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Metacognitive reading strategies of Senior High School students in understanding the self-learning modules and supplementals in Core and Earth and Life Science

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ABSTRACT

The study was conducted to determine and identify the metacognitive reading strategies of the senior high school students in understanding the self-learning modules in Earth and Life Science at the Sto. Tomas Integrated High School, Calauan, Laguna. The descriptive method of research was utilized by the researchers. The subjects of the study were composed of sixty (60) Grade 11 Senior High School students from the ICT-TVL strand. Simple random sampling was used to determine and identify the metacognitive strategies of senior high school students in understanding the self-learning modules in Earth and Life Science for School Year 2021–2022. This study aims to assess the following questions using a Likert Scale: (1) I have a purpose in mind when I read the SLM in Earth and Life Science – 3, "I sometimes do this." (2) I take notes while reading to help me understand what I read – 2, "I do this only occasionally." (3) I think about what I already know to help me understand what I read – 3, "I sometimes do this." (4) I preview the text to see what it's about before reading it – 3, "I sometimes do this." (5) When text becomes difficult, I read aloud to help me understand what I read – 2, "I do this only occasionally." These are some responses among the respondents. It seems that the metacognitive strategies among the senior high school students in understanding the self-learning modules are falling from 3 – "I sometimes do this" to 2 – "I do this only occasionally." In the light of the findings, thirty-five (35) students learned from their metacognitive strategies using their self-learning modules, with a mean level of 2.61–3.40, "I sometimes do this," while twenty-five (25) students answered "I usually do this," with a mean level of 3.41–4.20, "I usually do this."

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INTRODUCTION

The COVID-19 pandemic brought about drastic changes in the Philippine educational system. To further address the continuity of the teaching-learning process, DepEd Order No. 18, series of 2020, stipulated the policy guidelines for the provision of learning resources in the implementation of the Basic Education Learning Continuity Plan.

The BE-LCP granted the use of Alternative Delivery Modes that do not necessarily follow the typical regular classroom set-up but follow the K to 12 curriculum in content. One of the options for ADM, apart from Online Distance Learning, is the use of Self-Learning Modules for self-contained, self-instructional, and self-paced learning among public school students. COVID-19 has compelled the use of SLMs on an even larger scale.

However, it has become a concern among teachers whether SLMs can truly be an ideal learning resource when they are unable to provide constant instructional supervision and guidance in a classroom setting. This is true especially in the case of Science teachers who ought to teach scientific concepts and skills.

In the Senior High School level, core subjects include Communication in Context, Reading and Writing Skills, 21st Century Literature from the Philippines and the World, and Media and Information Literacy. Meanwhile, English for Academic and Professional Purposes, Practical Research 1, and Practical Research 2 comprise the applied subjects in English. These subjects are taught covering all the macro skills. This study found out if it is possible to make learning evident even with just one skill being involved in the use of SLMs, and that is “reading.”

Statement of the problem

The study aimed to determine the metacognitive reading strategies used by Senior High School students in understanding the Self-Learning Modules and supplementary materials in Earth and Life Science. Specifically, it sought to answer the following questions:

1. What is the profile of the Senior High School students in terms of age, gender, and grade level?
2. What are the science subjects currently taken by the Senior High School students?
3. What are the metacognitive reading strategies used by the Senior High School students in understanding the Self-Learning Modules in Earth and Life Science?

METHODOLOGY

The study employed a descriptive research design to determine the metacognitive reading strategies used by Senior High School students in understanding Self-Learning Modules (SLMs) and supplementary materials in Earth and Life Science. This design was deemed appropriate as it allowed the researchers to describe, analyze, and interpret the prevailing metacognitive reading behaviors of the students without manipulating any variables. The study was conducted among thirty (30) Grade 11 and Grade 12 students enrolled during the second quarter of the current school year at Sto. Tomas Integrated High School in Calauan, Laguna. These respondents were selected through simple random sampling to ensure that each student had an equal opportunity to participate, thereby minimizing bias and enhancing the reliability of the results.

To gather relevant data, the researchers utilized a thirty-item questionnaire-checklist as the main research instrument. The tool was designed to obtain information about the respondents' personal profile, including age, gender, and grade level, as well as their current Earth and Life Science subjects. It also contained items that identified the metacognitive reading strategies the students used when engaging with their SLMs, activity sheets, worksheets, and other supplementary learning materials. Prior to administration, the instrument underwent validation to ensure its clarity, appropriateness, and relevance to the study objectives.

The data collection process involved close coordination with class advisers to distribute the questionnaires to the selected respondents. The researchers maintained regular communication with the participants and their parents during scheduled school engagements to ensure that the completed questionnaires were retrieved efficiently. Throughout the data gathering process, the researchers adhered to ethical research standards by ensuring voluntary participation, confidentiality of responses, and respect for the privacy of all respondents.

After collecting the data, the researchers analyzed and interpreted the results using appropriate statistical tools. The frequency and percentage were used to describe the demographic profile of the respondents in terms of age, gender, and grade level, as well as the specific science subjects they were taking. Meanwhile, the weighted mean was computed to determine the extent to which the students employed various metacognitive reading strategies when using their SLMs in Earth and Life Science. The analysis provided a comprehensive understanding of the students' reading behaviors and levels of metacognitive engagement.

The entire research process was carried out in accordance with a structured timeline, ensuring systematic implementation from proposal development to data analysis and dissemination of findings. Collaboration among the researchers was vital in organizing activities such as instrument validation, data collection, and result interpretation. Finally, the results were presented to the school head and shared with the school community to contribute to a broader understanding of students' metacognitive reading strategies. This dissemination served as a foundation for promoting awareness and further advocacy on enhancing students' independent learning skills through effective use of Self-Learning Modules in Earth and Life Science.

RESULTS AND DISCUSSION

The study was conducted among sixty (60) Senior High School students from Sto. Tomas Integrated High School, Calauan, Laguna, composed of Grade 11 and Grade 12 learners from the

ICT-TVL strand. Using the descriptive method of research, the study aimed to determine and identify the metacognitive reading strategies used by the students in understanding the Self-Learning Modules (SLMs) and supplementary materials in Earth and Life Science. Data were gathered through a thirty-item questionnaire-checklist that asked about the respondents' age, gender, and grade level, the Senior High School science subjects they had taken, and the metacognitive reading strategies they employed while using SLMs, activity sheets, worksheets, and other learning materials. The collected data were analyzed using frequency, percentage, and weighted mean to describe the respondents' profiles and the extent of their use of metacognitive reading strategies.

Profile of respondents

In terms of age, the results revealed that among the sixty (60) respondents, twenty-five (25) or 41.67% were between 15 and 16 years old, while thirty-five (35) or 58.33% were between 17 and 18 years old. This shows that the majority of the participants were within the typical age range of Senior High School students, indicating that most respondents were at the expected level of cognitive and academic maturity. In terms of gender, forty (40) respondents or 67% were male, while twenty (20) or 33% were female. This indicates that the male population dominated the group of participants, suggesting that the ICT-TVL strand where the study was conducted had more male enrollees during the period of the study.

Science subjects currently taken

The respondents were currently enrolled in various Senior High School core and applied subjects under Earth and Life Science. These included the core science subjects required in the K to 12 curriculum, reflecting the alignment of the study with the students' ongoing coursework. The focus on Earth and Life Science provided a relevant context for assessing how students applied metacognitive strategies in understanding science-related content through SLMs and supplementary learning materials.

Metacognitive reading strategies of SHS students

The analysis of the metacognitive reading strategies revealed varied levels of engagement across thirty (30) indicators. The results showed that most students responded within the range of "I sometimes do this" (mean of 2.61–3.40) and "I usually do this" (mean of 3.41–4.20). Specifically, students sometimes had a purpose in mind when reading SLMs and supplementary materials in Earth and Life Science, with a mean score of 2.37. They sometimes took notes while reading to help them understand (mean = 3.16) and thought about what they already knew to aid comprehension (mean = 3.16). Similarly, they previewed the text before reading (mean = 2.96) and read aloud when the text became difficult (mean = 2.88), all interpreted as "I sometimes do this."

Students also reported summarizing what they read to reflect on important information (mean = 2.85) and thinking about whether the content of the text fit their reading purpose (mean

= 2.33). They read slowly but carefully to ensure understanding (mean = 3.08), discussed what they read with others (mean = 2.57), and skimmed the text to note its characteristics such as length and organization (mean = 3.27). They tried to get back on track when losing concentration (mean = 2.63) and underlined or circled information to remember it (mean = 3.40), which was verbally interpreted as "I usually do this."

Other strategies included adjusting reading speed according to the text (mean = 2.98), deciding what to read closely or ignore (mean = 3.18), and using reference materials such as dictionaries (mean = 3.09). When the text became difficult, students paid closer attention to what they were reading (mean = 3.27) and used tables, figures, and pictures to increase understanding (mean = 2.63). They also stopped from time to time to think about what they were reading (mean = 3.40) and used context clues to enhance comprehension (mean = 3.27). Moreover, students paraphrased or restated ideas to better understand the material (mean = 2.63), visualized information to help recall it (mean = 3.40), and used typographical aids such as boldface and italics to identify key points (mean = 2.98).

Students also critically analyzed and evaluated information presented in the text (mean = 3.18) and went back and forth within the text to find relationships among ideas (mean = 3.09). They checked their understanding when encountering conflicting information (mean = 3.27) and tried to guess the overall content of the material (mean = 2.63). When the text became difficult, they reread to increase comprehension (mean = 3.40) and asked themselves questions they wanted answered in the text (mean = 2.98). They checked to see whether their guesses about the text were correct (mean = 3.18) and tried to infer the meaning of unknown words or phrases (mean = 3.09).

The legend for interpretation indicated that a mean score of 4.21–5.00 corresponded to "I always or almost always do this," 3.41–4.20 to "I usually do this," 2.61–3.40 to "I sometimes do this," 1.81–2.60 to "I do this only occasionally," and 1.00–1.80 to "I never or almost never do this." Based on these results, most of the respondents demonstrated an intermediate level of metacognitive reading awareness, falling within "I sometimes do this" to "I usually do this."

Summary of findings

In light of the findings, the descriptive method of research effectively captured the metacognitive reading behaviors of Senior High School students in understanding Self-Learning Modules and supplementary materials in Earth and Life Science. The results revealed that thirty-five (35) students exhibited metacognitive strategies corresponding to a mean level of 2.61–3.40, interpreted as "I sometimes do this," while twenty-five (25) students had mean levels of 3.41–4.20, interpreted as "I usually do this." These findings suggest that while most students occasionally employed metacognitive strategies, a considerable number displayed consistent awareness and regulation of their reading processes. This indicates that Senior High School students in Sto. Tomas Integrated High School possess developing metacognitive reading skills, which can be further strengthened through guided instruction and practice using Self-Learning Modules in science-related subjects.

CONCLUSION

Based on the findings of the study, it can be concluded that the Senior High School students of Sto. Tomas Integrated High School, Calauan, Laguna, demonstrate a moderate level of metacognitive awareness in their reading practices when using Self-Learning Modules (SLMs) and supplementary materials in Earth and Life Science. The results revealed that most of the sixty (60) respondents applied metacognitive reading strategies only sometimes, while a smaller but notable portion reported using them usually. This indicates that while students are aware of certain reading strategies such as summarizing, visualizing information, rereading difficult texts, and using context clues, these strategies are not yet consistently employed as part of their regular study habits.

Furthermore, the study highlights that the majority of respondents—primarily males aged 17 to 18 years old—engage in learning activities that reflect a developing but not yet fully autonomous reading process. Their reliance on strategies categorized under "I sometimes do this" suggests that they are still transitioning toward becoming self-regulated and strategic learners. The data also imply that while SLMs and supplementary materials provide opportunities for independent learning, students still require guidance from teachers to effectively activate and sustain metacognitive strategies that enhance comprehension.

In essence, the study affirms that metacognitive reading strategies play a vital role in students' understanding of complex scientific concepts, particularly within modular learning environments. It emphasizes the need for continued teacher support, targeted instruction, and deliberate integration of metacognitive strategy training within the Earth and Life Science curriculum. Strengthening these aspects will help students become more reflective, independent, and effective learners—capable of navigating self-directed learning tasks with greater confidence and comprehension.

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