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Self–Regulation as an Antecedent of Academic Achievement: A Mixed Method Study

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ABSTRACT: *This study determined the antecedent role of self-regulation skills in the student's academic achievement. A descriptive research design using concurrent mixed methods was employed to determine the influence of self-regulation on the academic achievement of the students. A total of 382 Grade 11 senior high school students of a private school in Cagayan de Oro City were the respondents of the study. The findings of the study revealed that reflection stood out as having a significant influence on their academic achievement. Furthermore, the student's overall self–regulation skills significantly influence their academic achievement. Students with higher self-regulation, especially in the area of reflection, have higher academic achievements. Self-regulation skills of reflection, planning, time management, and monitoring have various degrees of impact on academic achievement. It is recommended that teachers should design lessons and activities that prompt the students to engage in meaningful self-reflection, which can foster deeper understanding and improved performance.*

KEYWORDS: *Self-Regulation, Academic Achievement, High School Students, Mixed Method Study, Time Management*

INTRODUCTION

The transition to senior high school presents new challenges for students as they need to adapt and create new strategies for academic success in response to increased academic demands. In today's competitive educational environment, achieving academic success requires intellectual talent and self-regulation. Self-regulation is a vital skill that enables students to monitor, control, and direct their learning processes by managing behavior, thoughts, and emotions to achieve specific goals (Barkley, 2012). The importance of self-regulation is underscored by its impact on academic success. Students with strong self-regulation skills are better equipped to manage their learning processes effectively.

Furthermore, self-regulation involves planning, assessing, and altering one's actions to obtain better outcomes (Noonan & Erickson, 2021). Through this process, students can systematically plan, execute, and sustain desirable behaviors to reach desired targets, track their progress, make necessary adjustments, and evaluate the process and results of their self-regulatory efforts. It enables students to fine-tune their learning approaches based on their progress and teacher feedback, which boosts their ability to maintain desirable behaviors over time.

Sahranavard, Miri, and Salehiniya, (2018) highlighted the significant relationship between self-regulation and academic success. Students with higher self-regulation skills are more likely to plan their studies carefully and be willing to study. Therefore, self-regulation is critical for academic success, particularly in senior high school where students face increased academic demands. Teachers can play a pivotal role in enhancing students' capacity for self-regulation by instructing them on the growth mindset and the role of emotions in the learning process.

Based on the above perspectives, this researcher firmly believes that understanding the critical role of self-regulation in academic achievement is vital for educators who aim to maximize educational outcomes and support students on their educational journeys, particularly in senior high school. Therefore, this study aimed to address the existing gap in knowledge by focusing on the various components of self-regulation and their impact on academic success among senior high school students.

Statement of the Problem

This study determined the influence of self–regulations on the academic achievement of Senior High School students. It aimed to answer the following questions: 1) How do the participants assess their level of self–regulation in terms of: Planning, Monitoring, Reflection, Time Management?; 2) What is the participants' level of academic achievement?; 3) Does the participants' self–regulation influence their academic achievement?; 4) How do the participants look into the role of self–regulation in their academic achievement?

THEORETICAL AND CONCEPTUAL FRAMEWORK

This study is hinged on the assumption that specific subcomponents of self–regulation skills of the students in senior high school are significantly linked with their academic achievement. The subsequent discussion focused on the different theories and concepts that laid the foundation for this study.

Self-regulation is a crucial component of academic success, as it enables students to manage their time, attention, and emotions effectively while remaining motivated to learn. Moreover, students with self-regulatory skills tend to be more adaptable and resilient to challenges and setbacks than those without these abilities.

This study is grounded in Albert Bandura's seminal work, Self-Regulation Theory (1991). Bandura's groundbreaking theory unifies behavioral and cognitive aspects by asserting that humans can regulate their behavior through self-regulatory mechanisms known as "self-regulation." Additionally, Understanding self-regulation can lead to effective instructional strategies that assist students with managing the learning process. Teachers can incorporate activities that foster goal setting, self-monitoring, and evaluation - leading to enhanced academic results.

Similarly, the three-phase model of Self-Regulation, as proposed by Zimmerman (2002), forms the basis of this research. The Forethought Phase, which serves as the planning stage, involves conducting task analysis before beginning new learning experiences. Goal setting becomes critical at this point and serves as a launching pad toward reaching set objectives. Pintrich (2004) emphasizes the centrality of planning to self-regulation, highlighting its function as a key facilitator for learners in organizing educational activities and prioritizing tasks. His research shows that learners who excel at planning tend to demonstrate deeper comprehension of learning processes. Furthermore, these learners are more likely to set realistic and attainable goals and ultimately experience more achievements than their counterparts lacking planning capabilities.

Zimmerman's model also incorporates a monitoring stage, in which learners take responsibility for managing their learning through self-control and monitoring mechanisms. Though often perceived as the "learning" phase, this component only represents one part of self-regulated learning (Zimmerman 2002). Self-monitoring serves as an instrumental means for learners to manage cognitive processes into skills integral to learning. Cherry (2021) asserts that self-monitoring is a personality trait that involves the ability to regulate physical characteristics, emotions, and actions within social environments and circumstances. Shirdel et al. (2018) and Usher and Pajares (2009) support this claim and argue that students who have effectively developed their self-regulation learning strategies typically show characteristics such as the drive to succeed, enjoyment from challenging activities, and an aptitude to adapt quickly when encountering various tasks. Saini et al. (2018), as referenced in Marquez's study (2020), contend that self-regulation significantly enhances students' performance. This is primarily due to its fostering explicit contemplation about their learning process. Such introspection invariably steers students towards exploring diverse strategies for completing tasks.

The third phase involves self-reflection, during which learners evaluate and assess their performance. Self-regulated learners possess an acute awareness of their learning strategies, with a firm grasp on both strengths and weaknesses regarding performance. According to Davis (2023), self-reflection is a cognitive process that fosters greater self-awareness by encouraging greater awareness of an individual's identity, values, emotions, and actions. Similarly, Panadero (2017) emphasizes that self-reflection entails an essential process where students review their learning and experiences to identify areas for modification or substitution with innovative solutions.

Finally, time management pertains to the strategic allocation and division of an individual's time among various pursuits aimed at amplifying the effectiveness of their endeavors. Notably, time management is a crucial element of self-regulation. It necessitates designating specific time slots for particular tasks and activities while prioritizing them based on their significance and urgency (Macan, Shahani, Dipboye, & Phillips, 1990). Thus, Kwan & Ko(2002) explained that practicing strong time management skills, such as defining task objectives and priorities, may make work easier, reduce stress, increase productivity, and improve academic performance.

On the other hand, academic achievement is typically defined as the measurable outcomes within an educational setting that indicate how much a student has met their learning goals. It represents the level of performance that a student has achieved in alignment with the objectives set within the instructional context (Hattie, 2009). It is the learning record in school subjects or the average academic performance in each subject(Zhang,2010). Building on the concept of self-regulation, it's essential to consider its profound impact on academic achievement. As Schwinger et al. (2014) articulate, academic achievement encapsulates a range of performance outcomes indicative of an individual's progression toward set educational goals within an instructional setting, particularly in schools. These outcomes are tangible evidence of a student's level of accomplishment in specific objectives achieved through instruction. In this context, self-regulation emerges as a crucial skill, guiding learners in managing their cognitive, behavioral, and emotional resources toward attaining these academic goals. Thus, enhancing self-regulation skills can potentially lead to improved academic achievement. Chuter (2020) emphasizes self-regulation as integral to an individual's success, as it increases effort, motivation, test scores, academic preparedness, impulse control, and concentration on areas needing their focus. Echoing this sentiment, Xiao et al. (2019) noted how self-regulated learning significantly influences academic success- with those possessing more robust self-regulatory capabilities often surpassing peers without such abilities regarding academic success.

METHODOLOGY

Research Design

This study employed a concurrent mixed-methods research design, which integrates both qualitative and quantitative data, to explore the relationship between self-regulation and academic achievement in senior high school students. The objective is to describe the interplay between a student's self-regulation and academic performance. As noted by Creswell (2011), the mixed-method approach emphasizes the collection, analysis, and integration of both quantitative and qualitative data within one study or across a series of studies. The core belief underlying this approach is that combining quantitative and qualitative methodologies enhances understanding research problems more comprehensively than utilizing either method in isolation.

Participants of the Study

The participants of the study were three hundred eighty-two (382) students who are currently enrolled in Grade 11 in one of the private schools in Cagayan de Oro City, specifically from the HUMSS, ABM, and TVL strands, for the 2022-2023 academic year. Simple random sampling was employed in this study, ensuring that each member of the population has an equal probability of being selected. Fleetwood (2023) affirmed that simple random sampling is viewed as a fair and unbiased way of establishing a sample and is typically the most straightforward method.

Research Instrument

The researcher used a modified version of the survey questionnaire originally created by Gaumer Erickson and Noonan (2022) to gather data on self-regulation. Permission was secured to adapt and contextualize this questionnaire for the study's purpose. The tool comprises 40 items, rated on a 5-point Likert scale, and addresses the key components of self-regulation, including planning, monitoring, reflection, and time management. To gauge the level of academic achievement, the study will use the student's general average grades for the 2022-2023 academic year. A pilot test was conducted on one hundred seventy-five Grade 12 students under the ABM strand to ensure the validity of the test item and questionnaire.

Validity and Reliability

The instrument underwent a reliability check to ensure the intern consistency of its measure. The instrument underwent the process of item analysis using Cronbach Alpha's Reliability Coefficient to check the internal surface of the items. Adanza (1995) suggested that the process of item analysis should be done to enable the researcher to check on each item's stability. Based on the result, the following coefficients indicated the instruments' reliability after some items were discarded. In self–regulation, four components were measured: reflection with .835 reliability scale, planning with .822 reliability scale, time management with .877 reliability scale, and monitoring with .921 reliability scale. Semi-structured interviews and focus group discussion questions were formulated to elicit students' understanding of self-regulation.

Data Gathering Procedure and Ethical Considerations

The researcher first obtained permission from the Vice President for Academic Affairs office. This authorization enabled the administration of the questionnaire survey to the Grade 11 students. Before distributing the survey, an orientation session was conducted for the participants to explain the process and purpose of the study. The researcher ensured participants that their responses would be strictly confidential. The researcher sought and received permission from the original authors regarding the self-regulation instrument. Consequently, the instrument was modified to suit better this study's participants' specific context and needs. The researcher then coordinates

with the class advisers in each strand to float and retrieve the questionnaire.In gathering students' responses about their understanding on self – regulation in academic achievement, the adviser chose five students per section in each strand after the class for the semi–structured interviews and focus group discussion. The data were organized and interpreted.

Statistical Treatment and Data Organization

This study employed a quantitative approach to data analysis, utilizing both descriptive and inferential statistics. Specifically, the analysis included frequency, percentage, mean, and standard deviation as descriptive tools. The influence of students' self-regulating ability on their average grades was investigated using a regression analysis. Alongside the quantitative analysis, qualitative data were analyzed in semi–structured interviews and focus group discussions wherein the students' responses were clustered into themes. Thematic analysis was employed for this qualitative evaluation, providing a complete understanding of the subject matter.

RESULTS AND DISCUSSION

Problem 1. How do the participants assess their level of self–regulation in terms of Planning, Monitoring, Reflection, and Time Management?

Table 1 shows that students rated their level of self-regulation, particularly in reflection, as generally high, with an overall mean of 3.79. The specific indicators of reflection highlight the aspects of their self-regulation where they excel. They are particularly strong in feeling a sense of accomplishment upon completing tasks (4.09) and using feedback from teachers and classmates to improve their learning and understanding (3.98). They also demonstrated resilience in learning from failures (3.89) and an openness to change their biases and flaws (3.84). In the areas where they are still performing well but there may be room for improvement, they include changing their goals and plans as needed (3.70), reflecting on their performance on assignments (3.69), and viewing obstacles as educational opportunities (3.59). A high level of self-regulation, particularly in reflection, is beneficial for students. This is also confirmed by what student number 15 said: "When I introspect, I notice that self-regulation has been integral to my academic success. It's helped me remain focused, persistent, and resilient, especially during challenging periods."

According to Schön (1983), reflective practice is a critical element of effective learning and involves reflecting on one's actions to engage in continuous learning. Additionally, Zimmerman (2002) emphasized that self-regulated learners are distinguished by their systematic use of metacognitive, motivational, and behavioral strategies, including self-reflection.The participants' high level of reflection aligns with the findings of Dignath, Buettner, and Langfeldt (2008), who discovered a positive correlation between students' use of self-regulated learning strategies, particularly planning, monitoring, and reflection, and academic achievement. Moreover, the ability

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to learn from failures, adapt goals and plans, and view obstacles as educational opportunities indicates a growth mindset, which Dweck (2006) linked to greater motivation and achievement.

Therefore, the participants' high level of reflection in self-regulation suggests that they are well-equipped to manage their learning effectively, adapt to challenges, and strive for continuous improvement—factors that bode well for their academic success.

Table 1. Frequency, Percentage, and Mean Distribution of the Participants' Assessment of their Self-Regulation (Reflection)

Range	Description	Frequency	Percentage
4.51-5.00	Very High	81	21.20
3.51-4.50	High	232	60.73
2.51-3.50	Moderate	51	13.35
1.51-2.50	Low	15	3.93
1.00-1.50	Very Low	3	0.79
	Total	**382**	**100.0**
	Overall Mean	**3.79**	
	Interpretation	**High**	
	SD	**0.71**	

REFLECTION

	Specific Indicators of Reflection	M	Interpretation	SD
1	I feel a sense of accomplishment when I complete all the tasks on my daily to–do – list by the end of the day.	4.09	High	0.91
2	I listen to what my teachers and classmates say and use what they tell me to improve my learning and understanding.	3.98	High	0.89
3	I try to learn from my mistakes when I fail in my subject.	3.89	High	0.94

4	I try to become more self-aware by recognizing my flaws and biases and taking steps to change them.	3.84	High	1.01
5	I value diversity and appreciate gaining an appreciation for other points of view.	3.77	High	1.03
6	I permit myself to be receptive to novel concepts and to develop empathy.	3.70	High	0.98
7	I change my goals and plans as needed and focus on my long–term success in school.	3.70	High	1.05
8	I think about how well I'm doing on my assignment.	3.69	High	0.93
9	I know my thoughts and feelings, so I can deal with stress well and keep a balanced approach to schoolwork.	3.67	High	1.05
10	I view obstacles as educational opportunities.	3.59	High	0.98

Table 2 shows the students' overall assessment of the participant's self-regulation in planning. Most participants fall within the high (44.76%) and moderate (36.91%) categories. Fewer participants rated themselves as very high (9.16%), low (8.90%), or very low (0.26%). This demonstrates that most participants estimate their capacity for self-regulation in planning as high to moderate, whereas only a minority rate it as extremely high or very low. The other section of the data is expanded upon; it divides the overall evaluation into distinct planning metrics. The statement "I usually think before I act" had the highest mean score (3.81), while the statement "I usually do advanced study at home for my classes" received the lowest (2.92).

Interestingly, all specific indicators that have a mean score higher than the overall mean (3.42) are labeled as "high." Conversely, those who fall below the overall mean are labeled "moderate." None of the indicators have a mean that would place them in the "low" or "very low" categories.It is worth noting that all items have rather substantial standard deviations (around 1). This indicates a wide range of replies from the participants and that while the average response was likely somewhere in the middle or high, there was still a great deal of variation around these means.

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Table 2. Frequency, Percentage, and Mean Distribution of the Participants' Assessment of their Self-Regulation (Planning)

Range	Description	Frequency	Percentage
4.51-5.00	Very High	35	9.16
3.51-4.50	High	171	44.76
2.51-3.50	Moderate	141	36.91
1.51-2.50	Low	34	8.90
1.00-1.50	Very Low	1	0.26
	Total	**382**	**100.0**
	Overall Mean	**3.42**	
	Interpretation	**Moderate**	
	SD	**0.73**	

	Specific Indicators of Planning	M	Interpretation	SD
1	I usually think before I act.	3.81	High	1.08
2	I consider all the things that I need to get it done.	3.69	High	0.96
3	Once I have a goal, I can usually plan how to react to it.	3.58	High	1.03
4	I plan out performance tasks that I want to complete.	3.56	High	1.03
5	I have trouble making plans to help reach my goal	3.55	High	1.04
6	I estimate how much time my homework will take to complete.	3.51	High	1.05
7	I write down my objectives to help me commit and achieve them.	3.25	Moderate	1.07
8	I create a study plan for how to reach my goal.	3.22	Moderate	1.07
9	I create a goal organizer before the start of the class.	3.09	Moderate	1.11
10	I usually do advanced study at home for my lessons.	2.92	Moderate	1.15

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The analysis aligns with existing research in the field of self-regulated learning. Zimmerman's (2002) model of self-regulated learning emphasizes that learners who can effectively set goals, plan, and organize their learning strategies are more likely to succeed academically. This data set shows that most participants rate themselves as high or moderate on most planning-related aspects of self-regulation.

Noticeably, the lowest-scoring items for planning provide an opportunity for intervention to improve students' capacity to engage in independent study outside of class and to write down and commit to their goals effectively. The average score of 3.42 reflects a relatively moderate level of planning across the board. There are 9.16% of students with a very high level of planning, 44.76% with a high level of planning, 36.71% with a moderate level of planning, and 0.26% with a very low level of preparation.

Table 3 reveals students' assessments for time management. A deeper scrutiny of the table shows that there were High (43.72%) and Moderate (31.94%), suggesting a general perception of satisfactory to solid time management abilities. Fewer respondents placed themselves at the extremes of Very High (11.78%), Low (11.26%), or Very Low (1.31%).

When examining specific time management indicators, nine have a mean score in the "Moderate" range, while "I ensure I have enough time to balance my school and personal obligations to be more productive and happy" is rated as high with a mean of 3.55. Similarly, the number 6 student stated, "I was really having a hard time to what to do first, but through time management and self-discipline, I finished it on time and got a good score." However, the overall trend is a decline in mean scores from the first indicator to the last. This implies that the participants feel less confident in some areas, such as using time management tools and setting calendars for organizing their routines. Connectedly, this idea is supported by Al-Dhahi, Al-Dhahi, and Al-Nefaiee (2021), who found that training in using time management apps and tools was associated with improved academic performance and reduced stress among university students.

Consequently, participants' opinions on their time management abilities show some modest variation, with a standard deviation of roughly 1.

In recent studies, time management has been cited as a key component in students' high achievement. After accounting for other essential criteria, including I.Q. and personality traits, MacCann, Fogarty, Zeidner, and Roberts (2021) implied that students' time management skills were significantly associated with academic accomplishment.

The participants seem to struggle most with using time management tools and setting calendars, so these areas might be helpful targets for interventions to improve time management skills.

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Table 3. Frequency, Percentage, and Mean Distribution of the Participants' Assessment of their Self-Regulation (Time Management)

Range	Description	Frequency	Percentage
4.51-5.00	Very High	45	11.78
3.51-4.50	High	167	43.72
2.51-3.50	Moderate	122	31.94
1.51-2.50	Low	43	11.26
1.00-1.50	Very Low	5	1.31
	Total	**382**	**100.0**
	Overall Mean	**3.33**	
	Interpretation	**Moderate**	
	SD	**0.83**	

	Specific Indicators of Time Management	M	Interpretation	SD
1	I ensure I have enough time to balance my school and personal obligations to be more productive and happy.	3.55	High	1.01
2	I manifest flexibility toward unanticipated events and obstacles to maintain a productive and balanced lifestyle.	3.46	Moderate	1.07
3	I put tasks in order of importance and urgency to focus on the most important things.	3.37	Moderate	1.01
4	I set deadlines for each significant project to keep track of my progress more quickly.	3.37	Moderate	1.03
5	I set up habits and routines to help me manage my time, like studying during my most productive hours and taking frequent breaks to get my energy back.	3.31	Moderate	1.08
6	I avoid getting distracted by giving myself a place to study, turning off electronic alerts, and setting limits with family and friends.	3.31	Moderate	1.08
7	I evaluate the efficacy of my time management and identify areas for improvement.	3.30	Moderate	1.08
8	I continually evaluate and modify my time management strategies to increase efficiency and effectiveness.	3.27	Moderate	1.13
9	I set daily and weekly calendars to help me organize my courses, homework, and self-care.	3.21	Moderate	1.08
10	I use time management apps and tools such as timers, calendars, and to-do lists to remain organized and on track.	3.15	Moderate	1.23

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Table 4 shows students self – regulation with respect to monitoring strategy. The overall mean of 3.64 indicates that the participants generally have a high level of monitoring strategy. This is a critical aspect of self-regulated learning, as it involves keeping track of the progress toward learning goals and adjusting one's strategies or efforts as necessary. Specific indicators of monitoring show high levels of engagement in various tasks. For instance, the highest mean score of 3.86 shows the students' ability to adhere to a successful plan, especially in completing performance tasks. Thus, it provides evidence that a student's capacity to control their behavior in a way that advances their learning goals is an integral part of self-regulated learning.

Table 4. Frequency, Percentage, and Mean Distribution of the Participants' Assessment of their Self-Regulation (Monitoring)

Range	Description	Frequency	Percentage
4.51-5.00	Very High	62	16.23
3.51-4.50	High	211	55.24
2.51-3.50	Moderate	84	21.99
1.51-2.50	Low	23	6.02
1.00-1.50	Very Low	2	0.52
	Total	**382**	**100.0**
	Overall Mean	**3.64**	
	Interpretation	**High**	
	SD	**0.74**	

	Specific Indicators of Monitoring	M	Interpretation	SD
1	I can stick to a plan that's working well, especially in accomplishing the performance tasks.	3.86	High	1.03
2	I have trouble remembering the things I need to accomplish.	3.77	High	1.04
3	I keep track of the progress of my performance in the class.	3.71	High	0.92
4	I am aware of the effects of stress on my academic performance.	3.71	High	0.92
5	I make wise decisions for me to be successful in my studies.	3.62	High	1.12
6	I do what it takes to get my assignments/tasks done on time.	3.59	High	1.06
7	I am willing to consider other ways of doing things for me to finish my assignments/tasks.	3.55	High	1.07

8	I am aware of the progress of my performance in the class.	3.54	High	1.05
9	I identify things I need to get done.	3.54	High	1.05
10	I know what my grades are at any given time.	3.53	High	1.08

Interestingly, the data also suggests a high degree of awareness about the effects of stress on academic performance (mean score 3.71), indicating that the students are tracking their academic progress and paying attention to emotional and psychological factors that might influence their performance. The student's willingness to consider alternate methods to complete tasks (mean score 3.55) indicates their flexibility in adopting different strategies based on the task's requirements, an essential component of adaptive self-regulation.

Recent studies also corroborate these conclusions. Panadero (2017), for instance, emphasized the significance of planning, monitoring, and regulation in self-regulated learning and discovered strong associations between these factors and academic success. Schunk and Greene (2018) found that students with more vital abilities to monitor their learning also had higher levels of academic accomplishment.

In sum, the findings indicate that students' use of monitoring as part of their self-regulated learning practices may be a strong indicator of future success in school. Self-regulated learning, however, is a multi-faceted process with many moving parts and a sophisticated interplay between them. Therefore, it may be essential to encourage academic achievement by emphasizing the development of all forms of self-regulation.

Problem 2. What is the participants' level of academic achievement?

Table 5 presents the distribution of the participants' academic achievement. The data reveals that most participants fall within the 'Satisfactory' (33.77%) and 'Very Satisfactory' (26.96%) ranges, suggesting that most students perform well academically. The average grade 84.14, falling under the 'Moderately Satisfactory' range, further substantiates this.

However, it is notable that a significant number of students (39.01%) have 'Moderately Satisfactory' or 'Fair' grades, indicating room for academic improvement. A small proportion of students (0.26%) even fall under the 'Failure' category. The standard deviation 4.84 reveals a moderate dispersion in the participants' academic grades. This suggests that while the mean grade is 'Moderately Satisfactory,' there is a significant variation in the grades, with some students performing exceptionally well while others are struggling.

A recent study has highlighted the importance of self-regulated learning practices like planning, monitoring, reflecting, and time management in boosting students' academic performance. Academic success has been linked to students adopting self-regulated learning practices, Bembenutty and White (2017). Self-regulated learning strongly predicts academic success, as a study by Greene & Azevedo (2018) found.

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Based on these results, it is reasonable to assume that training students to control their own learning better would positively affect their grades.

Table 5. Frequency, Percentage, and Mean Distribution of the Participants' Academic Achievement

Range	Description	Frequency	Percentage
95 - 100	Outstanding	0	0.00
90 - 94	Very Satisfactory	103	26.96
86-89	Satisfactory	129	33.77
81 - 85	Moderately Satisfactory	78	20.42
75 – 80	Fair	71	18.59
70 - 74	Failure	1	0.26
	Total	**382**	**100.0**
	Average Grade	**84.14**	
	Interpretation	**Moderately Satisfactory**	
	SD	**4.84**	

Problem 3. Does the participants' self–regulation influence their academic achievement?

Ho_1. The participants' self–regulation does not influence their academic achievement.

Table 6 presents the regression analysis of the influence of the participants' use of self-regulation strategies on their academic performance. Findings revealed that the whole model is significant (F = 8.80, p=.000). Thus, the null hypothesis is rejected. Students who have higher self-regulation also perform well academically. Furthermore, 7.6 percent of the variability in their academic performance is accounted for by combining the components of self-regulation. The other 92.4 percent may be attributed to other factors not included in this study. The scope of these additional factors could span a variety of elements, including socioeconomic status, student motivation, quality of instruction, and many others. It underscores the elaboration of the nature of academic achievement and its dependence on broader variables beyond self-regulation. In relation to the specific components, reflection stood out as having a significant influence on their academic achievement, indicating that for every unit increase in their use of reflection, there is a corresponding 1.63 increase in their grades (B=1.63, t = 3.09, p = .002) holding all other predictors constant. It is also suggested by the standardized beta coefficient (β = .240) that reflection has the

most substantial relationship with academic performance among all predictors. Furthermore, this aligns with a study by Bernacki, Aguilar, and Byrnes (2021) found that students' self-regulated learning strategies, specifically reflective ones, were predictive and had a crucial role in their academic success.

On the other hand, planning (B = .087, t = .165, p = .869) and monitoring (B = -.726, t = -1.34, p = .170) do not show a statistically significant influence on academic performance. Time management (B = .881, t = 1.88, p = .061) also doesn't have a statistically significant effect on academic performance at a conventional level (e.g., $p < .05$), although the p-value is close to the cutoff. The R2 value of .086 means that these self-regulation strategies can explain approximately 8.6% of the variation in academic performance.

However, these results also suggest that other factors not included in this model may be influencing academic performance, as these variables do not explain over 90% of the variation in performance. It highlights the complexity of academic achievement and the potential for further exploration into other influencing factors.

Table 6. Regression Analysis of the Influence of the Participants' Use of Self-Regulation Strategies on Their Academic Performance

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	79.11	1.45		54.52	.000
Reflection	1.63	.528	.240	3.09**	.002
Planning	.087	.525	.013	.165	.869
Time Management	.881	.469	.152	1.88	.061
Monitoring	-.726	.527	-.112	-1.34	.170

Model Summary

$R = .293$ $R^2 = .086$ Adjusted $R^2 = .076$ $F = 8.80^{**}$ $p = .000$

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Problem 4. How do the participants look into the role of self–regulation in their academic achievement?

The following categories emerged from the student's responses during the focus group discussion and semi-structured interview: 1). Self–Reflection and Coping Mechanisms, 2) Time Management, 3) Planning and Monitoring, and 4)Self-Discipline and Control.

Self – reflection and Coping Mechanism

Students have indicated that self-regulation is intrinsically linked to the reflective understanding of one's thoughts, emotions, and actions, along with interpreting their motivations. This meditative practice lays the groundwork for improved emotional management, forming an essential academic success component. Consequently, self-regulation helps cultivate a supportive learning environment, honing strategic skills and fostering successful outcomes. Based on student responses, this contemplative comprehension of their thoughts, emotions, and actions amplifies their emotional management capabilities and substantially contributes to their academic achievements. Students stated that…

"*Upon reflecting on my academic progress, I acknowledge the role of self-regulation in managing my emotions and stress. It's helped me stay calm and focused, preventing negative emotions from affecting my performance*."

"*I perceive the role of self-regulation in my academic achievement as a coping mechanism. For instance, when I got a low task score, I regulate myself to cope."*

"I find that self-regulation has allowed me to nurture my growth mindset. It's instilled a sense of responsibility for my own learning and motivated me to strive for improvement continuously."

"I look into the role of self-regulation in my academic achievement by knowing and managing my emotions properly. I care how I react to what is happening around me so that it will not affect my academic performance."

Achieving academic success extends beyond the realms of innate abilities or knowledge acquisition. It also leans heavily on the internal cognitive processes harnessed by learners. Self-reflection, a method of contemplating one's thoughts, feelings, and experiences, equips students to revisit, assess, and internalize learning experiences. Emotional regulation, an essential facet of self-reflection, is crucial in maintaining focus and stability throughout the academic journey. Gross and John (2003) noted that emotional regulation involves processes that enable individuals to modulate their emotions, the timing of these emotions, and how they are expressed. It implies that self-reflection focusing on emotional regulation can effectively counteract negative emotions, boosting academic performance. This aspect of self-regulation can be especially beneficial in managing stress or negative emotions resulting from academic setbacks and contributes significantly to academic success (Troy, Shallcross, & Mauss, 2013).

In an academic context, self-regulation can serve as a coping mechanism when faced with a challenging situation, like receiving a low score. It allows learners to understand the effect of the performance, identify the learning gaps or study strategies, and take appropriate corrective measures (Zimmerman, 2002). According to Dweck (2006), this practice not only aids in overcoming the immediate academic hurdle but also promotes resilience and a growth mindset, enabling students to perceive setbacks as opportunities for learning and improvement

The link between self-regulation and a growth mindset becomes evident when we examine the key components of self-regulated learning. Students become proactive in setting personal learning goals, developing and implementing plans to achieve them, monitoring the progress, and adjusting the strategies based on feedback (Zimmerman & Schunk, 2001). This cyclical process is consistent with the principles of a growth mindset, as it requires learners to believe that they can improve and to take ownership of their learning journey."

Time Management

The students' responses underlined the significant role of time management as a facet of self-regulation in ensuring academic success. They emphasized that they could balance their academic tasks and their personal and social commitments through self-regulation. Thus, this understanding of the students aligns with the study of Zimmerman & Kitsantas (2005) posited that proper time management is a fundamental element of effective self-regulation and related to academic performance. It involves creating, maintaining, and adjusting schedules to ensure tasks and responsibilities are accomplished on time. Hence, it provides a harmonious balance between academic obligations and personal life, which supports overall well-being and academic achievement.

Moreover, the students underscored the flexible approach they adopt toward time management. They recognized that each task may demand varying degrees of effort and time. This flexibility in managing time, involving adjusting plans and strategies per the task requirements, is a key attribute of self-regulated learners (Pintrich, 2000).

This further revealed that their adaptability extends beyond mere scheduling to include repeated progress tracking, strategy evaluation, and necessary modifications, paralleling with Zimmerman's cyclical model of self-regulated learning (Zimmerman, 2000). It implies that through proactively managing their time, the students exercise self-regulation, effectively boosting their prospects for academic success. Students disclosed that…

"I can manage my time very well despite having a hard time in some aspects – may it be personal or not. Nevertheless, I value both my performance and time well enough."

"The role of self-regulation in academic achievement is essential. It is because it allows me, a student, to manage my time and the task given to us students, and I believe that if I know how to work, it could significantly impact my education."

"I look into the role of self-regulation in my academic achievement as a guide for me to manage my time well by having proper time management. This will help me identify areas where I have been successful and where we have struggled."

Razali, El Akremi, and Ramayah (2019) found that students who practice good time management skills, particularly time planning, exhibited lower levels of academic procrastination. Since procrastination is often associated with poor academic performance, effective time management can be crucial for academic success. As observed, good time management enables students to work when time is short and pressures are great, it's important to work smarter, not harder, to get more done in less time.

Planning and Monitoring

Students felt fulfilled when they could do their tasks according to their plan and obtained good results for submitting on time. They felt satisfied and happy when they finished their homework because they thought their plan worked well. Based on their responses, satisfaction was evident in them if they could outline the necessary steps and resources to meet an academic goal, track their progress, identify areas of difficulty and adjust their strategies accordingly. Effective planning helps students to break down large tasks into manageable components, reducing the feeling of being overwhelmed and increasing the likelihood of task completion (Corno, 1993). A study by Kitsantas, Robert, and Doster (2019) found that students with higher planning strategies tend to perform better academically. Students revealed that…

"I establish objectives, plan, and stay motivated to achieve them despite obstacles. Furthermore, I monitor my development and evaluate my performance to determine if any changes are required."

"I establish objectives, plan, monitor my progress, and stay motivated to achieve them despite obstacles."

"I saw notable experiences since I religiously follow what I have planned for my academic achievements and closely monitor the outcomes of my tests, assignments, and other academic-related things.

On the other hand, monitoring is a process of regular self-assessment, allowing students to evaluate their progress toward their goals (Zimmerman, 2002). It enables students to adjust their strategies and efforts based on their observed performance. Monitoring can help students identify when they are struggling with a concept or task, allowing them to seek additional resources or help when needed. Dent and Koenka (2020) found that students who frequently monitored their understanding and progress had higher academic achievement. This implies that self-monitoring can enhance students' ability to succeed academically. Planning sets the foundation for effective learning, while monitoring ensures students stay on the right track toward achieving their

goals. Together, these self-regulatory strategies are pivotal in enhancing students' academic achievement (Cho, Shen, & Laffey, 2010).

In general, students' self-regulation experiences with their academic achievements allow them to take charge of their learning journey. This sense of empowerment facilitates a better understanding of their intellectual capacities and promotes improving their learning strategies, ultimately leading to enhanced academic performance. Thus, they are consistent in their responses on the significance of reflection in their self-regulation practice. Most of the students indicated that being reflective aids in reviewing their comprehension of concepts, assessing the efficacy of their learning strategies, and adequately responding to feedback. This process facilitates a deeper understanding of the subject matter and allows for a thoughtful analysis of their strengths and areas requiring improvement.

Consequently, these insights empower them to take appropriate actions to optimize their learning outcomes. This continuous cycle of reflection and action adjustment is integral to their self-regulation and instrumental in their academic success.

CONCLUSIONS

In a nutshell, it underscored the critical role of self-regulation, particularly reflection, in students'academic achievement. Thus, it aligns with the findings of Zimmerman and Schunk (2011), who posited that self-regulation, which includes metacognitive strategies such as reflection, is crucial in student learning and achievement.

However, the study also found that while self-regulation does influence academic achievement, it explains only a slight portion of the variation observed. This suggests additional influential factors are not evaluated on broader variables beyond self-regulation.This is consistent with the literature, which indicates many factors influencing academic performance, including socioeconomic status, school environment, and teacher quality (Sirin, 2005).

Additionally, this study shows that the self-regulation skills of reflection, planning, time management, and monitoring have various degrees of impact on academic achievement. The feature of reflection emerged as the most significant, supporting Schön's (1987) work in emphasizing the value of reflection in learning. Following, time management showed a trend toward significance, correlating with Claessens, Van Eerde, Rutte, and Roe's (2007) findings on the significance of time management abilities for academic performance. In order to promote overall student accomplishment, effective instructional practices should consider that different aspects of self-regulation have varying weights.

Recommendations

Based from the conclusions of this study, the following are highly recommended:

1. that teachers strengthen their focus on incorporating self-regulation strategies in their pedagogical practices. This could be facilitated through workshops or training sessions dedicated to effective planning, time management, monitoring, and reflection.
2. that teachers design lessons and activities that prompt students to engage in meaningful self-reflection, fostering deeper understanding and improved performance.
3. that the adminsitration consider the possibility of formulating policies that recognize the importance of self-regulation skills and support their development through curricular and instructional reforms.
4. that future studies be coinducted to explore other factors that may contribute to academic achievement, as self-regulation strategies accounted for only a portion of the variance in student success.

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