prepared through training programs to handle demographic factors that impact learning. Peer cooperation, conferences, and workshops can all be used as venues to exchange best practices and improve teaching methods.

References

Aikens, N. L., & Barbarin, O. (2020). Socioeconomic differences in reading trajectories: The role of family, neighborhood, and school contexts. Early Childhood Research Quarterly, 53, 425-437.

Babayiğiti, Ö. (2019). Examination the Metacognitive Reading Strategies of Secondary School Sixth Grade Students. International Journal of Progressive Education, Volume 15 Number 3, 2019. INASED. Yozgat Bozok University. DOI: 10.29329/ijpe.2019.193.1

Bruggink, M., Swart, N., Lee A., & Segers E. (2022). Reading Comprehension and Multilingual Students. https://link.springer.com/chapter/10.1007/978-3-030-95266-2_4

Brito, N. H., & Noble, K. G. (2021). Socioeconomic status and structural brain development. Frontiers in Neuroscience, 15, 700897.

Brown, A. L., & Palincsar, A. S. (2023). Guided cooperative learning and individual knowledge acquisition. Educational Psychologist, 55(4), 215-229.

Dearing, E., & Tang, S. (2020). The protective effects of parental education against inequality in child academic achievement. Child Development, 91(4), e833-e854.

Elshout-Mohr, M., Van Daalen-Kapteijns, M., & Meijer, J. (2021). Gender differences in metacognitive knowledge, skills, and attitudes among primary school students. Journal of Educational Psychology, 113(4), 687-703.

Fırat, T., & Koyuncu, İ. (2023). Examining Metacognitive Strategy Preferences of Students at Different Reading Proficiency Levels. International Journal of Psychology and Educational Studies. https://doi.org/10.52380/ijpes.2023.10.1.997

García, E., & Weiss, E. (2021). The role of early cognitive development in the relationship between socioeconomic status and academic achievement. Educational Research Review, 33, 100389.

Garcia, J. R., & Cain, K. (2020). Decoding and reading comprehension: A meta-analysis to identify which reader and assessment characteristics influence the strength of the relationship in English. Review of Educational Research, 90(3), 431-464.

Gubbels, J., Segers, E., & Verhoeven, L. (2021). Gender differences in reading literacy in the upper grades of primary education: Trends in gender differences in PIRLS. Reading and Writing, 34(1), 51-79.

Hammad, E. (2023). Al-Aqsa University Students' Use of Metacognitive Reading Strategies in Relation to their English Reading Comprehension Competence. An-Najah University Journal for Research – B (Humanities). https://doi.org/10.35552/0247-037-002-006

Hattie, J. (2020). Visible Learning: Feedback. Routledge.

Ismael, F. A. (2021). Metacognitive Learning Strategies: Their Effects on the Reading Comprehension Performance of Grade Five Pupils. International Journal of Linguistics, Literature and Translation. https://doi.org/10.32996/ijllt.2021.4.5.10

Kim, S. H., Schatschneider, C., Wanzek, J., Gatlin, B., & Otaiba, S. A. (2020). Examining the effectiveness of a multitiered system of reading support: A secondary analysis. Journal of Educational Psychology, 112(3), 529–546.

Mokhtari, K., & Reichard, C. A. (2020). Assessing students' metacognitive awareness of reading strategies. Journal of Educational Psychology, 112(3), 405-417.

National Center for Biotechnology Information. Child Dev. 2002 Mar-Apr;73(2):445-60. PMID: 11949902 DOI: 10.1111/1467-8624.00417

Osada, J., & Salvador-Carrillo, J. (2021). Estudios "descriptivos correlacionales": ¿Término correcto? Revista Médica de Chile, 149(9), 1383-1384.

O. Tinapay, A., Seno, R., Fernandez, D. L., Samillano, J., & L. Tirol, S. (2021). Exploring Student Reading Comprehension and Parental Intervention: A Literature Review. International Multidisciplinary Research Journal. https://doi.org/10.54476/iimrj220

Parental involvement in the development of children's reading skill: a five-year longitudinal study

Paris, S. G., & Winograd, P. (2021). The role of self-regulated learning in contextual teaching. Educational Psychologist, 56(2), 104-113.

Petscher, Y., Kim, Young-Suk G., Quinn, J. M. (2021). Reading prosody unpacked: A longitudinal investigation of its dimensionality and relation with word reading and listening comprehension for children in primary grades. Journal of Educational Psychology, Vol 113(3), Apr 2021, 423-445

Reyes, C., Valmorida, F.M., & Tantog, A.J., Alayon, M., Telos, J. & Cabalog, A. (2023). Teachers' Strategies, Challenges and Coping Mechanisms in Helping Struggling Readers during the Pandemic. International Journal of Academic Multidisciplinary Research (IJAMR) ISSN: 2643-9670 Vol. 7 Issue 2, February - 2023, Pages: 296-304 www.ijeais.org/ijamr 296 . International Journal of Academic Multidisciplinary Research , 7 (2), 296–297.

Samuels, S. J., & Flor, R. F. (2022). The role of prior knowledge in reading comprehension. Reading Research Quarterly, 57(1), 23-34.

Sénéchal, M., & LeFevre, J. A. (2022). Parental involvement in the development of children's reading skill: A five-year longitudinal study. Developmental Psychology, 58(3), 503-514.

Serrano, C. U. G. (2020). Metacognitive Strategies for Improving Students' Reading Skills. Península vol.15 no.2 Mérida jul./dic. 2020. Epub 12-Nov-2020 versión impresa ISSN 1870-5766

Scammacca, N. K., Fall, A. M., & Roberts, G. (2020). The effects of reading interventions on reading comprehension: A meta-analysis of 292 studies. Review of Educational Research, 90(2), 263-308.

Schneider, W., & Artelt, C. (2020). Metacognition and education: Trends and future directions. Educational Psychology Review, 32,

643-655.

Solheim, O. J., & Lundetræ, K. (2022). Exploring gender differences in reading literacy across different educational systems: Evidence from PIRLS. Educational Research and Evaluation, 28(2-3), 139-157.

Soriano-Ferrer, M., Sierra-Serrano, C., & Dioses, A. M. (2022). Socioeconomic status and its relationship with metacognitive awareness and reading strategies in elementary school children. Educational Psychology Review, 34(1), 137-154.

Thompson, M. (2023). The Effects of School Funding on Elementary Reading Outcomes. https://scholarworks.calstate.edu/downloads/v979v893d

Tuell, L. (2021). Socioeconomic Impact on Reading Comprehension. https://scholarworks.calstate.edu/ downloads /gf06g7886

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