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

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***Abstract*: The study focused on implementing the Special Science Program (SSP) in selected schools using its practices of school heads and teachers and how it related to academic performance in Science. Specifically, the study aimed to identify the respondents' demographic profile, implementation of SSP in terms of curriculum and instruction, resource management, and process of selection, and level of learners' academic performance. A descriptive-correlational research design was used, with a sample of 80 teachers as respondents. The results showed that the majority of respondents had longer years of service in school and were bachelor's degree holders; however, many did not have any related training in the Special Science program. Regarding all three dimensions, the implementation of the program was rated very great, demonstrating that schools implemented the SSP's objectives successfully. In addition, learners' academic performance in Science was very outstanding, showing that the program was effective in terms of promoting them to achieve. On the other hand, responses also showed that there was no significant relationship between demographic profiles and SSP implementation; however, a weak yet significant correlation between program implementation and learners' performance was seen. This means that in both cases, high-quality instructional supervision, teacher competence, and leadership practices are more of a factor than demographic characteristics. Therefore, continuous training for professional development, enhanced leadership, and sufficient resource support are recommended in order to maintain the quality of the Special Science Program and increase learners' scientific literacy and academic performance further.**

***Keywords*: Selection, Curriculum, Supervisory, Resource Management, Instruction.**

1. Introduction

Science and technology are the basic motivations that have driven the society, which helps education to develop the most basic competencies to be successful. In view of this, the Department of Education (DepEd) has intensified science education through the Special Science Program (SSP). The DepEd Special Science Program (SSP) is an advanced curriculum emphasizing science and math subjects that the department popularized with DepEd Order No. 55, s. 2010. It promotes protracted learning sessions, incorporates research and investigatory projects, and exposes learners to advanced knowledge and its applications. In the end, learners' academic progress reveals that leadership and teaching practices are commendable, meaning that the Special Science Program is successful. Good leadership guarantees that policies are put into effect and that both learners and teachers attain the program's goals. Hallinger and Heck (1998) noted that the education process and student performance were the areas directly influenced by school leadership.

These questions raise concern about the influences of the practices of school leaders and teachers on the academic success of students in the Special Science Program.

Table 1
Teacher-respondents demographic profile n=80

1.Years of Service	**Frequency**	**Percentage**
1-5 years	14	17.5
6-10 years	16	20
11-15 years	14	17.5
16 years and above	36	45
2. 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
3. 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

2. Methodology

The descriptive survey design was utilized for the study with the aim of exploring the relationships and to pinpoint the significant gaps among the main variables. The survey had two sections, Part I, which dealt with the respondent's demographic information, and Part II, which talked about the extent of implementing the Special Science program in schools.

The respondents of the study turned out to be the Top 5 public elementary schools within the 3rd district of Bohol, i.e., Candijay, Mabini, Anda, Guindulman, and Valencia, teachers affiliated with the Special Science Program Pedagogy. Overall, 80 teacher respondents took part in the survey and had enough time to answer the questionnaire.

Table 2
Extent of special science program implementation n=80

2.1 Curriculum and Instruction	**WM**	**D**
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 SSP guidelines	3.4	VGE
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
2.2 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 *The school has……*	WM	D
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 *The school has……*		D
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
4.access to science libraries with internet connection.	3	GE
5. adequate facilities that support STEM activities	2.96	GE

Table 2
Extent of special science program implementation n=80

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	3.4	VGE
5. believe that orientation and induction activities are smooth	3.39	VGE
Composite Mean	3.4	VGE
Selection Process Composite Mean	3.38	VGE
Overall Composite Mean	3.29	VGE

The study used frequency, percentage weighted mean, arithmetic mean, Pearson product moment correlation, and chi-square test for analysis of the data. Both the school heads and teachers were graded for their practices in implementing the Special Science Program, and their contribution to student performance was evaluated separately against the set performance standards.

3. Results

Table 1 shows the demographic profile of the teacher-respondents. From the data, it is evident that the majority of the respondents (45%) have been teachers for 16 years and above. 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 teachers have well-established teaching practices and long exposure to instructional contexts. 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 discusses the Special Science Program Implementation Extent Details. The details show that the extent of Special Science Program Implementation (SSP) was consistent and evident from time to time, designated as "A Very Great Extent." It implies that Special Science Program (SSP) was well-implemented in terms of curriculum and instruction, resource management, and selection process.

The data indicates that the Curriculum and Instruction aspect shows a composite mean of 3.46 and is interpreted as "Very Great Extent." The breakdown of subcomponents (Supervisory Practices, 3.37; Teacher's Instruction, 3.50; Assessment and Feedback, 3.51; and Curriculum Enrichment and Alignment, 3.46) reveal that the school heads and teachers maintain the highest teaching and learning standards.

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

In Table 3, we can see how the learners performed academically in the Special Science Program. Looking at the

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 5
Relationship between the extent of school heads and teachers' practices in the implementation of special science program and learners academic performance n= 80

Variables	Computedr 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

data, most of the learners, 67 in number, which equals to 63.21%, scored within the range of 90 to 100, hence, they were ranked as Outstanding. Contrarily, only 33 (31.13%) were deemed as Very Satisfactory, scoring within the range of 85 to 89. Therefore, it is evident that the Special Science Program has been embraced with superb organizational support structures, including the special course outline, qualified instructors, and conducive learning environment. In a similar fashion, the study by Bernardo and Mendoza (2020), titled Academic Achievement of Students in Science-Oriented Programs in the Philippines, revealed that learners from science programs attain higher academic performance, as they are actively engaged in more sophisticated assignments, intensive methods of instruction, and scientific-based undertakings.

Table 4 displays the results of correlating the respondents' demographic profile with the implementation of the Special Science Program. The findings show that there is no significant relationship between the respondents' demographic profile, particularly years of service, highest educational attainment, and trainings related to the Special Science Program, and the implementation of the SSP. The computed Chi-square values for the variables (8.202, 1.488, and 4.764, respectively) were less than their corresponding table values at 0.05 level of significance. Hence, the null hypothesis is accepted. This means that the SSP implementation does not greatly vary depending on the teachers' and school heads' years of service, level of education, and number of trainings attended. Similarly, De Jesus and Macapagal (2021), in their study on Professional Development, Educational Attainment, and Teaching Competence of Science Teachers in the Philippines, pointed out that demographic characteristics are not sole determinants of program implementation efficiency.

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. Meanwhile, the computed r-value of -0.243 shows a very low negative correlation, suggesting that while the association between SSP implementation and learner performance is weak, it remains significant. This means that the more the degree of SSP implementation increases, the more learners experience a slight decline in the quality of their learning. Hence, the null hypothesis should not be retained or it can be stated that the implementation of the Special Science Program affects the learners' academic performance. Dela Cruz (2018), in his study Supervisory Practices of School Heads and Student Performance in Science, Technology, and Engineering (STE) Programs, found that there is a significant impact of the program implementation on the students' performance.

4. Conclusion

This means that performance improves when the program is successfully rolled out. The years of service, highest educational attainment, and trainings related to the Special Science Program do not associate in the implementation of the Special Science Program. However, the Special Science Program Implementation affects learner's academic performance. This implies that learners' performance rises when the program is carried out effectively.

References

[1] Bala, R. L., & Eugenio, C. (2020). *Transformational leadership and resource mobilization practices among public secondary school principals. International Journal of Education Research for Higher Learning,* 26(2), 45–60. https://doi.org/10.7719/ijern.2020.26.2.04

[2] Briones, L. (2018). *School leadership and management practices in basic education. DepEd Research Journal, 1, 1–12.*

[3] Calubaquib, J. B. (2017). *Instructional supervision practices and performance of public secondary school teachers. Asia Pacific Journal of Multidisciplinary Research*, 5(1), 123–129.

[4] Department of Education. (2010b). *DepEd Order No. 57, s. 2011: Strengthening the implementation of the Special Science Elementary School Project.* https://www.deped.gov.ph

[5] Department of Education. (2015). *DepEd Order No. 44, s. 2015: Guidelines on the conduct of School-Based Management (SBM) practices.* https://www.deped.gov.ph

[6] Department of Education. (2022). *DepEd Order No. 31, s. 2022: Data privacy guidelines in the processing of personal information in basic education.* https://www.deped.gov.ph