

Metacognitive Online Reading, Navigational Strategies, and the Reading Performance of the Grade 11 HUMMS of Pedro T. Mendiola Sr. Memorial National High School

Melanie M. Domingo¹ & Venessa S. Casanova¹

¹Occidental Mindoro State College, Labangan Poblacion, San Jose, Occidental Mindoro, Philippines

Correspondence: Venessa S. Casanova, Occidental Mindoro State College, Labangan Poblacion, San Jose, Occidental Mindoro, Philippines.

Received: March 31, 2022

Accepted: May 14, 2022

Online Published: May 26, 2022

doi:10.5539/jel.v11n4p61

URL: <https://doi.org/10.5539/jel.v11n4p61>

Abstract

This predictive, cross-sectional study aimed to determine the metacognitive online reading and navigational strategies and their relation to the reading performance of Grade 11 HUMSS Students of Pedro T. Mendiola Sr. Memorial National High School. Furthermore, the study also investigated which factors of metacognitive online reading and navigational strategies significantly influence the respondents' reading performance. One hundred twenty-five (125) students selected through simple random sampling participated in the study. Data were gathered using a Google Form and reading fluency test. Descriptive Statistics such as weighted mean, Pearson-Product correlation, and regression analysis were used to interpret the data. The students' extent of the metacognitive online reading and navigational strategies is high, while the students' reading performance is instructional. The metacognitive online reading strategy is strongly related to reading performance. The navigational strategy is moderately related to reading performance. All indicators of metacognitive online learning strategy significantly predict reading performance. Only mixed overview as an indicator of navigational strategy significantly predicts the reading performance. Senior High school students who used metacognitive online reading navigational strategies had definite reading goals in mind and knew how to accomplish them. Students need teacher support at the instructional reading performance level. The metacognitive and navigational strategies significantly predict and influence the respondents' reading performance.

Keywords: metacognitive online learning strategies, navigational strategies, reading performance

1. Introduction

For many years, learners who have finished the education system exit without comprehending what they read (Adrianatos, 2019). Yet, understanding the text read is integral to this success. Indeed, reading is one of the functional academic literacy abilities (Butler, 2020).

On December 3, 2019, PISA results revealed that the Philippines scored 353 in Mathematics, 357 in Science, and 340 in Reading, all below the participating Organization for Economic Cooperation and Development (OECD) countries. PISA (2018) reported that the Philippines had poor performance in reading and second-lowest for both Mathematics and Science (Mocon-Ciriaco, 2019). The presented results called for the identification of difficulties experienced by Filipino students in terms of reading performance.

The Department of Education (DepEd) was mandated to ensure quality basic education for all Filipinos. For 2018, Reading Literacy was assessed as a significant domain, and the students' mathematical and Scientific Literacy were assessed as minor domains. Competence was also included as an innovative assessment. Their report found that Filipino students obtained an average score of 340 points in Overall Reading Literacy, significantly lower than the OECD average of 487 points. Also, only 1 out of 5 Filipino students (19.4%) achieved at least the minimum proficiency level (Level 2) in Overall Reading Literacy. And among the participating ASEAN countries, Filipino students performed closest to but significantly behind Indonesian students by 31 points in Overall Reading Literacy (DepEd.gov.ph., 2018).

Imam et al. (2014) revealed that students in high schools in the Philippines have low vocabulary mastery and noted details, considered first-level (easiest) reading skills. Cabardo (2015) added that most students belonged to the frustration level of reading proficiency in silent reading while in instructional level for oral reading.

Moreover, most males are less proficient in reading than females in silent and oral reading.

The reading above scenario is the same as the students' experience in the Pedro T. Mendiola Sr. Memorial National High School (PTMSMNHS). Results of the Philippine Informal Reading Inventory report in School Year 2019–2021 revealed that 49% of the students in oral reading performance belonged to the instructional level and .06% in the frustration level. Meanwhile, the silent reading test results showed that 36% of the students are at the instructional level, and .02% of the total population is at the frustration level. The figures showed that almost one-half of the school population is in the instructional and frustration level of reading performance.

The scenario mentioned above caught the attention of the researchers to investigate the strategies employed by the students during online reading, especially now that technologies and the covid-19 pandemic changed how students learn. Coiro (2011) stated that traditional conceptions of reading comprehension might no longer be sufficient in online reading contexts. The skills and strategies required to comprehend printed text are intertwined with new and more complex skills and strategies to read successfully understanding on the Internet. Unfortunately, little statistical evidence has been gathered to highlight the reader characteristics contributing to successful reading comprehension in open Internet spaces. Research on reading strategy has been mostly restricted to limited comparisons of proficiency levels. Many studies of reading strategies used by L2 readers have found evidence of a reasonably robust relationship between reading proficiency and strategy use (Aggraini & Cahyono, 2020). But, literature shows inconsistent associations between each reading strategy and reading comprehension. Therefore, further exploration is needed on which category of reading strategy contributes more to reading comprehension (Sun et al., 2021). Informed by the inconclusive findings on online reading strategies, the present study aimed to investigate whether the metacognitive online reading and navigational strategies have a significant relationship to the reading performance of the respondents, hence this study.

1.1 Objectives of the Study

This study aimed to determine the relationship between metacognitive online reading and navigational strategies employed and the reading performance of the Grade 11 Humanities and Social Science Strand (HUMSS) students of Pedro T. Mendiola Sr. Memorial National High School SY 2020–2021.

Specifically, this aimed to:

- 1) Determine the extent of the metacognitive online reading strategies employed by the respondents in terms of:
 - a. Planning strategy;
 - b. Monitoring strategy; and
 - c. Evaluating strategy.
- 2) Identify the extent of the navigational strategies employed by the respondents in terms of:
 - a. Serial strategy;
 - b. Serial overview strategy;
 - c. Mixed strategy; and
 - d. Mixed overview strategy.
- 3) Assess the level of reading performance of the respondents in terms of:
 - a. Fluency;
 - b. Comprehension; and
 - c. Vocabulary ability.
- 4) Determine if there is a significant relationship between respondents' online metacognitive strategies and reading performance.
- 5) Test if there is a significant relationship between the navigational strategies employed by the respondents and their reading performance.
- 6) Identify which factors of the metacognitive online reading strategies significantly influence the respondents' reading performance.
- 7) Find out which factors of navigational strategies significantly influence the respondents' reading performance.

1.2 Theoretical Framework

This study is anchored on Connectivism and Constructivism Theories of Learning. A Connectivist's principle

believes that the capacity to know more is more critical than what is currently known. Thus, nurturing and maintaining connections is needed to facilitate continual learning, and decision making is a learning process and choosing what to learn. The meaning of incoming information is seen through the lens of a shifting reality. While there is a correct answer now, it may be wrong tomorrow due to alterations in the information climate that impacts the decision (Foroughi, 2015). Meanwhile, constructivism's central idea is that human learning is constructed; learners build new knowledge based on previous learning. It also suggests that learning is a process that learners go through by constructing new ideas or concepts based on their experiences and knowledge (Azmuddin et al., 2017).

1.3 Conceptual Framework

Metacognitive reading strategies and reading motivation significantly enhance reading comprehension (Meniado, 2016). Using the metacognitive reading strategy positively affects learning a second language, and learners can gain the skills they need for effective communication in English. Metacognitive strategies were also proven to facilitate reading comprehension and promote reading comprehension (Ahmadi et al., 2013). With the increased technological tools, their use in education has become necessary. This has also changed how teachers and students use print and online materials. Research indicates that technology can improve student achievement, on-task behavior, and motivation for learning (Altay, 2015). Therefore, integrating technology in language teaching and especially in reading has increased. Also, when the students use this strategy in their reading activity, they can achieve English better.

The paradigm shows the possible relationship between variables that guide the researcher in the study. The independent variables are the metacognitive online reading strategies and navigational strategies. In contrast, the dependent variable is the reading performance in English as measured by the students' fluency, comprehension, and vocabulary ability.

The independent variables metacognitive online reading and navigational strategies are expected to have a relationship with the reading performance; that is, the extent on these strategies are supposed to have a significant influence on the level of reading performance of the students.

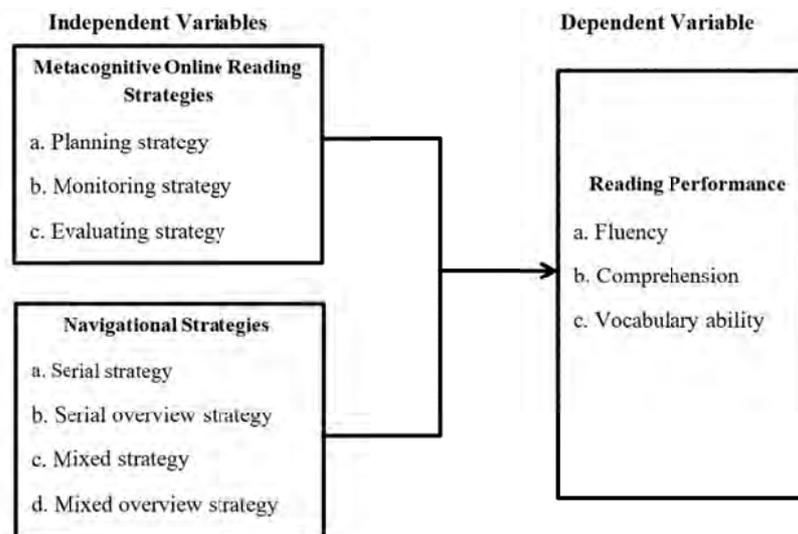


Figure 1. Research paradigm

2. Methodology

2.1 Research Design

The researcher used a predictive, cross-sectional research design. A cross-sectional design was used to determine the relationship between metacognitive online reading and the student's reading performance. The same was used to establish a relationship between the navigational strategies and the student's reading performance. The predictive design was also used to determine which factors of metacognitive online reading and navigational strategies significantly influence the students' reading performance.

2.2 Time and Place of the Study

The study was conducted at Pedro T. Mendiola Sr. Memorial National High School, Bagong Sikat, San Jose, Occidental Mindoro, Philippines. Pedro T. Mendiola Sr. Memorial National High School has 117 Junior High schools and 25 Senior High School faculty members. As per the Learners Information System's record, as of October of the School Year 2020–2021, there are 768 Senior High School students out of 1,265 total students enrolled. Two hundred fifteen (215) are enrolled in Grade 11 Humanities and Social Science Strand.

2.3 Data Gathering Procedure

A permission letter was handed to the concerned school head to carry out the purpose of this study. The same was also done to ask for parental consent from the respondents' parents or guardians to inform them that their children would be the study participants. Finally, the letter informed those mentioned above that the researcher would ensure and observe proper health protocols in the entire data gathering procedure.

After that, the questionnaires were distributed through Google Form. Students who were chosen to be the respondents were asked to answer the instrument. They were also advised to undergo the reading fluency test. Since limited face-to-face interaction was allowed this year, the researcher made sure that a minimum number of learners came to school to be able for the researcher to conduct the reading fluency test.

After gathering the needed data, they were encoded, tabulated, and forwarded to the data analyst/statistician for analysis and interpretation.

2.4 Respondents and Sampling

The study respondents were the Grade 11 HUMSS students of Pedro T. Mendiola Sr. Memorial National High School who were enrolled during the School Year 2020–2021. The researcher used random sampling in the selection of the 215 respondents. This study was conducted among the Grade 11 HUMSS students of PTMSMNHS during the second quarter of the School Year 2020–2021.

2.5 Data Analysis

Data were analyzed using the following statistical tools. First, the weighted mean was used to determine the extent of metacognitive online reading strategies, navigational strategies, and the reading performance of the respondents.

Pearson-Product moment correlation was used to determine if there is a significant relationship between metacognitive online reading and navigational reading strategies and the reading performance of the respondents.

Regression analysis was used to determine which among the indicators of the metacognitive online reading and navigational strategies significantly predicted the respondents' reading performance.

3. Results and Discussion

3.1 The Extent of Students' Use of Metacognitive Online Reading Strategies

Metacognitive online reading strategies are essential for students because they browse the Internet, conduct class research, read and analyze professional texts, prepare for exams, do interactive tasks, learn professional vocabulary, etc. Anderson (2003) assumes that "the primary purpose of instruction is to raise learners' awareness of strategies and then allow each to select appropriate strategies to accomplish their learning goals." Students' increased awareness of metacognitive reading online strategies motivates and encourages them to apply these strategies in practice. Teachers' learning atmosphere and guidance assist and stimulate students to choose the appropriate online reading strategies.

3.1.1 Planning

Students with metacognitive strategies had definite reading goals in mind and knew how to accomplish them. They could maximize to plan what reading strategies they would use, choose the most appropriate ones effectively, did self-assessment and self-evaluation further to accomplish maximum performance of their reading comprehension (Zhang & Seppho, 2013). Therefore, students with metacognitive strategies were able to read efficiently and effectively.

Table 1 presents the metacognitive online reading strategies employed by the respondents in terms of planning. It gained an overall mean of 3.93, which indicates that students used the metacognitive online learning strategy to a high extent. Furthermore, students easily visualize the information to remember (mean = 4.14). These findings imply that metacognitive reading strategies are essential for effective learning, where students visualize what to read (Gavora, 2020). Aside from that, students who read online already have their purpose (mean = 4.05). They

also think about what they know about the topic (mean = 3.93). Others have their overall view of the online text to find out what it is about before reading it (mean = 3.81). Meanwhile, students try to guess the online text content they are about to read (mean = 3.75).

Muhid et al. (2020) mentioned that reading strategies would probably be used in planning to read. For example, scan the text first, concentrate on what would be read, and read the text before reading the task. These activities were very advantageous in helping the students comprehend the text. They could prepare some reading strategies learned before choosing the most appropriate ones based on what was demanded by the task.

Table 1. The extent of the students' use of metacognitive online reading strategies in terms of planning

Indicators	Mean	Interpretation
I have a purpose in mind when I read online.	4.05	High
I think about what I know to help me understand what I read online.	3.93	High
I have an overall view of online text to see what it is about before reading it.	3.81	High
I try to picture or visualize information to help me remember what I read online.	4.14	High
I try to guess the content of the online text is about when I read it.	3.75	High
Overall Mean	3.93	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.1.2 Monitoring

Metacognitive strategies are “high order executive skills that use knowledge of cognitive processes and constitute an attempt to regulate one’s learning using planning, monitoring, and evaluating” (Zhang & Seepho, 2013). They also asserted that metacognitive strategies as the “monitoring and regulative mechanism that readers consciously use to enhance comprehension.” In reading, metacognitive strategies are self-monitoring and self-regulating activities which focus on both the process and the product of reading (Zhang & Seepho, 2013).

The extent of metacognitive online reading strategies employed by the respondents in terms of monitoring is presented in Table 2. It can be gleaned from the table that the students also used metacognitive online reading in terms of monitoring to a high extent (mean=4.03). Furthermore, students used to read slowly and carefully (mean = 4.29). They tried to understand the information they had read and regain their concentration when lost (mean = 4.29).

Students tried to reflect if whether the content fits their purpose in reading. Thus, the findings imply that reading well is vital for English language learners. Furthermore, through reading, the learner becomes an active participant in interacting with the text's writer through predicting, analyzing, summarizing, and using other types of reading strategies (Ali & Razali, 2019).

Table 2. The extent of the students' use of metacognitive online reading strategies in terms of monitoring

Indicators	Mean	Interpretation
I take notes when reading online to help me understand what I read	4.00	High
When online text becomes difficult, I read aloud to help me understand what I read	3.86	High
I think about whether the content of the online text fits my purpose.	3.74	High
I read slowly and carefully to understand what I read online.	4.29	High
I try to get back when I lose my concentration	4.29	High
Overall Mean	4.03	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.1.3 Evaluating

Channa et al. (2015) mentioned that evaluating is considered a post-reading strategy that reveals the needs of students to summarize the core ideas for comprehension of a particular material and find additional evidence for outside needs.

Table 3 shows the extent of metacognitive online reading strategies employed by the respondents to evaluate. The table discloses an overall mean of 3.60, wherein the students use this strategy to a high extent. Students often check their understanding when encountering new information (mean = 4.19). Still, some print out a copy of the online text and then underline or encircle the information they need to understand the text (mean = 3.04). This means that students evaluate what they read online using different evaluating strategies.

Meanwhile, in evaluating, students have the following metacognitive online strategies- using reference materials to help them understand what they read online (mean = 3.88). In addition, they tend to review the online text first by noting its characteristics like length and organization (mean = 3.64), and they decide what to read closely and what to ignore (mean = 3.28). This finding implies that students are most likely to use problem-solving strategies in doing a metacognitive reading evaluation. Although, as discussed by Dumlao (2019), it is critical for comprehension mainly, the strategies like “re-reading for better understanding,” “adjusting the reading rate,” and “paying attention to what is being read” are most of the strategies used by the respondents when they are reading academic text.

Ozturk (2019) emphasized that it is essential to integrate metacognition into reading practices by creating experiences where higher-order thinking can be employed. Therefore, metacognition is more meaningful and essential when assessing what one has read.

Table 3. The extent of the students’ use of metacognitive online reading strategies in evaluating.

Indicators	Mean	Interpretation
I review the online text first by noting its characteristics like length and organization.	3.64	High
I print out a copy of the online text and then underline or encircle the information to help me understand it.	3.04	High
When reading online, I decide what to read closely and ignore.	3.28	High
I use reference materials to help me understand what I read online.	3.88	High
I check my understanding when I come across new information.	4.19	High
Overall Mean	3.60	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.2 Summary of the Extent of Metacognitive Online Reading Strategies Employed by the Respondents

Table 4 summarizes the extent of metacognitive online reading strategies employed by the respondents in terms of planning, monitoring, and evaluating. With a grand mean of 3.85, the students used the metacognitive online learning strategy to a high extent. Furthermore, the students tend to monitor their online reading strategy (mean = 4.03) than planning (mean = 3.93) and evaluating (mean = 3.60). According to Akyel and Erçetin (2009), metacognitive online reading strategies are beneficial to students since they can identify their reading problems, monitor their reading, and adjust their learning strategies.

Table 4. Summary of the extent of the metacognitive online reading strategies employed by the respondents

Indicators	Mean	Interpretation
Planning	3.93	High
Monitoring	4.03	High
Evaluating	3.60	High
Grand Mean	3.85	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.3 Students’ Extent on the Use of Navigational Strategies

Navigational strategies involve scrolling up and down web pages, clicking hyperlinks, and moving the cursor linear or non-linear manner (Azmuddin et al., 2017). Navigational strategies include serial strategy, serial overview strategy, mixed strategy, and mixed overview strategy.

3.3.1 Serial Strategy

Serial strategy refers to readers who read straightforwardly from the beginning until the end by selecting links as soon as they see them. The extent of navigational strategies employed by the students in terms of serial strategy is presented in Table 5.

With an overall mean of 3.93, the students greatly employed this strategy. The students read linearly (mean = 3.79), select the links carefully (mean = 3.95), cross-reference the information (mean = 3.80), and survey each chapter (mean = 3.95). Most respondents love to read linearly, as shown by the mean of 4.16. The finding implies that online reading is a unique process for it differs from reading traditional printed texts (Akyel & Erçetin, 2009).

Meanwhile, Zhou et al. (2016) concluded that students worked more on revising search queries and reading and assessing the information in the selected sites. This implies that students are becoming more engaged in the academic text when they revisit and revise search queries to improve the quality of search results.

Table 5. The extent of the students' use of navigational strategies in terms of serial strategy

Indicators	Mean	Interpretation
I read in a detailed way from the beginning up to the end.	4.16	High
I select the links carefully as soon as I see them	3.95	High
I cross-reference information from lecture notes and information from the assigned educational materials.	3.80	High
I read in a serial/ linear way.	3.79	High
I survey each chapter by reading the introductory and concluding paragraphs, headings, subheadings, visual captions, review questions, etcetera.	3.95	High
Overall Mean	3.93	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.3.2 Serial Overview Strategy

The serial overview takes on the same principle (reads linearly), but the contrast is whether readers would scan first before or during reading. Table 3 shows the extent of navigational strategies employed by the students in terms of serial overview strategy. With an overall mean of 3.77, the students extensively employed this strategy.

Most respondents adjusted their reading speed according to their needed information, with an overall mean of 4.02. Other serial overview strategies they use are scanning first before or during reading (mean = 3.70), guessing the content by clicking the hyperlinks (mean = 3.47), getting the basic ideas (mean = 3.77), and reading back and forth to get the information needed (mean = 3.93).

Evidence suggests reading via the Internet requires new metacognitive monitoring abilities, awareness of choice-making among hyperlinks on a web page, and internal narration to synthesize hypertextual information. These points contrast with the more familiar processes associated with reading print (McNabb, 2006).

Table 6. The extent of the students' use of navigational strategies in terms of serial overview strategy

Indicators	Mean	Interpretation
I can get it first before or during reading.	3.70	High
I try to guess the content of the online text by clicking hyperlinks.	3.47	High
I scan the online text to get a basic idea of whether it will serve my purposes.	3.77	High
I adjust my reading speed according to what information I look for online.	4.02	High
I read back and forth to get the information I need online.	3.93	High
Overall Mean	3.77	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.3.3 Mixed Strategy

The extent of navigational strategies employed by the students in terms of mixed strategy can be gleaned in Table 7. With an overall mean of 3.87, the students significantly employed this strategy. The finding implies that reading involves a dual way of reading in a mixed strategy, either randomly or sequentially. Respondents read slowly and carefully to make sure they understand the information online. It only shows the influence of the Internet grows and more schools connect to the Internet, so the use of hypertext and hypermedia documents for children's learning is becoming a common practice (Karchmer, 2008).

In navigating, most students mark parts of a video (i.e., make a note of a specific point in the video timeline so you can add a note to it or quickly find it (mean = 3.62). On the other hand, other students tend to use different navigational strategies like reading slowly and carefully to be able to understand the digital information (mean = 4.38), reading different topics related to the subject by clicking the tabs on the computer (mean = 3.53), and reading randomly and sequentially (mean = 3.50).

This showed that navigational strategies involve scrolling up and down web pages, clicking hyperlinks, and moving the cursor linear or non-linear manner. Studies on navigational studies have identified three essential

elements: selection of links, overview processing strategies, and hypertext navigational strategies (Azmuiddin et al., 2017). Chen (2010) added that students use different navigation tools following their cognitive styles.

Table 7. The students' use of navigational strategies in terms of mixed strategy

Indicators	Mean	Interpretation
I read randomly and/or sequentially.	3.50	High
I read slowly and carefully to ensure I understand the information I read online.	4.38	High
I read different topics related to the subject by clicking the tabs on the computer.	3.53	High
I read slowly and carefully to understand what I read online.	4.36	High
I mark parts of a video (i.e., make a note of a specific point in the video timeline so you can add a note to it or easily find that point in the video later).	3.62	High
Overall Mean	3.87	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.3.4 Mixed Overview Strategy

The mixed overview strategy reflects readers who scan the text before or during reading but then read in linear or random order.

The extent of navigational strategies employed by the students in terms of mixed overview strategy is presented in Table 8. With an overall mean of 3.78, the students significantly employed this strategy. This finding implies that the concepts or ideas of information presented in a non-linear order allow readers to read in any order they prefer. Hypertexts generally do not follow a specific order of reading, where readers can read in a non-linear (Akyel & Erçetin, 2009). The students' common navigational mixed overview strategy was going back and forth in the online text to find relationships and then reading the text carefully to find out the relationships of the ideas presented was the students' common navigational mixed overview strategy ($m = 3.96$). Some look for different sites covering both sides of the topics ($m = 3.92$). Meanwhile, other navigational mixed overview strategies commonly used by the students in reading online texts are synthesizing the text read or watched (mean = 3.76). For example, cross-referencing the lecture notes and information from the assigned educational online materials (mean = 3.73) and reading and scanning the text in linear and random order (mean = 3.54).

McNabb (2006) stated that reading online is different from reading printed books. Evidence suggests reading via the Internet requires new metacognitive monitoring abilities, awareness of choice-making among hyperlinks on a web page, and internal narration to synthesize hypertextual information. These points contrast with the more familiar processes associated with reading print.

Table 8. The extent of the students' use of navigational strategies in terms of a mixed overview strategy

Indicators	Mean	Interpretation
I read and scanned the text in both linear and random order.	3.54	High
I go back and forth in the online text to find relationships and then read the text carefully to find the relationships of the ideas presented.	3.96	High
I synthesize what I read or watched (i.e., combine information to see how it all fits together).	3.76	High
I cross-reference information from lecture notes and the assigned educational online materials.	3.73	High
When reading online, I look for different sites covering both sides of the topic.	3.92	High
Overall Mean	3.78	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.4 Summary of the Extent of the Navigational Strategies Employed by the Respondents

Table 9 reveals the summary of the extent of the navigational strategies employed by the respondents. Overall, with the grand mean of 3.84, the students used the navigational strategy to a high extent in terms of serial, serial overview, mixed and mixed overview. It supports the study conducted by Akyel and Erçetin (2009) that the increase of time-spent reading online has led to the development of a new style of reading that allows the reader to have control of the reading process. Meanwhile, the navigational strategies indicators serial (mean = 3.93), serial overview (mean = 3.77), mixed (mean = 3.87), and mixed overview (mean = 3.78) obtain the mark high mean.

This showed that most of the students used different navigational strategies. At the same time, most of the respondents preferred the serial strategy (mean = 3.93). Some favored using the mixed overview strategy (mean = 3.78).

Table 9. Summary of the extent of the navigational strategies employed by the respondents

Indicators	Mean	Interpretation
Serial Strategy	3.93	High
Serial Overview Strategy	3.77	High
Mixed Strategy	3.87	High
Mixed Overview Strategy	3.78	High
Grand Mean	3.84	High

Note. Scale: 1:00–1.50 Very Low; 1.51–2.50 Low; 2.51–3.50 Moderate; 3.51–4.50 High; 4.51–5.00 Very High.

3.5 Reading Performance

Morisson and Wilcox (2020) mentioned that educators struggle to assess various aspects of reading invalid and reliable ways. Whether comprehension, phonological awareness, vocabulary, or phonics, determining appropriate assessments is challenging across grade levels and student abilities.

As mentioned, reading is an indispensable language skill at all levels of education. It involves interacting with the printed material to understand how speech sounds connect to print. Therefore, a reader should answer literal, inferential, and critical questions about it (Akinwumi & Olubunmi, 2017).

Meanwhile, Ahmad et al. (2018) stated that the new trends in vocabulary learning focus on strategic vocabulary learning to create more active and independent language learners.

Table 10 shows the respondents' reading performance levels in fluency, comprehension, and vocabulary ability. It was revealed that the Humanities and Social Sciences Grade 11 students are independent in terms of reading fluency, with a total mean of 79.52. This result corroborated Iwahori (2008) that a fluent reader can read rapidly, recognize words automatically, and interpret phrases correctly. The respondents' comprehension and vocabulary fall into instructional levels, with 78.55 (comprehension) and 77.28 (vocabulary), respectively. The findings are supported by Molothja et al. (2018), which stated that successful academic performance at primary and secondary school levels partly depends on the ability to read. It is believed that good learners are those who are proficient in reading. However, many learners struggle to read and, therefore, struggle to succeed academically in other subjects. The overall result shows that with a total mean of 78.45, the respondents are in the instructional level of fluency, comprehension, and vocabulary ability. Therefore, reading a text involves recognizing letters and symbols, but most importantly, the learners must comprehend and activate their prior knowledge about the subject (Brown, 2004).

Table 10. Level of reading performance of the respondents

Indicators	Mean	Interpretation
Fluency	79.52	Independent
Comprehension	78.55	Instructional
Vocabulary	77.28	Instructional
Mean	78.45	Instructional

Note. Scale: 80.0–100.0: Independent level; 59.0–79.9: Instructional level; 0.0–58.9: Frustration level.

3.5.1 Relationship between Metacognitive Online Reading Strategies and Reading Performance

The correlation analysis between the extent of metacognitive online reading strategies employed by the students and their reading performance is presented in Table 11. Data shows a strong relationship between the metacognitive online reading strategies and reading performance indicators, with the r-coefficients ranging from .641 to .811. Furthermore, all correlation coefficients are significant at a .01 level of significance. This implies that using metacognitive online reading strategies such as planning, monitoring, and evaluating increases the students' reading performance.

In the study made by Meniado (2016), he revealed that the learners are strategic readers employing moderate use of metacognitive reading strategies. Though they can moderately plan, monitor, and evaluate their reading

performance when reading an academic text, there seems to be an imperative need to integrate explicit instruction of metacognitive reading strategies in the classroom. It was also supported by Reza et al.'s (2013) research. It was mentioned that metacognitive reading strategy awareness plays a significant role in reading comprehension and the educational process.

From the findings presented in Table 11, the planning strategy has a strong relationship with reading performance with a correlation coefficient of .707, the same with the monitoring strategy with a correlation coefficient of .641, and evaluating strategy with a correlation coefficient of .667.

Therefore, it was clearly shown that there is a strong significant relationship between metacognitive online reading strategies and the reading performance of the respondents, as indicated in the overall correlation coefficient of .881. Thus, the hypothesis that there is no significant relationship between the metacognitive online reading strategies and the reading performance of the respondents was rejected.

Table 11. Relationship between metacognitive online reading strategies and reading performance

Independent Variables	Dependent Variable	Correlation Coefficient	Interpretation
Planning Strategy	Reading	.707**	Strong
Monitoring Strategy	Performance	.641**	Strong
Evaluating Strategy		.667**	Strong
Overall: Metacognitive Strategy		.811**	Strong

Note. Scale: 0.000–0.125 Negligible; 0.126–0.375: Weak; 0.376–0.625: Moderate; 0.626–0.875: Strong; 0.876–1.000: Perfect.

3.5.2 Relationship between Navigational Strategies and Reading Performance

Table 12 shows the correlation analysis between the extent of navigational strategies employed by the students and their reading performance. Based on the analysis, it was found that the navigational strategies employed by the students moderately affected their reading performance. The r-coefficients range from .431 to .591, which indicates a moderate relationship. The finding implies that the extent of use of the students of the different navigation strategies may increase their reading performance to a moderate level.

During navigation, the learners must assess the relevance of the available hyperlinks and decide which one may contain valuable information to answer the question (Naumann & Salmerón, 2016). Therefore, the hypothesis was rejected that there is no significant relationship between the navigational strategies employed and the respondents' reading performance.

Table 12. Relationship between navigational strategies and reading performance of the respondents

Independent Variables	Dependent Variable	Correlation Coefficient	Interpretation
Serial Strategy	Reading Performance	.591**	Moderate
Serial Overview Strategy		.431**	Moderate
Mixed Strategy		.435**	Moderate
Mixed Overview Strategy		.591**	Moderate
Overall: Navigational Strategy		.535**	Moderate

Note. Scale: 0.000–0.125 Negligible; 0.126–0.375 Weak; 0.376–0.625 Moderate; 0.626–0.875 Strong; 0.876–1.000 Perfect.

3.5.3 Indicators of Metacognitive Online Reading Strategies that Significantly Predict the Reading Performance

To determine which among the indicators of metacognitive online reading strategies significantly predict the reading performance of the respondents, regression analysis between planning, monitoring, and evaluation was tested. As presented in Table 13, the analysis reveals that all indicators of metacognitive reading strategies significantly predict the students' reading performance. Furthermore, the finding indicates that planning ($\beta = .422$, $p = .000$), monitoring ($\beta = .193$, $p = .008$), and evaluating ($\beta = .367$, $p = .000$) strategies used by the students while reading online contribute highly to their reading performance. On average, the contribution of metacognitive online reading strategies to reading performance is 32.73%. Thus, the hypothesis that none of the indicators of the metacognitive online reading strategies significantly influence the respondents' reading performance is rejected. Indeed, metacognitive reading comprehension skill positively affects learning a second language, and learners can gain the skills they need for effective communication in English (Reza et al., 2013).

Table 13. Indicators of metacognitive online reading strategy that significantly predict reading performance

Metacognitive Online Reading Strategies	Beta Coefficient	Significance	Interpretation
Planning Strategy	.422	.000	Significant
Monitoring Strategy	.193	.008	Significant
Evaluation Strategy	.367	.000	Significant

Note. $p < .05$ = significant.

3.5.4 Indicators of Navigational Strategies that Significantly Predict the Reading Performance

Table 14 displays the regression analysis between navigational strategies and reading performance. The analysis shows that only one indicator of navigational strategies significantly predicts the students' reading performance, a mixed overview ($\beta = .229$, $p = .005$). The finding indicates that using a mixed overview as a navigational strategy while reading online increases the students' reading performance by 22.9%. Other indicators do not significantly influence the students' reading performance. Therefore, the hypothesis that none of the navigational strategies indicators significantly influence the respondents' reading performance is rejected because the mixed overview strategy was attained ($\beta = .229$, $p = .005$). This finding showed a significant relationship with the reading performance of the respondents. Meanwhile, other indicators of navigational strategies employed by the respondents do not affect their reading performance.

Chen's (2010) study found that students use different navigation tools according to their cognitive styles. Thus, students need to rely on metacognitive online reading strategies and navigational strategies when reading online (Protopsaltis, 2008).

Table 14. Indicators of navigational strategy that significantly predict the reading performance

Navigational Strategies	Beta Coefficient	Significance	Interpretation
Serial Strategy	.075	.540	Not Significant
Serial Overview Strategy	.045	.731	Not Significant
Mixed Strategy	.022	.838	Not Significant
Mixed Overview Strategy	.229	.005	Significant

Note. $p < .05$ = significant.

4. Conclusions

This study was conducted to determine the metacognitive online reading and navigational strategies and their relation to the reading performance of Grade 11 HUMSS Students of Pedro T. Mendiola Sr. Memorial National High School. Furthermore, the study also investigated which factors of metacognitive online reading and navigational strategies significantly influence the respondents' reading performance. It was concluded that respondents always use online metacognitive strategies, especially when planning, monitoring, and evaluating. In addition, they always use navigational strategies such as serial, serial overview, and mixed overview. The respondents need teacher support to improve their reading performance from instructional to independent. Using metacognitive online learning strategies showed better performance in reading comprehension tasks. In addition, the navigational strategy increases the reading performance of the respondents. Metacognitive online reading strategies positively impacted the respondents' reading comprehension, while the mixed overview indicator of navigational strategy contributed to the respondents' increased reading performance.

References

- Ahmadi, M. R., Ismail, H. N., & Abdullah, M. K. (2013). The Importance of Metacognitive Reading Strategy Awareness in Reading Comprehension. *English Language Teaching*, 235–244.
- Akyel, A. (2009). *Hypermedia reading strategies employed by advanced learners of English*. <https://doi.org/10.1016/j.system.2008.05.002>
- Ali, A. M., & Razali, A. B. (2019). A Review of Studies on Cognitive and Metacognitive Reading Strategies in Teaching Reading Comprehension for ESL/EFL Learners. *English Language Teaching*, 12(6), 94–111. <https://doi.org/10.5539/elt.v12n6p94>
- Altay, I. F., & Altay, A. (2017). The Impact of Online Reading Tasks and Reading Strategies on EFL Learners' Reading Test Scores. *Journal of Language and Linguistic Studies*, 136–152.
- Andin, Z. (2016, October 15). *HUMSS ka Lang*. Philippine Inquirer.
- Andrianatos, K. (2019). Barriers to Reading in Higher Education: Rethinking Reading Support. *Reading &*

- Writing: *Journal of the Reading Association of South Africa*, 241. <https://doi.org/10.4102/rw.v10i1.241>
- Anggraini, M. P., & Cahyono, B. Y. (2020). Scrutinizing EFL learners' online reading strategy use across proficiency levels. *XLinguae*, 13(4), 190–200. <https://doi.org/10.18355/XL.2020.13.04.14>
- Butler, Y. G. (2020). The Ability of Young Learners to Construct Word Meaning in Context. *Studies in Second Language Learning and Teaching*, 547–578. <https://doi.org/10.14746/ssl.2020.10.3.7>
- Cabardo, J. R. (2015). *Reading proficiency level of students: Basis for reading intervention program*. <https://doi.org/10.2139/ssrn.2712237>
- Center, GSI Teaching and Resource. (2020). *Cognitive Constructivism*. California. Retrieved from <https://gsi.berkeley.edu/gsi-guide-contents/learning-theory-research/cognitive-constructivism/>
- Channa, M. A., Nordin, Z. S., Siming, I. A., Chandio, A. A., & Koondher, M. A. (2015). Developing Reading Comprehension through Metacognitive Strategies: A Review of Previous Studies. *English Language Teaching*, 8(8), 181–186. <https://doi.org/10.5539/elt.v8n8p181>
- Ciriaco, C. (2019). *DepEd vows to improve quality of education after PISA showing*. Manila, Philippines. Retrieved from <https://businessmirror.com.ph/2019/12/06/deped-vows-to-improve-quality-of-education-after-pisa-showing/>
- Coiro, J. (2012). Predicting Reading Comprehension on the Internet: Contributions of Offline Reading Skills, Online Reading Skills, and Prior Knowledge. *Sage Journal*, 43(4), 352–392. <https://doi.org/10.1177/1086296X11421979>
- Dumlao, R. P., Himmapan, K., Kueasnou, I., & Wanakprakobkul, J. (2019). *Metacognitive Awareness in Reading English Language Text: A Perspective from the EFL Undergraduate Students in Thailand* (p. 10).
- Education, D. O. (2020). *Adoption of the basic education learning continuity plan for the school year 2020–2021 in light of the covid-19 public health emergency*. Manila, Philippines. Retrieved from <https://authdocs.deped.gov.ph/>
- Forough, A. (2015). The Theory of Connectivism: Can It Explain and Guide. *Journal of Higher Education Theory and Practice*, 14–15.
- Gavora, P., Vaculíková, J., Kalenda, J., Kálmán, O., Gombos, P., Swigost, M. et al. (2020). Comparing Metacognitive Reading Strategies among University Students from Poland, Hungary, Slovakia, and the Czech Republic. *Journal of Further and Higher Education*, 896–910. <https://doi.org/10.1080/0309877X.2019.1614545>
- McNabb, M. (2006). Taking a Closer Look at Reading Online. *Journal of Educational Technology*, 25–30. <https://doi.org/10.26634/jet.3.1.1006>
- Meniado, J. C. (2016). Metacognitive Reading Strategies, Motivation, and Reading Comprehension Performance of Saudi EFL Students. *English Language Teaching*, 9(3), 117–129. <https://doi.org/10.5539/elt.v9n3p117>
- Morrison, T. G., & Wilcox, B. (2020). Assessing Expressive Oral Reading Fluency. *Education Sciences*, 59. <https://doi.org/10.3390/educsci10030059>
- Muhid, A., Amalia, E. R., Hilaliyah, H., Budiana, N., & Wajdi, M. B. (2020). The Effect of Metacognitive Strategies Implementation on Students' Reading Comprehension Achievement. *International Journal of Instruction*, 847–862. <https://doi.org/10.29333/iji.2020.13257a>
- Naumann, J., & Salmerón, L. (2016). Does Navigation Always Predict Performance? Effects of Navigation on Digital Reading Are Moderated by Comprehension Skills. *International Review of Research in Open and Distributed Learning*, 42–59. <https://doi.org/10.19173/irrodl.v17i1.2113>
- Ombra, A., & Imam, M. A. (2014). Reading Comprehension Skills and Performance in Science Among High School. *Asia Pacific Journal of Educators and Education*, 81–94.
- Ozturk, N., & Senaydin, F. (2018). *PISA 2018 Philippine National Report*. Retrieved from <https://www.deped.gov.ph/wp-content/uploads/2019/12/PISA-2018-Philippine-National-Report.pdf>
- Ozturk, N., & Senaydin, F. (2019). Dichotomy of EFL Reading: Metacognition vs. Proficiency. *Journal of Language and Linguistic Studies*, 605–617. <https://doi.org/10.17263/jlls.586757>
- Protopsaltis, A. (2008). Reading Strategies in Hypertexts and Factors Influencing Hyperlink Selection. *Journal of Educational Multimedia and Hypermedia*.

- Ruhil, A. A., Nor Fariza, M. N., & Afendi, H. (August 2017). Metacognitive Online Reading and Navigational Strategies by Science and Technology University Student. *Gema Online Journal of Language Studies*, 17(3). <https://doi.org/10.17576/gema-2017-1703-02>
- Sun, Y., Wang, J., Dong, Y., Zheng, H., Yang, J., Zhao, Y., & Dong, W. (2021). The Relationship Between Reading Strategy and Reading Comprehension: A Meta-Analysis. *Frontiers in Psychology*, 12, 635289. <https://doi.org/10.3389/fpsyg.2021.635289>
- Zhang, L. (2013). Metacognitive strategys use and academic reading achievement: Insights from a Chinese context. *Electronic Journal of Foreign Language and Teaching*, 54–69.

Copyrights

Copyright for this article is retained by the author, with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).