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Self-Regulated Science Learning Activities and Academic Performance of Grade 10 Students in Congressional District IV Division of Batangas Province

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Abstract

This study investigated the relationship between self-regulated learning (SRL) activities and the academic performance of Grade 10 students in Science in Congressional District IV, Division of Batangas Province. Using a descriptive research design, data were gathered from 289 randomly selected students through a researcher-made survey and validated by focus group discussions. The study examined five SRL components—goal setting and planning, self-monitoring and reflection, time management, help-seeking strategies, and task strategies—alongside students' performance in written tasks, class participation, and quarterly assessments.

Findings revealed that students moderately practiced SRL activities, with goal setting, reflection, time management, and task strategies showing stronger engagement compared to help-seeking behaviors. Academic performance was generally above average across written tasks, class participation, and quarterly assessments, though challenges were noted in scientific literacy, inquiry confidence, and exam self-efficacy.

Correlation analysis confirmed a significant positive relationship between SRL practices and Science performance, with task strategies, time management, and reflection emerging as the strongest predictors of achievement, while help-seeking showed the weakest link. Students generally did not perceive SRL challenges as major barriers, though hesitation in asking for help remained a concern.

Based on these findings, enhanced SRL activities were proposed, including flexible goal-setting sessions, progress monitoring journals, time tracking and study scheduling, peer tutoring circles, active recall and visual learning tools, scientific literacy programs, and confidence-building review sessions. These interventions aim to strengthen weaker areas such as adaptability, systematic reflection, time monitoring, formal help-seeking, and exam confidence, while reinforcing existing strengths in preparation, note-taking, and collaboration.

Overall, the study concluded that fostering structured and adaptive SRL practices can significantly enhance Science achievement, providing a practical framework for instructional improvement and learner empowerment in Philippine secondary schools.

Keywords: *Self-Regulated Learning Activities, Academic Performance, Enhanced Self-Regulated Learning Activities.*

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Introduction

Science education is a vital foundation for national development, equipping learners with the skills to think critically, solve problems, and innovate in a rapidly evolving world. In the Philippines, its importance is reinforced by legal and policy frameworks such as Article XIV, Section 2 of the 1987 Philippine Constitution, which mandates the State to prioritize education, science, and technology, and Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, which institutionalizes the K to 12 curriculum and promotes learner-centered approaches and the development of 21st-century skills.

The Department of Education (DepEd) has implemented several policies to strengthen science instruction, including DepEd Order No. 55, s. 2010, which supported the creation of Special Science Classes and provides resources for laboratory equipment and student research, and DepEd Order No. 21, s. 2019, which emphasized inquiry-based learning and performance tasks in science.

Traditionally, science instruction has been subject-centered, placing heavy emphasis on acquiring scientific knowledge while making modest efforts to incorporate students' experiences. However, over the years, educational reforms have sought to shift this focus towards a more student-centered approach. This paradigm encourages students to actively discover knowledge and understand natural phenomena independently, fostering critical thinking and inquiry-based learning. Teachers face overcrowded classrooms, insufficient laboratory facilities, outdated instructional materials, and limited professional development.

Additionally, national assessments reveal persistent challenges. In the 2022 Programme for International Student Assessment (PISA), the Philippines ranked 77th out of 81 countries, with Filipino students scoring an average of 356 in science—well below the OECD average of 485. Similarly, the National Achievement Test (NAT) for Grade 12 in SY 2023–2024 showed that among 26,347 senior high school students in Batangas, the mean percentage score was only 35.82, indicating low mastery of core competencies. These results reflect systemic limitations and classroom-level realities.

Students struggle with low motivation, poor time management, and difficulty in grasping complex scientific ideas, especially in Physics and Chemistry. Observation in classrooms often reveal that learners struggle to synthesize information, analyze scientific data, and apply concepts to real-world situations. These difficulties are compounded by the limited time allocated for science subjects, which restricts opportunities for hands-on activities and in-depth discussion key elements in fostering meaningful learning experiences. Students often find it difficult to connect theoretical knowledge with practical applications, while limited class time constrains opportunities for in-depth exploration of scientific concepts. These challenges highlight the necessity of equipping students with effective activities and strategies to support learning.

In response to these challenges, educational theorists have emphasized the importance of self-regulated learning (SRL). According to Zimmerman's Social Cognitive Theory, self-regulated learners actively set goals, monitor their progress, and reflect on their learning, leading to improved academic outcomes. Recent studies, such as those by Kubsch et al. (2025) and Sinkkonen & Tapani (2024), highlighted SRL's role in fostering resilience, motivation, and deeper cognitive engagement.

Self-regulated learning activities empower students to take ownership of their education by setting goals, monitoring progress, and reflecting on outcomes. These strategies not only support sustainable professional development for teachers but also cultivate essential 21st-century skills among students. By fostering an environment that prioritizes SRL, science teachers can help learners navigate the complexities of modern education and achieve higher academic performance.

In the context of Congressional District IV, Division of Batangas Province, the teacher-researcher observed that many Grade 10 students struggle with managing their time, setting academic goals, and seeking help when needed. Through classroom interactions and formative assessments, it became evident that students who practiced self-monitoring and task strategies tended to perform better and demonstrated greater persistence in learning. These observations underscore the need to explore how self-regulated learning activities influence academic performance and how they can be enhanced to support student success.

In relation to this, due to the changes in the educational setup, the use of modules commonly known as ADM (Alternative Delivery Mode) also became popular among students. Students were provided with learning activities aligned with the learning competencies of each subject area, which allowed them to study independently and have autonomy over their learning. Likewise, based on the researcher's observations, many students preferred individual activities where they could work freely and learn on their own. In connection with this, during sudden class cancellations, there is a need to have readily available materials containing individual activities that students can work on at home.

Self-regulated learning (SRL) activities encourage students to set goals, select appropriate strategies, monitor understanding, and reflect on outcomes. When integrated into Science instruction, these activities may help learners organize complex concepts, improve problem-solving skills, and sustain motivation in challenging topics. Despite its recognized importance, classroom practices frequently emphasize content coverage rather than the development of regulation skills, leaving a gap between students' learning behaviors and expected academic achievement.

Academic performance in Science is influenced not only by cognitive ability but also by behavioral and metacognitive factors such as persistence, self-monitoring, and strategic studying. Students who actively regulate their learning processes are more likely to understand scientific concepts deeply and apply them in real-world situations. Therefore, examining how self-regulated science learning activities relate to students' academic performance can provide meaningful insights into improving instructional practices.

This study is conducted to determine whether the extent of students' engagement in self-regulated science learning activities is associated with their level of academic performance. The findings may serve as a basis for developing structured self-regulated science activities that teachers can integrate into instruction to enhance learners' achievement and independence in learning Science.

Therefore, it seeks to investigate the self-regulated science learning activities commonly practiced by Grade 10 students and examine their relationship with academic performance. It aims to identify the challenges students face in applying these strategies and propose enhanced learning activities that can be implemented to improve science education outcomes in the region.

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Statement of the Problem

This study aimed to determine Grade 10-Students Self-Regulated Science Learning Activities and Academic Performance in Science in Congressional District IV Division of Batangas Province.

Specifically, it endeavors to answer the following research questions:

1. What is the extent of practice of the self-regulated learning activities of Grade 10 students as assessed by themselves in terms of:
   1.1. Goal setting and planning;
   1.2. Self-monitoring and reflection;
   1.3. Time management;
   1.4. Help-seeking strategies; and
   1.5 Task strategies?
2. How may the self-assessment on the level of academic performance of the students be described based on the following components:
   2.1. Written Tasks,
   2.2 Class Participation,
   2.3 Quarterly Assessments?
3. Is there significant relationship between the assessments on the students extent of practice of self-regulated learning activities and on their level of academic performance in Science?
4. What challenges are faced by students in applying self-regulated learning activities in science classes?
5. Based on the findings of the study, what enhanced self-regulated learning activities may be proposed?

Hypothesis

There is no significant relationship between the assessments on the self-regulated learning activities practiced by Grade 10 students and on their academic performance in Science

Methodology

Research Design

This study utilized a descriptive research design to examine the relationship between self-regulated science learning activities and the academic performance of Grade 10 students in Congressional District IV, Division of Batangas Province. This design is appropriate for the study as it aims to identify patterns, frequencies, and correlations related to the practice of self-regulated learning strategies in Science and describe the academic performance based on assessment components.

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A quantitative research method was employed using a survey questionnaire as the primary instrument for data collection. The questionnaire was designed to gather information on students' SRL practices, describe the academic performance, and the challenges faced. The results was analyzed to determine the relationship between SRL activities and students' academic outcomes, identify barriers to effective SRL application, and inform the development of proposed enhancement activities to improve Science learning through self-regulation.

Participants

The respondents of the study were Grade 10 students from secondary public schools in Congressional District IV, Division of Batangas during the school year 2025–2026. The total population of Grade 10 students across the selected schools is 1,154, and the sample size was determined using the **Raosoft Sample Size Calculator** with, 5% margin of error, and 50% response distribution.

Based on these parameters, the recommended sample size is 289 respondents. This formula ensures that each school contributes a number of respondents proportional to its share of the total population. The sampling approach enhances the validity of the study by capturing diverse student experiences across multiple school contexts, ensuring that findings are reflective of the broader population within the district.

Research Instrument

This study utilized a combination of a survey questionnaire and focus group discussion (FGD) to gather comprehensive and reliable data. The survey questionnaire served as the primary quantitative tool, designed to collect structured responses regarding the participants' experiences, perceptions, and practices related to the variables under investigation.

Focus group discussion (FGD) was utilized in this study as a qualitative data-gathering method to obtain in-depth insights into the participants' experiences, perceptions, and viewpoints. It provided an interactive platform where participants could openly share their ideas, clarify their responses from the survey questionnaire, and engage in meaningful dialogue with others.

Data Collection Procedure

The data collected through survey questionnaires. Prior to administration, the researcher secure necessary approvals from the Schools Division Superintendent, district supervisors, and school heads. Informed consent obtained from student-respondents and their guardians. Confidentiality and ethical standards upheld in accordance with the Data Privacy Act.

The survey administered to the stratified sample of Grade 10 students across six school areas in Congressional District IV. After the respondents took and submitted the answered questionnaire, the responses checked, tallied, interpreted and analyzed.

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Data Analysis

In analyzing and interpreting the gathered data, the researcher employed quantitative techniques to ensure comprehensive and meaningful results. Quantitative data from the survey questionnaire analyzed using statistical methods such as ranking, weighted mean, composite mean, and Pearson's correlation coefficient.

Results and Discussions

Self-Regulated Learning Activities Commonly Practice in Science

Table 1
Goal Setting and Planning

Statement ***I…***	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. set specific goals before starting a Science lesson.	3.12	Moderately Practiced	7
2. plan what topics to study in advance.	3.03	Moderately Practiced	8
3. break down complex Science tasks into smaller steps.	3.18	Moderately Practiced	6
4. set deadlines for completing Science assignments.	3.30	Moderately Practiced	2
5. prioritize Science tasks based on importance.	3.24	Moderately Practiced	3
6. review my goals regularly to stay on track.	3.23	Moderately Practiced	4
7. adjust my plans when I face difficulties in Science.	2.98	Moderately Practiced	10
8. write down my Science learning objectives.	2.99	Moderately Practiced	9
9. prepare materials needed before studying Science.	3.36	Moderately Practiced	1
10. create a checklist for Science tasks and activities.	3.19	Moderately Practiced	5
Composite Mean	**3.16**	**Moderately Practiced**	

Legend: Highly Practiced *(3.50-4.00),* ***Moderately Practiced*** *(2.50–3.49),* ***Slightly Practiced*** *(1.50–2.49),* ***Least Practiced*** *(1.00–1.49)*

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In terms of goal setting and planning, the data show that Grade 10 students in Science moderately practice self-regulated learning strategies, with a composite mean of 3.16. The highest-rated indicator was preparing materials before studying with a weighted mean of 3.36 and ranked first, followed by setting deadlines for assignments with a weighted mean of 3.30 and ranked second, and prioritizing tasks with a weighted mean of 3.24 and ranked third. These results suggest that students are more consistent in organizational and time management strategies, which reflect their readiness to engage in Science learning. Reviewing goals regularly with a weighted mean of 3.23 and creating checklists with a weighted mean of 3.19 also show moderate engagement in metacognitive monitoring. Breaking down complex tasks with a weighted mean of 3.18 and setting specific goals before lessons with a weighted mean of 3.12 indicate that students attempt to manage cognitive load but still need stronger focus on explicit goal-setting. The lowest-rated indicators were planning topics in advance with a weighted mean of 3.03, writing objectives with a weighted mean of 2.99, and adjusting plans when facing difficulties with a weighted mean of 2.98, which reveal weaker adaptability and reflective practices.

These findings resonated with both international and Philippine studies. Martins van Jaarsveld et al. (2025) emphasized that effective goal setting enhances motivation and direction, while Zimmerman (2022) identified it as the starting point of the self-regulation cycle. Miller (2024). and Mussyal (2024) highlighted the importance of structured frameworks in sustaining focus, and Xu (2025) linked goal setting to growth mindset development. Bunye (2025) found that weekly Science goals improved persistence and conceptual understanding, while De Chavez (2023) revealed that structured planning supported inquiry-based tasks. Tadena (2022) showed that personalized learning plans increased motivation and proactivity, Ramos (2021) observed that planning routines helped anticipate laboratory challenges, and Mendoza (2024) noted that teacher-led goal-setting prompts boosted engagement and accountability. Briones, Prudente, and Errabo (2023) further confirmed that Filipino students moderately exhibit SRL traits, particularly in goal-setting, which significantly influence academic behavior.

Taken together, these insights affirm that while Grade 10 students demonstrate organizational readiness, they require stronger support in adaptive planning and reflective strategies. Integrating structured goal-setting frameworks, personalized learning plans, and teacher-led prompts can bridge the gap between moderate practice and highly effective self-regulated learning, thereby maximizing Science achievement.

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Table 2
Self-Monitoring and Reflection

Statement ***I…***	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. check my understanding while studying Science.	3.34	Moderately Practiced	1.5
2. reflect on what I learned after each Science lesson.	3.11	Moderately Practiced	9
3. identify my strengths and weaknesses in Science.	3.29	Moderately Practiced	3
4. evaluate my performance after Science tests.	3.19	Moderately Practiced	6
5. ask myself questions to monitor my learning.	3.13	Moderately Practiced	8
6. keep track of my progress in Science.	3.08	Moderately Practiced	10
7. revise my study strategies based on past results.	3.14	Moderately Practiced	7
8. recognize when I need to improve in Science.	3.26	Moderately Practiced	4
9. compare my current performance with previous ones.	3.24	Moderately Practiced	5
10. think about how I can do better in Science next time.	3.34	Moderately Practiced	1.5
Composite Mean	**3.21**	**Moderately Practiced**	

Legend: Highly Practiced *(3.50-4.00),* ***Moderately Practiced*** *(2.50–3.49),* ***Slightly Practiced*** *(1.50–2.49),* ***Least Practiced*** *(1.00–1.49)*

The data on self-monitoring and reflection in Science shows that Grade 10 students moderately practice these metacognitive strategies, with a composite mean of 3.21. The highest-rated indicators were checking understanding while studying and thinking about how to do better next time, both with a weighted mean of 3.34 and ranked first, which indicates that students are more engaged in immediate comprehension checks and forward-looking reflection. Identifying strengths and weaknesses with a weighted mean of 3.29 and recognizing the need for improvement with a weighted mean of 3.26 also ranked high, suggesting that learners are aware of their performance and areas for growth.

Comparing current performance with previous ones with a weighted mean of 3.24 and evaluating performance after tests with a weighted mean of 3.19 reflect moderate engagement in performance evaluation. Mid-ranked practices such as revising study strategies with a weighted mean of 3.14 and asking self-questions with a weighted mean of 3.13 show that students attempt to monitor learning but inconsistently. The lowest indicators were reflecting after each lesson with a weighted mean of 3.11 and keeping track of progress with a weighted mean of 3.08, which reveal weaker habits in systematic reflection and long-term monitoring.

These findings align with Arvatz et al. (2025) who described self-monitoring and reflection as essential metacognitive processes, and with Boven et al. (2025) and Winne and Hadwin (2022) who emphasized reflection as a tool that deepens understanding. Liang and Pintrich (2023) and Cervin-Ellqvist and Wild (2023) highlighted its role in fostering scientific

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reasoning, while Faza and Lestari (2025) noted that digital platforms can enhance reflective practices.

In the Philippine context, Panganiban (2021) demonstrated that reflective journaling improved metacognitive awareness, Sy (2021) found that modular learners using self-monitoring checklists were more accurate in task execution, and Floren (2021) reported that structured reflection in Biology strengthened retention and emotional regulation. Agustin (2023) observed that reflection prompts in Science tasks enhanced persistence and self-correction, while Cruz (2022) emphasized that self-monitoring was most effective when paired with peer feedback and rubric-based evaluations. Laureano, Espinosa, and Avilla (2025) further confirmed that contextualized instructional materials improved students' ability to monitor and adapt strategies, showing the practical impact of reflection in Science classrooms.

Taken together, the moderate practice of these indicators suggests that while students demonstrate awareness of their learning, they need stronger support in systematic reflection and progress tracking. Integrating structured journaling, peer feedback mechanisms, and digital monitoring tools can help students move beyond immediate comprehension checks toward sustained metacognitive growth, thereby maximizing self-regulated learning in Science.

Table 3

Time Management

Statement *I…*	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. allocate specific time for studying Science daily.	3.00	Moderately Practiced	8
2. avoid distractions during Science study time.	3.17	Moderately Practiced	4
3. follow a study schedule for Science.	3.13	Moderately Practiced	5
4. manage my time well during Science exams.	3.34	Moderately Practiced	1
5. finish Science homework on time.	3.32	Moderately Practiced	3
6. balance Science study time with other subjects.	3.33	Moderately Practiced	2
7. use short breaks to stay focused while studying Science.	3.08	Moderately Practiced	6
8. start Science projects early to avoid cramming.	3.03	Moderately Practiced	7
9. track how much time I spend on Science tasks.	2.78	Moderately Practiced	10
10. adjust my schedule when I fall behind in Science.	2.96	Moderately Practiced	9
Composite Mean	**3.16**	**Moderately Practiced**	

Legend: Highly Practiced *(3.50-4.00),* ***Moderately Practiced*** *(2.50–3.49),* ***Slightly Practiced*** *(1.50–2.49),* ***Least Practiced*** *(1.00–1.49)*

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The data on time management in Science shows that Grade 10 students moderately practice these strategies, with a composite mean of 3.16. The highest-rated indicator was managing time well during Science exams with a weighted mean of 3.34 and ranked first, followed closely by balancing Science study time with other subjects with a weighted mean of 3.33 and ranked second, and finishing Science homework on time with a weighted mean of 3.32 and ranked third. These results suggest that students are more consistent in exam management, balancing priorities, and meeting deadlines, which are crucial aspects of effective time management. Avoiding distractions with a weighted mean of 3.17 and following a study schedule with a weighted mean of 3.13 also show moderate engagement in maintaining focus and structured.

Mid-ranked practices such as using short breaks with a weighted mean of 3.08, starting projects early with a weighted mean of 3.03, and allocating specific time daily with a weighted mean of 3.00 reflect attempts at discipline but reveal inconsistency in daily study routines. The lowest indicators were adjusting schedules when falling behind with a weighted mean of 2.96 and tracking time spent on Science tasks with a weighted mean of 2.78, which highlight weaker adaptability and self-monitoring of time use.

These findings aligned with Patzak et al. (2025) who defined time management as the ability to allocate and prioritize time effectively to meet academic goals, and Kubsch et al. (2025) who emphasized its role as a core self-regulated learning activity. Boven et al. (2025) and Winne and Hadwin (2022) stressed that effective time management supports reflection and monitoring, while Liang and Pintrich (2023) and Cervin-Ellqvist and Wild (2023) linked it to improved scientific reasoning. Faza and Lestari (2025) noted that digital tools can enhance time tracking and scheduling, making students more accountable. In the Philippine context, Alyami et al. (2021) emphasized that effective time allocation reduces stress and improves performance, while Bangquiao et al. (2023) found that planners and time logs improved task completion and reduced procrastination.

A study from Bato National High School (2024) revealed that working students who scheduled study blocks performed better in assessments, Ramos (2022) documented that scaffolds such as segmented deadlines helped students stay on track in project-based learning, and Villanueva (2023) showed that time estimation training enhanced efficiency in Science experiments. Laureano, Espinosa, and Avilla (2025) further confirmed that contextualized instructional materials improved students' ability to manage time and adapt strategies in Chemistry.

In summary, the moderate practice of these indicators suggested that while students demonstrate competence in exam management and balancing tasks, they need stronger support in daily scheduling, time tracking, and adaptive adjustments. Integrating planners, time logs, scaffolding tools, and digital platforms into Science instruction can help students move from moderate to highly effective time management, thereby maximizing their self-regulated learning and academic success.

Table 4
Help-Seeking Strategies

Statement ***I…***	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. ask my teacher for help when I don't understand Science topics.	3.15	Moderately Practiced	3.5
2. seek help from classmates during group Science activities.	3.28	Moderately Practiced	1
3. use online resources to clarify Science concepts.	3.15	Moderately Practiced	3.5
4. ask questions during Science discussions.	2.94	Moderately Practiced	5
5. talk to my parents or guardians about Science lessons.	2.61	Moderately Practiced	8
6. join Science review sessions or tutorials.	2.50	Moderately Practiced	10
7. participate in Science-related school clubs or groups.	2.57	Moderately Practiced	9
8. consult Science books or references when confused.	2.78	Moderately Practiced	7
9. ask for feedback on my Science work.	2.82	Moderately Practiced	6
10. use educational apps or videos to understand Science better.	3.21	Moderately Practiced	2
Composite Mean	**2.90**	**Moderately Practiced**	

Legend: Highly Practiced *(3.50-4.00),* ***Moderately Practiced*** *(2.50–3.49),* ***Slightly Practiced*** *(1.50–2.49),* ***Least Practiced*** *(1.00–1.49)*

The data on help-seeking strategies in Science shows that Grade 10 students moderately practice these behaviors, with a composite mean of 2.90. The highest-rated indicator was seeking help from classmates during group Science activities with a weighted mean of 3.28 and ranked first, followed by using educational apps or videos with a weighted mean of 3.21 and ranked second, and both asking teachers for help and using online resources with weighted means of 3.15 ranked third. These results suggest that students rely more on peer collaboration, digital tools, and teacher guidance when faced with difficulties in Science.

Mid-ranked practices include asking for feedback with a weighted mean of 2.82, consulting Science books with a weighted mean of 2.78, and asking questions during discussions with a weighted mean of 2.94, which reflect moderate but inconsistent engagement in traditional and interactive help-seeking methods. The lowest indicators were participating in Science clubs with a weighted mean of 2.57, talking to parents or guardians with a weighted mean of 2.61, and joining review sessions or tutorials with a weighted mean of 2.50, showing weaker involvement in extended support systems and formal academic reinforcement.

These findings aligned with Yu and Jiang (2025) and Escuzar (2025) who emphasized the cognitive benefits of peer and teacher assistance, while Yunzal et al. (2024), Karrenbauer and Saiyad (2023), and King and Henderson (2022) highlighted the importance of collaborative learning environments that encourage help-seeking behaviors.

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In the Philippine context, Aguado (2021) found that students in modular Biology classes often sought help from peers and family members to better understand complex topics, while Sy (2021) reported that structured prompts in DepEd modules encouraged productive inquiry, especially among students with low self-efficacy. Agustiani et al. (2021) emphasized parental involvement in fostering help-seeking habits, and De Villa (2023) observed that peer tutoring and consultation hours increased students' willingness to ask for help. Santos (2022) further noted that guided questioning and teacher feedback loops led to better performance in Science investigations. DepEd Order No. 21, series of 2019, also promotes inquiry-based learning and collaborative engagement, reinforcing the principle that help-seeking is a positive coping mechanism and a vital component of self-regulated learning.

In general, the moderate practice of these indicators suggests that while students actively seek help from peers, teachers, and digital platforms, they need stronger encouragement to utilize formal academic supports, family involvement, and structured feedback systems. Strengthening these areas can transform help-seeking from a moderate practice into a powerful driver of Science achievement and deeper self-regulated learning.

Table 5
Task Strategies

Statement ***I…***	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. take notes while studying Science.	3.57	Highly Practiced	1
2. use diagrams and charts to understand Science concepts.	2.91	Moderately Practiced	9
3. summarize Science lessons in my own words.	3.11	Moderately Practiced	5
4. use flashcards or quizzes to review Science topics.	2.81	Moderately Practiced	10
5. relate Science concepts to real-life situations.	2.98	Moderately Practiced	7
6. organize my Science materials neatly.	3.12	Moderately Practiced	4
7. highlight important points in my Science readings.	3.41	Moderately Practiced	2
8. use mnemonics or memory aids for Science terms.	3.06	Moderately Practiced	6
9. practice solving Science problems regularly.	2.97	Moderately Practiced	8
10. review past Science lessons before exams.	3.37	Moderately Practiced	3
Composite Mean	**3.13**	**Moderately Practiced**	

Legend: Highly Practiced *(3.50-4.00),* ***Moderately Practiced*** *(2.50–3.49),* ***Slightly Practiced*** *(1.50–2.49),* ***Least Practiced*** *(1.00–1.49)*

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The data on task strategies in Science indicates that Grade 10 students moderately apply these techniques, with a composite mean of 3.13. The strongest indicator was note-taking, with a weighted mean of 3.57, showing that students rely heavily on this method as their primary learning tool. Highlighting important points (3.41) and reviewing past lessons before exams (3.37) ranked second and third, reflecting consistent engagement in reinforcement and selective attention strategies. Organizing Science materials (3.12) and summarizing lessons in their own words (3.11) also show moderate use of organizational and comprehension techniques. Meanwhile, strategies such as mnemonics (3.06), relating concepts to real-life situations (2.98), and practicing problem-solving (2.97) were applied less consistently, suggesting occasional but limited use of deeper cognitive approaches. The least practiced indicators were using diagrams and charts (2.91) and employing flashcards or quizzes (2.81), revealing weaker engagement in visual learning and active recall methods.

These findings were consistent with Tanghian and Adlaon (2025), who emphasized the importance of note-taking and summarizing in completing Science tasks, and with Sarkar and Chakraborty (2024) as well as Kilag and Tariman (2024), who documented their effectiveness in enhancing comprehension and engagement. Wang (2023) and Lisao and Tamayo (2023) further advocated for student-centered approaches that integrate task strategies into Science instruction, while DepEd Order No. 55, series of 2010, encouraged enriched curricula and strategic interventions to improve outcomes. The relevance of these practices is also grounded in Zimmerman's Social Cognitive Theory, Pintrich's SRL Model, and Winne and Hadwin's Information Processing Framework, which highlight the cyclical and adaptive nature of self-regulated learning.

Locally, Amparo (2025) showed that graphic organizers and structured outlines improved Science reporting tasks, Sy (2021) noted that DepEd modules promoted task strategies through embedded prompts and visual aids, and Floren (2021) found that summarization and retrieval practice reinforced Biology concepts among high-achieving students. Learners studied in Global Scientific Journals (2023) demonstrated improved retention through chunking and elaboration techniques, while Tolentino (2022) emphasized that task strategies were most effective when paired with reflection and feedback. Legally, the 1987 Philippine Constitution Article XIV Section 2 mandates prioritization of Science education, Republic Act No. 10533 institutionalizes the K to 12 curriculum promoting inquiry-based instruction, and Republic Act No. 10612 supports the development of Science educators.

2. Descriptions Of Academic Performance. Academic performance is the measurable outcome of student learning, typically expressed through grades, test scores, and performance assessments (Mempin, 2024). In this study, it refers to the quarterly grades of Grade 10 students in Earth Science, Physics, Life Science, and Chemistry.

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Table 6
Written Tasks

Statement *I…*	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. understand the instructions given in written Science tasks.	3.50	High	1
2. complete written Science tasks on time.	3.36	Above Average	6
3. organize my ideas clearly in written Science outputs.	3.33	Above Average	8
4. use correct scientific terms in my written tasks.	3.13	Above Average	10
5. answer Science questions accurately in written activities.	3.37	Above Average	5
6. follow the format required in written Science tasks.	3.48	Above Average	2
7. review my answers before submitting written tasks.	3.47	Above Average	3
8. apply Science concepts correctly in written outputs.	3.30	Above Average	9
9. perform well in written Science assignments.	3.34	Above Average	7
10. receive good scores in written Science tasks.	3.43	Above Average	4
Composite Mean	**3.37**	**Above Average**	

***Legend: High** (3.50-4.00), **Above Average** (2.50–3.49), **Below Average** (1.50–2.49), **Low** (1.00–1.49)*

The data on written tasks in Science shows that Grade 10 students generally perform well, with a composite mean of 3.37 interpreted as above average. The highest-rated indicator was understanding instructions in written Science tasks with a weighted mean of 3.50 and ranked first, which was interpreted as high, showing that students are highly capable of following directions. Following the required format with a weighted mean of 3.48 and reviewing answers before submission with a weighted mean of 3.47 ranked second and third, reflecting strong adherence to guidelines and self-checking habits. Receiving good scores with a weighted mean of 3.43 and answering questions accurately with a weighted mean of 3.37 also ranked high, suggesting that students demonstrate comprehension and correctness in their written outputs. Mid-ranked indicators included completing tasks on time with a weighted mean of 3.36, performing well in assignments with a weighted mean of 3.34, and organizing ideas clearly with a weighted mean of 3.33, which show consistent but moderate proficiency in clarity and timeliness. The lowest indicators were applying Science concepts correctly with a weighted mean of 3.30 and using correct scientific terms with a weighted mean of 3.13, which reveal challenges in disciplinary literacy and precise scientific communication.

These findings aligned with Moore and Wright (2023) who emphasized that written tasks support disciplinary literacy and help students articulate complex scientific ideas. Acido and Caballes (2024) highlighted that Filipino students ranked among the lowest in Science

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proficiency in PISA 2018 and 2022, while TIMSS (2019) results also revealed deficiencies in conceptual understanding and application of knowledge, prompting reforms in instructional practices as noted by Mempin (2024). Bibon (2022) reported consistent underperformance in the National Achievement Test, further stressing systemic gaps in Science mastery. In response, DepEd Order No. 31, series of 2020 and DM No. 006, series of 2021 emphasized performance-based tasks and formative assessments to better capture student learning.

Canonizado (2024) underscored that written tasks such as quizzes and essays are essential for gauging retention and comprehension, while Mutong and Marzan (2024) argued that performance tasks foster applied understanding, critical thinking, and creativity. Overall, the good performance in written tasks suggests that students are capable of following instructions, organizing ideas, and completing tasks on time, but they need stronger support in applying concepts accurately and using precise scientific language to improve their academic performance in Science

Table 7
Class Participation

Statement ***I…***	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. actively participate in Science discussions.	3.26	Above Average	9
2. regularly attend Science classes.	3.54	High	2.5
3. ask questions when I don't understand Science topics.	3.25	Above Average	10
4. share ideas during Science group activities.	3.30	Above Average	8
5. listen attentively during Science lessons.	3.54	High	2.5
6. respond to questions during Science class.	3.41	Above Average	5.5
7. contribute to Science class activities.	3.49	Above Average	4
8. show interest in Science topics.	3.37	Above Average	7
9. follow classroom rules during Science sessions.	3.56	High	1
10. engage in Science-related school programs or events.	3.41	Above Average	5.5
Composite Mean	**3.41**	**Above Average**	

***Legend: High** (3.50-4.00), **Above Average** (2.50–3.49), **Below Average** (1.50–2.49), **Low** (1.00–1.49)*

The data on class participation in Science shows that Grade 10 students generally demonstrate good engagement, with an overall weighted mean of 3.41 interpreted as above average. The highest-rated indicator was following classroom rules during Science sessions with a weighted mean of 3.56 and ranked first, reflecting strong discipline and adherence to classroom norms. Regular attendance and listening attentively both received weighted means of 3.54 and were ranked second, showing excellent consistency in presence and attentiveness. Contributing

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to class activities with a weighted mean of 3.49 and responding to questions with a weighted mean of 3.41 also ranked high, indicating active involvement in structured classroom interactions. Mid-ranked indicators included engaging in Science-related school programs with a weighted mean of 3.41, showing interest in topics with a weighted mean of 3.37, and sharing ideas during group activities with a weighted mean of 3.30, which reflect moderate but meaningful participation in collaborative learning. The lowest indicators were actively participating in discussions with a weighted mean of 3.26 and asking questions when topics were unclear with a weighted mean of 3.25, suggesting that students are less confident in verbal engagement and inquiry.

These findings aligned with Simon et al. (2024) and Hard and RaoShah (2022) who emphasized that class participation is positively associated with academic performance, and with Bekkering and Ward (2021) who found a significant relationship between participation and exam scores. Gardon (2023) further highlighted that feedback practices and student-teacher interaction during class activities enhance conceptual understanding in physics classrooms.

Overall, the good performance in class participation suggests that while students are disciplined, attentive, and cooperative, they need stronger encouragement to ask questions and engage more actively in discussions to maximize their learning outcomes in Science.

Table 8
Quarterly Assessment

Statement **I…**	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. prepare well for quarterly Science exams.	3.56	High	1
2. understand the topics covered in quarterly assessments.	3.41	Above Average	4
3. manage my time well during Science exams.	3.38	Above Average	5
4. apply learned concepts in quarterly Science tests.	3.34	Above Average	7.5
5. perform well in multiple-choice Science questions.	3.45	Above Average	2.5
6. answer essay-type Science questions effectively.	3.22	Above Average	9
7. feel confident during quarterly Science assessments.	3.19	Above Average	10
8. review my notes before quarterly exams.	3.45	Above Average	2.5
9. receive high scores in quarterly Science assessments.	3.34	Above Average	7.5
10. improve my performance in each quarterly Science exam.	3.37	Above Average	6
Composite Mean	**3.37**	**Above Average**	

Legend: High *(3.50-4.00),* ***Above Average*** *(2.50–3.49),* ***Below Average*** *(1.50–2.49),* ***Low*** *(1.00–1.49)*

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The data on quarterly assessments in Science shows that Grade 10 students generally perform well, with a composite mean of 3.37 interpreted as above average. The highest-rated indicator was preparing well for quarterly Science exams with a weighted mean of 3.56 and ranked first, which was interpreted as excellent, showing that students prioritize preparation as a key strategy for success.

Reviewing notes before exams and performing well in multiple-choice questions both received weighted means of 3.45 and ranked second, reflecting strong engagement in recall-based strategies and exam readiness. Understanding topics covered with a weighted mean of 3.41 and managing time during exams with a weighted mean of 3.38 also ranked high, indicating competence in comprehension and time management. Mid-ranked indicators included improving performance in each exam with a weighted mean of 3.37 and applying learned concepts with a weighted mean of 3.34, which suggest moderate but consistent growth in mastery and application. The lowest indicators were answering essay-type questions effectively with a weighted mean of 3.22 and feeling confident during assessments with a weighted mean of 3.19, revealing challenges in extended written responses and self-efficacy.

These findings aligned with Pellegrino et al. (2021) and Zhang et al. (2022) who emphasized that quarterly assessments are aligned with curriculum standards and provide data on student progress and instructional effectiveness. Aracena (2024) found that quarterly assessments correlate positively with standardized test scores, reinforcing their value in tracking long-term academic growth. More recent studies such as Santos and Villanueva (2025) highlighted that formative and summative assessments combined improve retention and conceptual understanding in Science, while Cruz and Hernandez (2025) documented that assessment-driven feedback enhances student confidence and performance.

Collectively, these insights affirm that while students demonstrate good preparation and performance in quarterly assessments, they need stronger support in essay writing, confidence-building, and conceptual application to maximize their academic outcomes in Science.

3. Relationship Between the Students Extent of Practice of Self-Regulated Learning Activities and their Level of Academic Performance in Science

Table 9
Students Extent of Practice of Self-Regulated Learning Activities and their Written Tasks Performance in Science

Variables	Computed *r*-Value	*p*-Value	Decision	Remarks
Goal Setting and Planning	0.62	< .001	Reject Ho	Significant
Self-Monitoring and Reflection	0.66	< .001	Reject Ho	Significant
Time Management	0.69	< .001	Reject Ho	Significant
Help-Seeking Strategies	0.52	< .001	Reject Ho	Significant
Task Strategies	0.71	< .001	Reject Ho	Significant

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Table 9 presents the relationship between students' extent of practice of self-regulated learning activities and their written task performance in Science. The computed correlation coefficients (r-values) range from 0.52 to 0.71, with all p-values less than .001. These results indicate statistically significant positive correlations across all variables, leading to the rejection of the null hypothesis in each case. This confirms that self-regulated learning activities are closely associated with improved academic performance in Science.

The strongest correlation was observed in task strategies (r = 0.71), suggesting that students who employ systematic approaches—such as breaking tasks into manageable steps, using outlines, and applying problem-solving techniques—are more likely to excel in written Science tasks. Similarly, time management (r = 0.69) demonstrated a strong relationship, underscoring the importance of allocating study time effectively and avoiding procrastination. Students who manage their schedules well are better positioned to complete tasks thoroughly and on time.

Self-monitoring and reflection (r = 0.66) also showed a significant correlation, highlighting the value of metacognitive awareness. Students who regularly evaluate their progress and adjust their strategies accordingly tend to perform better, reinforcing the importance of reflective practices in Science learning. Goal setting and planning (r = 0.62) contributed meaningfully as well, indicating that students who establish clear objectives and structured plans are more focused and motivated, which enhances their task performance.

On the other hand, help-seeking strategies (r = 0.52), while still significant, exhibited the weakest correlation among the variables. This suggests that although seeking assistance supports learning, it may not be as directly impactful as internal regulation strategies. The findings imply that students benefit more from self-directed regulation than from external support when completing Science tasks.

Overall, the results confirm that self-regulated learning activities are vital for improving students' written task performance in Science. The strongest influences were found in task strategies and time management, followed by self-monitoring and reflection, and goal setting and planning. Help-seeking strategies, though beneficial, played a comparatively smaller role. These findings emphasize the need for educators to foster students' ability to plan, monitor, and regulate their learning processes, as these skills are directly linked to enhanced academic outcomes.

Table 10
Students Extent of Practice of Self-Regulated Learning Activities and their Class Performance in Science

Variables	Computed *r*-Value	*p*-Value	Decision	Remarks
Goal Setting and Planning	0.60	< .001	Reject Ho	Significant
Self-Monitoring and Reflection	0.61	< .001	Reject Ho	Significant
Time Management	0.60	< .001	Reject Ho	Significant
Help-Seeking Strategies	0.49	< .001	Reject Ho	Significant
Task Strategies	0.64	< .001	Reject Ho	Significant

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Table 10 presents the correlation between students' practice of self-regulated learning activities and their overall class performance in Science. The correlation coefficients range from 0.49 to 0.64, all with p-values less than .001, confirming that the relationships are statistically significant. These results reinforce the idea that self-regulation is not only linked to task-specific outcomes but also to broader measures of classroom achievement.

Among the variables, task strategies (r = 0.64) showed the strongest correlation, indicating that students who adopt effective approaches to learning tend to achieve higher overall performance in Science. This suggests that the ability to translate strategies into consistent classroom practices is a key driver of success. Self-monitoring and reflection (r = 0.61) also emerged as an important factor, highlighting that students who regularly assess their progress and adjust their learning behaviors are more likely to sustain strong performance across different Science activities.

Interestingly, both goal setting and planning (r = 0.60) and time management (r = 0.60) showed moderate but significant correlations. These results imply that while setting clear objectives and managing time effectively are essential, their impact on overall class performance may be more supportive than direct. They provide the structure and discipline necessary for students to maintain consistent engagement, which in turn contributes to steady achievement.

The weakest correlation was found in help-seeking strategies (r = 0.49). Although significant, this suggests that reliance on external assistance plays a smaller role in overall class performance compared to self-directed learning practices. It may reflect that students who depend heavily on help may not fully develop independent learning skills, which are crucial for sustained classroom success.

Taken together, these results emphasize that self-regulated learning activities are integral to students' class performance in Science. While all strategies contribute positively, the most influential appear to be task strategies and self-monitoring, which directly enhance students' ability to manage and adapt their learning. Goal setting, planning, and time management provide necessary support structures, while help-seeking plays a supplementary role. These findings highlight the importance of cultivating both cognitive and metacognitive skills to ensure that students not only perform well in specific tasks but also maintain consistent achievement across the broader classroom context.

Table 11
Students Extent of Practice of Self-Regulated Learning Activities and their Quarterly Assessments' Performance in Science

Variables	Computed *r*-Value	*p*-Value	Decision	Remarks
Goal Setting and Planning	0.55	< .001	Reject Ho	Significant
Self-Monitoring and Reflection	0.61	< .001	Reject Ho	Significant
Time Management	0.59	< .001	Reject Ho	Significant
Help-Seeking Strategies	0.41	< .001	Reject Ho	Significant
Task Strategies	0.66	< .001	Reject Ho	Significant

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Table 11 shows the correlation between students' practice of self-regulated learning activities and their performance in quarterly Science assessments. The computed correlation coefficients range from 0.41 to 0.66, with all p-values less than .001. These results confirm statistically significant positive relationships across all variables, leading to the rejection of the null hypothesis. This indicates that self-regulated learning activities contribute meaningfully to students' performance in summative evaluations.

The strongest correlation was found in task strategies (r = 0.66), suggesting that students who use organized ways of studying are better able to perform in quarterly assessments. This shows that having clear and practical study habits is very important when preparing for major exams. Self-monitoring and reflection (r = 0.61) also showed a strong relationship. Students who regularly check their progress and make changes to how they study are more likely to succeed in assessments that cover many topics.

Moderate correlations were found in time management (r = 0.59) and goal setting and planning (r = 0.55). This means that students who manage their time well and set clear goals are more prepared for quarterly assessments. These skills help them stay organized and continue their preparation over time, which is important for success in exams that cover many topics.

The weakest correlation was in help-seeking strategies (r = 0.41). Although still significant, this shows that asking for help from others has less effect on quarterly assessment performance compared to self-directed learning practices. This may be because quarterly assessments often require students to work on their own and apply what they have learned independently.

Overall, the results confirmed that self-regulated learning activities are important for success in quarterly Science assessments. Task strategies and self-monitoring were the most influential, while goal setting, planning, and time management provided helpful support. Help-seeking strategies, though useful, played a smaller role. These findings show that preparing for quarterly assessments requires not only knowledge but also the ability to study in an organized, reflective, and disciplined way.

4. Challenges Faced By Students In Applying Self-Regulated Learning Activities

Table 13

Challenges faced by the Students

Statement ***I…***	**Weighted Mean**	**Verbal Interpretation**	**Rank**
1. find it difficult to set clear goals for my Science learning.	2.42	Disagree	4.5
2. struggle to manage my time effectively when studying Science.	2.38	Disagree	7
3. often forget to monitor my progress in Science tasks.	2.42	Disagree	4.5
4. feel unsure about how to reflect on my Science learning.	2.32	Disagree	9
5. hesitate to ask for help when I don't understand Science topics.	2.52	Agree	1
6. lack strategies to organize and complete	2.41	Disagree	6

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Science tasks efficiently.			
7. get easily distracted when studying Science on my own.	2.47	Disagree	3
8. find it hard to stay motivated to study Science regularly.	2.36	Disagree	8
9. do not know how to evaluate the effectiveness of my study habits in Science.	2.29	Disagree	10
10. feel overwhelmed when trying to apply multiple learning strategies in Science.	2.50	Agree	2
Composite Mean	**2.41**	**Disagree**	

***Legend: Strongly Agree** (3.50-4.00), **Agree** (2.50–3.49), **Disagree** (1.50–2.49), **Strongly Disagree** (1.00–1.49)*

The highest-rated challenge was hesitating to ask for help when they do not understand Science topics with a weighted mean of 2.52 and ranked first, followed by feeling overwhelmed when trying to apply multiple learning strategies with a weighted mean of 2.50 and ranked second. These results suggested that while students moderately acknowledge these barriers, help-seeking hesitation and cognitive overload remain notable concerns. Getting easily distracted when studying independently with a weighted mean of 2.47 ranked third, while finding it difficult to set clear goals and forgetting to monitor progress both with weighted means of 2.42 ranked fourth, showing that goal clarity and progress monitoring are occasional struggles. Other indicators such as lacking strategies to organize tasks with a weighted mean of 2.41, struggling with time management with a weighted mean of 2.38, and finding it hard to stay motivated with a weighted mean of 2.36 reveal moderate but less frequent challenges. The lowest indicators were feeling unsure about how to reflect with a weighted mean of 2.32 and not knowing how to evaluate study habits with a weighted mean of 2.29, suggesting that students generally do not perceive reflection and evaluation as major barriers.

These quantitative results are validated by student interview responses, which highlight similar struggles: Student 5 admitted, *"Loud noises is one of my difficulties when studying because I easily get distracted,"* while Student 3 shared, *"Kapag masyadong maraming gawain at sunod-sunod ang pagpapasa,"* pointing to cognitive overload. Student 7 confirmed hesitation in help-seeking, stating, *"Minsan may mga topic na di ko agad maintindihan at kailangan ng tulong ng isang professional guro,"* while Student 1 acknowledged lapses in time management, *"I sometimes forget to manage my time to set and prepare my plans in studying."* These qualitative insights strengthen the interpretation that although reflection and evaluation are not viewed as barriers, practical issues such as distractions, workload, and reluctance to seek help hinder effective SRL.

These findings aligned with Piepers (2024), who noted that students value creativity but require clear rubrics and feedback, Bernardo et al. (2023), who identified metacognitive awareness and social experiences as predictors of achievement among low-performing Science students in PISA, and Xu et al. (2023), who emphasized persistent obstacles such as lack of time and curriculum misalignment. Similarly, Abude (2021) and Kesuma et al. (2022) documented struggles in progress monitoring and time management, while Abreu (2022) highlighted

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challenges in sustaining motivation. More recent studies such as Santos and Villanueva (2025) and Cruz and Hernandez (2025) confirmed that contextualized SRL frameworks and teacher-guided reflection enhance resilience, confidence, and adaptability. Overall, the integration of quantitative and qualitative data underscores that while most students do not perceive SRL challenges as severe, hesitation in help-seeking, distractions, and cognitive overload remain significant arriers, requiring targeted interventions, teacher support, and contextualized SRL strategies to strengthen Science learning outcomes.

5. Proposed Enhanced Self-Regulated Learning Activities

The proposed enhanced self-regulated learning (SRL) activities are presented to address the identified challenges and strengthen students' ability to manage their own learning effectively. These activities include the Adaptive Goal-Setting Workshop, which guides learners in setting realistic and flexible goals; Progress Tracking Journals, which promote continuous self-monitoring and reflection; and the Time Management Bootcamp, designed to improve students' ability to allocate and utilize their time efficiently. Additionally, Peer Collaboration Circles encourage cooperative learning and help-seeking behaviors, while Active Recall and Visual Tools enhance comprehension and retention of scientific concepts.

Proposed Enhanced Self-Regulated Learning Activities

Name of Activity	Description	Objectives (2)	Strategies	Persons Involved	Outputs
Adaptive Goal-Setting Workshop	A structured session to train students in setting flexible, realistic goals and adjusting plans when facing difficulties.	1. Strengthen adaptability in planning. 2. Improve clarity of learning objectives.	1. Use SMART goals, scenario-based planning, reflection journals. 2. Use Goal Laddering, visualizing main goal and identify smaller sub-goals.	Science teachers, students, advisers	Student goal-setting plans and reflective journals
Progress Tracking Journals	Students maintain personal learning journals to monitor progress and reflect on achievements.	1. Develop systematic reflection habits. 2. Encourage long-term monitoring of learning.	1. Weekly progress logs and self-assessment 2.Use checklists and peer sharing.	Students, class advisers	Completed journals showing progress and reflections
Time Management Bootcamp	A training program focused on effective scheduling, exam pacing, and tracking study time.	1. Enhance exam readiness and daily study routines. 2. Reduce procrastination.	1. Use planners and digital apps 2. Answering mock exam drills.	Students, Science teachers	Personalized study schedules and improved exam pacing
Peer Collaboration Circles	Small group sessions where students practice collaborative help-seeking and peer tutoring.	1. Strengthen peer support networks. 2. Reduce hesitation in asking for help.	1. Group study and peer mentoring 2. Participate in collaborative projects.	Students, peer leaders, teachers	Peer-tutoring reports and collaborative outputs
Active Recall and Visual Tools	Activities that integrate flashcards, quizzes, diagrams, and charts into Science learning.	1. Improve memory retention. 2. Strengthen engagement in visual and recall strategies.	1.Flashcard drills 2.Concept maps, quiz games.	Students, Science teachers	Flashcards, diagrams, and quiz results
Scientific Literacy Enhancement	Focused practice on using correct scientific terms and applying concepts in written tasks.	1. Improve disciplinary literacy. 2. Strengthen accuracy in Science communication.	1.Vocabulary-building exercises 2.Concept application tasks, peer editing.	Students, teachers	Written outputs with improved scientific terminology
Confidence-Building	Guided review	1. Enhance self-efficacy	1.Mock exams,	Students,	Improved essay

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Name of Activity	Description	Objectives (2)	Strategies	Persons Involved	Outputs
Review Sessions	classes to boost exam confidence and improve performance in essay-type questions.	during assessments. 2. Strengthen extended written responses.	essay-writing workshops 2.Confidence-building activities.	teachers, mentors	responses and higher confidence

The Scientific Literacy Enhancement activity aims to deepen students' understanding and application of science-related skills, and Confidence-Building Review Sessions support learners in reinforcing their knowledge while developing academic self-efficacy. Together, these proposed strategies provide a comprehensive framework to improve students' engagement and performance through effective self-regulated learning practices.

Based on the findings, several proposed enhanced self-regulated learning activities can be introduced to strengthen Science learning among Grade 10 students. First, reflection journals combined with adaptive feedback systems can help learners monitor progress and build resilience, as suggested by Santos and Villanueva (2025) served as powerful tools in strengthening students' self-regulated learning by promoting continuous monitoring, evaluation, and adjustment of their learning strategies. Through reflection journals, learners are given the opportunity to regularly document their goals, track their progress, and critically assess their strengths and areas for improvement.

This process encourages metacognitive awareness, allowing students to become more conscious of how they learn and how they can improve. When paired with adaptive feedback systems, the effectiveness of this strategy is further enhanced, as students receive timely, personalized feedback based on their performance and reflections. Such feedback guides learners in making necessary adjustments, reinforcing positive behaviors, and addressing learning gaps.

Second, teacher-guided reflection sessions where students analyze errors and successes can improve confidence and conceptual mastery, as emphasized by Cruz and Hernandez (2025). It plays a vital role in strengthening self-regulated learning by fostering deeper understanding and academic confidence. In these sessions, the teacher facilitates structured discussions that help learners identify misconceptions, recognize effective strategies, and understand the reasoning behind correct and incorrect responses. Rather than simply correcting mistakes, students are guided to reflect on why errors occurred and how they can be addressed, promoting critical thinking and metacognitive awareness. At the same time, acknowledging successes reinforces effective learning behaviors and builds a sense of accomplishment. This balanced approach helps reduce fear of failure and encourages a growth mindset, where mistakes are viewed as part of the learning process.

Third, structured peer-assisted learning circles can encourage collaborative help-seeking and accountability, highlighted by Yu and Jiang (2025). It can significantly enhance students' self-regulated learning by fostering a supportive environment for collaborative help-seeking and shared accountability. In these structured groups, learners work together to discuss concepts, solve problems, and clarify misunderstandings, allowing them to benefit from diverse perspectives and peer explanations. This interaction encourages students to actively seek help when needed, reducing hesitation or fear of judgment, while also developing their communication and social learning skills. Additionally, the structured nature of these circles—

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such as assigned roles, guided tasks, and regular check-ins—ensures that each member remains engaged and responsible for their contributions. As students become accountable not only for their own learning but also for supporting their peers, they develop a stronger sense of responsibilityand motivation.

Fourth, digital SRL platforms that track progress and provide personalized prompts for goal-setting and time management can enhance self-monitoring, as proposed by Escuzar (2025). It can significantly strengthen students' ability to monitor and control their own learning processes. These platforms allow learners to visualize their progress through dashboards, performance indicators, and activity logs, making their learning more transparent and measurable. By offering real-time feedback and tailored prompts, students are guided in setting realistic goals, adjusting timelines, and prioritizing tasks based on their individual needs and performance levels. This continuous guidance helps learners stay focused, organized, and motivated, especially when managing complex or long-term academic tasks. Moreover, the interactive nature of digital tools encourages consistent engagement, as students are reminded to reflect on their progress and make necessary improvements.

Fifth, embedding task strategies such as note-taking, summarizing, and diagramming into inquiry-based Science lessons can deepen comprehension, as documented by Tanghian and Adlaon (2025). It can significantly deepen students' comprehension by making learning more active, organized, and meaningful. As students engage in inquiry processes—such as asking questions, investigating phenomena, and drawing conclusions—these strategies help them process and structure complex scientific information more effectively. Note-taking enables learners to capture key ideas and observations during experiments and discussions, while summarizing encourages them to synthesize information in their own words, reinforcing understanding. Diagramming, on the other hand, allows students to visually represent concepts, relationships, and processes, which is especially valuable in Science learning. When these strategies are intentionally integrated into inquiry-based activities, students become more engaged and better equipped to connect new knowledge with prior understanding.

Sixth, contextualized instructional materials in Chemistry can improve students' ability to adapt strategies and reflect effectively, as shown by Laureano, Espinosa, and Avilla (2025). It can significantly enhance students' ability to adapt learning strategies and engage in meaningful reflection by connecting abstract concepts to real-life situations. When lessons are anchored in familiar contexts—such as household chemicals, environmental issues, or local practices—students are more likely to see the relevance of what they are learning, which increases motivation and engagement. This relevance encourages learners to select and apply appropriate strategies, such as problem-solving approaches or analytical thinking, based on the situation presented. Furthermore, contextualized materials prompt students to reflect on their understanding by relating scientific concepts to their own experiences, allowing them to evaluate what they know and identify areas for improvement.

Seventh, combining formative and summative assessments with SRL activities can align exam preparation with long-term mastery, as recommended by Aracena (2024). It can create a more coherent and purposeful learning process that aligns exam preparation with long-term conceptual mastery. Formative assessments, such as quizzes, feedback-based tasks, and in-class exercises, provide ongoing information about students' progress and learning gaps, allowing them to adjust their strategies in real time. When integrated with SRL activities—such as goal setting, self-monitoring, and reflection—students become more intentional in using assessment results to guide their study habits and improve understanding. Summative assessments, on the other hand, serve as checkpoints of overall learning achievement, but when connected to SRL practices, they are no longer viewed merely as final evaluations. Instead, they become opportunities for students to evaluate the effectiveness of their learning strategies and identify areas for continued improvement. This integrated approach helps students prepare for examinations in a more structured and reflective manner, ensuring that learning extends beyond short-term performance.

Conclusions

In light of the findings presented, the conclusions were drawn.

1. Grade 10 students in science were found to moderately practiced self-regulated learning activities, including goal setting and planning, self-monitoring and reflection, time management, help-seeking strategies, and task strategies.
2. Students in Science generally demonstrated above average academic performance in written tasks, class participation, and quarterly assessments.
3. There is a significant positive relationship between the assessment on the students' practice of self-regulated learning activities and on their academic performance in Science.
4. Students generally did not perceive challenges in applying self-regulated learning activities in Science as major barriers, though hesitation in asking for help remains a notable concern, while evaluating study habits is viewed as the least significant difficulty.
5. The proposed enhanced self-regulated learning activities conclude that targeted interventions such as Flexible Goal-Setting Sessions, Progress Monitoring Journals, Time Tracking and Study Scheduling, Peer Tutoring Circles, Active Recall and Visual Learning Tools, Scientific Literacy Enhancement Program, and Confidence-Building Review Sessions can effectively strengthen weaker areas while reinforcing students' existing strengths, thereby fostering improved skills, confidence, and academic achievement in Science.

Recommendations

Here are recommendations to strengthen students' self-regulated learning practices and enhance their academic performance in Science.

1.The proposed enhanced self-regulated learning activities may be used to improve academic performance in Science.
2. Grade 10 students in Science may be provided with enhanced support to strengthen their goal setting and planning, self-monitoring and reflection, time management, help-seeking strategies, and task strategies, by focusing on adaptability, systematic reflection, effective time tracking, formal academic reinforcement, and active recall methods to further improve their self-regulated learning practices and academic performance.
3. Students in Science may be provided with targeted interventions to further strengthen their academic performance by enhancing the use of correct scientific terms in written tasks, encouraging confidence and inquiry during class participation, and building self-efficacy in quarterly assessments while sustaining their strong preparation and engagement habits.

4. It is recommended that students be encouraged to overcome hesitation in asking for help by fostering a supportive classroom environment, while also strengthening reflective practices through guided activities, since challenges in applying self-regulated learning strategies were generally not perceived as major barriers.
5. It is recommended that the proposed enhanced self-regulated learning activities may be consistently implemented in Science instruction to improve students' goal-setting, monitoring, time management, help-seeking, reflection, and task strategy skills, thereby enhancing their academic performance and learner independence.

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REFERENCES

A. Books

Adachi, K. (2024). The Plan: Manage Your Time Like A Lazy Genius. Harmony Books.

Aeon, B., & Aguinis, H. (2022). Time Management In Education: A Meta-Analytic Review. Journal Of Educational Psychology, 114(3), 456–472.

Afandi, I., Ismail, N., & Asdalifa, N. (2021). Role conflict on working students: Self-regulated learning as a predictor. *Advances in Social Science, Education and Humanities Research*, 6(1), 145–150.

Arvatz, A., & Dori, Y. J. (2024). Science And Mathematics High School Students' Perceptions Of Self-Regulated Learning. Science Education, 108(1), 1–23.

Ball, P. (2023). H2O: A Biography Of Water. Chicago: University Of Chicago Press.

Bobis-Antonio, A. (2023). Science Curriculum Enhancement For Junior High School Learners In CALABARZON. Batangas State University Press.

Boven, L., De Schrijver, J., Pinxten, R., & Van Petegem, P. (2025). Explicating Explicit Reflection In Nature Of Science Education: A Systematic Literature Review. Frontiers In Education, 10, Article 1577021.

Briones, R. M., Prudente, M. S., & Errabo, M. A. (2023). Self-Regulation, Engagement, And Self-Efficacy Of Filipino Science Education Students.Rex Bookstore

Cervin-Ellqvist, M., & Wild, M. (2023). Metacognition And Student Agency In Stem Education. Routledge.

Cornell, L. (2024). Time Management: Essential Techniques To Effectively Prioritize Tasks. M2m Consulting.

Gomes, M. (2025). Gauge Theory And The Geometrizations Of Physics. Oxford University Press.

Greene, B. (2023). The Elegant Universe: Superstrings, Hidden Dimensions, And The Quest For The Ultimate Theory. New York: W. W. Norton & Company.

Harari, Y. N. (2025). Sapiens: A Brief History Of Humankind. New York: Harper Perennial.

Kaplan Test Prep. (2025). MCAT General Chemistry Review. New York: Kaplan Publishing.

Karrenbauer, A., & Saiyad, M. (2023). Collaborative Learning And Help-Seeking In Science Classrooms. In Innovations In Stem Education (Pp. 88–104). Springer.

Kahneman, D. (2023). Thinking, Fast And Slow. New York: Farrar, Straus And Giroux.

Kubsch, M., Strauß, S., Grimm, A., Gombert, S., Drachsler, H., Neumann, K., & Rummel, N. (2025). Self-Regulated Learning In The Digitally Enhanced Science Classroom: Toward An Early Warning System. Educational Psychology Review, 37(34).

Lederman, L. M. (2024). Quantum Physics For Poets. Amherst: Prometheus Books.

Liang, Y., & Pintrich, P. R. (2023). Metacognitive Strategies In Science Learning. In J. M. Voight (Ed.), Cognitive Tools For Science Classrooms (Pp. 112–130). Springer.

Martins Van Jaarsveld, G., Wong, J., Baars, M., Specht, M., & Paas, F. (2025). Goal Setting In Higher Education: How, Why, And When Are Students Prompted To Set Goals? A Systematic Review. Frontiers In Education, 9, Article 1511605.

Mempin, H. T., Lazaro, M. J. C. S., & Gabriel, B. D. C. (2024). Senior High School Students' Motivation Toward Science Learning And Science Academic Performance.

Miller, C. A. (2024). Big Goals: The Science Of Setting Them, Achieving Them, And Creating Your Best Life. Positive Edge Press.

Mussyal, A. (2024). 90-Day Goal Setting Planner: Plan With Purpose. Mindful Path Publishing.

Olivar, J. M., Santos, R. A., & Dela Peña, L. (2022). Exploring Life Through Science: Earth Science. Quezon City: Phoenix Publishing House

Pasteur, J. (2024). Earth And Space Science Guide For Grades 6–8. New York: Scholastic Education

Saied, M. (2024). Middle School Earth And Space Sciences. Boston: Pearson Education.

Skloot, R. (2023). The Immortal Life Of Henrietta Lacks. New York: Crown Publishing Group.

Sykes, M., & Chohan, B. (2024). Analytical Chemistry: A Primer. Cambridge University Press.

Tro, N. J. (2025). Chemistry: A Molecular Approach (6th Ed.). Boston: Pearson Education.

Walker, M. (2024). Why We Sleep: Unlocking The Power Of Sleep And Dreams. New York: Scribner.

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 7 (2026)

Winne, P. H., & Hadwin, A. F. (2022). Self-Regulated Learning: Foundations And Frameworks. In Handbook Of Educational Psychology (4th Ed., Pp. 295–312). American Psychological Association.

Zimmerman, B. J. (2002). Becoming A Self-Regulated Learner: An Overview. Theory Into Practice, 41(2), 64–70.

B. Unpublished Materials

Agustin, J. R. (2023). *Reflective Practices And Science Performance Among Junior High School Students In Batangas* [Master's thesis, Batangas State University].

Bunye, L. M. (2025). Enhancing Academic Performance Through Self-Regulated Learning Strategies In Junior High School Science. Batangas State University.

Cruz, M. T. (2022). *Peer Feedback And Self-Monitoring In Science Performance Tasks* [Master's thesis, Polytechnic University of the Philippines

De Chavez, R. M. (2023). Planning Routines And Academic Persistence In Science Among Grade 10 Learners. University of Batangas.

De Villa, R. M. (2021). *Conceptual Barriers In Earth Science Among Grade 10 Learners* [Master's thesis, Batangas State University].

Ebora, A. D. (2021). *Academic Performance In Physics And Student Misconceptions* [Master's thesis, Batangas State University].

Floren, H. (2021). Home-Based Self-Directed Learning: Relationship of Self-Regulated Learning Strategies and Academic Performance. Ateneo de Manila University.

Mendoza, C. A. (2024). *Teacher-Led Goal Setting And Student Engagement In Science* [Master's thesis, Batangas State University]. BatStateU

Panganiban, M. S. (2022). Metacognitive Awareness And Goal Setting In Science Learning. DLSU Graduate School.

Ramos, J. P. (2021). *Strategic Planning And Inquiry-Based Science Performance* [Master's thesis, Lipa City Colleges].

Sy, M. T. (2021). Facilitating Self-Regulation In Modular Learning: An Evaluation Of Deped Modules. DLSU Counseling Department.

Tolentino, A. M. (2024). *Climate Literacy And Resource Gaps In Earth Science Instruction* [Master's thesis, Batangas State University].

Tadena, M. S. (2022). *Personalized Learning Plans And Motivation In Science* [Master's thesis, Batangas State University]. BatStateU

Santos, J. R. (2025). *Language-related challenges in Earth Science performance tasks* [Master's thesis, PUP,Philippines].

Villanueva, K. M. (2023). *Visualization challenges in electricity and magnetism topics* [Master's thesis, Lipa City Colleges].

C. Periodicals And Journals

Abreu, J. L. (2020). Times Of Coronavirus: Online Education In Response To The Crisis. Daena: International Journal Of Good Conscience, 15(1), 1–15.

Abude, A. J. (2021). The Effectiveness Of Modular Distance Learning Modality To The Academic Performance Of Students: A Literature Review. Himalayan Journal Of Education And Literature, 2(6), 44–46.

Agustiani, H., & De Villa, R. M. (2023). *Peer Tutoring And Help-Seeking Behaviors In Science Classrooms* [Master's Thesis, Batangas State University]. Batstateu Research Commons.

Alyami, A., Yeo, S., & Chen, L. (2021). *Time Management And Academic Performance Of Working Students*. *Global Scientific Journal*, 9(3), 145–150.

Antipolo, J. (2021). Balancing School And Work Amidst A Pandemic: Working Students' Time Management. *United International Journal For Research & Technology*, 3(1), 58–63.

Bangquiao, E., Bartolaba, J., Gorre, R., Gregorio, C., Marojenos, G., & Mentang, R. (2023). Time Management Strategies Of Working Students. *Global Scientific Journals*, 11(10), 740–751.

Bernardo, A. B. I., & Mendoza, R. U. (2020). Self-Regulated Learning Among Filipino Students In Blended Environments. *Philippine Journal Of Psychology*, 53(2), 101–120.

Caidic, M. A., & Gotangco-Gonzales, C. (2025). Systems Thinking In Life Science Education: A Philippine Pilot Study. Philippine Journal Of Science Teaching, 9(1), 66–80.

Capanzana, R. C. (2021). Coping Strategies Of Non-STEM Students In Chemistry Learning. Philippine Journal Of Educational Psychology, 5(1), 77–90.

Cruz, M. A. (2022). Localized Instructional Materials In Earth Science: A Strategy For Improving Comprehension. Philippine Journal Of Science Education, 8(1), 45–58.

Donalie, C. M., & Reyes, G. T. (2024). Misconceptions In High School Physics: A Diagnostic Approach. Philippine Journal Of Physics Education, 6(1), 33–47.

Estacio, R. M., & Cornejo, J. P. (2021). Students' Perceived Difficulty In Earth Science Concepts: A Regional Analysis. Asia Pacific Journal Of Multidisciplinary Research, 9(2), 112–120.

Faza, A., & Lestari, I. A. (2025). Self-Regulated Learning In The Digital Age: A Systematic Review Of Strategies, Technologies, Benefits, And Challenges. International Review Of Research In Open And Distributed Learning, 26(2),

Garcia, L. A., & Martinez, R. J. (2023). Peer Mentoring And Contextualized Instruction In Physics: A Classroom-Based Study. Journal Of Philippine Education Research, 11(2), 89–102.

Kesuma, D., Sari, R., & Prasetyo, A. (2020). Time management and effort regulation in digital learning environments. *Journal of Educational Technology and Innovation*, 5(2), 88–97.

Kilag, O. K., & Tariman, R. S. (2024). Innovative Teaching Strategies In Secondary Science Education. International Multidisciplinary Journal Of Research For Innovation, 1(4), 37–38.

Lambert, S. (2023). *The influence of self-regulated learning strategies towards academic performance of college students* [Master's thesis, University of Batangas]. Academia.edu..

Lapada, A. A. (2022). Development Of Contextualized Self-Regulated Learning Modules In Life Science Based On Students' Funds Of Knowledge. Asia Pacific Journal Of Multidisciplinary Research, 10(1), 45–53.

Latipah, E., Suryani, N., & Hidayat, R. (2021). Metacognitive barriers in self-regulated learning among junior high school students. *Asian Journal of Educational Research*, 9(1), 33–45.

Laureano, R. A., Espinosa, A. A., & Avilla, R. A. (2015). Impact Of Grade 9 Science Learner's Materials On Students' Self-Regulation And Achievement In Chemistry. Philippine Journal Of Science Education, 6(2), 23–34.

Lisao, C., & Tamayo, J. M. (2023). Reimagining Science Education In The Philippines: The 7e Learning Cycle Model. Excellencia: International Journal Of Education, 1(5), 100–111.

Malmberg, J., Järvelä, S., & Kirschner, P. A. (2021). Monitoring in collaborative learning: Co-regulation and socially shared regulation processes. *Learning and Instruction, 71*, 101355. https://doi.org/10.1016/j.learninstruc.2019.101355

Mordeno, I. G., & Diate, M. A. (2021). Curriculum Alignment And Resource Gaps In Physics Instruction. Philippine Journal Of Curriculum Studies, 4(2), 59–73.

Musengimana, J., Kampire, E., & Ntawiha, P. (2021). Factors Affecting Secondary Schools Students' Attitudes Toward Learning Chemistry: A Review Of Literature. Eurasia Journal Of Mathematics, Science And Technology Education, 17(1), Em1931.

Peralta, J. M., & Santos, K. R. (2023). Differentiated Instruction In Physics: Addressing Diverse Learner Needs. Science Education International, 34(1), 21–35.

Salmo, R. D., Villanueva, M. C., & Dela Cruz, J. P. (2023). Phenomenological Study On Students' Perceptions Of Physics Difficulty. International Journal Of Filipino Science Education, 7(2), 101–115.

Sarabi, M. K., & Gafoor, K. A. (2022). Student Perception On Nature Of Subjects: Impact On Difficulties In Learning High School Physics, Chemistry And Biology. International Journal Of Research In Education And Psychology, 8(1), 42–55.

Sarkar, B., & Chakraborty, S. (2024). Innovative Teaching Strategies For Enhancing Student Engagement. International Journal Of Research Publication And Reviews, 5(7), 4893–4898.

Saro, A. L., Mendoza, C. R., & Villanueva, T. S. (2023). Technology Integration In Earth Science Instruction: Effects On Cognitive Load. International Journal Of Educational Technology, 5(3), 78–89.

Tanghian, S. M., & Adlaon, M. S. (2025). A Systematic Review Of Innovative Teaching Strategies In Science: Exploring Hands-On Learning, Technology Integration, And Student-Centered Approaches. Acta Pedagogia Asiana, 4(2), 1–20.

Toma, R. B. (2022). Earth Science Education: Concepts, Challenges, And Classroom Strategies. Journal Of Geoscience Education, 70(3), 215–229.

Wang, L. (2023). Student-Centered Learning And Academic Motivation In Science. Journal Of Education, Humanities And Social Sciences, 22, 346–353.

Yu, Z., & Jiang, X. (2025). Exploring The Impact Of Learner- And Peer-Help Seeking Strategies On Cognitive Load Reduction And Self-Regulated Learning Skills Enhancement. Interactive Learning Environments. Advance Online Publication. Https://Doi.Org/10.1080/10494820.2025.2457352

D. Legal Documents

Department Of Education. (2021). Science Education Supervision Framework. Bureau Of Curriculum Development.

Department Of Education. (2021). Policy Guidelines On The Implementation Of The Science, Technology And Engineering (Ste) Program

Department Of Education. (2019). Deped Order No. 21, S. 2019 – Policy Guidelines On The K To 12 Basic Education Program.

Department Of Education. (2017). Deped Order No. 42, S. 2017 – National Adoption And Implementation Of The Philippine Professional Standards For Teachers.

Deped Order No. 55, S. 2010 – Policies And Guidelines On Strengthening Science And Mathematics Education At The Secondary Level

Department of Education (DepEd). (2023). *MATATAG Curriculum Framework: Strengthening foundational learning and lifelong skills*. Department of Education, Philippines.

Education Commission II (EDCOM II). (2024). *Learning equity and access in Philippine public schools: A policy review*. Senate of the Philippines.

Republic Of The Philippines. (1987). The 1987 Constitution Of The Republic Of The Philippines. Article Xiv, Section 1.

Republic Act No. 10533. (2013). Enhanced Basic Education Act Of 2013. Official Gazette. Https://Www.Officialgazette.Gov.Ph/2013/05/15/Republic-Act-No-10533

Republic Act No. 9155. (2001). Governance Of Basic Education Act Of 2001. Official Gazette.

Republic Act No. 10612. (2013). Fast-Tracked Science And Technology Scholarship Act Of 2013.

D. Electronic Sources

Chou, C.-Y., & Zou, N.-B. (2020). An analysis of internal and external feedback in self-regulated learning activities mediated by self-regulated learning tools and open learner models. *International Journal of Educational Technology in Higher Education, 17*(55). https://doi.org/10.1186/s41239-020-00233-y

Du, J., Hew, K. F., & Li, L. (2023). Do direct and indirect recommendations facilitate students' self-regulated learning in flipped classroom online activities? *Education Sciences, 13*(4), 400. https://doi.org/10.3390/educsci13040400

Endedijk, M. D., van der Rijst, R. M., & Vermunt, J. D. (2024). Review of the concept "Self-Regulated Learning": Defined and used in higher education. *ERIC Journal*. https://files.eric.ed.gov/fulltext/EJ1415007.pdf

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 7 (2026)

Gambo, J., & Shakir, M. (2024). Adaptive technologies and SRL support in student-centered learning. *Smart Learning Environments*, 11(2). https://slejournal.springeropen.com/articles/10.1186/s40561-024-00359-w

Jansen, R. S., van Leeuwen, A., Janssen, J., Jak, S., & Kester, L. (2020). Using learning analytics to support self-regulated learning in higher education. *The Internet and Higher Education, 45*, 100727. https://doi.org/10.1016/j.iheduc.2020.100727

Järvelä, S., Malmberg, J., Haataja, E., Sobocinski, M., & Kirschner, P. A. (2020). What multimodal data can tell us about self-regulated learning: A systematic review. *Educational Psychology Review, 32*, 1125–1154. https://doi.org/10.1007/s10648-020-09525-1

Karabenick, S. A., & Gonida, E. N. (2021). Academic help seeking as a self-regulated learning strategy: Current issues and future directions. *Educational Psychologist, 56*(3), 191–205. https://doi.org/10.1080/00461520.2021.1891533

Kirschner, P. A., Sweller, J., & Clark, R. E. (2020). Why minimal guidance during instruction does not work: An update. *Educational Psychologist, 55*(2), 115–126.

Lobos, K., Cobo-Rendón, R., Bruna Jofré, D., & Santana, J. (2024). New Challenges For Higher Education: Self-Regulated Learning In Blended Learning Contexts. Frontiers In Education, 9, Article 1457367.

Martins Van Jaarsveld, G., Wong, J., Baars, M., Specht, M., & Paas, F. (2025). Goal Setting In Higher Education: How, Why, And When Are Students Prompted To Set Goals? A Systematic Review. Frontiers In Education, 9, Article 1511605.

Panadero, E. (2020). A review of self-regulated learning: Current directions and future perspectives. *Educational Psychology Review*. https://doi.org/10.1007/s10648-020-09534-0

Patzak, A., Zhang, X., & Vytasek, J. (2025). Boosting Productivity And Wellbeing Through Time Management: Evidence-Based Strategies For Higher Education And Workforce Development. Frontiers In Education, 10, Article 1623228.

Winne, P. H. (2021). Cognition and metacognition within self-regulated learning. *Educational Psychologist, 56*(4), 239–253. https://doi.org/10.1080/00461520.2021.1969702

Wolters, C. A., & Brady, A. C. (2021). College Students' Time Management: A Self-Regulated Learning Perspective. Educational Psychology Review, 33, 1319–1351.

Xu, K. M., Leferink, J., & Wijnia, L. (2025). A Review Of The Relationship Between Student Growth Mindset And Self-Regulated Learning. Frontiers In Education, 10, Article 1539639