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Deeper Learning Skills on Learners Academic Performance

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A B S T R A C T

This descriptive-correlational study aimed to determine the relationship between learners' deeper learning skills and academic performance. Using a researcher-made instrument, data was taken from Grade 9 learners of a certain secondary school in Candaba, Pampanga during the SY. 2024-2025. Utilizing descriptive and inferential statistics, data was analyzed and interpreted. Based on the findings of the study, the Grade 9 learner-respondents marked all item statements in terms of Critical Thinking, Problem Solving, Collaboration, Self-Regulation, and Creativity, as "Agree". Meanwhile, Grade 9 respondents recorded a general average of 91.79 which is verbally interpreted as "Good". The following conclusions were drawn from the findings of the study: Grade 9 students possess a high level of deeper learning skills in terms of critical thinking, problem solving, collaboration, self-regulation, and creativity; and Deeper learning skills are closely associated with academic performance.

Keywords: Deeper learning skills, Academic performance

Introduction

In a time when the world is changing rapidly, the capacity for adaptation, critical thought, and problem-solving has become essential. Traditional teaching approaches often focused on surface-level understanding, leaving students unprepared for 21st-century demands. The goal of deeper learning is to establish a learning environment where students not only take in information but also apply it creatively, collaborate effectively, and develop skills that go beyond the classroom.

In December 2023, the Programme for International Student Assessment (PISA) revealed that Filipino 15-year-olds are five to six years behind their global peers in science proficiency. This alarming statistic underscores a pressing issue: the traditional methods of science education in the Philippines may not be equipping students with the necessary skills to thrive in a rapidly evolving, knowledge-based global economy (DepEd, 2023).

The persistent underperformance of Filipino students in science is not merely a reflection of content knowledge deficits but also indicates a lack of deeper learning competencies—such as critical thinking, problem-solving, and the ability to apply scientific concepts to real-world situations. While the Department of Education (DepEd) has initiated programs like the special science curriculum aligned with PISA frameworks, these efforts often focus on test preparation rather than fostering genuine scientific inquiry and understanding.

Moreover, systemic issues such as a significant mismatch between teacher specializations and their teaching assignments exacerbate the problem. Reports indicate that over 60% of high school teachers in the Philippines are teaching subjects outside their field of expertise, with many science teachers lacking a solid background in the subject. This situation hampers the effective delivery of science education and the cultivation of deeper learning skills among students (Chi, 2024).

Recent studies emphasize the need for pedagogical reforms to enhance science education in the Philippines: A systematic analysis of the 7E Learning Cycle Model demonstrated its efficacy in improving student engagement and conceptual understanding in science, highlighting the benefits of hands-on experimentation and collaborative learning (Eisenkraft, 2023). A study of Anderton et al. (2021) discusses the impact of flexible teaching and learning modalities in undergraduate science during the COVID-19 pandemic. While it does not explicitly identify teacher characteristics and course design as critical factors, it provides insights into the challenges and adaptations in science education during this period.The EDCOM 2 Year Two Report stressed the importance of foundational learning and called for systemic changes to address the educational crisis, including the enhancement of science education and teacher competency (Second Congressional Commission on Education, 2025).

Deeper Learning includes critical thinking, problem-solving, collaboration, self-regulation and creativity which are all crucial for the success of a learner. These abilities motivate students to participate actively in his endeavours. If a learners could analyze complicated issues, apply their knowledge in

practical settings, and become lifelong learners, he could navigate easily in a constantly changing environment. These competencies also give people the capacity to work well in groups, express themselves clearly, and take charge of their education, which eventually positions them for success in the classroom, in the workplace, and in their personal lives. A number of research underscored the importance of deeper learning in increasing learners' academic performance. Darling-Hammond et al. (2014), in their study found that the higher students engaged in deeper learning approaches, the higher academic achievement recorded by them. Fullan and Langworthy (2013), on the other hand highlighted that deeper learning develops transferable skills. Moreover, Barron and Darling-Hammond (2008), also added that deeper learning skills enhance student engagement and foster a deeper understanding of the subject matter. These findings collectively emphasize the transformative potential of deeper learning in students' success.

Despite these insights, there remains a paucity of empirical research focusing specifically on the integration of deeper learning strategies within the science curriculum of Filipino secondary education. Existing studies often address general educational reforms or focus on isolated interventions without a comprehensive analysis of their impact on students' deeper learning competencies in science.

This study aimed to investigate the relationship between deeper learning skills and academic performance among secondary students in a public high school in Candaba, Pampanga. The study commenced this second quarter of the school year 2024-2025.

Specifically, it sought answers to the following questions: 1. How may the deeper learning skills of the respondents be described in terms of: 1.1 critical thinking; 1.2 problem solving; 1.3 collaboration; 1.4 self-regulation; and 1.5 creativity; 2. How may the academic performance of the respondents be described; and 3. Is there a significant relationship between deeper learning skills and learners' academic performance?

Methods

This descriptive research aimed to determine the relationship between deeper learning skills and the learners' academic performance of 122 randomly selected secondary students at a certain school in Candaba, Pampanga, during the second quarter of SY 2024-2025. A researchers-made instrument was utilized in this study, which was validated by the experts.

Prior to the distribution of the questionnaire, the researchers sought permission from the school head of the respondents' school. Once the permission was granted, coordination with the respective teachers for the schedule of the administration of the questionnaire, data collection and retrieval followed.

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

Results and Discussions

Table 1.

Learners' Deeper Learning Skills of Grade 9 Students in terms of Critical Thinking

Item Statement	N	Mean	Verbal Description	SD
1. I can identify the main points and key arguments in the information I read.	122	3.02	Agree	0.65
2. I can analyze complex issues and break them down into smaller, manageable parts.	122	2.96	Agree	0.69
3. I critically evaluate different perspectives before forming my own opinion.	122	3.11	Agree	0.77
4.I can distinguish between facts, opinions, and assumptions in a discussion or text.	122	3.07	Agree	0.77
5. I often challenge my own thinking to ensure that my conclusions are well-supported by evidence.	122	3.16	Agree	0.75
Standard Deviation	0.73			
Grand Mean and Verbal Description	3.07 (Agree)			

Legend: 4:00-3.26 (Strongly Agree), 3.25-2.51(Agree), 2.50-1.76(Disagree), 1.75-1.00(Strongly Disagree)

Table 1 presents the learners' deeper learning skills of the respondents in terms of critical thinking. As can be viewed in the table, all items are marked by the respondents as "Agree". In addition, item statement 5, "I often challenge my own thinking to ensure that my conclusions are

well-supported by evidence," garnered the highest mean of 3.16, with a verbal description of "Agree". This suggests that the respondents have a solid foundation in critical thinking, especially when it comes to assessing one's viewpoints and questioning their own conclusions. A standard deviation of 0.75 was also recorded, which means that there is a consensus between the perceptions of the respondents as to the stated statement. Meanwhile, item statement 2, "I can analyze complex issues and break them down into smaller, manageable parts," received the lowest mean of 2.96, which is verbally described as "Agree". This suggests that, though the lowest means, students still possess a high ability in deconstructing complex problems into smaller and manageable components. A standard deviation of 0.69 was also logged, which suggests a lower variability among the respondents' answers.

Finally, the grand mean was set at 3.07, with a verbal interpretation of "Agree". A standard deviation of 0.73, which means that the responses' variability is still low. The results reveal that the respondents possessed a high deeper learning skill in terms of critical thinking.

The importance of creativity and how social media use affects students' academic performance and creativity, highlighting the role of intrinsic motivation as a key mediator. Surveying undergraduate students, the findings suggest that social media positively influences learning outcomes. The research provides valuable insights for students, educators, and policymakers on leveraging social media for academic growth (Malik et al., 2020).

Table 2.

Learners' Deeper Learning Skills of Grade 9 Students in terms of Problem-Solving

Item Statement	N	Mean	Verbal Description	SD
1. I can generate multiple solutions to a problem.	122	2.90	Agree	0.74
2. I can quickly adapt my problem-solving approach when faced with new or unexpected challenges.	122	2.97	Agree	0.69
3. I use creative methods to solve problems, rather than relying on traditional solutions.	122	2.90	Agree	0.88
4. I feel confident in applying what I have learned to solve real-world problems.	122	3.20	Agree	0.79
5. I can evaluate the effectiveness of a solution and adjust it if necessary.	122	3.13	Agree	0.79
Standard Deviation	0.78			
Grand Mean	3.02 (Agree)			

Legend: 4:00-3.26 (SA), 3.25-2.51(A), 2.50-1.76 (D), 1.75-1.00 (SD)

Table 2 presents the learners' deeper leaning skills of Grade 9 students in terms of problem solving. As can be viewed in the table, all items are marked by the respondents as "Agree". In addition, item statement 4, "I feel confident in applying what I have learned to solve real-world problems", garnered the highest mean of 3.20 with a verbal description of "Agree", and a standard deviation of 0.79. This suggests that Grade 9 learners have developed their problem-solving abilities especially in relation to the day-to-day activities they experience. Meanwhile, item statement 1, "I can generate multiple solutions to a problem", and item statement 3, "I use creative methods to solve problems, rather than relying on traditional solutions", received the lowest mean of 2.90, which is verbally described as "Agree", with a standard deviation of 0.74 and 0.88 respectively. This suggests that though presented as the lowest means, the Grade 9 learners still managed to think of ways in handling their problems.

Finally, the grand mean was set at 3.02 with a verbal interpretation of "Agree". The results indicate that although most of the Grade 9 students have high deeper learning skills in terms of problem-solving. They can address problems in a passionate and strategic manner. This further implies that students are aware of their capacity to overcome obstacles, modify their strategies, and assess the success of their choices.

A standard deviation was also set at 0.78, which implies a lower variability among the answers of the respondents. This directs that the responses of the respondents are close to one another.

In line with this, Ramezanin et al., 2022 stated that, learners have various processing and understanding of the environment and issues and choose different strategies for well problem-solving considering learning and studying approaches.

Table 3.

Learners' Deeper Learning Skills of Grade 9 Students in terms of Collaboration

Item Statement	N	Mean	Verbal Description	SD
1. I actively participate in group discussions and contribute useful ideas.	122	3.30	Agree	0.79

2. I am open to listening to and considering others' ideas during group work.	122	3.34	Agree	0.69
3. I feel comfortable giving and receiving constructive feedback within a group.	122	3.18	Agree	0.84
4. I work effectively with others to achieve shared goals.	122	3.07	Agree	0.82
5. I can present complex information in a simple, understandable way with the help of other people.	122	3.07	Agree	0.83
Standard Deviation	0.79			
Grand Mean and Verbal Description	3.19 (Agree)			

Legend: 4:00-3.26 (SA), 3.25-2.51 (A), 2.50-1.76(D), 1.75-1.00 (SD)

Table 3 shows the learners' deeper learning skills of Grade 9 students in terms of Collaboration. As can be seen from the table, 3 items were marked by the respondents "Agree". Moreover, item statement 2, "I am open to listening to and considering others' ideas during group work", received the highest mean of 3.34 which is verbally described as "Agree", with a standard deviation of 0.69. This shows the willingness of the respondents to listen to the ideas that may be shared by their peers to them. Meanwhile, item statement number 4, "I work effectively with others to achieve shared goals", and item statement 5, "I can present complex information in a simple and understandable way with the help of other people", both garnered the lowest means of 3.07 with a verbal interpretation of "Agree "and a standard deviation of 0.82 and 0.83, respectively. This suggests that the respondents work well with their peers during group activities

Furthermore, a grand mean of 3.19 with a verbal interpretation of "Agree" was recorded. The findings state that majority of the Grade 9 students have high deeper learning skill in terms of Collaboration. The students can work with others flawlessly and with ease. This shows students understand how important it is to collaborate with others, share ideas, and operate as a team.

A standard deviation was also set at 0.79, which means a lower variability among the answers of the respondents. This implies that the responses of the respondents are closely aligned to one another.

In consonance with the study, Rafique et al., 2021 highlighted the impact of collaborative learning on student success. Collaboration helps students learn better by discussing their ideas with others. It also helps students get engaged and think critically.

Table 4.

Learners' Deeper Learning Skills of Grade 9 Students in terms of Self-Regulation

Item Statement	N	Mean	Verbal Description	SD
1. I set specific goals for my learning and work towards achieving them.	122	3.29	Agree	0.71
2. I regularly monitor my progress toward achieving my learning goals.	122	3.10	Agree	0.85
3. I can identify when my strategies for learning are not working and adjust them.	122	2.87	Agree	0.83
4. I use reflection to improve my work and learning strategies.	122	3.25	Agree	0.73
5. I manage my time effectively to meet deadlines and complete tasks.	122	3.20	Agree	0.81
Standard Deviation	0.78			
Grand Mean and Verbal Description	3.14 (Agree)			

Legend: 4:00-3.26 (SA), 3.25-2.51 (A), 2.50-1.76 (D), 1.75-1.00 (SD)

Table 4 presents the learners' deeper learning skills of Grade 9 students regarding Self-regulation. As can be viewed from the table, all the items are marked by the respondents as "Agree". In addition, item statement 1, "I set specific goals for my learning and work towards achieving them", garnered the highest mean of 3.29, with a verbal description of "Agree", and the standard deviation of 0.71. This means that the respondents are goal oriented and focus toward achieving that set goal. Meanwhile, item statement 3, "I can identify when my strategies for learning are not working and adjust them", received the lowest mean of 2.87, which is verbally described as "Agree", with the standard deviation 0.83. This means that the respondents easily recognize signs if their study methods are not working and adjust them if deemed appropriate.

Finally, the grand mean was set at 3.14, with a verbal interpretation of "Agree". This means that Grade 9 students possessed a high level of self-regulation. This shows that students can efficiently manage their own learning without waiting for others to push them.

A standard deviation was also set at 0.78, which implies a lower variability among the answers of the respondents. This directs that the responses of the respondents are close to one another.

Self-regulated learning refers to the monitoring and controlling of one's own cognitive performance before, during, and after a learning episode. Previous literature suggested that self-regulated learning had a significant relationship with academic achievement, but not all self-regulated learning strategies exerted the same influences. Using an invalid strategy may waste the limited psychological resources, which will cause the ego depletion effect. The present meta-analysis study intended to search for the best self-regulated learning strategies and inefficient strategies for Chinese students in elementary and secondary school and analyzed the critical phases of self-regulated learning according to Zimmerman's theory (Li et al., 2018).

Table 5.

Learners' Deeper Learning Skills of Grade 9 Students in terms of Creativity

Item Statement	N	Mean	Verbal Description	SD
1. I enjoy coming up with new and original ideas to solve problems.	122	3.33	Agree	0.81
2. I can think outside the box and generate novel solutions to challenges.	122	2.91	Agree	0.77
3. I use my imagination to develop creative solutions when faced with a problem.	122	3.22	Agree	0.71
4. I am comfortable taking risks and experimenting with new ideas.	122	3.00	Agree	0.85
5. I often look for new ways to improve existing ideas or processes.	122	3.18	Agree	0.78
Standard Deviation	0.78			
Grand Mean and Verbal Description	3.13 (Agree)			

Legend: 4:00-3.26 (SA), 3.25-2.51(A), 2.50-1.76(D), 1.75-1.00(SD)

Table 5 presents the learners' deeper learning skills of the students of Grade 9 in terms of Creativity. As can be viewed in the table, all items were marked by the respondents as "Agree". Item statement 1, "I enjoy coming up with new and original ideas to solve problems", got the highest mean of 3.33, with a verbal description of "Agree", and a standard deviation of 0.81. This suggests that the respondents have the capability to generate novel ideas in dealing with their problems. Meanwhile, item statement 2, "I can think outside the box and generate novel solutions to challenges", received the lowest mean of 2.91, which is verbally described as "Agree", with a standard deviation of 0.77. This suggests that, though in the lowest means, the respondents are still equipped with the capacity to attack problems in unique ways.

Finally, the grand mean was set at 3.13, with a verbal interpretation of "Agree". Based on the findings, majority of the Grade 9 students have a high level of Creativity. This shows that students could come up with new ideas and better improve existing concepts.

A standard deviation was set at 0.78 which connotes a lower variability among the response of the respondents. This dictates that the answers of the respondents are closely related to one another.

Yang and Zhao (2021), in their study, found a positive relation between creative thinking and academic performance. They provided evidence that creative thinking influences academic performance through students' self-esteem and internal locus of control.

Academic Performance of the Respondents in the Second Quarter

Table 6.

Academic Performance of the Respondents in the Second Quarter

General Average	f	%
98-100	0	0
95-97	0	0
90-94	44	36.06

85-89		24	19.67
80-84		29	23.77
75-79		15	12.29
	Standard Deviation	6.06	
	General Average	91.79	
	Verbal Description	Good	

Legend: 98-100 (Excellent), 97-95 (Very Good), 90-94 (Good), 85-89 (Average), 80-84 (Below Average), 75-79 (Poor), below 75 (Failed)

Table 6 shows the academic achievement of Grade 9 students during the second quarter, during the SY 2024-2025. As can be seen from the table, majority of students' grades fell under 90-94 range (f:44, 36.06%) with a verbal description of "Good". This was followed by 80-84 (f:29, 23.77%), 85-89 (f:24, 19.67%), and 75-79 (f:15, 12.29%). Meanwhile, a general average of 91.79 which is verbally interpreted as "Good" was recorded. A standard deviation of 6.06 was also set, which suggests a high variability among the grades of the respondents.

Significant Relationship between Learners' Deeper Learning Skills and Academic Performance of Grade 9 Students

Table 10

Results of the Correlation test between Learners' Deeper Learning Skills and Academic Performance of Grade 9 Students

Variables		r-value	p-value	Decision	Verbal Interpretation
Critical Thinking	Academic Performance	0.0358	0.00	Reject Ho	Significant
Problem Solving		0.1037	0.00	Reject Ho	Significant
Collaboration		0.0692	0.00	Reject Ho	Significant
Self-Regulation		0.0746	0.00	Reject Ho	Significant
Creativity		0.0503	0.00	Reject Ho	Significant

Legend: $\alpha = 0.01$

Interestingly, as can be gleaned from the table, all variables examined in the study posted a statistically significant relationship with academic performance. This includes critical thinking, problem solving, collaboration, self-regulation, and creativity. The stated significance was supported by the p-values which are all computed below the significance level of 0.01; (Critical Thinking: 0.00, Problem Solving: 0.00, Collaboration: 0.00, Self-Regulation: 0.00, Creativity: 0.00).

4. Conclusions

The following conclusions were drawn from the findings of the study:

1. Grade 9 students possessed a high level of deeper learning skills in terms of critical thinking, problem solving, collaboration, self-regulation, and creativity; and
2. Deeper learning skills are closely associated with academic performance.

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