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Comparative Analysis of Metacognitive Reading Strategies of Freshmen Students

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ABSTRACT

This study examined the metacognitive reading strategies employed by freshmen students at Patria Sable, Cagayan Valley Computer and Information Technology College, and the University of La Salette Incorporated. Specifically, it explored the most frequently used strategies and differences in strategy use based on students' profiles. A descriptive-comparative research design was utilized, incorporating the Metacognitive Reading Strategies Inventory and a reading test. The study included 176 respondents from Business Administration and Accountancy programs, with a majority preferring printed over digital reading materials. Findings indicated that Problem-Solving Strategies were the most frequently used, followed by Global Strategies and Support Strategies. However, overall metacognitive strategy use was inconsistent, suggesting limited awareness and self-regulation. While sex and reading material preference had minimal influence on strategy use, students' academic programs significantly affected their metacognitive engagement. Notably, Accountancy students demonstrated greater strategy use compared to Marketing Management students, highlighting possible curriculum-related differences. These findings underscore the need for targeted interventions to enhance students' metacognitive awareness and independence in reading.

1. INTRODUCTION

The ability to read is essential to function effectively in a literate society (Roe et al., 2018; Samsudin et al., 2025). One of the reasons why people attend schools is for them to learn how to read. Reading can be used in all aspects of life such as reading signs, menus in a restaurant, directions, and many more. Reading involves a combination of understanding, being precise, and being fluent which is a basic requirement of competence-increasing. This is particularly important in a competitive job market where a lot of jobs require advanced reading skills (Isma & Nur, 2023; Rafanan & Raymundo, 2024). Unfortunately, even though reading is already part of people's daily lives and part of the curriculum, there are still many students who find it difficult to understand the text they are reading.

Reading comprehension is a capacity developed through practice, education, and experience. As regards the words "dog," "banana," and "walk," knowing these words may appear simple, but reading comprehension goes beyond identifying words. It means understanding what each word contributes to the overall context and deriving higher order meaning from oral or written communication (Hastini et al., 2023; K12Reader, 2018; Kondo et al., 2023). This implies that a person cannot grasp the overall message of a certain text just by recognizing words on it but by using those words to understand the deeper meaning of the text. With this, developing reading comprehension is necessary to become successful in academics, day-to-day interaction, and lifelong learning.

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In the Philippine context, English functions as a second language and is widely spoken. However, national and international assessments continue to reveal concerning patterns in reading proficiency. According to the Program for International Student Assessment (PISA), Filipino students have consistently under-performed in reading, science, and mathematics compared to global benchmarks (Malipot, 2023). In 2018, the country scored the lowest in reading comprehension out of 79 participating nations, with an average score of 340—underscoring a national learning crisis. In today's fast-paced digital world, poor comprehension can lead to misinformation, miscommunication, and long-term societal consequences.

To address this issue, educational stakeholders have promoted evidence-based reading strategies. Sattar & Salehi (2014) emphasized that strategic approaches help learners navigate and manage reading challenges using appropriate cognitive tools. Among these are metacognitive reading strategies, which involve conscious planning, monitoring, and evaluating one's reading process. These strategies are categorized into global, problem-solving, and support strategies—concepts central to the Metacognitive Awareness of Reading Strategies Inventory (MARSI) by Mokhtari & Reichard (2002). The theoretical framework of this study is based on Flavell's (1979) metacognition theory, which focuses on learners' awareness and regulation of their own thinking. Applied to reading, students who are metacognitively aware tend to engage in intentional strategies that enhance comprehension outcomes.

Despite growing recognition of the benefits of metacognitive strategies, research on their application remains limited, especially in local contexts. In particular, little is known about how demographic variables such as sex, academic program, and preferred reading materials influence strategy use. Addressing this gap, the current study investigates metacognitive reading strategies among freshmen from three private colleges in Santiago City, Philippines. It identifies the most frequently used strategies and analyzes differences in strategy use based on student profiles. By doing so, this study aims to inform targeted pedagogical interventions and contribute to the development of more inclusive reading programs.

2. METHODS

2.1 Research Design and Participants

This study employed a descriptive–comparative design, which enabled the analysis of metacognitive reading strategy use across defined demographic groups (Fraenkel et al., 1993). The goal was to identify the extent to which variables such as sex, course, and reading material preference influenced freshmen students' application of metacognitive reading strategies.

The research was conducted at three private colleges located in Santiago City, Isabela: University of La Salette, La Patria College, and Cagayan Valley Computer and Information Technology College. These institutions were selected based on accessibility and the availability of comparable academic programs in Accountancy and Marketing Management. The target population comprised freshmen enrolled in the academic year 2023–2024 as they were in a critical phase of adapting to the reading demands of higher education. A sample of 176 students was determined using Slovin's formula, ensuring a 5% margin of error. The respondents were chosen through stratified random sampling.

Table 1. Distribution of the Respondents

Respondents' School	Population	Sample
University of La Salette	110	86
Cagayan Valley Computer and Information Technology College	64	55
Patria Sable Corpus College	38	35

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2.2 Instruments and Data Collection

The researcher used two instruments to collect the needed information from the respondents. First, a structured questionnaire was used. It consists of two parts: Part 1 includes the personal details about the respondents such as sex, course, and types of reading materials that they preferably use to improve their reading comprehension; and Part 2 comprises the metacognitive reading strategies used by the respondents. It is a 30-item Metacognitive Awareness of Reading Strategies Inventory (MARSI) developed by Mokhtari & Reichard (2002), as cited in the study titled "Investigating Metacognitive Awareness of Reading Strategies to Strengthen Students' Performance in Reading Comprehension by Fitrisia et al. (2015). It has three domains of metacognitive reading strategies such as global strategies with 13 indicators (1, 3, 4, 7, 10, 14, 17, 19, 22, 23, 25, 26, 29), problem-solving strategies with 8 indicators (8, 11, 13, 16, 18, 21, 27, 30), and support reading strategies with 9 indicators (2, 5, 6, 9, 12, 15, 20, 24, 28). The second instrument that the researcher utilized is a 40-item reading test based on the IELTS (International English Language Testing System) reading exam (Cullen et al., 2014). To gather the relevant data, the researcher wrote a letter and obtained approval from college administrators and instructors to administer questionnaires and an IELTS-based reading test during class sessions. Ethical consent was obtained from participants, ensuring privacy. After collecting the questionnaires, the researcher proceeded with the reading test, assisted by instructors, and allowed one hour for completion. Finally, the gathered data was tallied, analyzed, and interpreted.

2.3 Data Analysis

This research used descriptive and inferential statistics. Specifically, frequency distribution and percentage were employed to determine the personal related variables of the respondents such as sex, course, and types of preferred reading materials. On the other hand, weighted mean was utilized to determine the metacognitive reading strategies they use while they are reading passages. To test the differences in the metacognitive reading strategies of the respondents when they are grouped according to their profile, independent sample T-test will be utilized.

3. FINDINGS AND DISCUSSION

3.1 Profile of the Respondents

Table 2. Demographic Profile of the Respondents Based on Sex, Course, and Preferred Reading Materials

Profile	Frequency (n=176)	Percent
Sex		
Male	56	31.80
Female	120	68.20
Course		
BSBA-MM	90	51.10
BSA	86	48.90
Preferred Reading Materials		
Printed	106	60.20
Digital	70	39.80

Table 2 presents the frequency and percentage distribution of 176 freshmen students based on gender, academic program, and preferred reading materials. The majority of respondents were female, comprising 120 students (68.20%), while 56 students (31.80%) were male. Regarding academic programs, 90 students (51.10%) were enrolled in the Bachelor of Science in Business Administration

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major in Marketing Management (BSBA-MM), and 86 students (48.90%) were pursuing a Bachelor of Science in Accountancy (BSA).

In terms of reading preferences, 106 students (60.20%) favored printed materials, while 70 students (39.80%) preferred digital formats. Despite the prevalence of digital technology, printed texts remained the preferred choice for many, as they were perceived to be easier to navigate, less distracting, and more conducive to focused reading. These findings support those of Suhartini & Ulfa (2024), who reported that students found printed books more engaging and easier to use.

3.2 Metacognitive Reading Strategies Used by the Respondents

Table 3. Mean Scores of Metacognitive Reading Strategies Across Three Domains

Metacognitive Reading Strategies	Mean	Qualitative Description
Global Strategies		
I have a purpose in mind when I read.	3.26	Always
I think about what I know to help me understand what I read.	3.26	Always
I preview the text to see what it's about before reading it.	3.16	Usually
I think about whether the content of the text fits my reading purpose.	3.10	Usually
I skim the text first by noting characteristics like length and organization.	2.74	Usually
I decide what to read closely and what to ignore.	2.92	Usually
I use tables, figures, and pictures in text to increase my understanding.	2.81	Usually
I use context clues to help me better understand what I'm reading.	3.22	Usually
I use typographical aids like bold face and italics to identify key information.	2.90	Usually
I critically analyze and evaluate the information presented in the text.	3.19	Usually
I check my understanding when I come across conflicting information.	3.18	Usually
I try to guess what the material is about when I read.	3.11	Usually
I check to see if my guesses about the text are right and wrong.	3.25	Always
Weighted Mean	3.09	Usually
Problem-Solving Strategies		
I read slowly but carefully to be sure I understand what I'm reading.	3.35	Always
I try to get back on track when I lose concentration.	3.24	Usually
I adjust my reading speed according to what I'm reading.	3.19	Usually
When text becomes difficult, I pay closer attention to what I'm reading.	3.38	Always
I stop from time to time and think about what I'm reading.	2.99	Usually
I try to picture or visualize information to help remember what I read.	3.39	Always
When text becomes difficult, I re-read to increase my understanding.	3.42	Always
I try to guess the meaning of unknown words or phrases.	3.11	Usually
Weighted Mean	3.28	Always
Support Reading Strategies		
Take notes while reading to help me understand what I read.	3.08	Usually

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When text becomes difficult, I read aloud to help understand what I read.	2.87	Usually
I summarize what I read to reflect on important information in the text.	2.99	Usually
I discuss what I read with others to check my understanding.	2.86	Usually
I underline or circle information in the text to help me remember it.	3.27	Always
I use reference materials such as dictionaries to help me understand what I read.	2.87	Usually
I paraphrase (restate ideas in my own words) to better understand what I read.	3.16	Usually
I go back and forth in the text to find relationships among ideas in it.	3.20	Usually
I ask myself questions I like to have answered in the text.	3.13	Usually
Weighted Mean	3.05	Usually
Grand Mean	3.14	Usually

Table 3 shows the metacognitive reading strategies that the respondents used to better understand texts. From the data collected, it was perceived that respondents usually used metacognitive reading strategies, with a grand mean of 3.14. This implied that respondents were more likely to apply metacognitive reading strategies when reading. By planning, monitoring, and evaluating their reading processes, they were able to better grasp intricate content, which was essential in academic settings. This was supported by the study of Tyfekçi (2023), which found that metacognitive strategies involved planning, self-monitoring, and self-evaluation to check comprehension during reading. However, the inconsistent use of these strategies was attributed to individual differences and varying levels of awareness regarding their application. This aligned with the findings of Aziz et al. (2023), who stated that students exhibited inconsistent use of metacognitive reading skills due to a lack of awareness, independence, and other personal differences. The study further highlighted that some learners demonstrated improved motivation, academic achievement, self-regulation, and enhanced reading skills when they applied specific metacognitive strategies. It concluded that enhancing these attributes could lead to better application of reading strategies.

Metacognitive reading strategies were classified into three categories: Global Strategies, Problem-Solving Strategies, and Support Reading Strategies.

3.2.1 Global Strategies

Based on the data gathered, the global strategies were generally rated as “usually” with a weighted mean of 3.09. This meant that the respondents used global strategies frequently, though not always. These strategies involved approaches aimed at achieving a broad understanding of the text, emphasizing overall comprehension rather than focusing on individual details. Additionally, the data showed that respondents consistently read with a clear purpose in mind, as reflected by the highest weighted mean of 3.26. This suggested that setting reading goals was a common practice among the respondents, which helped them better comprehend the material. The benefits of purposeful reading were supported by Astuti & Girsang (2022), who found that students who read with a specific goal were more likely to focus on relevant information, reduce distractions, and enhance their overall engagement with the text.

Conversely, the strategy of skimming the text by noting characteristics such as length and organization garnered a weighted mean of 2.74, the lowest among the strategies assessed, despite still being usually applied by the respondents. This suggested that respondents may have perceived this approach as less effective, likely due to the potential for missing crucial information necessary for grasping the overall meaning of the text. However, Mostafa (2022) revealed that skimming educational reading texts helped students quickly grasp the main ideas and key points of the text. Some students,

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however, may have feared that skimming could cause them to miss important details or nuances in the text, leading them to use it less frequently compared to other global reading strategies.

3.2.2 Problem-Solving Strategies

In terms of problem-solving strategies, the data revealed that respondents always used them when reading, with a weighted mean of 3.28. This was due to the fact that these strategies directly targeted the problems encountered during reading, as problem-solving strategies were defined as specific techniques used by learners to overcome challenges in the reading process. As shown in the findings of Septiani et al. (2023), by employing problem-solving strategies, students could overcome obstacles such as unfamiliar vocabulary, complex sentence structures, or ambiguous passages, thereby improving their overall reading comprehension skills.

Specifically, as gleaned from the table, respondents always applied re-reading to increase their understanding when the text became difficult, receiving the highest weighted mean of 3.42. Through re-reading, respondents were able to identify problems in the text and check if their understanding was correct. The study of Mardiningrum & Salsabilla (2022) showed that re-reading helped clarify vague information, promoting deeper understanding. Additionally, this strategy enabled readers to locate and address specific challenges or confusion in the text, leading to improved problem-solving skills.

On the other hand, the data showed that stopping from time to time to think about what they were reading received the lowest weighted mean of 2.99. This meant that while respondents usually used this strategy, they did not use it as frequently as other problem-solving strategies, and they perceived it as less effective compared to the rest of the problem-solving strategies, likely because they viewed it as a disturbance and a time-consuming act. To corroborate these findings, Joly (2007) revealed in her study that some readers perceived frequent stops as disruptive to the reading process, potentially hindering the adoption of this strategy for problem-solving purposes. Contrary to this, Schilperoord (2002) posited that pauses facilitated cognitive processes such as monitoring and retrieving information, enhancing overall comprehension.

3.2.3 Support Reading Strategies

In terms of support reading strategies, respondents used them "usually," with a weighted mean of 3.05. This suggested that respondents applied support reading strategies frequently but not as consistently as problem-solving strategies. These strategies involved utilizing external resources or tools to enhance understanding and learning during the reading process. These strategies included summarizing, note-taking, annotating, and underlining important details.

Based on the data, underlining the text to aid memory received the highest weighted mean of 3.27, meaning that respondents always used this strategy compared to other support reading strategies. This was likely because underlining important information helped them better understand the text and strengthen their retention of information. This aligned with Azzahra (2021), who found that there was a strong positive correlation between students' underlining habits and their reading comprehension skills. Underlining the text helped students become more involved with the material, leading to improved comprehension and knowledge retention.

On the contrary, discussing what they read with others to check their understanding received the lowest weighted mean of 2.86, although this strategy was still usually used by respondents, this was likely the least used supporting strategy due to respondents' lack of confidence in sharing their interpretations and fear of making mistakes. This finding was also reflected in the study of Mardianti & Wijayanti (2021), who stated that some students had low self-esteem in their comprehension abilities and preferred relying on their own strategies rather than engaging in group discussions to verify their understanding.

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3.3 Differences in Metacognitive Reading Strategies Used by Respondents When Grouped According to Profile

Table 4. Differences in Metacognitive Reading Strategies by Sex

Metacognitive Reading Strategies	Group Means		t-value	Cohen's d (Effect Size)	p-value
	Male	Female			
Global Strategies					
I have a purpose in mind when I read.	3.36	3.22	1.34	-0.22	0.18
I think about what I know to help me understand what I read.	3.32	3.23	0.80	-0.13	0.42
I preview the text to see what it's about before reading it.	3.11	3.19	-0.66	0.10	0.51
I think about whether the content of the text fits my reading purpose.	3.00	3.14	-1.34	0.21	0.18
I skim the text first by noting characteristics like length and organization.	2.66	2.78	-1.02	0.16	0.31
I decide what to read closely and what to ignore.	2.86	2.95	-0.68	0.11	0.50
I use tables, figures, and pictures in text to increase my understanding.	2.84	2.80	0.28	-0.04	0.78
I use context clues to help me better understand what I'm reading.	3.16	3.25	-0.33	0.05	0.74
I use typographical aids like bold face and italics to identify key information.	2.93	2.88	0.34	-0.05	0.74
I critically analyze and evaluate the information presented in the text.	3.14	3.21	-0.61	0.09	0.54
I check my understanding when I come across conflicting information.	3.18	3.18	-0.04	0	0.97
I try to guess what the material is about when I read.	3.27	3.03	1.94	-0.31	0.06
I check to see if my guesses about the text are right and wrong.	3.30	3.23	0.66	-0.10	0.51
Problem-Solving Strategies					
I read slowly but carefully to be sure I understand what I'm reading.	3.43	3.32	1.05	-0.17	0.30
I try to get back on track when I lose concentration.	3.25	3.24	0.07	-0.01	0.94
I adjust my reading speed according to what I'm reading.	3.16	3.21	-0.42	0.06	0.68
When text becomes difficult, I pay closer attention to what I'm reading.	3.45	3.34	0.93	-0.15	0.36
I stop from time to time and think about what I'm reading.	3.04	2.98	0.48	-0.07	0.63
I try to picture or visualize information to help remember what I read.	3.34	3.41	-0.62	0.10	0.53

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When text becomes difficult, I re-read to increase my understanding.	3.46	3.40	0.60	-0.09	0.55
I try to guess the meaning of unknown words or phrases.	3.20	3.08	0.94	-0.15	0.35
Support Reading Strategies					
Take notes while reading to help me understand what I read.	3.04	3.10	-0.55	0.09	0.58
When text becomes difficult, I read aloud to help understand what I read.	2.79	2.91	-0.81	0.13	0.42
I summarize what I read to reflect on important information in the text.	2.98	3.00	-0.14	0.02	0.89
I discuss what I read with others to check my understanding.	2.96	2.82	1.14	-0.18	0.26
I underline or circle information in the text to help me remember it.	3.32	3.25	0.52	-0.08	0.61
I use reference materials such as dictionaries to help me understand what I read.	2.89	2.86	0.26	-0.04	0.79
I paraphrase (restate ideas in my own words) to better understand what I read.	3.21	3.14	0.60	-0.10	0.55
I go back and forth in the text to find relationships among ideas in it.	3.23	3.18	0.43	-0.07	0.67
I ask myself questions I like to have answered in the text.	3.16	3.12	0.36	-0.06	0.72

Table 4 presents the differences in the metacognitive reading strategies of the respondents when grouped according to sex. The table showed that regardless of sex, respondents applied the same metacognitive strategies in the use of global strategies, problem-solving strategies, and support reading strategies whenever they read, as all the p-values were greater than 0.05. Therefore, the null hypothesis was accepted, indicating no significant difference. According to Deliany & Cahyono (2020), factors such as individual learning styles or educational background were more influential in determining metacognitive awareness rather than the gender of the individual. Furthermore, Zehner et al. (2018) found that individual cognitive processes and educational circumstances had a greater influence on the use of reading strategies than gender.

The statistical analysis reveals that regardless of sex, both male and female respondents employed the same global strategies when reading. This suggested that gender did not affect their overall awareness of the text. A similar finding was reported by Deliany & Cahyono (2020), whose study concluded that gender did not play a significant role in determining awareness and use of these strategies. Moreover, the data shows that gender did not have any effect on the problem-solving strategies of the respondents. This was likely because both male and female readers encountered the same problems and dealt with them similarly. As shown in the study of Hezam et al. (2022), male and female EFL learners experienced challenges in a similar way, indicating that students of both genders faced identical problems when reading English. The findings of this study justified that gender did not have a significant effect on difficulties in reading comprehension, as both males and females encountered the same problems.

Furthermore, the data reveals no significant difference between males and females regarding the use of support reading strategies, likely because both groups had equal access to reading materials and were equally taught how to use them. These findings were strengthened by the study of Hu et al. (2024),

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which found that teachers developed standard teaching procedures that required students of both genders to embrace and use support reading strategies.

Additionally, while males and females show slight differences in some individual strategies, the overall effect sizes are small across all categories. This suggests that gender does not meaningfully affect the use of metacognitive reading strategies in this dataset. According to Cohen's benchmarks, a d below 0.20 is considered a small effect, indicating that any observed differences are minimal and unlikely to have practical significance. That is, both male and female students apply these strategies at relatively similar levels, and any differences are not strong enough to warrant gender-specific conclusions or interventions.

Table 5. Differences in Metacognitive Reading Strategies by Course

Metacognitive Reading Strategies	Group Means		t-value	Cohen's d (Effect Size)	p-value
	BSBA-MM	BSA			
Global Strategies					
I have a purpose in mind when I read.	3.11	3.42	-3.22	0.49	0.01*
I think about what I know to help me understand what I read.	3.07	3.47	-4.08	0.62	0.01*
I preview the text to see what it's about before reading it.	3.14	3.19	-0.35	0.05	0.73
I think about whether the content of the text fits my reading purpose.	3.06	3.14	-0.85	0.13	0.40
I skim the text first by noting characteristics like length and organization.	2.72	2.77	-0.40	0.06	0.69
I decide what to read closely and what to ignore.	2.79	3.06	-2.15	0.32	0.03*
I use tables, figures, and pictures in text to increase my understanding.	2.69	2.94	-1.93	0.29	0.06
I use context clues to help me better understand what I'm reading.	3.23	3.21	0.10	-0.01	0.92
I use typographical aids like bold face and italics to identify key information.	2.74	3.06	-2.55	0.38	0.01*
I critically analyze and evaluate the information presented in the text.	3.12	3.26	-1.34	0.20	0.18
I check my understanding when I come across conflicting information.	3.04	3.33	-2.81	0.42	0.01*
I try to guess what the material is about when I read.	2.98	3.24	-2.38	0.36	0.02*
I check to see if my guesses about the text are right and wrong.	3.07	3.44	-3.52	0.53	0.01*
Problem-Solving Strategies					
I read slowly but carefully to be sure I understand what I'm reading.	3.30	3.41	-1.08	0.16	0.28
I try to get back on track when I lose concentration.	3.13	3.36	-2.12	0.32	0.04*
I adjust my reading speed according to what I'm reading.	3.09	3.30	-2.02	0.31	0.04*

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When text becomes difficult, I pay closer attention to what I'm reading.	3.24	3.51	-2.58	0.39	0.01*
I stop from time to time and think about what I'm reading.	2.79	3.21	-3.73	0.56	0.01*
I try to picture or visualize information to help remember what I read.	3.27	3.51	-2.41	0.36	0.02*
When text becomes difficult, I re-read to increase my understanding.	3.28	3.57	-2.99	0.45	0.01*
I try to guess the meaning of unknown words or phrases.	2.92	3.31	-3.34	0.50	0.01*
Support Reading Strategies					
Take notes while reading to help me understand what I read.	2.99	3.17	-1.72	0.26	0.09
When text becomes difficult, I read aloud to help understand what I read.	2.76	2.99	-1.67	0.25	0.10
I summarize what I read to reflect on important information in the text.	2.94	3.05	-0.85	0.13	0.40
I discuss what I read with others to check my understanding.	2.76	2.98	-1.84	0.28	0.07
I underline or circle information in the text to help me remember it.	3.12	3.43	-2.43	0.37	0.02*
I use reference materials such as dictionaries to help me understand what I read.	2.68	3.07	-3.31	0.50	0.01*
I paraphrase (restate ideas in my own words) to better understand what I read.	3.11	3.22	-0.98	0.15	0.33
I go back and forth in the text to find relationships among ideas in it.	3.00	3.41	-4.01	0.61	0.01*
I ask myself questions I like to have answered in the text.	2.99	3.28	-2.59	0.39	0.01*

Table 5 shows the differences in the use of metacognitive reading strategies between accountancy and marketing management students. The findings indicated that accountancy students utilized these strategies more frequently and effectively than their counterparts in several domains under global, problem-solving, and support strategies that yielded significant differences $p < 0.05$. Accountancy students more often read with a clear purpose, activated prior knowledge, critically evaluated texts, and verified their understanding of what they read. Problem-solving strategies were also used to a greater extent by them through adjusting reading speed, rereading, and visualizing content. In addition to these support strategies were underlining, using reference materials, and cross-referencing. All these patterns suggest a more strategic and engaged approach to reading by Accountancy Students which may in turn lead to better comprehension and retention results.

Significant differences in the use of global reading strategies were found between BSA (accounting) and BSBA-MM (marketing management) students. BSA students always had a purpose for their reading ($p = 0.01$), activated prior knowledge more often ($p = 0.01$), and were more selective in reading choices than their peers ($p = 0.03$). According to Choy & Derrick (2019), these habits were critical for mastering accounting material, thus embracing the cumulative nature of accounting education; instead, Marketing students often lacked a clear purpose due to a limited focus on reading strategies within their programs

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as noted by Fowler et al. (2019). BSA students also demonstrated greater effectiveness in using typographical aids at a statistically significant level p = 0.01 thereby allowing them to concentrate on relevant information as discussed by McNamara (2007). In addition, it was evident that BSA students were better at handling conflicting information p = 0.01, where metacognitive strategies used verifications among them and accounted for the very essence of accounting education (Dean & Jolly, 2012). BSA students consistently scored higher in global metacognitive strategies. Several medium effect sizes (e.g., setting reading purposes, connecting prior knowledge, checking understanding, verifying guesses). This indicates meaningful and practical differences, with BSA students demonstrating stronger global awareness and reading purpose control. BSA students appear to use metacognitive reading strategies more effectively, particularly in planning, self-monitoring, and evaluation.

In terms of problem-solving strategies, accounting students showed greater ability to refocus after disruption (p = 0.04) and change reading speed (p = 0.04) which may be attributed to the large amount of reading involved within accounting (Choy & Derrick, 2019; Tamayo, 2023). They also listened more when text was challenging (p = 0.01), resulting in better comprehension (Dunakhir & Osman, 2023). BSA students exceeded BSBA-MM students in monitoring comprehension, rereading, visualizing, and self-correction, particularly regarding “stopping to think about what they are reading” (p 0.56), reflecting higher cognitive engagement and problem-solving skills that were cultivated during their demanding academic preparation (Berndt et al., 2016). All effect sizes range from small to medium (d = 0.16 to 0.56). Six out of eight strategies show medium effect sizes, which indicates meaningful practical differences. BSA students consistently outperform BSBA-MM in monitoring comprehension, re-reading, mental visualization, and self-correction. The most notable difference is "Stopping to think about what they are reading" (d = 0.56) — BSA students are significantly more reflective readers. BSA students show stronger cognitive engagement and better problem-solving behavior during reading. This could reflect the demanding and detail-oriented nature of accounting texts, which may encourage more reflective and strategic reading habits. BSBA-MM students, while still competent, seem to use fewer active strategies to resolve comprehension breakdowns.

Furthermore, there were notable gaps in four out of nine supportive reading strategies employed by BSA and BSBA-MM students. The Accounting students for instance were more in the practice of underlining or circling key information (p=0.02) as Raskin (2021) contends that critical reading is imperative to the field. This specialisation also utilized reference materials like dictionaries more often (p=0.01) to explain constituents of complex accounting terminology (Handayani et al., 2022), whereas for Vafeas (2013) Marketing students appeared to keep reading without the need for clarification. Moreover, Accounting students appeared to spend more time going back to the reading and looking for the relationships between ideas as this helped them (p=0.01) comprehend the complex materials (Dunakhir & Osman, 2023). This specialization also self-questioned more frequently (p=0.01) which enhanced comprehension and critical analysis (Brown & Pyle, 2021). On the other hand, these strategies seemed underutilized by Marketing students who likely possessed a limited emphasis on reading and critical thinking in their curriculum (Choy & Derrick, 2019). Effect sizes indicate that while most reading strategy differences between BSBA-MM and BSA students are small, BSA students significantly excel in strategies requiring deeper cognitive effort. They show greater use of reference materials (d = 0.50), self-questioning (d = 0.39), and reflective rereading (d = 0.61), suggesting higher metacognitive awareness. These findings imply that BSA students, likely due to the analytical nature of their coursework, are more strategic and engaged in reading strategies linked to higher-order thinking and academic success.

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Table 6. Differences in Metacognitive Reading Strategies by Preferred Reading Materials

Metacognitive Reading Strategies	Group Means		t-value	Cohen's d (Effect Size)	p-value
	Printed	Digital			
Global Strategies					
I have a purpose in mind when I read.	3.22	3.33	-1.12	0.17	0.27
I think about what I know to help me understand what I read.	3.25	3.29	-0.39	0.06	0.70
I preview the text to see what it's about before reading it.	3.10	3.26	-1.26	0.19	0.21
I think about whether the content of the text fits my reading purpose.	3.12	3.06	0.65	-0.10	0.52
I skim the text first by noting characteristics like length and organization.	2.80	2.66	1.26	-0.19	0.21
I decide what to read closely and what to ignore.	3.00	2.80	1.56	-0.24	0.12
I use tables, figures, and pictures in text to increase my understanding.	2.75	2.91	-1.25	-0.19	0.21
I use context clues to help me better understand what I'm reading.	3.33	3.06	1.06	-0.16	0.29
I use typographical aids like bold face and italics to identify key information.	2.82	3.01	-1.52	0.23	0.13
I critically analyze and evaluate the information presented in the text.	3.16	3.23	-0.67	0.10	0.51
I check my understanding when I come across conflicting information.	3.22	3.13	0.85	-0.13	0.40
I try to guess what the material is about when I read.	3.05	3.20	-1.32	0.20	0.19
I check to see if my guesses about the text are right and wrong	3.29	3.19	0.95	-0.15	0.34
Problem-Solving Strategies					
I read slowly but carefully to be sure I understand what I'm reading.	3.39	3.30	0.85	-0.13	0.39
I try to get back on track when I lose concentration.	3.33	3.11	1.97	-0.30	0.05*
I adjust my reading speed according to what I'm reading.	3.24	3.13	0.99	-0.15	0.33
When text becomes difficult, I pay closer attention to what I'm reading.	3.39	3.36	0.28	-0.04	0.78
I stop from time to time and think about what I'm reading.	3.01	2.97	0.32	-0.05	0.75
I try to picture or visualize information to help remember what I read.	3.42	3.33	0.91	-0.14	0.36
When text becomes difficult, I re-read to increase my understanding.	3.38	3.49	-1.06	0.16	0.29
I try to guess the meaning of unknown words or phrases.	3.16	3.04	0.95	-0.15	0.34

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Support Reading Strategies					
Take notes while reading to help me understand what I read.	3.10	3.04	0.55	-0.08	0.58
When text becomes difficult, I read aloud to help understand what I read.	2.85	2.90	-0.35	0.05	0.72
I summarize what I read to reflect on important information in the text.	3.02	2.96	0.50	-0.08	0.62
I discuss what I read with others to check my understanding.	2.85	2.89	-0.30	0.05	0.77
I underline or circle information in the text to help me remember it.	3.33	3.19	1.10	-0.17	0.27
I use reference materials such as dictionaries to help me understand what I read.	2.84	2.91	-0.60	0.09	0.55
I paraphrase (restate ideas in my own words) to better understand what I read.	3.24	3.06	1.57	-0.24	0.12
I go back and forth in the text to find relationships among ideas in it.	3.19	3.21	-0.24	0.04	0.81
I ask myself questions I like to have answered in the text.	3.13	3.12	0.03	-0.00	0.98

Table 6 displays the differences in metacognitive reading strategies based on respondents' preferred reading materials. The data revealed no significant difference between metacognitive reading strategies and reading material preferences, likely because these strategies could be applied to both digital and printed texts to enhance comprehension. Although challenges existed in both formats, they did not significantly affect how readers addressed them. This finding aligned with Ronconi et al. (2022) who found that participants performed similarly across reading media and time frames in terms of text processing, metacognitive monitoring, and comprehension outcomes. While print yielded slightly higher comprehension scores, the difference was not significant, reinforcing evidence that neither medium was inherently superior.

However, the data shows a significant difference in respondents' ability to regain concentration after losing focus. They found it easier to refocus when reading printed materials rather than digital ones, likely due to digital distractions such as social media notifications. In contrast, printed materials allowed for better focus, as they were physically held and had fewer interruptions. This supported Ziegler's (2019) study, which found that students experienced higher reading fatigue with digital text than with print, leading to decreased comprehension and recall.

Among all the metacognitive reading strategies, most of the differences between printed and digital readers were small or negligible, indicating that reading format alone does not drastically alter metacognitive behavior. However, the only statistically significant and practically meaningful difference was found in "Getting back on track when losing concentration", where printed readers performed significantly better with a small-to-moderate effect size (d = -0.30). The effect size of -0.30 is in the small-to-moderate range, suggesting this is not just statistically significant, but practically meaningful. This result highlights that printed texts may better support focus and recovery from distraction during reading, which is particularly relevant in academic settings where sustained attention is crucial. Educators may wish to recommend printed materials for complex or high stakes reading tasks especially for students who struggle with attention or are easily distracted.

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4. CONCLUSION

Based on the findings of the study, it was revealed that sex and preferred reading materials did not significantly influence the use of metacognitive reading strategies among the respondents. However, a statistically significant difference was found across academic courses, indicating that students from different fields of study employ metacognitive strategies to varying degrees. This underscores the importance of integrating reading strategy instruction across all disciplines, not just in language or education-related programs. Faculty members, especially in non-language courses, should be encouraged to embed reading tasks that promote strategic thinking, such as previewing texts, asking questions, and self-monitoring comprehension. Additionally, the findings highlight the need for institution-wide literacy interventions that ensure all students, regardless of course, receive equal opportunities to develop and apply metacognitive reading strategies.

Furthermore, the study reinforces the value of explicitly teaching students how to maximize different types of metacognitive strategies: global, problem-solving, and support strategies—to enhance their reading comprehension. Educators should consider incorporating these strategies into instructional design through modeled practice, guided reading activities, and reflective exercises. By doing so, they can help students become more self-aware and effective readers, better equipped for academic success and lifelong learning.

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