

Link Between Management and Educational Leadership in Shaping Junior Secondary Science Education Program

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Abstract. This study aimed to determine the Link Between Educational Management and Leadership in Shaping the Junior Secondary Science Education Program in the Division of Island Garden City of Samal. The quantitative correlational research method was utilized. The finding revealed that management was presented with the corresponding indicators: strategic planning, organization, strategic decision-making, and implementation of policies and resources, which are descriptive equivalents of Extensive. While leadership in shaping science education programs with the four indicators, namely, curriculum implementation, teacher training, resource allocation, and program development with extensive descriptive equivalents. Significant relationships exist between educational management and leadership in shaping the Junior Secondary Science Education Program in Island Garden City of Samal Division. Domains in educational management significantly influenced leadership in shaping the Junior Secondary Science Education Program in Island Garden City of Samal Division. School leaders may understand their role as vital in guiding an impactful educational management and leadership program to empower teachers with essential skills. They focus on cultivating a positive school culture, strategically planning for growth, leveraging data for informed decision-making, shaping a clear vision for student success, efficiently managing resources, promoting staff collaboration, and leading with integrity.

KEY WORDS

1. Educational Management 2. leadership 3. shaping

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1. Introduction

Junior High School encompasses Grades 7 to 10, serving as a crucial transitional period that effectively connects students from primary to secondary education, situated between the exhilarating entry into high school and the demanding decision-making process regarding selecting tracks and strands for Senior High School. Throughout these years, students were obligated to make pivotal decisions that might alter their educational trajectory for the subsequent years or potentially their careers post-graduation. The

connection between management and leadership is critical as institutions aim to foster an environment that promotes optimal learning outcomes in Junior High School. Educational management, emphasizing strategic planning, organization, decision-making, and policy implementation, collaborates with educational leadership, which inspires and guides stakeholders toward a unified vision of academic excellence by examining critical elements such as curriculum development, teacher training, resource allocation,

tion, and program development. This research adopts a distinctive methodology to comprehend the facets of educational management and leadership within a worldwide framework. They intend to evaluate the influence of rigorous research procedures on the efficacy of science education efforts. The study, referencing the contributions of Hallinger and Heck (cited in Hallinger and Kovačević, 2022), emphasizes the vital importance of educational management in effectively constructing science education curricula. Collaboration between school administrators and leaders is crucial for matching curriculum objectives with overarching educational aims. In their 2023 study, Wang and colleagues examined how educational management influences the distribution of resources for science education infrastructure. Their findings emphasize the importance of strategic resource allocation to ensure students have access to optimal learning environments and advanced scientific equipment. Conversely, research by Smith and Jones (2022) indicates that effective educational leadership fosters ongoing professional development among science teachers, enhancing teaching quality and student performance. These individuals, frequently serving as school heads, school administrators, associate administrators, or head teachers such as provosts and presidents, play a crucial role in influencing the policies and environment of educational institutions. Moore (2023) describes school leaders as professionals who utilize their expertise to improve the educational system, taking on responsibilities beyond simple administrative tasks. They work collaboratively with diverse groups, form alliances, and aim to achieve innovative goals. These leaders seek to address issues by linking theoretical insights to practical initiatives and situations through evidence-based and relational approaches. Now, let us explore several reasons why educational leadership is crucial. Garcia and Santos's study (2022) supports this. Their findings suggest that

a shared vision and inclusive decision-making contribute significantly to the success of science educational programs. The research study emphasizes the integral relationship between educational management and school leadership in shaping science education programs. The convergence of academic management and leadership in shaping science education programs has garnered increasing attention in educational research. The literature reveals a dynamic relationship between these two domains, emphasizing their collaborative role in influencing the quality and outcomes of science education. Recent studies provide significant perception exploring the intricate facets of school administration and leadership approaches, offering valuable understanding of how these factors influence secondary high school education programs. Within the national framework, the connection between educational management and leadership in developing science education initiatives is a vital area of investigation, carrying significant implications for the country's educational development. Recent research highlights the challenges and opportunities in fostering collaboration between management and leadership in science education. Effective leadership is essential in determining the future of education by providing a clear path, vision, and advice to schools and educational institutions. Such leadership ultimately influences learners achievement and the comprehensive standard of education. One pressing issue is the significant dropout rate, with approximately 40 percent of students failing to continue beyond Grade 10. Addressing this challenge is essential, and there is a growing consensus that efforts should focus on retaining students from early education through to Grade 10, as emphasized by Senator Gatchalian, chair of the Senate Committee on Basic Education. Additionally, as reported by Felipe and Marcelo (2023) in the Philippine Star, the advocacy group Philippine Business for Education (PBEd) has expressed concerns

over the widespread practice of promoting students en masse, which they believe could precipitate an education crisis. PBE pointed out that many public school teachers promote students to the next grade level to adhere to the Department of Education's "No Child Left Behind" policy. However, their recent discussions with various stakeholders revealed that between 10 to 30 percent of students moving on do not demonstrate the necessary competencies or mastery of subjects required for their current grade. This discussion underscores leadership's vital role in shaping educational outcomes and emphasizes essential methods educational leaders can implement to promote good transformation. Effective leadership provides the necessary guidance and inspiration for educational institutions, motivating staff and creating a conducive environment for learning. Influential leaders can foster a culture of ongoing development and improvement, essential for advancing educational quality (as noted by Watson-Jarvis in Denny, 2023). School leaders are vital in designing policies and procedures that foster student achievement, allocating resources efficiently, and maintaining strong stakeholder relationships. Key strategies for effective education leadership include establishing a clear vision to guide the institution's direction, understanding its goals and challenges, and communicating these effectively to all involved parties (Ciulla Ciulla, 2020). Creating a positive and nurturing educational atmosphere is also essential for learner success. Leaders should cultivate a culture rooted in respect, collaboration, and innovation. This can be achieved through ongoing professional development for staff, adopting effective classroom management techniques, and encouraging active learners' participation (Aspling, Salicru, as cited in Denny, 2023). In the local context of Davao City, the researcher aims to understand how educational management practices and leadership styles influence the development and implementation of science education initiatives.

Findings suggest that effective educational management practices, including strategic planning, resource allocation, and curriculum development, play a crucial role in shaping science education programs (Cruz, Reyes, 2019). Moreover, transformational leadership approaches, such as visionary leadership, instructional leadership, and shared decision-making, positively impact teacher motivation, student engagement, and overall program outcomes. Encouraging collaboration, innovation, and accountability among educational institutions, decision-makers, and stakeholders can promote the quality and relevance of science education, ensuring it addresses the changing needs of students and society (Garcia Santos, 2020). Early findings indicate that effective educational management practices such as strategic planning, resource distribution, and curriculum design are crucial in successfully implementing junior high school programs. Additionally, transformational leadership, which involves visionary guidance, collaborative decision-making, and instructional support, can boost teacher motivation, engage students, and improve overall program results (Martinez Lopez, 2019). The research emphasizes the need to align management and leadership approaches to optimize science education initiatives in Davao City. By cultivating a culture rooted in collaboration, innovation, and ongoing development, educational stakeholders can work collectively to elevate the quality and relevance of science teaching, ultimately benefiting both students and the wider community (Smith Martinez, 2021). This research endeavors to unveil the mechanisms through which this collaborative effort shapes the trajectory of science education programs, thus promoting additional investigation into specific areas that may shed light on the importance of educational leadership and school management. This research explored the complex association between educational management and leadership in junior high school settings, aiming to understand how

their collaboration impacts the quality and success of science education across different levels. In the evolving field of education, effective school management and leadership are crucial factors that influence the development and effectiveness of science programs. Analyzing the connection between management and leadership, specifically in science education program development, is essential. The results from this study would add to present scholarly discussions on educational management and leadership, providing valuable insights for educators, policymakers, and administrators involved in shaping science education initiatives. Understanding the nexus between educational management and leadership in junior high school education is vital for developing informed strategies to enhance the quality of science education and prepare students to meet the challenges of an changing complex and technology-driven world.

1.1. Theoretical/Conceptual Framework of the Study —Transformational Leadership Theory Bass, (1990). This theory emphasizes the role of educational leaders in inspiring and motivating stakeholders to achieve common goals. Transformational leaders empower teachers, students, and other stakeholders to innovate and collaborate in shaping science education programs. Similarly, the study was informed by the concept of Distributed Leadership as articulated by Spillane et al. (2001), which asserts that leadership is disseminated among multiple persons within an organization rather than being confined to official leadership positions. In junior high school educational programs, dispersed leadership encompasses collaboration among educators, administrators, and other stakeholders in decision-making, curricu-

lum development, and instructional enhancement projects. Likewise, this study, guided by Leadership and management theories, explores how leaders and managers effectively guide and motivate individuals and teams toward organizational goals. Their focus differs: leadership often emphasizes vision and change, while management emphasizes efficiency and order. Management theories, sometimes called transactional leadership, focus on systems of rewards and punishments. In contrast, leadership theories can range from transformational styles that inspire followers to situational approaches that adapt to different contexts. The Behavioral Theory, often called behaviorism, is a psychological perspective that emphasizes observable behaviors and their interaction with the environment. It is primarily associated with the work of John B. Watson, B.F. Skinner, and Ivan Pavlov Behavioral theory. The behavioral leadership paradigm emphasizes leader conduct and posits that other leaders can emulate these characteristics. Often referred to as the style theory, it posits that leaders are not inherently effective but may be developed through acquired behaviors. Behavioral theories of leadership emphasize the activities of a leader, positing that the most reliable indicator of leadership performance is observing a leader's behavior. Behavioral learning theory emphasizes actions over attributes. This approach observes and categorizes behavioral patterns as "leadership styles." Leadership styles encompass task-oriented leaders, people-oriented leaders, country club leaders, status-quo leaders, and dictatorial leaders. The acts and behaviors of a leader ultimately define success in this idea. Effective school management and leadership significantly contribute to improve student academic performance

2. Methodology

This chapter outlines the research methodology, including the selection of participants, the tools used for data collection, the procedures for gathering information, and the data analysis methods.

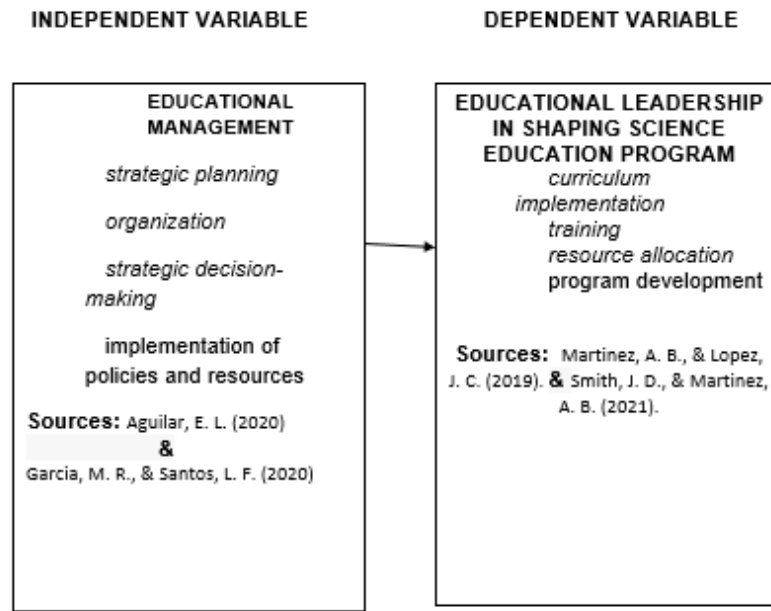


Fig. 1. Theoretical/Conceptual Framework

2.1. Research Design—The research design of this study employed a quantitative, descriptive-correlational method because this study determines the nexus between educational management and educational leadership in shaping science education programs through quantitative analysis. To describe this research design, Creswell (2019) stated that it is a design that investigators use to describe and measure the relationship between two variables or a set of scores; using a universal sampling process, the study can be conducted differently. The researchers agreed that a descriptive-correlational method was effective for this study. The researcher may determine the relationship between educational management and educational leadership in shaping science education programs through quantitative analysis. This design was the most appropriate for the topic.

2.2. Ethical Consideration—The researcher immediately adhered to the established protocols regarded as standard procedures for conducting the study, including following the designated assessment criteria, especially in handling the study population and data collec-

tion. The survey questionnaires and citations of the original authors were submitted for review. Upon receiving the approved certificate from the Ethics Committee, the researcher advanced to the subsequent phase of the research.

Social Value

The research was essential to society. In this study, the social value was focused on the experience of disaster risk reduction management coordinators. This study was conducted explicitly among the elementary disaster risk reduction management coordinators. This study also served as a basis for the higher authorities to create more programs and resolutions where disaster risk reduction management coordinators could benefit. Thus, the social problem that piqued my interest was the challenges the grade two teachers faced in creating a supportive learning environment.

Informed Consent The researcher obtained signed informed agreement from participants, ensuring they were fully aware of the study's objectives and provided with sufficient information to understand their role and make an informed decision about participation. Partici-

pation was entirely voluntary, and respondents were explicitly told they could decline without any pressure. The researcher also prioritized the mental well-being of the participants throughout the process. Participants provided written approval, and the researcher clarified that the study focused on exploring the association of management and leadership training in developing junior high school education programs.

Vulnerability of Research Participants

The participants in the study consist of public secondary school teachers, who are all of legal age and therefore not classified as vulnerable in terms of legal status. Nonetheless, they may still be psychologically vulnerable. The researcher highlighted that the survey was conducted at a time convenient for the respondents and ensured that the confidentiality of the information shared was maintained. Privacy and Confidentiality

This study complied with the requirements set by the Data Privacy Act of 2012, ensuring that participant identities remained confidential and untraceable. The researcher committed to not sharing any personal information without explicit consent from the respondents. Access to the data was restricted solely to the researcher, safeguarding against unauthorized exposure. To further protect participant privacy, the researcher was the only individual with access to the survey data. Once the data collection was complete, the researcher securely disposed of the survey results to prevent any possibility of identifying the respondents, who provided the original information.

Risk, Benefits, and Safety

During distributing the survey questionnaires, the researcher transparently informed participants about the nature of their involvement. The purpose, potential benefits, and confidentiality of their responses, as outlined in the online survey, were clearly explained. Participants were encouraged to ask any questions related to the study without any restrictions.

The researcher also ensured that participants would not experience any harm or discomfort as a result of their participation. Additionally, the questionnaire and interview guide were carefully designed to avoid any language or statements that could be considered offensive or degrading to respondents. Furthermore, the study was solely aimed at gathering academic information relevant to the research topic, and no personal or sensitive data was solicited. Participants were provided with sufficient time to complete the questionnaires, aiming to minimize any inconvenience. They were also given the option to decline answering any questions that might cause psychological or emotional discomfort and were free to discontinue their participation in the study at any time if they felt uncomfortable or chose not to provide specific information.

Justice

To maintain fairness in selecting participants, the researcher treated all potential respondents equally, regardless of their likelihood of participating in the survey. No bias influenced the choice of respondents for this study. Any individual who had been a qualified permanent public secondary school teacher in the deliberately chosen schools for at least two years was eligible. Throughout the research process, the researcher ensured minimal disruption to the respondents' routines out of respect for their time. To acknowledge their participation, the researcher provided small tokens of appreciation, which consisted of assorted souvenirs. These tokens were securely packaged and delivered via courier.

Transparency

In the interest of transparency, all communications regarding this research were conducted honestly and ethically. The researcher ensured the protection of participants' well-being by accurately applying the methods outlined in this study. All relevant documentation supporting the data analysis was provided. Additionally,

the researcher clarified the respondents' level of participation and explained the measures taken to maintain objectivity during data analysis and when presenting the study's results.

Qualification of the Researcher

The researcher implemented steps to prevent potential conflicts of interest or other influencing factors from affecting participants' responses. The study results were accessible to both the respondents and school administrators from the participating schools, provided that they adhered to proper procedures to maintain respondent anonymity. Additionally, the researcher expressed gratitude to all individuals who participated or assisted to the successful completion of the study. A copy of the research findings was shared with the Division of Island Garden of Samal City, enabling respondents to review and utilize the information for educational purposes and further research.

Adequacy of Facilities

The researcher created a supportive environment for the participants and provided sufficient learning materials that were accessible throughout the study period, all conducted within the allocated timeframe. Responses were carefully recorded on days when the researcher was alert and less fatigued to ensure precise data collection, minimizing the likelihood of recording errors. The analysis and findings were also thoroughly conducted and consistent, forming a solid foundation for the study's validity.

Community Involvement

Engaging the community throughout all stages of the research process—from initial planning to final reporting was considered valuable. Therefore, the researcher intended to disseminate the findings to the community and prioritized their participation in shaping the research agenda, selecting suitable methods for their context, and deciding how the results would be used. The study outcomes were subsequently communicated to the community through meetings, forums, and conferences.

2.3. Research Respondents—The participants in this research consist of 30 secondary school science teachers from the Kaputian district, Division of Igacos, located in the Island Garden City of Samal. According to the Roasoft Calculator (refer to the appendix), these teachers represent a subset of 137 junior teachers out of the total population of 210. The researcher established specific criteria for selecting participants, requiring that respondents be public junior or senior high school teachers with at least three years of experience teaching science subjects. In addition, the teacher respondents agreed to answer the survey tool administered by the researcher. The respondents honestly filled out the information needed in the structured research survey questionnaire that the researcher distributed. The researcher utilized a random sampling technique, selecting a proportional number of respondents from every public national high school in the Kaputian District, Division of the Igacos Island Garden City of Samal. Due to the large number of public elementary schools in the Kaputian District, Division of Island Garden City of Samal, anyone could be chosen during the sampling process.

2.4. Research Instrument—This instrument has been adapted from previous research studies conducted by Aguilar (2020), focusing on educational leadership, and by Smith Martinez (2021) for Educational Leadership In Shaping Science Education Programs were modified or adjusted to suit a specific purpose or situation in the present study with the help of the thesis adviser and evaluators and was used to gather the necessary data to realize the work. The questionnaire has three aspects (indicators) for the independent variable, Management, with the following indicators: strategic planning, organization, strategic decision-making, and implementation of policies and resources, while the dependent variable, educational leadership in shaping science education program, would namely curriculum development, teacher train-

ing, resource allocation, and program development. Each indicator would consist of five (5) questions, which should be answered using the provided legend. The questionnaires have simple instructions. The research questionnaires were purely researcher-made. A grammarian and validators submitted and evaluated the questionnaire concept. Suggestions and assessment tools were supplied to assist researchers in enhancing and refining the research instrument. The evaluation results, validation outcomes, and draft versions were submitted to the research adviser for approval. Unclear statements were eliminated, and weaker ones were improved and polished. Once the research adviser approved the final version, the research survey

instrument was prepared accordingly. After the questionnaires were evaluated and approved, the researcher distributed the tools to collect data and information from the respondents. The pilot test was conducted in the exact location but with a different group from the study participants.; however, reliability was tested with different participants and excluded from the actual respondents of 120 teachers. Cronbach's 0.8265 indicates that the instrument was adequately reliable, as evidenced by a Cronbach's alpha of ≥ 0.8265 or higher (see appendix). This survey rating indicates an extensive level of internal consistency, suggesting that the items within the test effectively measure the same construct.

Range of Scale, Descriptive Equivalent, and Descriptive Interpretation

Range of Scale	Descriptive Equivalent	Descriptive Interpretation
4.20 – 5.00	Very Extensive	Educational management is always evident.
3.40 – 4.19	Extensive	Educational management is often evident.
2.60 – 3.39	Moderately Extensive	Educational management is sometimes evident.
1.80 – 2.59	Less Extensive	Educational management is rarely evident.
1.00 – 1.79	Not Extensive	Educational management is not provided.

2.5. Data Gathering Procedure—The process of collecting the necessary data involved several steps: At the outset, the researcher requested authorization from the Dean of the Graduate School to carry out the study. Subsequently, a formal letter endorsed by the Dean was submitted to the Division Superintendent of Schools to obtain official approval. Additionally, consent was acquired from the Office of the Schools Division Superintendent of the Island Garden City of Samal, permitting the researcher to survey teachers in the division. Following this, the approval letter from the Division Superintendent was presented to the principals and su-

pervisors of public schools in the Kaputian District, Island Garden City of Samal, to coordinate the research activities. The school leaders consented after confirming that all necessary safety measures were observed. With all permissions in place, the researcher personally distributed the survey questionnaires to the participants and later collected the completed forms. Throughout the process, the researcher strictly adhered to ethical standards, following established protocols and criteria, particularly in managing the participants and data. The principals received copies of the permission letter to confirm that the data collection was conducted honestly and

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1.80 – 2.59	Less Extensive	Educational leadership in shaping the science education program is rarely evident.
1.00 – 1.79	Not Extensive	Educational leadership in shaping the science education program is never evident.

transparently. The collected data were then carefully tallied, organized, analyzed, and interpreted confidently, aligned with the study's objectives. After data collection, the responses were forwarded to a statistician for further analysis. Participation was voluntary, and Kaputian District teachers were free to participate or withdraw without facing any penalties. All data col-

lected from participants was treated with strict confidentiality and utilized exclusively for the purposes of the study. To reduce potential bias, the questionnaire was crafted to be clear and straightforward, avoiding the use of complex terms. Furthermore, distribution of the questionnaires only took place after obtaining the necessary approvals from appropriate officials.

2.6. Data Analysis—Various statistical methods were employed to evaluate how educational management and leadership impact the advancement of science education programs.

Pearson's Product-Moment Coefficient of Correlation

This tool determined the relationship be-

tween educational management and educational leadership in shaping science education programs.

Regression

This tool was used to determine the educational management and educational leadership needed to shape science education programs.

3. Results and Discussion

This chapter presents the research results, providing a detailed examination, analysis, and interpretation of the findings.

3.1. Educational Management in Terms of Strategic Planning—Table 1 provides a summary of the data on Educational Management.

The indicators show an overall mean of 4.00, interpreted as "extensive" or "often observed." The specific mean scores for each indicator are as follows: strategic planning (3.91), organi-

zation (3.84), strategic decision-making (3.98), and implementation of policies and resources (3.93). Each of these indicators is classified as "extensive." These results suggest that educational management is a key factor in school development. It is essential for school success, establishing the foundation for effective leadership, efficient resource allocation, strategic planning, and smooth operations. This, in turn, positively affects student achievement by fostering an environment conducive to learning, supporting professional growth for teachers, and ensuring the diverse needs of students are addressed. Educational management is the cornerstone for a school's ability to fulfill its educational mission and objectives. Moreover, good management can create a supportive environment for innovation and encourage the implementation of new, more effective learning methods. Education management includes school leadership, teacher professional development, resource management, and establishing a school culture that supports innovation. This finding is supported by Harris et al. (2021), who stressed that educational leadership encompasses the vision, direction, and motivation that

school administrators and instructional leaders provide to improve teaching and learning outcomes. Transformational leadership approaches in shaping science education programs, such as visionary leadership, instructional leadership, and shared decision-making, have positively impacted teacher effectiveness, student engagement, and overall program quality. Moreover, distributed leadership models that empower teachers as leaders in curriculum innovation and pedagogical practices are gaining recognition for promoting an environment that encourages ongoing enhancement in science education. The link between educational management and leadership lies in their complementary roles in shaping science education programs. Effective management ensures the efficient utilization of resources and the implementation of policies to support science education initiatives. At the same time, leadership inspires innovation, fosters a shared vision, and builds capacity among stakeholders. Recent literature underscores the need for synergy between management and leadership functions to create conducive environments for teaching and learning in science classrooms.

Table 1. The Summary of the Educational Management

Indicators	Mean	Descriptive Equivalent
Online teaching	3.80	Extensive
Modular	4.01	Extensive
Blended teaching	3.98	Extensive
Implementation of policies and resources	3.94	Extensive
Overall Mean	3.93	Extensive

3.2. Leadership in terms of Shaping Science Education Program Curriculum Development—Table 2 shows the data on the Summary of the Leadership Shaping Science Education Program. The data in this table are presented with corresponding mean: curriculum development (3.86), teacher training (4.01),

resource allocation (4.01), and program development (3.95). All of these indicators are descriptive equivalents of extensive. The overall mean result of 3.98, or Extensive descriptive equivalent, means that the Leadership Shaping Science Education Program in the four indicators was often observed. Furthermore, the re-

sults reveal that the development of the Leadership Shaping Science Education Program is remarkably high. This means that the Leadership shaping science education programs helps improve teaching and learning by creating a positive school culture and providing professional development opportunities. The result is similar to Hallinger and Murphy's (2021) statement that educational leaders play a crucial role in designing and implementing science curricula that align with national standards and educational goals. They work with curriculum specialists

and science educators to develop comprehensive and engaging curriculum frameworks that promote inquiry-based learning, critical thinking, and scientific literacy. Likewise, Campbell et al. (2022) posited that educational leaders advocate for equitable access to resources such as laboratory facilities, instructional materials, and technology tools to support effective science education programs. They allocate resources strategically and seek external partnerships to enhance students' hands-on learning experiences and scientific inquiry skills.

Table 2. Summary of the Leadership Shaping Science Education Program

Indicators	Mean	Descriptive Equivalent
Curriculum development	3.96	Extensive
Teacher training	4.01	Extensive
Resource allocation	4.01	Extensive
Program development	3.95	Extensive
Overall Mean	3.98	Extensive

3.3. Relationship between Educational Management and Leadership Shaping Science Education Program—Table 3 shows the data on the significant relationship between teaching modalities and teachers' efficacy in public elementary schools using Pearson r . The computed r -value of 0.93 indicates a high degree of relationship or substantial. The p -value of 0.00 is less than the alpha value of 0.05 at the significance level, which suggests that the null hypothesis is rejected. The finding reveals that the independent variables and dependent variables are statistically significant. Hence, there is a significant relationship between Educational Management and the Leadership-Shaping Science Education Program. The result further suggests that educational management can make a big difference in the leadership-shaping science education program. This implies that everyone in the respondents agreed that educational leadership is the compass guiding our schools toward

success, and it plays a pivotal role in shaping the future of our students. While the importance of quality education is indisputable, it is equally essential to recognize the significant influence that effective leadership has on student achievement. This finding is similar to Mushtaque's (2023) emphasis that educational leaders are critical in empowering teachers. Effective leadership is about instructing and providing the necessary tools, professional development, and encouragement to help teachers excel. When teachers feel empowered and motivated, they, in turn, inspire their students. This cycle of empowerment ultimately results in increased student achievement. Furthermore, He added that the significance of educational leadership in shaping the educational landscape and student achievement cannot be overstated. Effective leadership sets the direction, empowers teachers, engages parents and the community, and creates data-informed, effective learning envi-

ronments. Educational leaders play a dynamic role in preparing students to excel academically, to be critical thinkers, and to become engaged, responsible citizens.

Table 3. Relationship between Educational Management and the Leadership-Shaping Science Education Program

Variables	r-value	Degree of Correlation	p-value	Interpretation	Decision
Teaching modalities (X) vs. Teachers' efficacy (Y)	0.93	High	0.000	Significant	Reject H_0

Note: Significance at $p < 0.05$.

3.4. On the Indicators of Educational Management that Significantly Influences the Education Leadership in Shaping Science Education Programs—Table 4 depicts the simple regression coefficient analysis on the significant influence of indicators of teachers' communication skills on students' academic performance. All indicators of teachers' communication skills, along with their respective probability values—Strategic Planning (0.000), Organizational Management (0.003), Strategic Decision-Making (0.001), and Implementation of Policies and Resources (0.0042)—demonstrate statistical significance concerning students' academic success, as the p-values fall below the acceptance threshold. This illustrates the markers of educational management and educational management associated with each other. Therefore, educational management Significantly Influences the education leadership in shaping science education programs; furthermore, this indicates that any increment in the independent variable will correspondingly lead to an increase in the dependent variable. Meanwhile, the R^2 value of 0.872 suggests that the indicators of Educational Management explained 87.2% of the variance of students' academic success. This provides empirical evidence that the

variability of education leadership in shaping science education programs can be accounted for and explained by the indicators as enumerated under the extent of teachers' communication skills. In addition, the F-value shows all the sums of squares, with regression being the model and Residual being the error. The F-value (201.695) and F-statistic are significant $p < .002$, indicating that the model better predicts the education leadership in shaping science education programs in the Division of Island Garden City of Samal. Educational management is essential for teachers, as it significantly influences school academic success. The strategic planning, organization, decision-making, and implementation of policies and resource indicators substantially impact the school's science education programs. Eadens and Ceballos corroborated the results (as referenced in Culduz, 2023). Educational leadership impacts the overall quality of the student learning experience. Effective leaders cultivate a constructive and inclusive educational environment where students feel esteemed, secure, and inspired to learn. By cultivating a culture that honors diversity, encourages student participation, and facilitates collaboration, educational leaders improve the overall educational experience, resulting in heightened student happiness

and a more profound and comprehensive learning journey. This conclusion is corroborated by Brauckmann, Pashiardis, and Ärlestig (2023). Educational leaders are crucial in influencing the learning environment and establishing the atmosphere for the educational experience. They are tasked with formulating a vision for the school or educational institution and fostering a positive and inclusive culture that promotes student learning and development. They establish explicit expectations, implement successful procedures, and advise educators and personnel through their leadership. They promote collaboration and professional development opportunities to ensure educators possess the requisite tools and resources for delivering high-quality instruction. Moreover, educational leaders foster a secure and supportive atmosphere in which pupils feel esteemed, encouraged, and inspired to learn. They foster a sense of belonging and promote student engagement and active involvement in the educational process.

Table 4. Regression Coefficient Analysis on the Indicators of Educational Management That Significantly Influence the Educational Leadership in Shaping Science Education Programs

Model	B	Beta	Standard Error	p-value	Decision
H ₀ (Intercept)	4.389	–	0.052	< .001	–
H ₁ (Intercept)	0.410	–	0.144	0.006	–
Strategic Planning	0.031	-0.032	0.066	0.000	Reject H ₀
Organizational Management	0.349	0.361	0.084	0.003	Reject H ₀
Strategic Decision-Making	0.207	0.216	0.094	0.001	Reject H ₀
Implementation of Policies and Resources	0.397	0.416	0.089	0.0042	Reject H ₀
R² = 0.872 F-value = 201.695 p-value = < 0.002					

**Significant at p < 0.05*

4. Conclusions and Recommendations

This chapter discusses the research's focal points and the statistical analysis results. It also presents the conclusions and recommendations based on the study's findings.

4.1. Findings—This study aimed to determine the nexus between Management and Educational Leadership in Shaping the Junior Secondary Science Education Program in the Division of Island Garden City of Samal. The quantitative correlational research method was utilized. The finding revealed that management was presented with the corresponding indicators: strategic planning, organization, strategic decision-making, and implementation of policies and resources, which are descriptive equivalents of Extensive. This suggests that good management can create a supportive environment for innovation and encourage the implementation of new, more effective learning methods. Education management includes school leadership, teacher professional development,

resource management, and establishing a school culture that supports innovation. While educational leadership in shaping science education programs with the four indicators, namely, curriculum implementation, teacher training, resource allocation, and program development with extensive descriptive equivalents, Leadership plays a crucial role in shaping successful science education programs within a school as effective leaders can directly influence curriculum development, teacher support, resource allocation, and overall school culture, ultimately impacting student learning outcomes in science subjects; essentially, strong leadership is vital for creating a positive environment that fosters scientific inquiry and engagement among student.

4.2. Conclusions—Based on the overall findings of this research, the following conclusions are drawn: Management was extensive in strategic planning, organization, strategic decision-making, and implementation of policies and resources. Leadership inspires educators and students to pursue excellence, while management ensures that the necessary resources and processes are in place to support high-quality teaching and learning. This collaboration results in improved overall educational outcomes. The extent to which educational leadership shaped science education programs regarding curriculum implementation, teacher training, resource allocation, and program development was extensive. Significant relationships exist between management and educational leadership in shaping the Junior Secondary Science Education Program in Island Garden City of Samal Division. Domains in management significantly influenced educational leadership in shaping the Junior Secondary Science Education Program in Island Garden City of Samal Division. These indicators are strategic planning, organization, strategic decision-making, and policy and resource implementation. This conclusion is backed by

Bass's (1990) transformational leadership theory, which emphasizes the role of educational leaders in inspiring and motivating stakeholders to attain shared objectives. Transformational leaders enable teachers, students, and other stakeholders to innovate and cooperate in developing science education programs. So, it support in shaping science education programs and learners. The study was guided by the notion of Distributed Leadership, as defined by Spillane et al. (2001). This concept posits that leadership is shared among various individuals within an organization rather than restricted to formal leadership roles. In junior high school educational programs, dispersed leadership involves collaboration among educators, administrators, and other stakeholders in decision-making, curriculum development, and instructional improvement initiatives. This conclusion reflects how leadership and management theories examine how leaders and managers effectively direct and inspire individuals and teams to achieve organizational objectives. Their emphasis diverges leadership typically prioritizes vision and transformation, whereas management concentrates on efficiency and organization. Management theories, sometimes called transactional leadership, emphasize systems of rewards and penalties.

4.3. Recommendations—Based on the findings of the study, the following recommendations are offered for consideration: The school administration should understand its role in school development, and it may use effective educational management to achieve the desired academic outcome. School leaders may understand their role as vital in guiding an impactful educational management and leadership program to empower teachers with essential skills. They focus on cultivating a positive school culture, strategically planning for growth, leveraging data for informed decision-making, shaping a clear vision for student success, efficiently managing resources, promoting staff collabor-

ration, and leading with integrity. Throughout this process, they consistently prioritize student learning and well-being as the central tenet of their decision-making approach. They may also request the DepEd to organize or design a seminar for teachers on how to achieve more in their educational management skills and leadership in education shaping science education programs with the four indicators, namely, curriculum implementation, teacher training, resource allocation, and program development with extensive descriptive equivalents Teachers should have a positive attitude and know how to encourage the school leader to create more programs for the students to participate in despite the lack of budget. The teacher may provide day-to-day situations that are as desirable as possible so that the student's interest grows and he or she becomes motivated to develop in those areas that are the teacher's and student's goals. Individuals are motivated by their own needs. Lastly, a similar or comparative study exploring other indicators was suggested for the Link Between Management and Educational Leadership In Shaping Junior Secondary Science Education Programs.

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