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Influence of Metacognitive Skills on Academic Performance

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ABSTRACT

This descriptive-correlational study aimed to determine the relationship between learners' metacognitive skills and academic performance. Using a researcher-made instrument, data was taken from Senior High School learners in a certain secondary school in Candaba, Pampanga during the SY. 2024-2025. Utilizing descriptive and inferential statistics, data was analyzed and interpreted. Based on the findings of the study, Senior High School learner-respondents marked Self-Questioning (Strongly Agree), Self-Monitoring (Agree), and Self-Reflection (Agree). Meanwhile, Senior High School respondents recorded a general average of 91.81 which is verbally interpreted as "Outstanding". The following conclusions were drawn from the findings of the study: Senior High School students possessed a high level of metacognitive skills; and Metacognitive skills are closely associated with academic performance.

Keywords: Metacognitive Skills, Academic Performance

1. Introduction

Consider a Filipino student taking an online course and being presented with a challengingproblem in his studies. Rather than giving up, the student takes a moment to think back on previous errors, rethinks tactics, and then uses a more successful method. This is an example of metacognition, which is the potent capacity to reflect on one's own thought processes. Metacognitive abilities could be the secret to academic resilience and self-directed learning in an educational system beset by socioeconomic disparities, learning gaps, and technological changes. The abilities that enable people to comprehend, manage, and control their own thought and learning processes are known as metacognitive skills. "Thinking about thinking" is the literal definition of metacognition. Essentially, metacognitive skills entail being cognizant of your learning style, your knowledge and ignorance, and the actions you need to take to improve your learning. How we learn is just as important as what we learn. Instead of being passive information consumers, these abilities assist students in taking an active role in their own education. Over 28 million students were impacted by the COVID-19 pandemic, which caused major disruptions to the Philippine educational system in recent years (UNESCO, 2021). Filipino students performed among the lowest in reading, math, and science on the 2018 Programme for International Student Assessment (PISA) (OECD, 2019). These findings highlight deficiencies in learning strategies, particularly in metacognitive awareness and regulation, in addition to gaps in content knowledge. It is more important than ever to comprehend and enhance students' metacognitive abilities as the Department of Education (DepEd) works to enhance 21st-century skills through its Basic Education Development Plan 2030 (DepEd, 2022). Recent research highlights how important metacognitive abilities are to academic success and learning effectiveness. According to Labang and Castillo (2022), among Manila senior high school students, metacognitive awareness significantly predicts selfregulated learning behaviors. Gonzales and Reyes (2021) also showed that students who were more adept at metacognition performed better in online learning settings. Students' critical thinking and retention in science classes were enhanced by incorporating metacognitive strategy instruction, according to a study by Dizon and Salvador (2023). These results support the international body of research demonstrating the beneficial relationship between metacognition and academic performance as well as its function in adjusting to different learning styles (Panadero, 2022). Although the significance of metacognitive skills has been recognized by previous research, few studies have examined how Filipino students develop these abilities in various educational settings, particularly those outside of cities. The majority of local studies focus on technological readiness and cognitive performance, but they hardly ever examine learners' self-awareness, strategy use, or regulation processes. Furthermore, longitudinal data on the evolution of metacognitive skills in the Philippines in response to blended and modular learning formats is lacking. This study aimed to investigate the relationship of metacognitive skills and academic performance of Senior High School learners, for the School Year 2024-2025. Specifically, it sought answers to the following questions: 1. How may the metacognitive skills of the respondents be described? 2. How may the academic performance of the respondents be described? and 3. Is there a significant relationship between learners' metacognitive skills and their academic performance?

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2. Methods

This descriptive-correlational research aimed to determine the relationship between metacognitive skills and the learners' academic performance of 57 randomly selected Senior High School students in a certain school in Candaba, Pampanga, during the second quarter of SY 2024-2025. A researcher-made instrument was utilized in this study, which was validated by the experts.Prior to the distribution of the questionnaire, the researchers sought permission from the school head of the respondents' school. Once permission was granted, coordination with the respective teachers for the schedule of the administration of the questionnaire, data collection and retrieval followed.

Data were collected, tallied and analyzed using Microsoft Excel and Statistical Packages for the Social Sciences (SPSS). Various statistical tools were employed. The respondents' answers to the survey questionnaire and the learners' second quarter grades were computed using frequency, mean, and standard deviation. Meanwhile, Pearson's correlation coefficient (Pearson) was employed to assert the relationship between learners' metacognitive skills and academic achievement.

3. Results and Discussion

Meta-Cognitive Skill

Meta-cognitive skill is thinking of your own thinking which means that the person is aware of what he knows and can control what he knows.

Self-Questioning

Table 1. Mean and Standard Deviation Interpretation of the Students' Metacognitive Skill in terms of Self-Questioning

Item Statement The student	Mean	VD
1. asks their self periodically if they're meeting their goals.	3.06	А
2. thinks about what they really need to learn before they begin a task.	3.48	SA
3. asks their self if they have considered all the options when solving a problem.	3.31	SA
4. asks their self questions about the material before they begin.	3.23	А
5. thinks of several ways to solve a problem and choose the best one.	3.46	SA
Standard Deviation	0.64	
Overall Mean	3.31	SA

Legend: 3.26-4.00Strongly Agree (SA);2.51-3.25Agree (A);1.76-2.50, Disagree (D);1.00-1.75Strongly Disagree (SD)

Table 1 presents the mean and standard deviation interpretation of the meta-cognitive skills of the respondents in terms of self-questioning. As can be gleaned from the table, majority of the item statements (2, 3, 5), received a verbal description of "Strongly Agree". Meanwhile, the remaining item statements (1, 4), recorded a verbal description of "Agree".

In addition, item statement 2, "The student thinks about what they really need to learn before they begin a task", garnered the highest mean of 3.48, verbally described as "Strongly Agree". This implies thatstudents exhibit a high degree of self-regulation. In particular, before beginning academic assignments, they are able to prioritize important information and reflect on their learning objectives. Such conduct is a crucial element of successful learning strategies, showing that these students are not only focused on completing tasks but also carefully consider how they will approach comprehending and mastering new information. Because it helps them focus their efforts, manage their time effectively, and attain better learning outcomes, this proactive mindset has a positive impact on their academic performance. Furthermore, an overall mean of 3.31, verbally described as "Strongly Agree" was registered. This implies that the respondents possessed a high level of metacognitive skills in terms of self-questioning. This implies that they have the capability to analyze and interpret situations more deeply, since they are aware of their own thought processes. This may also increase their academic performance, because they can regulate their learning strategies, especially when faced with difficult circumstances. Astandard deviation of

0.64 was also recorded, which signifies a low variability among the responses of the responses. In line with the present study, Rouse-Billman and Alber-Morgan (2019), stated that fourth-grade students who asked themselves questions while reading informational texts performed better on quizzes that tested their understanding of the material. This suggests that actively engaging in self-questioning during reading helps students comprehend and remember the information more effectively.

Self-Monitoring

Item Statement The student	Mean	VD
1. considers several alternatives to a problem before they answer.	3.30	SA
2. understands intellectual strengths and weaknesses.	3.18	А
3. paces themselves while learning in order to have enough time.	3.09	А
4. can motivate their self to learn when they need to.	3.37	SA
5. change strategies when they fail to understand.	3.11	А
Standard Deviation	0.66	
Overall Mean	3.21	А

Table 2. Mean and Standard Deviation Interpretation of the Students' Metacognitive Skillin terms of Self-Monitoring

Legend: 3.26-4.00Strongly Agree (SA); 2.51-3.25Agree (A); 1.76-2.50, Disagree (D); 1.00-1.75Strongly Disagree (SD)

Table 2 presents the mean and standard deviation interpretation of the meta-cognitive skills of the respondents in terms of self-monitoring. As shown in the table, majority of the item statements (2,3,5) garnered a verbal description of "Agree", while the remaining items (1,4) were verbally described as "Strongly Agree".

In addition, item statement 4, "The student can motivate their self to learn when they need to", registered the highest mean of 3.37. This implies that, when it comes to their learning, the respondents demonstrate a strong sense of intrinsic motivation and self-regulation. It implies that they have the capacity to start and maintain their own learning endeavors, particularly when required, which is a crucial quality of autonomous and self-directed learners. This kind of drive is essential for academic achievement because it enables students to overcome obstacles, stick with assignments, and take responsibility for their learning objectives. Furthermore, an overall mean was recorded at 3.21, which is verbally interpreted as "Agree". This implies that students than can monitor their own learning their progress and identify their mistakes which eventually leads to great academic performance. They can also set realistic goals by planning effectively and managing their time wisely. A standard deviation of 0.66 was also recorded, which means that the responses from the responses are closely clustered within the mean. This is supported by Guo (2022),which claimed that self-monitoring on how you are doing helps you use better study methods and do better in school. So, it is a good idea for schools to teach students how to watch their progress and adjust their study habits. Teachers can also give support to students who are trying to do this. By doing these things, students can become better learners and do well in their classes.

Self-Reflection

able 3. Mean and Standard Deviation	Interpretation of the Students	s'Metacognitive Skillin terms of Self-Reflection	n
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Item Statement The student	Mean	VD
1. tries to use strategies that have worked in the past.	3.32	SA
2. knows how well I did once I finish a test.	3.12	А
3. summarizes what I have learned after I finish.	2.86	А

4. finds him/herself analyzing the use of strategies while he/shestudies.	3.00	А
5. create their own examples to make information more meaningful.	3.32	SA
Standard Deviation	0.66	
Overall Mean	3.12	A

Legend: 3.26-4.00Strongly Agree (SA); 2.51-3.25Agree (A); 1.76-2.50, Disagree (D); 1.00-1.75Strongly Disagree (SD

Table 3 presents the mean and standard deviation interpretation of the meta-cognitive skills of the respondents in terms of self-reflection. As shown in the table, majority of the item statements (2,3,4) garnered a verbal description of "Agree", while the remaining items (1,5) were verbally described as "Strongly Agree".

In addition, item statements 1, "The student tries to use strategies that have worked in the past", and item statement 5, "The student create their own examples to make information more meaningful", both received the highest mean of 3.32, with a verbal description of "Strong Agree". This implies thatstudents actively participate in their learning process and exhibit a high degree of metacognitive awareness. Students are not only strengthening their understanding but also giving learning greater significance and relevance by using previously successful strategies and creating personal examples. These actions demonstrate self-regulated learning strategies, which are crucial for improved understanding, memory retention, and academic achievement. Furthermore, an overall mean of 3.12, verbally described as "Agree" was also recorded. This implies that students are actively thinking their own thinking. It demonstrates their ability to assess which tactics are effective, what requires development, and how to modify for better results. A standard deviation of 0.66 was also recorded, which suggests that the responses from the respondents are less spread out. Students' self-reflection is shaped through an awareness of internal and external study factors, this affects how motivated they are, how they study, and how they judge their own performance (Martincová et al., 2021).

The Academic Performance of Senior High School Students

Grade	f (N=)	Percent	Verbal Description
90 and above	45	78.95%	Outstanding (O)
85 - 89	11	19.30%	Very Satisfactory (VS)
80 - 84	1	1.75%	Satisfactory (S)
75 – 79	0	0.00%	Fairly Satisfactory (FS)
74 and below	0	0.00%	Did Not Meet Expectations (DNE)
Range	84 - 97		
Mean	91.81		
Verbal Description	Outstanding(O)		
Standard Deviation	3.12		

Table 4. Frequency Distribution of the Respondents According to their Academic Performance

Table 4 presents the distribution of respondents according to learning outcomes. Accordingly, based on the grades listed above, 78.95% percent of the learners registered grades of 90 and above, which was verbally described as "Outstanding." On the other hand, 19.30% percent of the learners received grades in the range of 85-89, which was verbally interpreted as "Very Satisfactory." Meanwhile, 1.75% percent obtained grades that lie within the bracket of 80-84 with a verbal description of "Satisfactory."

Further perusal of the tabulated data revealed that the grades of pupils ranged from 84 to 97. The mean was calculated at 91.81%, which was verbally described as "Outstanding", together with a standard deviation of 3.12.

Meta-Cognitive Skill	p-value	VD
Self-Questioning	0.001	Significant
Self-Monitoring	0.001	Significant
Self-Reflection	0.001	Significant

Table 5. Results of the Correlation Analysis between Metacognitive Skills and Students' Academic Performance

Table 5 presents the correlation analysis between metacognitive skills and students' academic performance. As can be gleaned from the table, there is a significant relationship found between meta-cognitive skill in terms of self-questioning (p-value: 0.001), self-monitoring(p-value:0.001), self-reflection(p-value: 0.001) and students' academic performance (p=0.000 < 0.01).

In line with the study, Tachie(2019) showed that learners who used metacognitive skills and strategies, like analyzing tasks, planning, checking, and reflecting, as well as monitoring their own and group work, reading and writing abilities, self-regulation, and self-assessment, can help them increase their academic performance specially in mathematics subject

4. Conclusions

Based on the findings of the study, the following conclusion was drawn:

Senior High School students possessed a high level of metacognitive skills.

Academic performance of the Senior High School students is significantly affected by their metacognitive skills. This is supported by the strong correlation between students' academic success and their metacognition or understanding of their own thinking.

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