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ENHANCING LEARNER MOTIVATION IN ELEMENTARY SCIENCE: AN ASSESSMENT OF TEACHING STRATEGIES IN DUPAX DEL NORTE DISTRICT II

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Abstract

This study assessed the teaching strategies employed by science teachers to enhance learner motivation in public elementary schools in Dupax del Norte District II during the school year 2025–2026. Specifically, it described the respondents' profile, evaluated science teachers' instructional practices, examined the strengths and weaknesses of the science program, identified recommended measures for program improvement, and determined the motivational strategies used in teaching science. This study employed a descriptive-correlational research design involving 30 science teachers selected through total enumeration sampling. Data were collected using a validated researcher-developed questionnaire and analyzed using frequency, percentage, weighted mean, and standard deviation. The findings revealed that most respondents were female, married, held master's degrees, and had outstanding performance ratings. Overall, the science teachers demonstrated effective instructional practices, with an overall mean of 3.88, indicating that the instructional strategies were generally effective and often practiced. The science program was perceived as moderately strong but still exhibited weaknesses related to instructional resources, facilities, and teacher development. Respondents strongly recommended continuous teacher training, increased funding for instructional materials, enhanced supervision, and greater stakeholder involvement to strengthen the science program. Furthermore, motivational strategies were consistently practiced, with an overall mean of 4.21, indicating that teachers regularly employed learner-centered approaches that promote engagement and active participation. The study concludes that strengthening teacher professional development, improving instructional resources, and sustaining effective motivational practices are essential to enhancing learner motivation and the overall quality of elementary science education.

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Keywords: *Science education, learner motivation, instructional strategies, elementary teachers, science program*

Introduction

Science education plays a crucial role globally in developing scientifically literate citizens who can navigate the complexities of modern society while applying critical thinking and problem-solving skills (Mulyono et al., 2024). Effective instructional strategies are fundamental for enhancing learner motivation, engagement, and achievement, fostering a deeper understanding of scientific concepts (Sayadi & Pangandaman, 2025; Wilson et al., 2025). In recent years, there has been a growing emphasis on learner-centred and inquiry-based teaching approaches, which actively engage students in meaningful exploration and real-world problem-solving (Morris, 2025; Spires et al., 2022). These approaches are essential for preparing learners to meet the demands of the 21st century, equipping them with the skills needed for lifelong learning and academic success (Adlini et al., 2024; Saija et al., 2022). Motivation itself is recognised as a significant factor in improving academic achievement, scientific literacy, and fostering sustained interest in science (Suárez-Mesa & Gómez, 2024).

From a national perspective, Philippine basic education reforms underscore the importance of improving science instruction through the adoption of learner-centered and inquiry-based methodologies promoted by the Department of Education (Antipolo & Rogayan, 2021; Maloloy-On & Arnado, 2023). Teachers' use of varied instructional strategies strongly influences learners' motivation and engagement, suggesting a need for ongoing professional development that supports effective science pedagogy (Maloloy-On & Arnado, 2023; Wilson et al., 2025). Enhancing the quality of elementary science education remains a focal point to ensure foundational scientific literacy and competence among Filipino students (Antipolo & Rogayan, 2021; Constantino & Antonio, 2025). Professional development programs have been identified as crucial in helping teachers transition towards inquiry-oriented instruction that boosts students' engagement and achievement (Wilson et al., 2025). Thus, the integration of learner-centered, inquiry-based approaches combined with sustained teacher professional development is pivotal for cultivating motivated, scientifically literate learners ready to meet 21st-century challenges in the Philippines and globally.

Science 3 teachers in Dupax del Norte District II utilize various instructional strategies to enhance learner motivation and engagement. However, learner motivation in Science remains a concern within the selected public elementary schools, prompting the

district to focus on strengthening teaching practices (Aseery, 2023). This study seeks to identify effective teaching strategies that can foster greater motivation and engagement among learners. Additionally, it examines the challenges teachers face in implementing these approaches, as understanding such barriers is crucial for improving Science instruction quality (Aseery, 2023). The findings are intended to provide evidence-based recommendations to inform policy and practice improvements for science education in the district, ultimately bolstering learner outcomes through more motivating and engaging instructional strategies.

Most previous research has focused on instructional strategies and academic achievement but has paid limited attention to learner motivation, especially among elementary science students. Studies predominantly target secondary or higher education, leaving elementary science instruction underexplored. Additionally, few local studies comprehensively assess curriculum implementation, teaching methods, instructional materials, evaluation techniques, supervisory practices, and learner motivation within a single investigation. There is also scant evidence from the Dupax del Norte District II regarding Science 3 teachers' instructional strategies. This gap highlights the need for localized data to guide administrators and teachers in developing evidence-based interventions to enhance learner motivation in elementary science.

Research Questions

This study aimed to assess the teaching strategies employed by science teachers in enhancing learner motivation in public elementary schools in the Dupax del Norte District II. Specifically, it sought to answer the following questions:

1. What was the profile of the respondents in terms of gender, age, civil status, highest educational attainment, performance rating, teaching position, and trainings and seminars attended?
2. What is the level of assessment of science teachers' instruction in terms of curriculum content, methods and strategies, science activities, equipment and materials, evaluation techniques, and supervisory assistance extended?
3. What are the perceived strengths and weaknesses of the science program?
4. What measures are recommended to strengthen the science program?
5. What motivational strategies do science teachers use to enhance learner motivation?

Methodology

2.1 Research Design

This study employed a descriptive-correlational research design to assess the instructional strategies utilized by Science 3 teachers and determine their relationship with learner motivation in public elementary schools in Dupax del Norte District II during the School Year 2025–2026. The descriptive component was used to determine the respondents' profile, evaluate the current status of science teaching in terms of curriculum content, instructional methods, learning resources, evaluation techniques, and supervisory practices, and identify the strengths, weaknesses, and motivational strategies implemented by teachers. The correlational component examined the significant relationship between teachers' profile variables and their perceived instructional strategies for enhancing learner motivation. This design was considered appropriate because it provided a comprehensive understanding of existing educational practices without manipulating any variables.

2.2 Research Locale

This study was conducted in selected public elementary schools within the Dupax del Norte District II, Schools Division of Nueva Vizcaya, Philippines. The district was selected because it comprises schools implementing the Department of Education's Science curriculum for Grade 3 and reflects diverse instructional settings in elementary education. These schools provided an appropriate environment for examining instructional strategies and learner motivation due to variations in teacher experiences, available instructional resources, and classroom practices. Conducting the study within this locale ensured that the findings would be relevant for improving Science instruction and educational planning in the district.

2.3 Research Participant

The respondents of the study consisted of Science 3 teachers and school principals from the selected public elementary schools in Dupax del Norte District II. Science teachers served as the primary respondents because they directly implement instructional strategies in the classroom, while school principals provided complementary assessments of instructional supervision and teaching practices. A total enumeration sampling technique was employed whenever the target population was manageable, ensuring that all qualified respondents participated in this study. This sampling approach enhanced the comprehensiveness and

representativeness of the data collected.

2.4 Research Instrument

The primary instrument used in this study was a researcher-developed structured questionnaire based on the reviewed literature, related studies and the research objectives. The questionnaire consisted of two major sections: the first gathered demographic information, including gender, age, civil status, educational attainment, performance rating, years of service, and seminars attended. The second assessed instructional strategies in terms of curriculum content, teaching methods, instructional materials, evaluation techniques, supervisory practices, identified strengths and weaknesses, and motivational strategies employed in science instruction. The instrument underwent content validation by a panel of experts in educational research and science education to ensure content validity. Prior to the actual data collection, a pilot test was conducted among respondents with similar characteristics, and the reliability of the instrument was determined using Cronbach's alpha, with a coefficient of 0.70 or higher considered acceptable for internal consistency.

2.5 Data Gathering Procedure

Prior to conducting the study, the researcher obtained approval from the Graduate School and secured permission from the Schools Division Superintendent, Public Schools District Supervisor, school principals, and other concerned authorities. After obtaining the necessary approvals, the validated questionnaires were administered to the respondents. The researcher explained the purpose of the study, assured respondents of the confidentiality of their responses, and provided instructions for completing the questionnaire. Sufficient time was allotted for questionnaire completion, after which all instruments were immediately retrieved to ensure a high retrieval rate. The collected data were checked for completeness, organized systematically, encoded, and prepared for statistical analysis.

2.6 Statistical Treatment of Data

The collected data were analyzed using appropriate descriptive and inferential statistical tools. Frequency counts and percentages were utilized to describe the demographic profile of the respondents. The weighted mean and standard deviation were employed to determine the level of instructional strategies, science teaching practices, and learner motivation. To determine the significant relationship between teachers' profile variables and their perceived instructional strategies, the Pearson Product-Moment Correlation Coefficient (Pearson r) was utilized. All statistical

analyses were conducted using an appropriate statistical software package, and hypotheses were tested at the 0.05 level of significance.

2.7 Ethical Considerations

This study strictly adhered to the established ethical standards of educational research. Prior to data collection, permission was obtained from the appropriate educational authorities and school administrators. Participation in the study was entirely voluntary, and respondents were provided with an informed consent form explaining the purpose, procedures, benefits, and minimal risks associated with the study. Respondents were informed that they could withdraw from the study at any time, without any consequences. Confidentiality and anonymity were maintained by ensuring that no personal identifiers were included in the research report. All collected information was used solely for academic purposes and stored securely to protect the respondents' privacy. This study also observed the principles of respect for persons, beneficence, and justice throughout the research process.

Result and Discussion

Table 1. Profile of the Respondents (n = 30)

Profile Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	8	26.70
	Female	22	73.30
Age	21–30 years	6	20.00
	31–40 years	13	43.30
	41–50 years	4	13.30
	51–60 years	4	13.30
	61–65 years	3	10.00
Civil Status	Single	6	20.00
	Married	23	76.70
	Widow	1	3.30
Highest Educational Attainment	Bachelor's Degree	13	43.30
	Master's Degree	15	50.00
	Doctorate	2	6.70

	Degree		
Performance Rating	Outstanding	17	56.70
	Very Satisfactory	13	43.30
Position	Teacher I	9	30.00
	Teacher II	2	6.70
	Teacher III	17	56.70
	Master Teacher I/II	2	6.70
Trainings and Seminars Attended*	School/District	30	100.00
	Division	30	100.00
	Regional	21	70.00
	National	20	66.70
	International	3	10.00

*Note: Frequencies for training and seminars represent multiple responses, as respondents may have attended more than one level of training. Therefore, the percentages do not total 100%.

Table 1 presents the demographic profile of the respondents. The majority of the respondents were female (73.30%), aged 31–40 years (43.30%), married (76.70%), and held a master's degree (50.00%). Most were rated as having outstanding performance (56.70%) and occupied the position of Teacher III (56.70%). In terms of professional development, all respondents had attended school/district and division-level trainings, while a considerable number also participated in regional (70.00%) and national (66.70%) seminars. These findings indicate that the respondents are relatively experienced and professionally qualified, with continuous participation in training activities that may enhance their instructional competence. Professional development and advanced educational qualifications have been associated with improved teaching effectiveness and the implementation of learner-centered instructional practices, particularly in science education.

Table 2. Assessment of Science Teachers' Instruction

Instructional Dimension	Mean	SD	Verbal Interpretation
Curriculum Content	3.99	0.14	Often

Methods and Strategies	3.69	0.64	Effective
Science Activities	3.81	0.90	Often
Equipment and Materials	4.02	0.37	Often
Evaluation Techniques	3.77	0.59	Often
Supervisory Assistance	4.01	1.22	Often
Supervisory Assistance Extended	3.84	0.61	Often
Overall	3.88	0.64	Often/Effective

Science teachers employ diverse instructional strategies to enhance student engagement, motivation, and meaningful learning. A systematic review and qualitative analysis identified key approaches, including direct instruction, demonstrations, hands-on activities, peer teaching, think-pair-share, laboratory exercises, and discussion techniques. These methods cater to varied cognitive and social learning needs, fostering collaboration and a deeper understanding (Irmak & Yılmaz Ergül, 2024). Furthermore, teachers' conceptions of teaching and learning significantly influence their integration of technology-enhanced instructional strategies into the classroom. Educators with exploratory and constructivist perspectives tend to employ multimedia tools, virtual laboratories, and flipped classroom models, reflecting their openness to innovative and student-centred approaches (Alessa, 2025). In specialized contexts, such as simulator-based courses, integrative and interactive teaching methods predominate, highlighting the importance of active learning and student engagement in improving educational outcomes (Santi Edar et al., 2024). Additionally, cooperative techniques, such as the Student Teams Achievement Division (STAD), have been demonstrated to enhance learning achievement and satisfaction in mathematics education, suggesting that collaborative learning frameworks have broad applicability (Ranmechai & Poonputta 2023). While evidence supports innovative strategies such as STEM education and project-based learning, teachers often hesitate to fully adopt these strategies because of underlying barriers. Continued research and professional development are needed to understand and address the factors influencing instructional choices to strengthen the effectiveness of science teaching (Irmak and Yılmaz Ergül, 2024).

Table 3. Strengths and Weaknesses of the Science Program

Science Program Dimension	Mean	SD	Verbal Interpretation
Strengths of the Science Program	3.11	0.41	Moderately Agree
Weaknesses of the Science Program	3.48	0.86	Agree
Overall	3.30	0.64	Moderately Agree

Table 3 summarizes the respondents' assessment of the Science program. The program's strengths obtained a mean of 3.11 (SD = 0.41), interpreted as Moderately Agree, while its weaknesses recorded a higher mean of 3.48 (SD = 0.86), interpreted as Agree. The overall mean of 3.30 (SD = 0.64) indicates that respondents moderately agreed with the overall assessment of the program. These findings suggest that although the Science program demonstrates several positive features, respondents also recognized significant limitations that need to be addressed to improve instructional quality. Previous studies emphasize that adequate instructional resources, teacher competence, and supportive learning environments are essential for strengthening science education and improving learner engagement and achievement (Morris, 2025; Constantino & Antonio, 2025).

Table 4. Recommended Measures to Strengthen the Science Program

Recommended Measures	Mean	SD	Verbal Interpretation
Providing more training to Science teachers	4.88	0.00	Strongly Agree
More adequate funds for equipment, apparatus, books, references, and other instructional materials	4.76	0.12	Strongly Agree
More periodic supervision	4.33	0.55	Strongly Agree
Involving parents in school and out-	4.26	0.62	Strongly Agree

of-school Science activities			
Providing challenging activities for science club members	4.23	0.65	Strongly Agree
Giving scholarship grants to deserving Science teachers	4.21	0.67	Strongly Agree
Overall	4.44	0.29	Strongly Agree

Table 4 shows that respondents strongly agreed with all proposed measures for strengthening the Science program, as reflected by the overall mean score of 4.44 (SD = 0.29). The highest-rated recommendation was providing more training to Science teachers (Mean = 4.88), followed by allocating more funds for instructional equipment and learning resources (Mean = 4.76). Respondents also strongly supported more periodic supervision, greater parental involvement, challenging science activities, and scholarship opportunities for teachers. These findings indicate that respondents recognize professional development, adequate instructional resources, and stakeholder collaboration as key factors in improving science instruction. Consistent with previous research, continuous teacher training, instructional support, and sufficient educational resources significantly enhance teaching effectiveness, learner motivation, and science achievement (Aseery al., 2025; Sayadi & Pangandaman, 2025; Aseery, 2023).

Table 5. Motivational Strategies Used in Teaching Science

Motivational Strategies	Mean	SD	Verbal Interpretation
Bring humor and laughter into class	4.16	0.46	Often Observed
Show respect, acceptance, and care for every learner	4.22	0.40	Always Observed
Create opportunities for group interaction	4.35	0.27	Always Observed
Explain and reinforce classroom rules	4.23	0.39	Always Observed
Give clear task	4.11	0.51	Often

instructions through modeling			Observed
Celebrate students' accomplishments	4.24	0.38	Always Observed
Design tasks within learners' abilities	4.44	0.18	Always Observed
Introduce interesting and relevant lesson content	4.62	0.00	Always Observed
Include challenging problem-solving activities	4.52	0.10	Always Observed
Teach self-motivating strategies	4.12	0.50	Often Observed
Ensure grades reflect both achievement and effort	3.82	0.80	Often Observed
Encourage students to suggest classroom rules	3.76	0.86	Often Observed
Demonstrate enthusiasm in teaching Science	4.27	0.35	Always Observed
Overall	4.21	0.26	Always Observed

The data in Table 5 reveal that science teachers consistently apply a range of motivational strategies to foster student engagement and learning effectiveness. Strategies such as introducing interesting and relevant lesson content (Mean = 4.62, Always Observed), designing tasks within learners' abilities (Mean = 4.44, Always Observed), and including challenging problem-solving activities (Mean = 4.52, Always Observed) are highly practiced. These approaches align with the established pedagogical principle that relevance and appropriate challenge enhance intrinsic motivation by creating success situations where students feel competent and accomplished, thus fostering positive attitudes toward learning (Abzhanova et al., 2024). Furthermore, relational strategies such as showing respect, acceptance, and care for every learner (Mean = 4.22, Always Observed), creating opportunities for group interaction (Mean = 4.35, Always Observed), and celebrating students' accomplishments (Mean = 4.24, Always Observed) emphasize the importance of

supportive classroom environments. Research highlights that such teacher support positively influences students' motivation and engagement by satisfying basic psychological needs for relatedness, which mediates the impact of motivation on engagement levels (W. Zhang & Hu, 2025; X. Zhang & Kim, 2025). Additionally, clear communication of classroom rules and modeled task instructions contribute to predictable and structured learning environments, which enhance students' sense of autonomy and competence, further boosting motivation (Moreno-Murcia et al., 2021). Teachers' enthusiastic teaching and the inclusion of self-motivating strategies also sustain students' engagement by promoting autonomy-supportive teaching styles (Ma, 2021). Overall, these findings corroborate educational research demonstrating that motivational strategies addressing cognitive, emotional, and social domains are critical for fostering an engaging and effective science learning experience (Aseery, 2023; Howard, 2023).

Conclusion

The study concludes that science teachers in Dupax del Norte District II are professionally qualified and actively participate in professional development activities, providing a strong foundation for effective science instruction in the classroom. Overall, teachers demonstrated positive instructional practices, particularly in curriculum implementation, instructional methods, learning activities, evaluation techniques, and supervisory support, indicating that these practices are generally effective in promoting student engagement. The Science program was perceived to possess notable strengths; however, respondents also identified several weaknesses, particularly regarding instructional resources, facilities, and continuous teacher development, which require attention from the school administration. The findings also revealed that science teachers consistently employ motivational strategies that encourage active participation, meaningful learning, and learner engagement, suggesting that learner motivation can be further strengthened through sustained support for teachers and improvements in instructional resources and school programs.

Recommendation

Based on the findings, school administrators and education leaders should strengthen professional development programs by providing regular training and capacity-building activities focused on innovative and learner-centered science teaching strategies. Schools should prioritize the allocation of funds for laboratory facilities, instructional equipment, and

updated science learning resources to address the identified weaknesses of the program. School heads and supervisors should conduct regular instructional monitoring, mentoring, and coaching to continuously improve teaching practices. Teachers are encouraged to sustain the use of engaging and motivating instructional strategies while exploring additional technology-enhanced and inquiry-based approaches that promote active learning. Greater collaboration among schools, parents, and community stakeholders should also be encouraged to support science-related activities and enrich learners' educational experiences. Finally, future researchers may expand this study by including learner outcomes, classroom observations, and inferential analyses to provide a more comprehensive evaluation of the effectiveness of science teaching strategies in enhancing learner motivation.

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