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Research Article

Special Science Program Implementation: School Heads and Teachers' Practices and Learners' Academic Performance

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ABSTRACT

Purpose of the study: This study examines the implementation of the Special Science Program (SSP) and its association with learners' academic performance, focusing on school heads' practices, teachers' instruction, resource management, and selection processes. Although specialized science curricula aim to strengthen scientific learning, their effectiveness depends on school-level implementation and institutional support.

Methodology: A descriptive survey involved 80 teachers from five public elementary schools in Bohol, Philippines. Data were collected through a questionnaire on respondents' demographic profiles and SSP implementation. The study used frequency, percentage, weighted mean, arithmetic mean, Pearson product–moment correlation, and chi-square tests. Learners' science grades were interpreted using the Department of Education grading framework.

Main Findings: SSP implementation was rated Very Great Extent overall (composite mean = 3.29). Curriculum and instruction obtained a mean of 3.46, selection processes 3.38, and resource management 3.05, indicating comparatively weaker resource provision. Among 106 learners, 63.21% achieved Outstanding, 31.13% Very Satisfactory, and 5.66% Satisfactory performance. Teachers' years of service, educational attainment, and SSP-related training were not significantly associated with implementation. However, SSP implementation and science performance showed a weak but statistically significant negative correlation ($r = -0.243$, $p = 0.030$).

Novelty/Originality of this study: The study's novelty lies in integrating leadership, instructional, resource, and selection dimensions in a context-specific analysis of SSP. Findings emphasize strengthening laboratory facilities, funding, and professional development, while considering learner characteristics and program demands when interpreting achievement. Future studies should employ longitudinal and multi-site designs and triangulate surveys with classroom observations, resource audits, and learner-level analyses.

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1. INTRODUCTION

Science education plays a critical role in preparing learners to participate in an increasingly knowledge-driven society characterized by rapid scientific advancement, technological innovation, and complex global

challenges. Beyond the acquisition of scientific knowledge, contemporary science education emphasizes the development of scientific literacy, critical thinking, inquiry competence, and the ability to apply scientific understanding to real-world problems. These educational priorities require instructional environments that promote active engagement with scientific concepts and provide meaningful opportunities for investigation, experimentation, and evidence-based reasoning. In response to these demands, the Department of Education (DepEd) in the Philippines has established policies to strengthen science and mathematics education, including the implementation of the Special Science Program (SSP). DepEd Order No. 55, s. 2010, entitled *Policies and Guidelines on Strengthening Science and Mathematics Education at the Secondary Level*, provides an institutional framework for strengthening secondary science education through specialized science classes, enhanced instructional resources, teacher selection, professional development, and support for student research and investigatory projects. The policy also emphasizes the allocation of resources for science and mathematics laboratories, instructional materials, and research activities, reflecting the government's commitment to improving the quality of science education [1]. Nevertheless, the existence of an enhanced curriculum and institutional policy does not necessarily guarantee effective program implementation or improved student learning outcomes.

The effectiveness of specialized science education depends substantially on how educational policies are translated into school-level practices. School heads play an important role in establishing instructional priorities, coordinating educational resources, supporting teacher professional development, monitoring curriculum implementation, and creating organizational conditions conducive to effective teaching and learning. Research on school leadership has consistently demonstrated that leadership practices are associated with student achievement, teacher instructional practices, and school organizational conditions, although their effects are frequently mediated through instructional and organizational processes rather than exclusively through direct influence [2]-[6]. In science education specifically, leadership practices have been associated with facilitating high-quality learning experiences, monitoring curricular implementation, supporting instructional resources, recruiting qualified science teachers, and promoting professional development [7]-[10]. These findings suggest that school leadership constitutes an important institutional mechanism through which the objectives of specialized science programs can be translated into effective educational practices.

However, leadership alone cannot ensure the achievement of science education objectives without the active involvement of teachers. Teachers are the primary agents responsible for transforming curricular expectations into meaningful learning experiences through instructional planning, pedagogical decisions, classroom interactions, laboratory activities, and assessment practices. Effective science teaching requires more than the transmission of scientific information; it involves facilitating inquiry, encouraging students to formulate questions, supporting evidence-based explanations, and providing opportunities to investigate scientific phenomena. Empirical research has demonstrated that inquiry-oriented instructional practices are associated with science learning outcomes, although their effectiveness depends on the quality, frequency, and contextual implementation of instructional activities [11], [12]. Similarly, teacher leadership has been found to have a positive association with student achievement, particularly when teachers contribute to improvements in curriculum, instruction, and assessment [13]-[16]. Accordingly, the quality of teachers' instructional practices represents a crucial dimension of SSP implementation and an important mechanism through which specialized science curricula may influence learners' academic performance.

Despite the importance of leadership and instructional practices, the successful implementation of SSP also requires adequate educational resources and effective institutional management. Science learning frequently depends on access to laboratories, instructional materials, technological facilities, research equipment, and opportunities for practical investigation. DepEd Order No. 55, s. 2010 explicitly identifies instructional resources, laboratory maintenance, consumables, teacher professional upgrading, and student research support as essential components of strengthening secondary science and mathematics education [1]. These requirements indicate that resource management should not be understood merely as the availability of financial allocations or equipment but also as the capacity of school leaders to ensure that resources are appropriately planned, distributed, maintained, and utilized to support instructional objectives. In this regard, the relationship between school leadership, teacher practices, and student achievement may be contingent upon the institutional capacity to translate available resources into meaningful instructional opportunities.

Academic performance represents an important indicator of the extent to which learners acquire the knowledge and competencies expected from science education. Nevertheless, student performance should not be interpreted exclusively as a consequence of individual student ability or teacher effectiveness. Rather, it reflects the interaction of instructional practices, leadership support, curriculum implementation, educational resources, and school-level conditions. Research on school leadership indicates that leadership practices are associated with student outcomes through multiple pathways, including instructional management, teacher capacity development, and organizational support [17]-[20]. Furthermore, evidence from science instruction suggests that the implementation of inquiry-oriented learning environments can improve science achievement when instructional approaches are carefully developed and aligned with professional development and institutional

policies [21]-[24]. These findings reinforce the importance of examining academic performance within the broader organizational and instructional context in which science learning takes place.

Although previous research has established the importance of school leadership, teacher instructional practices, and institutional support for improving science education, important gaps remain in understanding how these factors operate within specialized science programs. Bangcaya and Alejandro [25], for example, examined school-related factors contributing to the delivery enhancement of the Special Science Program in Western Visayas, focusing on curriculum and instruction, laboratory facilities, administrative support, and learners' academic performance. Their findings demonstrated that program implementation and administrative support were generally evident, while insufficient laboratory facilities remained a significant challenge. However, the study primarily provided a descriptive assessment of program implementation and school-related conditions, leaving further opportunities to investigate the relationships among leadership practices, teacher practices, and learners' academic performance through a more integrated analytical framework.

Similarly, existing research on school leadership and student achievement has predominantly examined general educational contexts rather than the distinctive organizational and instructional requirements of specialized science programs. Systematic reviews indicate that leadership research has frequently emphasized instructional leadership, teacher capacity development, and organizational support, while explanatory investigations of the mechanisms through which leadership practices influence student outcomes remain comparatively limited [26]-[30]. In science education, Adams and Hamdhiyya [31] identified leadership practices related to instructional quality, curriculum monitoring, resource support, teacher recruitment, and professional development. Nevertheless, the integration of these leadership dimensions with specific SSP implementation components and their relationship to academic performance requires further empirical investigation.

A further gap concerns the limited integration of school heads' practices and teachers' practices within a single explanatory framework. School leadership and instructional practices are frequently examined as separate domains, even though school heads establish organizational and instructional conditions while teachers translate those conditions into classroom learning experiences. Evidence suggests that leadership contributes to teaching practices through indirect organizational and instructional mechanisms [31]-[35]. While inquiry-based instructional practices are associated with science achievement across different educational contexts. However, the extent to which school heads' practices and teachers' practices jointly contribute to learners' academic performance specifically within SSP implementation remains insufficiently understood.

Moreover, SSP implementation requires greater analytical attention to the interconnected dimensions of curriculum and instruction, resource management, and student selection processes. Curriculum and instructional practices determine the learning experiences offered to students; resource management determines whether the necessary facilities, materials, and institutional support are available; and selection processes determine the learners who enter and participate in specialized science classes. These dimensions are important because program effectiveness may depend not only on the quality of instruction but also on the institutional capacity to provide appropriate learning opportunities and maintain equitable, transparent, and academically appropriate selection procedures. Although DepEd Order No. 55, s. 2010 explicitly addresses teacher selection, instructional materials, financial assistance, and participation in the program, the relationships among these implementation dimensions, school heads' practices, teachers' practices, and academic performance warrant further investigation.

This study addresses these gaps by examining school heads' practices and teachers' practices in relation to learners' academic performance within the Special Science Program. Specifically, the study considers curriculum and instruction, resource management, and selection processes as central dimensions of SSP implementation. Rather than treating program implementation as an isolated administrative activity, the study conceptualizes it as an interconnected institutional and instructional process in which leadership, teacher practices, and program management collectively contribute to educational outcomes. This integrated perspective provides an opportunity to extend previous SSP research beyond descriptive assessments of implementation and toward a more comprehensive understanding of the organizational and instructional conditions associated with academic performance.

Accordingly, this study aims to examine how school heads' practices and teachers' practices contribute to learners' academic performance in the Special Science Program. Specifically, it seeks to: (1) assess school heads' practices in SSP implementation in terms of curriculum and instruction, resource management, and selection processes; (2) examine teachers' practices in implementing the SSP curriculum and facilitating science learning; (3) determine learners' academic performance within the program; and (4) analyze the relationships between school heads' practices, teachers' practices, SSP implementation dimensions, and learners' academic performance. The findings are expected to contribute to educational leadership and science education literature by providing empirical insights into the organizational and instructional mechanisms associated with SSP effectiveness. Practically, the study may inform school heads, science teachers, educational administrators, and policymakers in developing evidence-based strategies for strengthening curriculum implementation, improving resource utilization, enhancing teacher professional development, and refining student selection procedures.

Ultimately, these contributions may support more effective, equitable, and sustainable implementation of specialized science education in the Philippines.

2. RESEARCH METHOD

The descriptive survey design was used to examine the relationships and to identify the significant gaps among the key variables. A survey questionnaire that has two parts namely; Part I. Respondent's demographic profile, Part II. Extent of implementing the Special Science program. The respondents of the study were the teachers teaching Special Science program in selected five public elementary schools within the third congressional district of Bohol. The schools were Candijay, Mabini, Anda, Guindulman, and Valencia. A total of eighty teacher-respondents were surveyed and was given ample time to answer the questionnaire. The study used frequency, percentage weighted mean, arithmetic mean, Pearson product moment correlation, and chi-square test for analysis of the data. A scale was also utilized for interpreting School Heads and Teachers Practices in the Special Science Program Implementation as well as their Impact on Student performance. The result of Academic Performance was also interpreted based on DepEd Order N. 8 s. 2015.

3. RESULTS AND DISCUSSION

The demographic profile of the teacher-respondents can see in table 1.

Table 1. Teacher-respondents Demographic Profile (n=80)

	Frequency	Percentage
Years of Service		
1-5 years	14	17.5
6-10 years	16	20
11-15 years	14	17.5
16 years and above	36	45
Highest Educational Attainment		
Bachelor's Degree	42	37.5
With Master's Units	30	32.5
Master's Degree	5	6.25
With Doctoral Units	3	3.75
Doctoral Degree	0	0
Trainings Related to Special Science Program outside the school		
None	53	66.25
1-2 trainings attended	12	15
3-4 trainings attended	4	5
5 or more trainings attended	11	13.75

Table 1 presents the demographic profile of the teacher-respondents. As reflected in the data, the majority of the respondents, comprising 45%, have rendered 16 years and above in service. This is followed by those who have served 6–10 years (20%), while 1–5 years and 11–15 years of service both account for 17.5% of the total respondents. This means that teachers have well-established teaching practices and long exposure to instructional contexts. The findings imply that while teaching experience provides a strong foundation for effective instruction, ongoing participation in professional development and attainment of higher educational qualifications are equally crucial for improving instructional quality and adapting to educational innovations. This finding was supported by the study of Bustamante (2024) entitled Effectiveness of Professional Development Programs on Science Teachers' Literacy in Basic Education, which emphasized that teachers' long year of experience contributes to their instructional competence and adaptability to curriculum innovations. Bustamante also noted that education and training improve teaching performance.

Table 2. Extent of Special Science Program Implementation (n=80)

Aspect	WM	D
Curriculum and Instruction		
A. Supervisory Practices		
As a school head, I……		
1. provide helpful feedback after classroom observations.	3.39	VGE
2. checks if teachers follow the DepEd curriculum and Special	3.4	VGE

Aspect	WM	D
Science Program guidelines.		
3. encourages teachers to use inquiry-based teaching strategies.	3.39	VGE
4. monitors the use of science laboratories and other facilities.	3.3	VGE
5.encourages teachers to use varied assessments	3.4	VGE
Composite Mean	3.37	VGE
B. Teacher's Instruction		
As a teacher, I……		
1.use learner-centered approaches in teaching Science and Mathematics.	3.61	VGE
2. design activities that allow pupils to ask questions	3.53	VGE
3. integrate experiments and hands-on activities for learners	3.43	VGE
4. connect lessons in Science and Math to real-life situations familiar to learners	3.54	VGE
5.give pupils opportunities to do simple research	3.37	VGE
Composite Mean	3.5	VGE
C. Assessment and Feedback		
As a teacher, I……		
1. monitor learners' progress regularly	3.61	VGE
2. give feedback that highlights both strengths and weaknesses	3.56	VGE
3. utilize assessment results to plan remediation activities	3.53	VGE
4. encourage learners to conduct reflection journals	3.39	VGE
5. collaborate learners with the parents of the result	3.45	VGE
Composite Mean	3.51	VGE
D. Curriculum Enrichment and Alignment		
As a teacher, I……		
1. ensure that my teaching strategies support the development of 21st-century skills (critical thinking, creativity, collaboration, communication).	3.49	VGE
2. enrich the curriculum by including advanced topics in Science and Mathematics appropriate for learners.	3.48	VGE
3. collaborate with colleagues in designing interdisciplinary projects that connect Science and Mathematics to real-life contexts.	3.44	VGE
4. integrate local and community-based examples in lessons to make the SSP curriculum more contextualized.	3.39	VGE
5. integrate values formation and ethical issues (e.g., environmental care, responsible use of technology) into Science and Math instruction.	3.49	VGE
Composite Mean	3.46	VGE
Curriculum and Instruction Composite Mean	3.46	VGE
Resource Management		
A. Learning Resources		
The school has……		
1. adequate laboratory equipment which is available for SSP classes.	2.79	GE
2. updated instructional materials (modules, textbooks, references)	2.93	GE
3. ICT tools are available for teaching.	3.13	GE
4. trainings on the use of learning resources.	2.97	GE
5.learning resources that are well-maintained and accessible.	2.91	GE
Composite Mean	2.95	GE
B. Financial Resources	WM	D
The school has……		
1. allocated budget specifically for SSP needs.	2.79	GE
2. Special Science Program funds in which it is transparent.	2.8	GE
3. financial support that is sufficient for laboratory activities.	2.75	GE
4. provided funds for teacher training related to SSP.	2.84	GE
5. partnerships (LGU, NGOs, PTA) support Special Science Program	2.89	GE
Composite Mean	2.81	GE
C. Physical and Facility Resources		D
The school has……		
1.well-maintained science laboratories with enough space	2.86	GE
2. classrooms conducive to learning, with proper ventilation.	3.27	VGE
3. adequate storage and safety equipment (cabinets, first-aid kits	2.94	GE

Aspect	WM	D
4.access to science libraries with internet connection.	3	GE
5. adequate facilities that support STEM activities	2.96	GE
Composite Mean	3	GE
D. Human Resources and Capacity Building		
As a teacher, I……		
1. am encouraged to attend seminars, workshops, or graduate studies	3.2	GE
2. am supported by the school in attending competitions, conferences	3.31	VGE
3. feel that the school values teacher collaboration	3.39	VGE
4. attend school in-service trainings (INSETs)	3.39	VGE
5. have access to professional learning communities (PLCs)	3.31	VGE
Composite Mean	3.32	VGE
Resource Management Composite Mean	3.05	GE
2.3 Selection Process		
A. Teacher Selection		
As a teacher I……		
1. assigned to Special Science Program based on Science and Math.	3.14	GE
2.consider training and professional growth.	3.36	VGE
3. believe that the assignment process for teachers is fair	3.38	VGE
4. acknowledge that my performance and competence are evaluated.	3.32	VGE
5. observe that new teachers are given proper orientation.	3.26	VGE
Composite Mean	3.29	VGE
B. Learner Selection		
As a teacher I…		
1. observe that learners undergo screening tests	3.41	VGE
2. see that learners' academic performance in Science and Math is considered for admission to the SSP.	3.4	VGE
3. recognize the learners' aptitude and interest in science are part of the selection criteria.	3.39	VGE
4. observe that retention policies are strictly followed	3.35	VGE
5. see that parents and learners are well-informed	3.36	VGE
Composite Mean	3.38	VGE
C. Selection Policies and Implementation		
As a teacher, I……		
1.am aware that the school strictly follows DepEd and SSP guidelines in selecting teachers and learners.	3.45	VGE
2.observe that the criteria for selection are duly posted in the public information	3.45	VGE
3.observe that the selection committee is objective and impartial in its decisions.	3.45	VGE
4. believe that the selection process promotes equity and inclusion, giving opportunities to deserving learners.	3.42	VGE
5. observe that the school provides orientation and guidelines.	3.4	VGE
Composite Mean	3.43	VGE
D. Orientation and Induction		
As a teacher, I……..		
1.see that orientation includes a clear explanation of academic requirements and retention policies.	3.42	VGE
2. see that orientation activities highlight the vision, mission, and goals.	3.4	VGE
3. provide information about the facilities.	3.35	VGE
4. observe that orientation sessions provide opportunities and feedback from stakeholders.	3.4	VGE
5. believe that orientation and induction activities ensure a smooth transition and	3.39	VGE
Composite Mean	3.4	VGE
Selection Process Composite Mean	3.38	VGE
Overall Composite Mean	3.29	VGE

The data in Table 2 presents the extent of Special Science Program Implementation. The data reveals that the extent of Special Science Program Implementation results to "A Very Great Extent" which means the practices was consistently implemented and evident at all times. This result suggests that the Special Science Program (SSP) is effectively implemented in terms of curriculum and instruction, resource management, and selection process. Sufficient facilities and proper resource management are vital to sustaining innovative and inquiry-based science learning environments. Overall, the findings underscore that efficient and transparent resource management plays an important role in the program.

Table 3. Learner's Academic Performance in Science (n=106)

		Overall Performance	
Descriptors	Scale	f	%
Outstanding	90-100	67	63.21
Very Satisfactory	85-89	33	31.13
Satisfactory	80-84	6	5.66
Fairly Satisfactory	75-79	0	0
Did not meet expectations	70-74	0	0
Total		106	100

Table 3 presents the academic performance of learners in Science under the Special Science Program (SSP). The data show that the majority of the students, or 67 learners (63.21%), obtained an Outstanding rating with scores ranging from 90–100. This is followed by 33 learners (31.13%) who achieved a Very Satisfactory performance within the 85–89 range. Meanwhile, only 6 learners (5.66%) were rated as Satisfactory (80–84), and none were classified under the Fairly Satisfactory and did not meet expectations category. These results indicate that most of the learners demonstrated exceptional academic performance, suggesting that the SSP effectively fosters a high level of academic achievement and scientific competency among students. The strong results may be attributed to the specialized curriculum, competent teachers, and supportive learning environment that characterize the program's implementation. Learners enrolled in science-focused curricula tend to perform better academically due to enriched learning activities, advanced instructional strategies, and exposure to scientific inquiry [36], [37].

Table 4. Relationship of Respondents' Demographic Profile and Implementation of Special Science Program (n=80)

Profile	Chi-Square Value	df	p-value	Decision	interpretation
Years of Service	8.202	6	0.224	Do not reject Ho	Not significant
Highest Educational attainment	1.488	6	0.960	Do not reject Ho	Not significant
Trainings related to Special Science program	4.764	6	0.161	Do not reject Ho	Not significant

Table 4 shows the relationship of respondents' demographic profile and implementation of Special Science Program. The findings revealed that there is no significant relationship between the respondents' demographic profile—specifically in terms of years of service, highest educational attainment, and trainings related to the Special Science Program—and the implementation of the SSP. This implies that the implementation of the SSP does not significantly differ regardless of the teachers' and school heads' years of service, level of education, or number of trainings attended. Demographic characteristics alone do not necessarily predict program implementation efficiency [38]-[41].

Table 5. Relationship Between the Extent of School Heads and Teachers' Practices in the Implementation of Special Science Program and Learners Academic Performance (n= 80)

Variable	Computer value	Description	p-value	Computed t	Tabular value	Decision	Interpretation
Learner's Academic Performance in Science vs. Extent of Implementing Special Science program	-0.243	Very Low Negative Correlation	0.030	-2.215	±1.990	Reject Ho	Significant

Table 5 shows the relationship of learners' academic performance in Science and Extent of the Implementation of Special Science Program. As reflected in Table 5, the results indicate a significant relationship between the learners' academic performance in science and the extent of implementing the Special Science Program (SSP). The computed t-value of -2.215, which is greater than the tabular value of ±1.990 at a 0.05 level of significance, signifies that the relationship is statistically meaningful. This implies that as the degree of SSP implementation increases, learners may experience a slight decline in academic performance possibly due to the increased academic rigor and complexity of science-based learning activities. Thus, the null hypothesis is rejected, indicating that the way the Special Science Program is implemented influences how learners perform academically.

The novelty of this study lies in its integrated and context-specific examination of the Special Science Program through the interconnected dimensions of school leadership practices, teacher instructional practices, resource management, and selection processes. Unlike previous SSP investigations that primarily emphasize descriptive implementation assessments or isolated institutional factors, this study brings together organizational, instructional, and administrative dimensions to examine their association with learners' academic performance. First, the study extends the investigation of science program implementation to the elementary education context, providing empirical insights into SSP practices in public elementary schools in Bohol, Philippines. Second, it integrates curriculum and instruction, resource management, and selection processes into a multidimensional framework, highlighting the importance of considering institutional arrangements alongside classroom practices. Third, it provides an empirical examination of the relationship between implementation and academic performance, revealing a statistically significant negative association that challenges the assumption that higher implementation ratings necessarily correspond to higher achievement. This finding provides an important basis for further investigation into the complexity of science program implementation and the contextual factors influencing student learning outcomes.

The findings have implications for educational leadership, science instruction, resource management, and science education policy. School heads should strengthen instructional supervision through systematic classroom observations, constructive feedback, curriculum monitoring, and support for inquiry-based teaching. Leadership practices should prioritize the translation of program policies into meaningful instructional opportunities [42]-[45]. Teachers should continue developing learner-centered science instruction through experimentation, inquiry-based activities, contextualized learning, and opportunities for scientific investigation. Assessment practices should emphasize formative feedback and the identification of learners' conceptual difficulties. The comparatively lower rating for resource management indicates the importance of improving laboratory facilities, instructional materials, financial allocations, ICT access, and equipment maintenance. Resource management should focus not only on availability but also on accessibility and instructional utilization. Educational administrators and policymakers should strengthen professional development, equitable resource distribution, and transparent student selection procedures. Academic performance should be monitored alongside implementation indicators to provide a more comprehensive understanding of SSP effectiveness [46]-[49]. The negative correlation between implementation and academic performance highlights the importance of examining contextual variables, learner characteristics, assessment practices, and program demands rather than interpreting implementation ratings as direct indicators of achievement.

Several limitations should be considered when interpreting the findings. The descriptive survey design limits the ability to establish causal relationships between SSP implementation and learners' academic performance. The observed negative correlation should therefore be interpreted as an association rather than evidence that program implementation reduces academic achievement [50]-[52]. The study involved 80 teacher respondents from five public elementary schools within one congressional district in Bohol. Consequently, the findings may not be generalizable to other schools, districts, or educational contexts with different institutional capacities and student populations. Implementation data were collected through teacher-reported questionnaires. Such measures may be influenced by respondents' perceptions and may not fully capture actual instructional

practices, leadership behaviors, or resource utilization. The study does not appear to directly incorporate independent observations of school heads' leadership practices, classroom instruction, or laboratory utilization. This limits the ability to validate reported implementation against observable practices. Although academic performance was examined, the analysis does not sufficiently account for learner-level characteristics, previous academic achievement, socioeconomic circumstances, selection criteria, or differences in instructional exposure that may influence science achievement. The relatively small magnitude of the negative correlation indicates that SSP implementation alone cannot adequately explain variations in learners' academic performance.

4. CONCLUSION

This study examined the implementation of the Special Science Program and its relationship with learners' academic performance in selected public elementary schools in Bohol, Philippines. The findings demonstrated that SSP implementation was generally evident to a very great extent, particularly in curriculum and instruction, teacher practices, and selection processes. Nevertheless, resource management emerged as a comparatively less developed dimension, indicating the need for stronger institutional support, adequate instructional facilities, and sustainable financial allocations. Learners demonstrated generally high academic performance, with 63.21% achieving Outstanding and 31.13% attaining Very Satisfactory ratings. However, the relationship between SSP implementation and learners' science performance was weak, negative, and statistically significant ($r = -0.243$, $p = 0.030$). This finding suggests that implementation intensity and academic achievement should not be assumed to exhibit a straightforward positive relationship. Rather, student performance may reflect the interaction of instructional practices, program demands, learner characteristics, and institutional conditions. The study contributes to science education research by integrating school-level implementation dimensions and examining their association with academic outcomes within a specialized science program. Practically, the findings emphasize strengthening resource management, instructional supervision, teacher professional development, and evidence-based assessment practices. Ultimately, effective SSP implementation requires more than compliance with program requirements. It requires coordinated institutional leadership, meaningful instructional experiences, equitable access to resources, and continuous evaluation of learning outcomes. Further longitudinal and mixed-method investigations are necessary to clarify the mechanisms through which SSP implementation influences learners' academic performance and scientific competencies.

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AUTHOR CONTRIBUTIONS

Conceptualization; Methodology; Formal Analysis; Investigation; Resources; Data Curation; Writing – Original Draft Preparation; Writing; Visualization, Charlene Kayle M. Piquero.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

INFORMED CONSENT STATEMENT

Prior to participation, each subject was provided with a detailed explanation of the study's objectives, procedures, potential risks, and benefits. All participants voluntarily agreed to participate and signed a written informed consent form. All images in this article have been authorized and are the property of the authors.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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