

Predictors of Science Learning on Students' Success and Performance

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Abstract—This study aims to determine the predictors of science learning and examine their relationship with students' success and academic performance in Science. Specifically, it assessed the level of science learning predictors in terms of mutualism, attitude, prior knowledge, experience, self-efficacy, and beliefs; the level of students' success in Science in terms of achieving academic potential, cultivating personal growth, developing social skills, prioritizing well-being, and utilizing resources; and the level of students' academic performance based on their third-quarter grades. It also recognizes the relationship between science learning predictors and students' success and performance in Science. A quantitative correlational research design was employed. The respondents were one hundred fifty (150) students from the Schools Division Office (SDO) of Laguna during School Year 2025–2026, selected through purposive sampling. Data were collected using a structured and validated questionnaire, while students' third-quarter grades served as the measure of academic performance. Mean, standard deviation, Pearson product-moment correlation, and multiple linear regression analysis were used to analyze the data. The findings reveal that all predictors of science learning are rated very high, indicating that students demonstrated positive learning behaviors and perceptions toward Science. Likewise, students' success in Science in terms of academic potential, personal growth, social skills, well-being, and resource utilization was rated very high. Academic performance was found to be very satisfactory. Correlation analysis further showed that attitude, mutualism, prior knowledge, and self-efficacy had significant positive relationships with students' success in Science. The study conclude that the predictors of science learning is significantly related to students' success in Science, leading to the rejection of the null hypothesis. However, these predictors did not significantly affect academic performance, resulting in the acceptance of the null hypothesis. The findings highlight the importance of promoting positive learning environments and learner attributes to support science learning and student success.

Keywords— Science learning, predictors, students' success, academic performance, quantitative correlational research.

I. INTRODUCTION

In the Philippines, science education is recognized as a vital foundation for national progress and innovation. The Department of Education (DepEd) integrated inquiry-based and competency-driven science instruction within the K to 12 curriculum to enhance students' scientific literacy and critical thinking. Despite these reforms, national and international assessments continue to show that Filipino students face challenges in achieving science proficiency.

Science education plays a significant role in the country's economic development. It brings technological advancement, promotes national wealth, and improves health and industry.

In this digital and fast-changing era, knowledge-based economy in science education has a vital role in economic and social development. This scientific skill breakthrough aims for an innovative paradigm that serves as a gateway to satisfying the countries' hopeful global economic expansion. All over the world, science education provides inspiration for individuals and societies to improve their economy through good quality science education. There are regions that must be prioritized in order to meet international standards for the efficient use of science education in expanding economies.

Education professionals, governments, and the public have expressed ongoing concerns about the science achievement of Filipino students. Even though national efforts have been made to improve science education with respect to curriculum reform, teacher preparation, and resource distribution, many students in the Philippines still have not achieved the expected level of competency in science (DepEd, 2020).

Furthermore, low science achievement will not only impact the individual student's ability to further their education or pursue a career in the sciences; it will also limit the Philippines' ability to provide a workforce that is scientifically literate and can help meet some of the country's current and future public health, environmental, and technological challenges (Bernardo, 2017).

1.1 Statement of the Problem

Problem/s which were addressed by the research

This study, therefore, seeks to fill this gap by identifying the significant predictors of Science Learning Success among students. By analyzing the relationships between the dependent variable and a set of independent variables. This research aimed to provide a clearer understanding of how these factors contribute to or hinder students' academic success in science.

To guide this investigation, the study aimed to answer the following research questions:

1. What is the level of predictors of Science Learning of the students in terms of:
 - 1.1. Mutualism;
 - 1.2. attitude;
 - 1.3. prior knowledge;
 - 1.4. experience;
 - 1.5. self-Efficacy; and
 - 1.6. beliefs?
2. What is the level of students' success in Science in terms of:
 - 2.1. Achieving Academic Potential;
 - 2.2. cultivating personal growth;

- 2.3. developing social skills;
- 2.4. Prioritizing well-Being; and
- 2.5. utilizing resources?
3. What is the level of students' performance in Science in terms of 3rd quarter grade?
4. Do the predictors of Science learning significantly correlate to students' success in Science?
5. Do the predictors of Science learning have a significant effect on the students' performance in Science?

II. METHODOLOGY

A quantitative correlational research design was employed. The respondents were one hundred fifty (150) students from the Schools Division Office (SDO) of Laguna during School Year 2025–2026, selected through purposive sampling. Data were collected using a structured and validated questionnaire, while students' third-quarter grades served as the measure of academic performance. Mean, standard deviation, Pearson product-moment correlation, and multiple linear regression analysis were used to analyze the data.

III. RESULTS AND DISCUSSION

The purpose of this chapter is to present, analyze and provide interpretation of data collected to answer the secondary sub-problem associated with the overall research problem. The subsection will detail the research findings as related to the research questions.

Level of Predictors of Science Learning of the Students

The Predictors of Students' Science Learning are indicated by Mutualism, Attitude Toward Learning, Prior Knowledge of Science, Experience with Science, Self-Efficacy in Science, and Beliefs About Science.

Table 1 shows the level of students' success in Science in terms of Mutualism, with the highest mean achieved on the statement that they provided a positive learning experience in their Science class ($M=4.63$; $SD=0.62$) and the lowest mean on the statement that they found Science easier to learn ($M=4.44$; $SD=0.66$). Both statements were verbally interpreted as Strongly Agree, which indicates that students provide support for one another, in addition to taking responsibility for developing a positive Science learning environment and assisting one another in developing an understanding of Science concepts.

The students' level of success in Science on the Mutualism scale had a weighted mean score of 4.52 and a standard deviation of 0.64 and was therefore verbally interpreted as Very High for the respondents, signifying that students engage in reciprocal learning with one another through their interactions with their teachers and classmates, thus increasing their understanding of Science and creating a supportive learning atmosphere within their classroom.

High levels of cooperation and peer interactions through collaborative learning fostered positive dispositions toward science related to mutualism as evidenced by the data collected. The students in this study consistently agreed that when they work together with their teachers (in this case

through cooperative learning), they gain a better understanding of the science concepts.

Table 1. Level of Predictors of Science Learning in terms of Mutualism

Statement	Mean	SD	Remarks
As a learner in a Science class, I collaborate with my teacher and classmates by...			
...positively supporting the learning environment in my science class.	4.63	0.62	Strongly Agree
...understanding science lessons more effectively.	4.44	0.66	Strongly Agree
...group activities in science and getting involved help improve my understanding of concepts.	4.50	0.66	Strongly Agree
...being open for assistance to understand challenging science topics.	4.55	0.65	Strongly Agree
...accepting my science teacher's encouragement for collaboration during science activities.	4.56	0.62	Strongly Agree
Weighted Mean	4.52		
SD	0.64		
Verbal Interpretation	Very High		

In Table 2, the predictors of science learning according to the student's attitude is displayed. The highest mean value was recorded for students' interest and curiosity level when learning science content ($M = 4.76$, $SD = 0.47$). Conversely, the lowest mean score was for motivational drive to obtain a good grade in science class ($M = 4.51$, $SD = 0.63$), yet both were rated as strongly agreeing to the positive attitude students had toward science. The data suggest that the students in this study have a very favorable disposition toward science, especially with regard to curiosity and engagement when learning about science.

The level of predictors of science learning according to student's attitude has an overall mean score of 4.64 and an overall standard deviation of 0.54 which is verbally interpreted as very high on the scale. As indicated by this finding, the students in this study had an overall positive attitude toward science, viewing it as an important part of their lives, which serves to motivate them to learn and be involved in their education.

Table 2. Level of Predictors of Science Learning in terms of Attitude

Statement	Mean	SD	Remarks
As a learner in Science class I can demonstrate, and show that;			
...science lessons are enjoyable.	4.73	0.48	Strongly Agree
...science has practical value in daily life.	4.60	0.52	Strongly Agree
...I am driven to achieve good results in my science class.	4.51	0.63	Strongly Agree
...science is among the subjects I like the most.	4.59	0.54	Strongly Agree
...I get engaged and curious when learning science topics.	4.76	0.47	Strongly Agree
Weighted Mean	4.64		
SD	0.54		
Verbal Interpretation	Very High		

The results show a very high level of predictors of science learning in terms of attitude. All indicators were rated as strongly agree, indicating that students find science enjoyable, relevant, and interesting. It demonstrates a strong positive

disposition toward science, which supports better participation and learning outcomes.

Table 3 presents the level of predictors of science learning in terms of prior knowledge.

The highest mean was obtained in having sufficient prior knowledge to understand new topics in science ($M = 4.63$, $SD = 0.51$), while connecting new science ideas with the knowledge already acquired had the lowest mean ($M = 4.49$, $SD = 0.60$), though both were interpreted as Strongly Agree. This suggests that students are able to activate and apply their prior knowledge effectively in understanding new science concepts.

The level of Predictors of Science Learning in terms of Prior Knowledge attains a weighted mean score of 4.56 and a standard deviation of 0.57 and is verbally interpreted as Very High among the respondents. This indicates that students consistently use their previous learning experiences in science as a foundation for understanding new lessons, solving problems, and engaging with new scientific ideas.

Table 3. Level of Predictors of Science Learning in terms of Prior Knowledge

Statement	Mean	SD	Remarks
As a learner in Science class, I integrate what I already know by...			
...having sufficient prior knowledge to understand new topics in science.	4.63	0.51	Strongly Agree
...connecting new science ideas with the knowledge I already have.	4.49	0.60	Strongly Agree
...using my prior learning in science that helps me solve science problems.	4.52	0.59	Strongly Agree
...utilizing previous science lessons that help me in my current science subject.	4.56	0.58	Strongly Agree
...being ready to learn when new science topics are introduced.	4.61	0.58	Strongly Agree
Weighted Mean	4.56		
SD	0.57		
Verbal Interpretation	Very High		

The research indicates that students have a strong correlation between prior knowledge and understanding science subjects. Because students can connect new knowledge to previous lessons in science, they have been reported to agree strongly about the knowledge they had going into school. Therefore, they can use prior knowledge to help with understanding the subject matter, working through problems, and preparing for future classes. Thus, prior knowledge is essential for enhancing understanding of scientific concepts.

Research in science education has shown that establishing prior knowledge prior to learning helps develop comprehension, problem-solving skills, and conceptual changes and is one of the most significant predictors of success in science learning.

Table 4 shows the level of predictors of science learning in terms of experience.

The highest mean score from all of the experiences was 4.77 (Standard Deviation of 0.47) for "Making what I learn meaningful to me." The lowest mean score was 4.56 (Standard Deviation of 0.58) for "Having a prior connection to science projects or investigations." Therefore, students learn most effectively when their science experiences are meaningful to

them, connected to their real-world understanding of the nature of science, and have practical applications.

Table 4. Level of Predictors of Science Learning in terms of Experience

Statement	Mean	SD	Remarks
As a learner in Science class, I reflect on my experience by;			
...as a learner having sufficient prior involved in science projects or investigations.	4.56	0.58	Strongly Agree
...doing activities in the laboratory improves my understanding of science ideas.	4.58	0.55	Strongly Agree
...taking part in practical science activities like experiments.	4.58	0.55	Strongly Agree
...using real-life examples in science class enhances my learning.	4.63	0.55	Strongly Agree
...making what I learn more meaningful to me.	4.77	0.47	Strongly Agree
Weighted Mean	4.62		
SD	0.54		
Verbal Interpretation	Very High		

Overall, the Weighted Average of Predictors of Science Learning for Experience is 4.62, with a Standard Deviation of 0.54, and is interpreted as a Very High Level for all of the students surveyed. Hence, students use experiential learning strategies (such as laboratory work, experiments, and real-world applications) to help them better understand and appreciate the concepts of science.

Findings from this study have found that there is a very high level of prediction of successful science learning through the level of experience. All indicators were rated at agree strongly, meaning that students engage with learning science through reflections on prior experiences, whether it be from performing experiments, conducting science-related laboratory work, or using methods that relate to real-world application. Evidence supports that when students engage in reflective and experiential forms of learning, they have a greater level of understanding of science concepts.

Table 5 presents the level of predictors of science learning in terms of self-efficacy.

Table 5. Level of Predictors of Science Learning in terms of Self-Efficacy

Statement	Mean	SD	Remarks
As a learner in Science class, I believe that I can...			
...conduct science experiments or investigations.	4.60	0.62	Strongly Agree
...grasp challenging science concepts.	4.59	0.54	Strongly Agree
...complete science tasks even if they are challenging.	4.55	0.56	Strongly Agree
...succeed in my science subject.	4.62	0.54	Strongly Agree
...do well on science tests and exams.	4.63	0.63	Strongly Agree
Weighted Mean	4.60		
SD	0.58		
Verbal Interpretation	Very High		

The highest mean was obtained in doing well on science tests and exams ($M = 4.63$, $SD = 0.63$), while completing science tasks even if they are challenging had the lowest mean ($M = 4.55$, $SD = 0.56$), though both were interpreted as Strongly Agree. This suggests that students have strong confidence in their abilities to perform well in Science,

particularly in assessment-related tasks and academic performance.

The level of Predictors of Science Learning in terms of Self-Efficacy attained a weighted mean score of 4.60 and a standard deviation of 0.58 and is verbally interpreted as Very High among the respondents. This indicates that students possess high confidence in their capability to understand science concepts, perform experiments, and succeed in various science-related tasks despite challenges.

The results show a very high level of predictors of science learning in terms of self-efficacy. All indicators were rated as strongly agree, indicating that students are confident in their ability to perform science-related tasks such as conducting experiments, understanding complex concepts, and succeeding in assessments.

Table 6 presents the level of predictors of science learning in terms of beliefs.

The highest mean was obtained in the belief that with enough effort, anyone can learn science ($M = 4.64$, $SD = 0.63$), while putting effort into science helps me perform better had the lowest mean ($M = 3.87$, $SD = 0.91$), though it was interpreted as Agree, while the rest were interpreted as Strongly Agree. Based on this, students feel confident about their ability to learn about science, but they do not all agree on how much their own effort has a direct effect on their performance.

The mean impact of the Predictors of Science Learning in regards to the respondents' beliefs was 4.42 and the standard deviation was 0.74, which was also classified as very high, showing that the students believed that by learning through experience, increasing their effort, and persevering, they could improve their science ability and that it would help them in the future.

Table 6. Level of Predictors of Science Learning in terms of Beliefs.

Statement	Mean	SD	Remarks
As a learner in Science class, I value that...			
...science skills can be developed through practice.	4.55	0.60	Strongly Agree
...putting effort into science helps me perform better.	3.87	0.91	Agree
...learning science will benefit my future.	4.51	0.62	Strongly Agree
...making mistakes helps me learn better in science.	4.52	0.63	Strongly Agree
...with enough effort, anyone can learn science.	4.64	0.63	Strongly Agree
Weighted Mean	4.42		
SD	0.74		
Verbal Interpretation	Very High		

The results show a very high level of predictors of science learning in terms of beliefs. Most indicators are rated as strongly agree, indicating that students believe science skills can be developed through practice, effort leads to better performance, and mistakes contribute to learning. The findings suggest that learners generally hold strong growth-oriented beliefs about science, although effort-related consistency shows slight variation. Students demonstrate a strong belief that science is learnable and beneficial for their future.

Table 7 presents the level of students' success in science in terms of achieving academic potential.

Table 7. Level of Students' Success in Science in terms of Achieving Academic Potential

Statement	Mean	SD	Remarks
As a learner in Science class, I can...			
...strive to get high grades in science.	4.61	0.54	Strongly Agree
...set academic goals for my science subject.	4.48	0.59	Strongly Agree
...complete my science tasks to the best of my ability.	4.26	0.75	Strongly Agree
...be satisfied with my academic performance in science	3.94	0.96	Agree
...try to improve when my science performance is low	4.74	0.48	Strongly Agree
Weighted Mean	4.41		
SD	0.74		
Verbal Interpretation	Very High		

The highest mean was obtained in trying to improve when science performance is low ($M = 4.74$, $SD = 0.48$), while being satisfied with academic performance in science had the lowest mean ($M = 3.94$, $SD = 0.96$), though it was interpreted as Agree, while the rest were interpreted as Strongly Agree. This suggests that students demonstrate a strong desire for continuous improvement in their academic performance in Science.

The level of Students' Success in Science in terms of Achieving Academic Potential attained a weighted mean score of 4.41 and a standard deviation of 0.74 and is verbally interpreted as Very High among the respondents. Through establishing objectives and striving towards attainment of those objectives while actively exploring ways in which to improve, students strive towards achieving excellence in academic performance in Science.

The results indicate a very high level of students' success in science in terms of achieving academic potential. Most indicators were rated as strongly agree, showing that students actively strive for high grades, set goals, and put effort into completing science tasks.

Table 8 presents the level of students' success in science in terms of cultivating personal growth.

Table 8. Level of Level of Students' Success in Science in terms of Cultivating Personal Growth

Statement	Mean	SD	Remarks
As a learner in Science class, I can...			
...improve my ability to think deeply and critically.	4.59	0.57	Strongly Agree
...feel personal fulfillment when I succeed in science tasks.	4.52	3.30	Strongly Agree
...be more responsible.	4.10	0.80	Strongly Agree
...develop problem-solving skills.	4.30	0.67	Strongly Agree
...boosts my confidence as a learner.	4.35	0.68	Strongly Agree
Weighted Mean	4.37		
SD	1.60		
Verbal Interpretation	Very High		

The highest mean was obtained in improving the ability to think deeply and critically ($M = 4.59$, $SD = 0.57$), while being more responsible had the lowest mean ($M = 4.10$, $SD = 0.80$), though both were interpreted as Strongly Agree. This suggests that students perceive Science learning as a strong contributor to the development of higher-order thinking skills and personal development.

The level of Students' Success in Science in terms of Cultivating Personal Growth attained a weighted mean score of 4.37 and a standard deviation of 1.60 and is verbally interpreted as Very High among the respondents. Through the study of Science, students can develop their abilities to grow by becoming better developed (critical thinking, problem-solving, etc.) and therefore have increased confidence in their ability to learn as well as develop an overall sense of personal responsibility toward being an active student.

High scores reflect that a majority of students who completed the science portion of their assessments demonstrated a high level of success through growth in their own lives as learners by learning how to think critically about problems, use evidence to create solutions, and make decisions based on facts; they reported improvements in their overall confidence and sense of responsibility for themselves as individuals. The research findings of this study highlight that science education supports academic development and provides opportunities for students to develop as cognitive beings and grow as people through science education.

Table 9 presents the level of students' success in science in terms of developing social skills.

The highest mean was obtained in building positive relationships with classmates ($M = 4.59$, $SD = 0.60$), while showing respect for other students' viewpoints during science activities had the lowest mean ($M = 4.11$, $SD = 0.80$), though both were interpreted as Strongly Agree. This suggests that students recognize Science as a collaborative subject that strengthens interpersonal relationships and teamwork among classmates.

Table 9. Level of Level of Students' Success in Science in terms of Developing Social Skills.

Statement	Mean	SD	Remarks
As a learner in Science class, I can...			
...show respect for other students' viewpoints during science activities.	4.11	0.80	Strongly Agree
...help myself build positive relationships with classmates.	4.59	0.60	Strongly Agree
...communicate my ideas clearly during science discussions.	4.31	0.68	Strongly Agree
...work in a group to improve my teamwork skills.	4.39	0.58	Strongly Agree
...cooperate more effectively with my classmates.	4.51	0.61	Strongly Agree
Weighted Mean	4.38		
SD	0.68		
Verbal Interpretation	Very High		

The level of Students' Success in Science in terms of Developing Social Skills attained a weighted mean score of 4.38 and a standard deviation of 0.68 and is verbally interpreted as Very High among the respondents. This indicates that students actively develop their communication,

cooperation, and teamwork skills through participation in science activities and group work.

The results indicate a very high level of students' success in developing social skills in science class. All indicators are rated as strongly agree, showing that learners actively demonstrate respect, cooperation, communication, and teamwork during science activities.

Table 10 presents the level of students' success in science in terms of prioritizing well-being.

Table 10. Level of Students' Success in Science in terms of Prioritizing Well-Being

Statement	Mean	SD	Remarks
As a learner in Science class, I can...			
...manage my stress when studying science.	4.60	0.66	Strongly Agree
...maintain a positive mindset even when science lessons are difficult.	4.51	0.68	Strongly Agree
...balance my science studies with rest and personal time.	3.91	0.91	Agree
...feel emotionally supported in my science class.	4.57	0.66	Strongly Agree
...think positively that learning science has a good impact on my well-being.	4.59	0.65	Strongly Agree
Weighted Mean	4.43		
SD	0.76		
Verbal Interpretation	Very High		

The highest mean was obtained in managing stress when studying science ($M = 4.60$, $SD = 0.66$), while balancing science studies with rest and personal time had the lowest mean ($M = 3.91$, $SD = 0.91$), though it was interpreted as Agree, while the rest were interpreted as Strongly Agree. This suggests that students are generally capable of coping with academic pressures in Science, although maintaining a balanced study-life routine remains a challenge for some learners.

The level of Students' Success in Science in terms of Prioritizing Well-Being attained a weighted mean score of 4.43 and a standard deviation of 0.76 and is verbally interpreted as Very High among the respondents. This indicates that students are able to manage stress, maintain a positive mindset, and recognize the importance of emotional and psychological well-being while engaging in Science learning.

The results show a very high level of students' success in science in terms of prioritizing well-being. Most indicators are rated as strongly agree, indicating that learners are generally able to manage stress, maintain a positive mindset, and feel emotionally supported in science class.

Table 11 presents the level of students' success in science in terms of utilizing resources.

The highest means were obtained by seeking help from teachers and using online resources ($M = 4.58$, $SD = 0.57$), while asking classmates for assistance had the lowest mean ($M = 4.21$, $SD = 0.87$), though still interpreted as Strongly Agree. This suggest that students are proactive and resourceful in enhancing their science learning.

The study revealed an average score of 4.43 ($SD = 0.69$) indicating that the students made appropriate usage of several medium of resources (i.e., teachers, online resources, etc.) to

assist them in improving their comprehension and performance within science.

Table 11. Level of Students' Success in Science in terms of Utilizing Resources

Statement	Mean	SD	Remarks
As a learner in Science class, I can...			
...use textbooks or learning modules to study science.	4.50	0.50	Strongly Agree
...seek help from my teacher when I have difficulty in science.	4.58	0.57	Strongly Agree
...use online resources (videos, websites) to understand science lessons.	4.58	0.57	Strongly Agree
...ask my classmates for assistance when I need help with science.	4.21	0.87	Strongly Agree
...manage my learning resources effectively to improve my science performance.	4.29	0.76	Strongly Agree
Weighted Mean	4.43		
SD	0.69		
Verbal Interpretation	Very High		

Data suggests that students have been very successful in their ability to effectively use resources during the course of their studies. The student group reported a high degree of agreement regarding their active use of learning materials; seeking help from teachers and peers; and using the Internet to assist in their understanding of science concepts.

Level of Students' Performance in Science

The performance of Students in Science at the 3rd Quarter level is demonstrated through the following table by displaying the raw score, frequency count or number of instances, percentage, arithmetic average, a measure of variability or spread, and a way of explaining or interpreting results.

Almost half the respondents (49.33%) reported that they were at a Very Satisfactory performance level (85-89), while an additional 28.67% were at the Outstanding (90-100). Most of the students had an above average level of academic performance in Science, which indicates to this researcher that students have a good understanding of concepts related to Science as well as will likely be able to analyze information and apply scientific knowledge very well.

Table 12. Students' Performance in Science in terms of Third-Quarter grades.

Scale	f	%	Descriptive Equivalent
90 - 100	43	28.67	Outstanding
85 - 89	74	49.33	Very Satisfactory
80 - 84	23	15.33	Satisfactory
75 - 79	10	6.67	Fairly Satisfactory
Below 75	0	0	Did Not Meet Expectation
Total	150	100	
Weighted Mean		87.10	
SD		4.01	
Verbal Interpretation		Very Satisfactory	

The students, approximately 15.33% were at the Satisfactory level (80-84) and 6.67% were at the Fairly Satisfactory level (75-79), which means that the students at or below those levels are continuing to progress and develop skills at an acceptable rate. Importantly, not one student scored below 75; therefore, none of the respondents failed to meet

minimum expected standards, and all students met/were above adequate performance levels.

The overall weighted mean of the grade point averages was $M = 87.10$ (Very Satisfactory) which indicates that the majority of students performed well enough academically in Science during the 3rd quarter to attain the Very Satisfactory level. Additionally, $SD = 4.01$ indicates a high degree of reliability of results among students, again indicating that students in the study present solid academic abilities in the area of Science based on reliability of scores; and also reflects an overall consistency in academic performance in Science, and a continuing trend of improvement across all students.

Overall, the majority of students in the study indicated Very Satisfactory academic achievement in Science. Most of the students score a grade in the Very Satisfactory range (85-89); a large number of students scored an Outstanding level, and a small number scored within the Fairly Satisfactory level, with zero students scoring below the acceptable passing level. Overall, the findings suggest that students in this study are performing satisfactorily in Science, and are well above the level of minimum expectations based on academic performance data.

Significant Relationship between the Predictors of Science Learning of the Students and the Students' Success in Science

The Significant Relationship between the Predictors of Science Learning of the Students and the Students' Success in Science is revealed in the following table, which shows the Multiple Regression Analysis using Pearson Product Moment Correlation Coefficient or Pearson-r, p-value, and number of observation or respondents.

The significant relationship between the Predictors of Science Learning of the Students in terms of Mutualism, Attitude, Prior Knowledge, Experience, Self-Efficacy, and Beliefs and the Students' Success in Science in terms of Achieving Academic Potential, Cultivating Personal Growth, Developing Social Skills, Prioritizing Well-Being, and Utilizing Resources.

For Mutualism, it shows a significant relationship with Achieving Academic Potential ($r = 0.294$, $p = 0.000$), Prioritizing Well-Being ($r = 0.858$, $p = 0.000$), and Utilizing Resources ($r = 0.351$, $p = 0.000$), indicating positive relationships. However, it has no significant relationship with Cultivating Personal Growth ($r = 0.078$, $p = 0.341$) and Developing Social Skills ($r = 0.077$, $p = 0.349$).

For Attitude, there is a significant relationship with Achieving Academic Potential ($r = 0.747$, $p = 0.000$), Prioritizing Well-Being ($r = 0.287$, $p = 0.000$), and Utilizing Resources ($r = 0.206$, $p = 0.011$), showing positive associations. Meanwhile, no significant relationship was found with Cultivating Personal Growth ($r = 0.096$, $p = 0.242$) and Developing Social Skills ($r = 0.034$, $p = 0.676$).

For Prior Knowledge, it shows significant relationships with Achieving Academic Potential ($r = 0.196$, $p = 0.016$), Prioritizing Well-Being ($r = 0.295$, $p = 0.000$), and Utilizing Resources ($r = 0.794$, $p = 0.000$). However, no significant relationship exists with Cultivating Personal Growth ($r =$

0.067, $p = 0.414$) and Developing Social Skills ($r = 0.110$, $p = 0.180$).

Table 13. Significant Relationship between the Predictors of Science Learning and the Students' Success in Science

Predictors of Science Learning of the Students		Students' Success in Science				
		Achieving Academic Potential	Cultivating Personal Growth	Developing Social Skills	Prioritizing Well-Being	Utilizing Resources
Mutualism	Pearson Correlation	0.294*	0.078	0.077	0.858*	0.351*
	Sig. (2-tailed)	0.000	0.341	0.349	0.000	0.000
	N	150	150	150	150	150
Attitude	Pearson Correlation	0.747*	0.096	0.034	0.287*	0.206*
	Sig. (2-tailed)	0.000	0.242	0.676	0.000	0.011
	N	150	150	150	150	150
Prior Knowledge	Pearson Correlation	0.196*	0.067	0.110	0.295*	0.794*
	Sig. (2-tailed)	0.016	0.414	0.180	0.000	0.000
	N	150	150	150	150	150
Experience	Pearson Correlation	0.101	0.274*	0.017	0.156	0.102
	Sig. (2-tailed)	0.218	0.001	0.837	0.057	0.215
	N	150	150	150	150	150
Self-Efficacy	Pearson Correlation	0.161*	0.117	0.034	0.543*	0.226*
	Sig. (2-tailed)	0.049	0.154	0.679	0.000	0.005
	N	150	150	150	150	150
Beliefs	Pearson Correlation	0.008	0.108	0.710*	0.037	0.118
	Sig. (2-tailed)	0.920	0.188	0.000	0.656	0.151
	N	150	150	150	150	150

For Experience, a significant relationship is found only with Cultivating Personal Growth ($r = 0.274$, $p = 0.001$). On the other hand, it shows no significant relationship with Achieving Academic Potential ($r = 0.101$, $p = 0.218$), Developing Social Skills ($r = 0.017$, $p = 0.837$), Prioritizing Well-Being ($r = 0.156$, $p = 0.057$), and Utilizing Resources ($r = 0.102$, $p = 0.215$).

For Self-Efficacy, there are significant relationships with Achieving Academic Potential ($r = 0.161$, $p = 0.049$), Prioritizing Well-Being ($r = 0.543$, $p = 0.000$), and Utilizing Resources ($r = 0.226$, $p = 0.005$). However, no significant relationship is observed with Cultivating Personal Growth ($r = 0.117$, $p = 0.154$) and Developing Social Skills ($r = 0.034$, $p = 0.679$).

For Beliefs, a significant relationship is found only with Developing Social Skills ($r = 0.710$, $p = 0.000$), while no significant relationships are observed with Achieving Academic Potential ($r = 0.008$, $p = 0.920$), Cultivating Personal Growth ($r = 0.108$, $p = 0.188$), Prioritizing Well-Being ($r = 0.037$, $p = 0.656$), and Utilizing Resources ($r = 0.118$, $p = 0.151$).

Therefore, the table shows that several predictors of science learning have significant relationships with students' success in science, particularly in Achieving Academic Potential, Prioritizing Well-Being, and Utilizing Resources,

while fewer significant relationships are observed in Cultivating Personal Growth and Developing Social Skills. This indicates that certain predictors, such as mutualism, attitude, prior knowledge, and self-efficacy, play a more influential role in enhancing students' success in science.

The results show that the predictors of science learning have varying significant relationships with students' success in science. Attitude, mutualism, prior knowledge, and self-efficacy show notable positive correlations with different areas of success, while experience and beliefs show weaker or limited relationships. Overall, the findings suggest that science learning success is influenced more strongly by affective and cognitive factors than by experience alone.

Significant Effect between the Predictors of Science Learning of the Students on the Students' Performance in Science

In this study, the Predictors of Science Learning of the Students refers

to in terms of: Mutualism, Attitude, Prior Knowledge, Experience, Self-Efficacy, and Beliefs while the Students' Performance in Science refers to 3rd Quarter Grade of the students.

The Significant Effect between the Predictors of Science Learning of the Students on the Students' Performance in Science is revealed in the following table, which shows the Multiple Regression Analysis using t-Test, with the computed t-value (t-cal), p-value, number of observations or respondents, and critical t-value (t-crit) or constant.

Table 14. Significant Relationship between the Predictors of Science Learning of the Students on the Students' Performance in Science

Predictors of Science Learning of the Students	Students' Performance in Science	3 rd Quarter Grade
Mutualism	t-value	-0.432
	Sig. (2-tailed)	0.666
	N	150
Attitude	t-value	0.948
	Sig. (2-tailed)	0.345
	N	150
Prior Knowledge	t-value	0.319
	Sig. (2-tailed)	0.750
	N	150
Experience	t-value	-0.348
	Sig. (2-tailed)	0.729
	N	150
Self-Efficacy	t-value	0.077
	Sig. (2-tailed)	0.939
	N	150
Beliefs	t-value	0.506
	Sig. (2-tailed)	0.614
	N	150

This presents the significant relationship between the predictors of science learning and the students' performance in Science. The level of significance used in this study is 0.05. If the computed p-value is less than 0.05, the relationship is considered significant. Otherwise, if the p-value is greater than

0.05, it indicates that there is no significant relationship between the variable

As reflected in the table, all computed p-values are greater than the 0.05 level of significance. This indicates that there is no significant relationship between the predictors of science learning and the students' performance in Science. The results imply that the predictors such as mutualism, attitude, prior knowledge, experience, self-efficacy, and beliefs do not significantly influence the students' academic performance in Science.

Table 14. Specifically, mutualism obtained a t-value of -0.432 with a corresponding p-value of 0.666, which is greater than 0.05, indicating that it is not significantly related to students' performance. Similarly, attitude yielded a t-value of 0.948 and a p-value of 0.345, which also shows no significant relationship.

Prior knowledge ($t = 0.319$, $p = 0.750$), experience ($t = -0.348$, $p = 0.729$), self-efficacy ($t = 0.077$, $p = 0.939$), and beliefs ($t = 0.506$, $p = 0.614$) all obtained p-values greater than the 0.05 level of significance. These findings indicate that these variables do not have a significant influence on students' performance in Science. Thus, they cannot be considered significant predictors of Science achievement in this study.

Overall, all variables consistently show non-significant results, as evidenced by their p-values exceeding 0.05. This suggests that the predictors of science learning considered in this study do not have a measurable influence on the students' performance in Science.

IV. CONCLUSION AND RECOMMENDATIONS

According to the findings, both the relationships and effects between the factors are not statistically significant. Therefore, the predictors of science learning do not have a direct relationship or effect on students' academic achievement

in science learning. It leads to acceptance of the null hypothesis for one predictor of science learning. The predictor of science learning does have an indirect influence on students' academic performance and leads to the rejection of the null hypothesis.

Based on the research findings and conclusions the following recommendations have been made:

Teachers should continue supporting students' positive attitudes, collaboration, and self-efficacy in science since these affect their success in many ways.

Administrators should create programs that support the whole student through both academics and by also supporting wellness and personal growth.

Curriculum developers should create interactive, student-centered activities to create increased engagement and comprehension of sciences.

Students need to continue to have positive behaviors and good study habits to continue to be successful in sciences.

Future research studies should explore additional variables that could have an impact on science performance, as well as different research designs to support and validate this study's findings.

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