

ORIGINAL ARTICLE

School Management Effectiveness, Educational Program Implementation, and Functional Literacy Outcomes: A Mediation Analysis

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ABSTRACT

Background: Functional literacy is a critical outcome of elementary education, yet persistent challenges in literacy development highlight the need to examine institutional factors beyond classroom instruction. In particular, limited evidence has integrated school management effectiveness, educational program implementation, and functional literacy outcomes within a mediational framework. **Objective:** This study examined the relationship between school management effectiveness and learners' functional literacy outcomes, with educational program implementation as a mediating variable, and developed a Sustainable Institutional Development Framework (SIDF). **Methods:** An explanatory-correlational, cross-sectional design was employed among 400 elementary teachers from selected public elementary schools in Cavite Province, Philippines. Data were collected using a researcher-developed, validated, and reliability-tested questionnaire. Descriptive statistics, Pearson's product-moment correlation, and regression-based mediation analysis with 5,000 bootstrap resamples and 95% confidence intervals were used. **Results:** School management effectiveness ($M = 4.18$, $SD = 0.46$), educational program implementation ($M = 4.16$, $SD = 0.45$), and functional literacy outcomes ($M = 4.09$, $SD = 0.47$) were rated high. Significant positive relationships were observed among management effectiveness, program implementation ($r = .742$, $p < .001$), and functional literacy ($r = .624$, $p < .001$). Educational program implementation also significantly predicted functional literacy ($r = .681$, $p < .001$). Mediation analysis demonstrated significant partial mediation ($\beta = .362$, 95% CI [.286, .445]), while the direct effect remained significant ($\beta = .262$, $p < .001$). **Conclusion:** Educational program implementation constitutes an important institutional mechanism linking school management effectiveness with functional literacy outcomes. The proposed SIDF integrates strategic leadership, program alignment, implementation fidelity, resource optimization, stakeholder engagement, monitoring, and institutionalization to support sustainable, evidence-informed school improvement.

I. INTRODUCTION

Functional literacy is a fundamental outcome of elementary education because it enables learners to understand, interpret, evaluate, communicate, and apply information across academic, social, and everyday contexts. In the Philippine setting, however, persistent difficulties in reading proficiency indicate that school participation alone does not necessarily translate into adequate literacy development. Evidence from the Programme for International Student Assessment (PISA) has consistently identified substantial challenges in reading performance among Filipino learners. Using a nationally representative sample of 6,591 Filipino 15-year-old students, Bernardo and Mante-Estacio (2023) found meaningful differences in reading proficiency associated with students' awareness and use of metacognitive reading strategies. Their findings underscore that literacy development depends not simply on exposure to schooling or texts but also on instructional and organizational processes that enable learners to construct meaning, monitor comprehension, and respond to learning difficulties.

The persistence of literacy difficulties likewise suggests that learner characteristics alone are insufficient to explain variation in literacy outcomes. Recent Philippine research has increasingly directed attention toward school-level and contextual conditions. Chaveza (2025), using PISA 2018 data,

examined student- and school-level predictors of reading literacy performance among Filipino students, highlighting the importance of considering the educational environment within which literacy learning occurs. Similarly, Tomas et al. (2021), based on more than 4,000 Filipino and English reading profiles from Grades 1 to 7, documented substantial reading difficulties and emphasized the need for contextualized literacy programs, reading recovery, and enrichment activities supported by school stakeholders. Collectively, these findings indicate that functional literacy is not solely an individual learner outcome but is also embedded within organizational arrangements involving instructional support, teacher capacity, school leadership, learner monitoring, program coordination, and stakeholder participation.

Within this institutional perspective, school management effectiveness may be understood as an organizational capacity through which schools establish priorities, mobilize resources, coordinate personnel, support instruction, monitor performance, engage stakeholders, and use evidence for continuous improvement. Effective management therefore extends beyond administrative compliance to encompass strategic planning, instructional leadership, teacher development, resource allocation, accountability, monitoring, and evidence-informed decision-making. Philippine evidence provides support for examining these organizational processes in relation to educational outcomes. Yongco (2026), for example, reported associations between leadership practices, teacher performance, and student achievement

in Philippine secondary schools. Although the study focused on the secondary level, its findings provide a relevant institutional basis for examining whether management-related processes are similarly associated with educational outcomes in elementary schools, where foundational literacy competencies are developed.

The institutional importance of school management is also reflected in Philippine education policy. Department of Education (DepEd) Order No. 83, s. 2012 established the revised School-Based Management (SBM) framework, emphasizing shared governance, accountability, stakeholder participation, and school-level decision-making. This policy direction is complemented by DepEd Order No. 12, s. 2015, which strengthened the Early Language, Literacy, and Numeracy Program, as well as DepEd Order No. 45, s. 2002 and DepEd Order No. 40, s. 2013, which provided policy support for reading initiatives and learner protection and support. More recent reforms under the Basic Education Development Plan (BEDP) 2030 and the MATATAG Curriculum have likewise emphasized foundational learning, teacher and instructional-leader competence, assessment, monitoring, and evidence-informed school improvement. These policy developments collectively position literacy improvement as an institutional responsibility requiring coordinated management rather than an activity confined to individual classrooms.

Nevertheless, the presence of policies and educational programs does not automatically ensure their effective translation into school-level practice. This distinction places educational program implementation at the center of the proposed explanatory model. Implementation refers to the extent to which policies, programs, and interventions are translated into consistent, adequately supported, monitored, and contextually responsive practices. In literacy education, this may include the delivery of reading interventions, learner assessment, remediation, teacher professional development, instructional supervision, parental engagement, resource provision, and continuous monitoring of learner progress. Tomas et al. (2021), for instance, demonstrated the need for structured literacy programs, individualized reading recovery, and enrichment activities that respond to specific learner difficulties.

Implementation research provides a theoretical basis for conceptualizing this process as an organizational mechanism rather than merely an administrative outcome. Contemporary implementation scholarship emphasizes that leadership can establish the organizational conditions necessary for programs and evidence-based practices to be adopted, delivered with fidelity, and sustained. Lyon et al. (2022), in developing and validating the School Implementation Leadership Scale, conceptualized strategic implementation leadership as a critical organizational influence that can create a supportive implementation climate. Their work is particularly relevant to education because leadership behaviors operate through organizational structures and processes that shape how educational practices are implemented. Similarly, research in elementary schools has demonstrated theoretically and empirically that implementation leadership may be associated with implementation climate, which can subsequently be related to fidelity of practice, although the strength of these relationships may vary according to the complexity of the intervention.

This perspective is especially applicable to the Philippine context, where implementation is shaped by the interaction between school leadership, institutional priorities, and local conditions. Brooks and Brooks (2024), examining policy implementation in Philippine schools, found that how educational policies were interpreted and implemented at the school level was influenced by individual, school, and community factors. Their findings illustrate that national policies do not operate mechanically; rather, school leaders and organizational actors interpret, prioritize, monitor, and translate policies into context-specific practices. Thus, management effectiveness can theoretically be positioned upstream of program implementation because management provides the organizational direction, resources, coordination, monitoring, and support through which programs are enacted.

The continuing structural challenges surrounding literacy further strengthen this argument. Gatcho and Sali (2026) argued that the Philippine literacy crisis is not merely a pedagogical concern but is connected to broader institutional and structural conditions. Their analysis of Reading Education programs identified shortages of Reading-trained faculty, weaknesses in institutional capacity, and policy and organizational conditions that may undermine the sustainability and quality of literacy education. This perspective is particularly relevant to elementary schools because literacy programs depend on the capacity of educational institutions to convert national

priorities into sustained school-level practices. Consequently, the quality and consistency of implementation may represent an important pathway through which organizational capacity is connected to learner literacy outcomes.

The theoretical model of the present study can therefore be grounded in a systems and implementation perspective of school improvement. From a systems-oriented view, educational outcomes emerge from interactions among organizational inputs, processes, and outcomes rather than from a single isolated factor. School management effectiveness represents an organizational input or enabling condition; educational program implementation represents an organizational process through which resources, leadership, policies, and institutional priorities are converted into actual practices; and functional literacy represents an educational outcome. This conceptual sequence is consistent with implementation and improvement research emphasizing the importance of organizational routines, leadership, measurement, and context in translating educational initiatives into sustained improvement. Recent school-improvement scholarship similarly emphasizes understanding the system producing educational problems, attending to variability, using measurement, and learning through disciplined inquiry rather than treating individual interventions as isolated activities.

Such a theoretical structure also provides a rationale for using perception-based measures to operationalize institutional constructs. School management effectiveness and program implementation are not single observable events occurring at one moment; they are multidimensional organizational processes involving planning, coordination, communication, resource mobilization, supervision, monitoring, participation, and implementation consistency. Many of these processes are experienced and observed by school personnel through repeated organizational interactions. Consequently, respondents' perceptions can serve as indicators of the experienced or perceived state of institutional processes, provided that the constructs are operationalized through theoretically grounded, multidimensional, and psychometrically sound measures. This approach is consistent with implementation research in which organizational leadership, implementation climate, readiness, and implementation conditions are frequently assessed through the perceptions of school personnel. For example, cross-sectional research involving school administrators has examined perceived training, knowledge, and barriers associated with implementation of evidence-based programs, while other school-based research has used teachers' perceptions to assess factors that facilitate or hinder implementation.

The use of perception-based measurement, however, should not be interpreted as equivalent to direct observation of implementation fidelity or as proof that organizational processes actually occurred in a particular temporal sequence. Rather, perceptions provide an empirically measurable representation of how institutional processes are experienced by organizational members at a defined point in time. This distinction is important for the methodological positioning of the present study. The proposed model does not assume that a single cross-sectional survey can establish definitive causal effects. Instead, it examines whether the observed pattern of associations is consistent with a theoretically specified institutional pathway in which management effectiveness is associated with program implementation and program implementation is associated with functional literacy. This distinction strengthens rather than weakens the conceptual integrity of the study because it recognizes the difference between statistical mediation as an empirical model and causal mediation as a stronger causal claim.

Indeed, mediation theory requires careful consideration of temporal ordering. Maxwell and Cole (2020) demonstrated that cross-sectional analyses can produce biased estimates when they are used to represent longitudinal mediation processes, because mediation theoretically unfolds over time. Subsequent methodological work has similarly emphasized that cross-sectional mediation cannot independently establish whether the presumed antecedent actually precedes the mediator or whether the mediator precedes the outcome. Longitudinal designs are therefore preferable when the objective is to make strong causal claims about temporal mediation.

Nevertheless, this methodological limitation does not make a theory-driven cross-sectional examination of institutional mediation conceptually meaningless. Rather, it requires the mediation model to be framed appropriately. In the present study, school management effectiveness is theoretically positioned as an antecedent because management functions such as strategic planning, resource allocation, supervision, teacher support, coordination, and monitoring are organizational conditions that precede and

enable program implementation. Educational program implementation is positioned as the mediator because programs constitute the mechanism through which managerial decisions and institutional capacity are translated into concrete educational practices. Functional literacy is positioned as the outcome because it represents the learner-level result toward which these institutional processes are ultimately directed. The temporal ordering is therefore derived from the organizational theory and established nature of the constructs, while the cross-sectional data provide evidence of their contemporaneous statistical relationships rather than definitive proof of temporal causation.

This distinction is particularly important because implementation itself is a process that may already have been occurring before the survey is administered. Respondents are not necessarily being asked to predict a future implementation process; rather, they can be asked to report their assessment of established management practices and the extent to which educational programs are currently implemented within their institutional context. The survey consequently captures a cross-sectional snapshot of an ongoing organizational system, rather than attempting to reconstruct a causal process from variables that are necessarily initiated and completed within the same survey moment. Such an approach is defensible for examining institutional perceptions and testing a theoretically specified indirect-association model, provided that the resulting findings are interpreted as evidence of association and model-consistent indirect effects, not as definitive evidence of causal mediation.

This conceptualization is also supported by implementation research demonstrating that leadership and implementation constructs can be empirically modeled as interconnected organizational conditions. For example, research examining school-based evidence-based practices has conceptualized implementation leadership, implementation climate, and fidelity as related components of an organizational implementation system. More recent work has explicitly examined implementation leadership and climate as potential mechanisms linking organizational leadership to implementation outcomes, while recognizing that prospective and longitudinal designs provide stronger evidence for temporal mechanisms. Thus, the proposed model is theoretically consistent with contemporary implementation science while appropriately limiting the interpretation of cross-sectional evidence.

The importance of examining implementation is further reinforced by the observation that similar educational policies or programs may produce different institutional experiences and outcomes across schools. Differences in leadership commitment, resource utilization, teacher support, stakeholder engagement, monitoring, organizational climate, and contextual responsiveness can influence how policies are translated into practice. Brooks and Brooks (2024) similarly showed in the Philippine context that policy implementation is shaped by localized organizational and contextual conditions. Consequently, the existence of a literacy program should not automatically be interpreted as evidence that the program is being implemented with consistency, adequacy, or fidelity. Examining implementation as a mediating construct therefore provides a theoretically meaningful way to investigate whether management effectiveness is statistically connected with literacy outcomes through the institutional processes that operationalize educational programs.

Recent Philippine research further indicates that reading performance is influenced by multiple interacting factors. Bernardo and Mante-Estacio (2023) demonstrated the relevance of metacognitive reading strategies to reading proficiency, while Chavez (2025) examined both student- and school-level predictors of reading literacy. Tomas et al. (2021) emphasized the need for differentiated and contextualized literacy interventions, while Gatcho and Sali (2026) highlighted institutional and structural dimensions of literacy education. Yongco (2026), meanwhile, provided evidence concerning leadership relationships with teacher and student outcomes. These studies collectively suggest that literacy outcomes should be examined through a multilevel institutional lens. However, these strands of evidence have largely been investigated separately, leaving limited empirical understanding of how school management effectiveness, program implementation, and functional literacy may be statistically connected within an integrated institutional model.

The research gap is therefore both substantive and methodological. Substantively, there remains limited Philippine evidence integrating school management effectiveness, educational program implementation, and functional literacy within a single explanatory framework, particularly in elementary schools. Methodologically, there is a need for empirical models

that recognize program implementation as an organizational mechanism while distinguishing statistically observed indirect associations from stronger causal claims that require temporal or experimental evidence. The present study addresses this gap by using a theory-informed cross-sectional perception-based survey to examine whether the proposed pattern of relationships among the three constructs is empirically supported. The study therefore treats mediation as a hypothesized institutional pathway, not as conclusive evidence that management effectiveness causally produces literacy outcomes through program implementation.

Against this background, the present study positions school management effectiveness as the institutional antecedent, educational program implementation as the theoretically specified mediating mechanism, and functional literacy as the learner-level outcome. The model assumes that management practices create organizational conditions for program implementation and that stronger implementation is associated with more favorable literacy outcomes. The cross-sectional design allows the study to estimate the strength and significance of the direct and indirect statistical relationships among these constructs at a defined period, while the theoretical framework supplies the rationale for the proposed direction of the relationships. The findings can subsequently serve as a basis for generating hypotheses for future longitudinal or multi-wave research capable of directly testing temporal precedence and causal mediation.

Elementary schools are particularly appropriate settings for this investigation because they constitute a critical institutional environment for developing foundational literacy competencies and translating national literacy, curriculum, and school-improvement reforms into school-level practice. Examining management, implementation, and literacy simultaneously therefore provides a more integrated perspective than examining learner outcomes independently from the organizational conditions in which learning occurs.

The study is expected to contribute to educational management, implementation research, and literacy scholarship in three principal ways. First, it will provide an integrated empirical model linking institutional management conditions with functional literacy outcomes through educational program implementation. Second, it will examine whether program implementation statistically functions as an indirect pathway connecting school management effectiveness and functional literacy, while maintaining appropriate caution regarding causal interpretation because of the cross-sectional design. Third, it will provide an evidence-based foundation for developing a sustainable institutional development framework that integrates strategic management, program implementation, teacher support, resource allocation, stakeholder participation, learner monitoring, and continuous improvement. Such a framework can assist school heads, teachers, supervisors, and policymakers in moving beyond program compliance toward coherent institutional practices that are strategically managed, systematically implemented, continuously evaluated, and ultimately oriented toward measurable improvements in elementary learners' functional literacy.

This study conducted a strategic situational analysis of school management effectiveness and learners' functional literacy outcomes, with educational program implementation examined as a mediating variable, as a basis for developing a Sustainable Institutional Development Framework. Specifically, the study determined the prevailing level of school management effectiveness, the extent of educational program implementation, and the level of learners' functional literacy outcomes; examined the relationships among these variables; determined whether educational program implementation significantly mediated the relationship between school management effectiveness and functional literacy outcomes; and developed a Sustainable Institutional Development Framework based on the empirical findings.

II. METHODS

The study employed an explanatory-correlational research design to examine the relationships among school management effectiveness, educational program implementation, and learners' functional literacy outcomes and to determine whether educational program implementation significantly mediated the relationship between school management effectiveness and functional literacy outcomes. The descriptive component established the prevailing levels of the three major constructs, while the correlational component determined the direction and strength of their associations. The explanatory component employed mediation analysis to examine the indirect effect of school management effectiveness on functional literacy outcomes

through educational program implementation. School management effectiveness was treated as the predictor variable, educational program implementation as the mediating variable, and functional literacy outcomes as the outcome variable. The design was appropriate because it enabled the empirical examination of naturally occurring relationships without manipulation of variables. Given the cross-sectional and nonexperimental nature of the study, the observed mediation effects were interpreted as statistical associations and indirect effects rather than causal relationships.

The study was conducted in selected public elementary schools in Cavite Province, Philippines, under the jurisdiction of the Department of Education (DepEd). The locale was selected because elementary schools implement national policies and educational programs focused on school-based management, foundational literacy, curriculum delivery, learner support, teacher development, assessment, and continuous school improvement. The participating schools represented varied educational contexts within the province, providing an appropriate setting for examining differences in school management effectiveness, educational program implementation, and functional literacy outcomes. The provincial context also enabled the study to examine how school-level management practices and program implementation operate within the broader Philippine basic education system. Data were obtained from 400 elementary teachers who met the established inclusion criteria and had sufficient professional experience and direct exposure to the management practices and educational programs examined in the study.

The study involved 400 elementary school teachers from selected public elementary schools in Cavite Province, Philippines, who served as the study respondents. A multistage sampling technique was employed to obtain an adequately distributed sample across participating schools. Schools were purposively identified based on their active implementation of DepEd educational programs and institutional willingness to participate, after which eligible teachers were proportionately stratified according to their respective school or district populations. Respondents were then selected through proportionate stratified random sampling to ensure appropriate representation across the identified strata. Eligible participants were currently employed elementary teachers who had served in their respective schools for at least one academic year, had direct exposure to school management practices and educational program implementation, and regularly interacted with elementary learners whose functional literacy outcomes they could assess. Teachers who had served for less than one year, were on extended leave during data collection, lacked sufficient exposure to the programs under investigation, or submitted substantially incomplete questionnaires were excluded. This sampling procedure yielded a final sample of 400 qualified elementary teachers, providing an appropriate empirical basis for the descriptive, correlational, and mediation analyses undertaken in the study.

The study used a researcher-developed structured questionnaire designed from the study framework, relevant empirical literature, and applicable Department of Education policies to measure school management effectiveness, educational program implementation, and learners' functional literacy outcomes. The instrument will consist of three scales: School Management Effectiveness, covering strategic leadership and decision-making, instructional leadership and supervision, resource management and allocation, stakeholder engagement and collaboration, and monitoring, evaluation, and continuous improvement; Educational Program Implementation, encompassing program planning and alignment, implementation fidelity, resource adequacy and utilization, stakeholder participation, monitoring and evaluation, and sustainability mechanisms; and Functional Literacy Outcomes, assessing reading and comprehension, writing and communication, numeracy and problem-solving, information and digital literacy, and application of literacy skills in real-life contexts. Responses will be recorded using a five-point Likert scale, with higher scores indicating stronger management effectiveness, more extensive program implementation, and higher functional literacy outcomes.

Prior to the main administration, the instrument underwent content and construct validation by five experts in educational management, elementary education, literacy education, and educational measurement. The expert review yielded an overall Content Validity Index (CVI) of 0.94, with item-level CVI values ranging from 0.80 to 1.00, indicating satisfactory content relevance and representativeness. Following minor revisions based on expert recommendations, the instrument was pilot-tested among 40 elementary teachers who were excluded from the final sample. Reliability analysis

demonstrated high internal consistency, with Cronbach's alpha coefficients of 0.93 for School Management Effectiveness, 0.95 for Educational Program Implementation, and 0.94 for Functional Literacy Outcomes, while the overall instrument obtained a reliability coefficient of 0.97. Subscale coefficients ranged from 0.88 to 0.94, exceeding the commonly accepted threshold of 0.70 and indicating satisfactory to excellent internal consistency. These validation and reliability results established the instrument as sufficiently valid and reliable for administration to the 400 elementary teacher respondents.

Data were collected from 400 elementary school teachers in selected public elementary schools in Cavite Province following the acquisition of the necessary institutional permissions and approval from the concerned education authorities and school heads. Prior to administration, the researcher explained the study's objectives, procedures, confidentiality provisions, and voluntary nature of participation, and obtained informed consent from all respondents. The validated and reliability-tested research instrument was administered through an authorized paper-based or secure online format, depending on the arrangements established with participating schools. Respondents were instructed to provide responses based on their actual professional experiences, observations, and involvement in school management and educational program implementation. Upon retrieval, accomplished questionnaires were screened for completeness and eligibility, after which the data were coded, encoded, and systematically organized for statistical analysis. Data cleaning procedures were undertaken to identify incomplete responses, duplicate entries, missing values, and potential inconsistencies before the final dataset was subjected to descriptive, correlational, and mediation analyses. Throughout the process, respondent confidentiality and data privacy were maintained, and the information collected was used solely for the purposes of the study.

The collected data were analyzed using descriptive and inferential statistical techniques consistent with the study objectives and research questions. Weighted mean and standard deviation were employed to determine the levels of effectiveness of school management, the extent of educational program implementation, and the level of learners' functional literacy outcomes across their respective dimensions. Pearson's product-moment correlation coefficient (r) was used to examine the direction and strength of the relationships among school management effectiveness, educational program implementation, and functional literacy outcomes, with statistical significance assessed at the 0.05 level. To test the proposed mediating mechanism, regression-based mediation analysis was conducted to estimate the direct, total, and indirect effects of school management effectiveness on functional literacy outcomes through educational program implementation. The significance of the indirect effect was evaluated using bootstrapping with 5,000 resamples and 95% confidence intervals, wherein mediation was established when the confidence interval for the indirect effect did not include zero. Prior to inferential analysis, relevant assumptions, including linearity, normality, multicollinearity, and the presence of influential outliers, were examined. The statistical findings served as the empirical basis for developing the proposed Sustainable Institutional Development Framework.

III. RESULTS AND DISCUSSION

Table 1
Level of School Management Effectiveness as Perceived by Elementary Teachers

Dimensions	Mean	SD	Interpretation	Rank
Strategic leadership and decision-making	4.19	0.47	High	3
Instructional leadership and supervision	4.27	0.48	High	1
Resource management and allocation	4.07	0.54	High	5
Stakeholder engagement and collaboration	4.15	0.51	High	4
Monitoring, evaluation, and continuous improvement	4.22	0.49	High	2
Overall	4.18	0.46	High	

The findings indicate that elementary teachers perceived school management effectiveness as high overall ($M = 4.18$, $SD = 0.46$) (Table 1). Among the dimensions, instructional leadership and supervision obtained the highest rating ($M = 4.27$, $SD = 0.48$), followed by monitoring, evaluation, and continuous improvement ($M = 4.22$, $SD = 0.49$). This pattern underscores the centrality of instructional leadership in effective school management, particularly in guiding teaching practices, strengthening instructional quality, and supporting teachers' professional work. This finding is consistent with Bellibaş et al. (2021), who reported that instructional leadership had a significant direct effect on instructional quality, while collaborative leadership

mechanisms further contributed through teacher collaboration and job satisfaction. Similarly, Shen et al. (2021) found that changes in teachers' perceptions of principal leadership were associated with changes in school performance, reinforcing the importance of leadership practices in school improvement.

The relatively high rating for monitoring, evaluation, and continuous improvement further suggests that teachers recognized the importance of systematic performance monitoring and improvement-oriented management. This is consistent with research showing that effective instructional leadership involves establishing instructional direction, monitoring teaching and learning, and creating conditions conducive to improved school performance. However, the results also reveal an important area for strategic attention. Resource management and allocation received the lowest, although still high, rating ($M = 4.07$, $SD = 0.54$), indicating comparatively greater variability in teachers' perceptions. This may suggest that resource-related practices are less consistently experienced across schools than instructional and monitoring functions.

Interestingly, the present finding contrasts with Lingam et al. (2021), whose teacher-based assessment found that supervision and evaluation of instruction were among the lower-rated instructional leadership practices, illustrating that the effectiveness of management practices may vary according to contextual, organizational, and leadership conditions. Thus, the present results suggest that school management effectiveness is relatively strong but not uniform across dimensions. The findings particularly point to the need to sustain instructional leadership and continuous improvement while strengthening equitable and strategic resource allocation. This interpretation is also relevant to Philippine school-management research, where resource constraints, stakeholder engagement, and implementation consistency remain important considerations in school-based management.

Table 2
Extent of Educational Program Implementation as Perceived by Elementary Teachers

Dimensions	Mean	SD	Interpretation	Rank
Program planning and alignment	4.25	0.47	High	1
Implementation fidelity	4.18	0.48	High	3
Resource adequacy and utilization	4.08	0.55	High	6
Stakeholder participation	4.14	0.51	High	4
Monitoring and evaluation	4.21	0.49	High	2
Sustainability mechanisms	4.11	0.53	High	5
Overall	4.16	0.45	High	

The findings indicate that educational programs were implemented to a high extent across the participating elementary schools ($M = 4.16$, $SD = 0.45$) (Table 2). Program planning and alignment obtained the highest rating ($M = 4.25$, $SD = 0.47$), followed by monitoring and evaluation ($M = 4.21$, $SD = 0.49$), suggesting that schools demonstrated relative strength in aligning programs with institutional priorities and systematically tracking implementation. This pattern is consistent with evidence that effective school-level implementation depends on coherent planning, monitoring, stakeholder participation, and continuous improvement mechanisms. In the Philippine context, Patiam (2025) similarly reported that school-based management requires stronger implementation fidelity, performance monitoring, and data-informed follow-through to ensure consistency in school-level practices.

The high rating for implementation fidelity ($M = 4.18$, $SD = 0.48$) further indicates that programs were generally carried out according to their intended procedures. This finding is supported by Ma et al. (2023), who emphasized that implementation integrity and fidelity are essential for determining whether school improvement initiatives are delivered as intended. Recent evidence in elementary literacy education likewise underscores implementation fidelity as a critical condition for translating evidence-based programs into meaningful instructional outcomes.

However, resource adequacy and utilization received the lowest rating ($M = 4.08$, $SD = 0.55$), accompanied by the largest variability, indicating that resource conditions may be less consistently experienced across schools. This result is particularly relevant to Philippine school-based management research, where resource management and implementation capacity have been identified as continuing concerns. Patiam (2025) reported challenges involving resource tracking and implementation follow-through, while Roque (2023) found that aspects of school-based management implementation were not fully realized in selected Philippine public schools.

Similarly, sustainability mechanisms ($M = 4.11$, $SD = 0.53$) and stakeholder participation ($M = 4.14$, $SD = 0.51$), although rated high, ranked below planning and monitoring. This suggests that schools may be more

effective in initiating and monitoring programs than in institutionalizing their continuity and broadening sustained stakeholder engagement. Such a pattern is important because school-based management emphasizes participatory governance and continuous improvement rather than one-time program implementation. Overall, the results indicate that educational program implementation is relatively strong, with planning, alignment, monitoring, and fidelity representing core strengths, while resource adequacy, stakeholder participation, and sustainability constitute strategic areas for institutional strengthening.

Table 3
Level of Learners' Functional Literacy Outcomes as Perceived by Elementary Teachers

Dimensions	Mean	SD	Interpretation	Rank
Reading and comprehension	4.18	0.49	High	1
Writing and communication	4.12	0.50	High	2
Numeracy and problem-solving	4.05	0.51	High	4
Information and digital literacy	4.01	0.56	High	5
Application of literacy skills in real-life contexts	4.08	0.52	High	3
Overall	4.09	0.47	High	

The findings indicate that learners' functional literacy outcomes were perceived as high overall ($M = 4.09$, $SD = 0.47$). Reading and comprehension obtained the highest rating ($M = 4.18$, $SD = 0.49$), followed by writing and communication ($M = 4.12$, $SD = 0.50$), suggesting that foundational language competencies remain relative strengths among learners. This pattern is consistent with evidence that reading comprehension is closely associated with higher-order learning and problem-solving, particularly when learners are required to interpret information and apply it to contextual tasks. For example, Fidelis et al. (2022) demonstrated a significant relationship between reading comprehension and mathematical problem solving among elementary learners, highlighting the foundational role of comprehension in broader academic competencies.

Application of literacy skills in real-life contexts also received a high rating ($M = 4.08$, $SD = 0.52$), indicating that learners were perceived to transfer literacy skills beyond conventional classroom activities. However, numeracy and problem-solving ($M = 4.05$, $SD = 0.51$) and particularly information and digital literacy ($M = 4.01$, $SD = 0.56$) were comparatively lower. The latter also showed the greatest variability, suggesting that learners' digital and information-literacy competencies may be less consistently developed. This finding is noteworthy because contemporary literacy extends beyond reading and writing to include the ability to critically access, evaluate, interpret, and use digital information. A systematic review by Ilomäki et al. (2023) identified digital, information, media, and technology literacy as increasingly important dimensions of literacy in school education, while also noting continuing challenges in developing these competencies.

The comparatively lower numeracy rating likewise warrants attention because functional literacy requires the integration of linguistic and quantitative competencies for authentic problem solving. Research involving elementary learners has shown that numeracy literacy and problem-solving competencies are closely interconnected, with difficulties emerging when learners must move from understanding a problem to planning and implementing an appropriate solution (Iswara et al., 2022). Thus, although the overall findings portray favorable literacy outcomes, the pattern suggests a foundational-to-digital competency gradient: learners appear relatively stronger in conventional reading and communication skills but less consistently proficient in digital information use and quantitative problem solving. This finding supports the need for school programs that move beyond foundational literacy toward integrated, contextualized, and digitally mediated functional literacy development.

Table 4
Correlations Among School Management Effectiveness, Educational Program Implementation, and Functional Literacy Outcomes

Variables	1	2	3
School management effectiveness	—	.742***	.624***
Educational program implementation	.742***	—	.681***
Functional literacy outcomes	.624***	.681***	—

Note. *** $p < .001$, two-tailed.

The correlation analysis revealed positive and statistically significant associations among all three study variables (Table 4). School management effectiveness was strongly associated with educational program implementation ($r = .742$, $p < .001$), while educational program implementation demonstrated a strong positive association with functional literacy outcomes ($r = .681$, $p < .001$). School management effectiveness was

likewise positively and significantly related to functional literacy outcomes ($r = .624, p < .001$). Collectively, these findings indicate that schools characterized by more effective management practices tended to demonstrate stronger educational program implementation and more favorable functional literacy outcomes.

The strong relationship between school management effectiveness and educational program implementation suggests that effective leadership, instructional supervision, resource management, stakeholder engagement, and continuous monitoring may create organizational conditions that facilitate the implementation of educational programs. This finding is consistent with Tan et al. (2024), whose three-level meta-analysis demonstrated positive associations between school leadership practices and student outcomes, particularly through instructional management, teacher capacity development, and stakeholder engagement. Similarly, Wu and Shen (2021) reported a significant positive association between principal leadership and student achievement, although the average effects reported in previous research were more modest than those observed in the present study.

The significant association between educational program implementation and functional literacy outcomes ($r = .681, p < .001$) further indicates that stronger implementation is associated with more favorable learner outcomes. This finding supports research emphasizing the importance of implementation fidelity, quality of delivery, and institutional support in translating educational programs into meaningful learning outcomes (van Dijk et al., 2023). Recent evidence likewise indicates that higher implementation fidelity can be associated with improvements in student achievement and engagement, particularly when supported by appropriate organizational conditions (Guo & Wang, 2025).

The significant relationship between school management effectiveness and functional literacy outcomes ($r = .624, p < .001$) further suggests that effective school management is associated with stronger learner outcomes. This relationship may reflect the broader influence of management practices on instructional quality, teacher support, resource provision, monitoring systems, and school improvement processes. Nevertheless, the correlational nature of the analysis does not establish causality. Rather, the findings demonstrate that the three variables are systematically related within participating elementary schools.

Taken together, the correlation pattern provides a strong empirical basis for examining educational program implementation as a potential mediating mechanism between school management effectiveness and functional literacy outcomes. The relatively strong association between school management effectiveness and educational program implementation ($r = .742$), combined with the substantial relationship between educational program implementation and functional literacy outcomes ($r = .681$), suggests that implementation may represent an important organizational pathway through which effective school management is associated with learner outcomes. However, mediation cannot be inferred from correlation coefficients alone and should be established through a formal test of the indirect effect using bootstrapped confidence intervals.

Table 5
Mediation Analysis of Educational Program Implementation in the Relationship Between School Management Effectiveness and Functional Literacy Outcomes

Mediation Path/Effect	β	SE	p	95% Bootstrap CI	Interpretation
Effect of school management effectiveness on educational program implementation	.742	.041	< .001	[.661, .822]	Significant
Effect of educational program implementation on functional literacy outcomes, controlling for school management effectiveness	.487	.058	< .001	[.373, .601]	Significant
Total effect of school management effectiveness on functional literacy outcomes	.624	.039	< .001	[.547, .701]	Significant
Direct effect of school management effectiveness on functional literacy outcomes after accounting for educational program implementation	.262	.055	< .001	[.154, .370]	Significant
Indirect effect of school management effectiveness on functional literacy outcomes through educational program implementation	.362	.041	< .001	[.286, .445]	Significant

The mediation analysis demonstrated that educational program implementation significantly partially mediated the relationship between school management effectiveness and learners' functional literacy outcomes (Table 5). School management effectiveness significantly predicted educational program implementation ($\beta = .742, p < .001$), while educational program implementation significantly predicted functional literacy outcomes after controlling for school management effectiveness ($\beta = .487, p < .001$).

The total effect of school management effectiveness on functional literacy outcomes was also significant ($\beta = .624, p < .001$). After educational program implementation was introduced into the model, the direct effect decreased to $\beta = .262 (p < .001)$ but remained statistically significant. More importantly, the indirect effect was significant ($\beta = .362, 95\% \text{ CI } [0.286, 0.445]$), as the bootstrap confidence interval did not contain zero. These results provide statistical evidence of partial mediation, indicating that the association between school management effectiveness and functional literacy outcomes operates partly through educational program implementation.

The significant association between school management effectiveness and educational program implementation suggests that effective management provides organizational conditions that facilitate the translation of institutional priorities into educational programs. Leadership practices involving instructional management, teacher capacity development, monitoring, and stakeholder engagement have been consistently associated with improved school processes and learner outcomes. A three-level meta-analysis of 108 studies by Tan et al. (2024) found positive associations between multiple school leadership practices and student outcomes, particularly practices related to instructional management, teacher capacity, and stakeholder engagement. Similarly, Shen and Wu (2025), using evidence from 42 empirical studies, reported positive direct and indirect associations between principal leadership and student achievement, supporting the view that leadership may influence learning outcomes through intervening organizational processes.

The significant effect of educational program implementation on functional literacy outcomes further indicates that the quality with which educational programs are implemented may be an important mechanism for translating school-level capacity into learner-level outcomes. This finding is consistent with van Dijk et al. (2023), whose systematic review of 50 reading intervention studies highlighted implementation fidelity—including adherence, dosage, and quality of delivery—as an important consideration in understanding relationships between educational interventions and student outcomes. More recent longitudinal evidence also indicates that high-fidelity implementation can be associated with improved student achievement and engagement, with institutional culture, administrative support, and staff preparedness contributing to implementation quality (Guo & Wang, 2025).

The partial rather than full mediation is particularly important. The persistence of a significant direct effect ($\beta = .262, p < .001$) indicates that educational program implementation does not fully account for the relationship between school management effectiveness and functional literacy outcomes. This suggests that management effectiveness may be associated with learner outcomes through additional institutional pathways, such as instructional leadership, teacher support, professional learning, resource provision, monitoring systems, and school improvement practices. This interpretation is consistent with meta-analytic evidence showing that principal behaviors are associated not only with student achievement but also with teacher instructional practices and broader school organizational conditions (Liebowitz & Porter, 2019).

Overall, the findings suggest that educational program implementation represents an important institutional mechanism through which school management effectiveness is associated with functional literacy outcomes. The significant indirect effect indicates that strengthening management capacity alone may not be sufficient; its translation into well-planned, faithfully implemented, adequately supported, and systematically monitored educational programs appears to be an important component of improving learner outcomes.

Nevertheless, because the analysis is based on cross-sectional data, the findings should be interpreted as evidence of a statistically supported mediating association rather than definitive causal mediation. The results provide a strong empirical basis for the proposed Sustainable Institutional Development Framework, particularly by emphasizing the need to connect management capacity with effective program implementation and learner-centered outcomes.

Based on the empirical findings, a Sustainable Institutional Development Framework (SIDF) is proposed to integrate school management effectiveness, educational program implementation, and functional literacy improvement within a coherent school-improvement system (Table 6). The framework is grounded in three central findings: school management effectiveness was strongly associated with educational program implementation, both management effectiveness and program implementation were significantly associated with functional literacy outcomes, and educational program implementation significantly partially mediated the relationship between management effectiveness and literacy outcomes. Accordingly, the framework positions strategic school management as the institutional foundation, educational program implementation as the principal operational mechanism, and functional literacy as the central learner outcome.

Table 6
Sustainable Institutional Development Framework

No.	Framework Component	Strategic Focus	Key Institutional Actions	Expected Outcome
1	Strategic and Instructional Leadership	Strengthen management capacity	Strategic decision-making, instructional supervision, evidence-based planning, teacher support, and alignment of school priorities	Stronger management effectiveness
2	Program Planning and Alignment	Ensure coherence between programs and learner needs	Align educational programs with school improvement priorities, learner assessment results, DepEd policies, and identified literacy gaps	Relevant and context-responsive programs
3	Implementation Fidelity	Improve quality and consistency of program delivery	Establish clear implementation standards, roles, timelines, monitoring mechanisms, and implementation protocols	Consistent and high-quality program implementation
4	Resource Optimization	Maximize institutional resources	Ensure equitable resource allocation, efficient utilization of instructional materials, technology, human resources, and program funds	Adequate and efficiently utilized resources
5	Stakeholder Engagement	Institutionalize shared responsibility	Strengthen collaboration among teachers, school heads, parents, learners, community partners, and other stakeholders	Sustained stakeholder participation
6	Literacy-Focused Instruction and Support	Improve foundational and functional literacy	Implement targeted reading, writing, numeracy, digital literacy, remediation, enrichment, and real-life application activities	Improved functional literacy outcomes
7	Monitoring, Evaluation, and Feedback	Establish continuous improvement	Use learner assessment, program indicators, teacher feedback, and school performance data for regular review and corrective action	Evidence-informed improvement
8	Sustainability and Institutionalization	Ensure continuity beyond individual programs	Embed successful practices in school policies, improvement plans, professional development, resource planning, and organizational routines	Sustainable institutional capacity

This configuration is supported by empirical evidence indicating that school leadership contributes to student outcomes through multiple organizational and instructional processes. Tan et al. (2024), based on a three-level meta-analysis of 108 studies and 493 independent effects, found that instructional management, teacher-capacity development, and stakeholder engagement were positively associated with student outcomes. Their findings

reinforce the importance of connecting leadership practices with the organizational processes through which teaching and learning are improved.

The first component of the SIDF, strategic and instructional leadership, therefore emphasizes evidence-based decision-making, instructional supervision, teacher support, and alignment of institutional priorities. This is consistent with the present finding that school management effectiveness was strongly associated with educational program implementation ($r = .742$, $p < .001$). Effective management is conceptualized not merely as administrative control but as the capacity to establish the organizational conditions necessary for translating school priorities into coordinated educational action.

The second and third components, program planning and alignment and implementation fidelity, constitute the core operational dimension of the framework. Programs should be aligned with learner needs, assessment evidence, school improvement priorities, and relevant educational policies, while implementation should be supported by clearly defined responsibilities, timelines, standards, and monitoring procedures. This emphasis is particularly warranted because implementation fidelity represents the mechanism through which institutional decisions are translated into actual educational practices. The significant indirect effect identified in the present study ($\beta = .362$, 95% CI [.286, .445]) provides empirical justification for placing program implementation at the center of the framework.

The fourth component, resource optimization, addresses a comparatively weaker dimension identified in the findings. Resource adequacy and utilization received the lowest ratings in both school management effectiveness and educational program implementation. The framework therefore emphasizes equitable resource allocation, efficient use of instructional materials and technology, human-resource deployment, and program financing. Philippine evidence similarly indicates that school-based management can contribute to improved educational outcomes when decision-making, resource flexibility, stakeholder participation, and school-level capacity are adequately supported. Ang et al. (2025), for example, reported a significant positive relationship between school-based management implementation and school-level educational outcomes in Philippine public schools, while also identifying leadership capacity and resource-related conditions as important implementation considerations.

The fifth component, stakeholder engagement, institutionalizes shared responsibility among school heads, teachers, parents, learners, community partners, and other education stakeholders. This component is supported by Tan et al. (2024), who identified stakeholder engagement as one of the leadership practices associated with student outcomes. In the Philippine setting, this emphasis is also consistent with the principles of school-based management, which position the school as an important unit of decision-making and community participation. Recent Philippine evidence further suggests that stronger stakeholder participation and local decision-making are associated with more favorable school outcomes, although implementation remains context dependent.

The sixth component, literacy-focused instruction and support, translates institutional capacity into learner-centered interventions. It prioritizes targeted reading and comprehension, writing and communication, numeracy and problem-solving, digital and information literacy, remediation, enrichment, and authentic application of literacy skills. This component responds directly to the present finding that functional literacy was generally high ($M = 4.09$, $SD = 0.47$), but that information and digital literacy and numeracy were comparatively weaker dimensions. Thus, the framework moves beyond a narrow conception of literacy toward an integrated model that addresses the competencies required for effective participation in academic, social, and real-life contexts.

The seventh component, monitoring, evaluation, and feedback, establishes the framework's continuous improvement mechanism. Learner assessment results, implementation indicators, teacher feedback, resource-use data, and school performance evidence should be systematically reviewed to identify implementation gaps and guide corrective action. This emphasis is consistent with Philippine research on school-based management, which has highlighted the importance of performance monitoring, accountability, and continuous improvement in strengthening school-level implementation. Patiam (2025), for instance, identified continuing variation in school-based management practices and emphasized the need for stronger compliance and performance-monitoring mechanisms in public elementary schools.

The eighth component, sustainability and institutionalization, ensures that effective practices are not dependent on individual projects, school leaders, or short-term interventions. Successful practices should be embedded in school

improvement plans, policies, professional learning systems, resource-allocation processes, stakeholder partnerships, and organizational routines. This institutionalization principle is particularly important because sustainable improvement requires schools to develop internal capacity to continuously identify needs, implement responses, evaluate results, and refine practices rather than treating educational programs as isolated initiatives.

Overall, the SIDF operates as a continuous institutional improvement cycle in which strategic assessment informs evidence-based planning; planning guides program implementation; implementation is supported by resources and stakeholder participation; monitoring generates evidence; feedback informs corrective action; and successful practices are institutionalized for sustained improvement. The framework therefore integrates the administrative, instructional, operational, and evaluative dimensions of school improvement rather than treating them as separate functions.

Most importantly, the framework gives educational program implementation a central mediating position. The mediation findings indicate that school management effectiveness is associated with functional literacy outcomes partly through the effective implementation of educational programs.

Thus, strengthening leadership capacity without strengthening implementation systems may not fully translate institutional effectiveness into improved learner outcomes.

The proposed SIDF consequently advances a shift from program compliance toward evidence-informed institutional transformation, in which management decisions are systematically translated into relevant programs, adequately resourced interventions, monitored implementation processes, and literacy-focused learner outcomes.

The framework ultimately conceptualizes sustainable institutional development as an integrated and iterative process of management, implementation, learning, evaluation, and institutionalization. Its central proposition is that effective school management becomes educationally consequential when it is translated into coherent and faithfully implemented programs that respond to identified learner needs. In this sense, the SIDF provides a practical institutional architecture for connecting management capacity with educational program quality and, ultimately, functional literacy improvement.

sustainable educational improvement is not achieved through isolated interventions but through the interconnection of leadership, program planning, implementation, resources, stakeholder participation, literacy-focused instruction, monitoring, and institutionalization.

At the core of the framework is Strategic and Instructional Leadership, which establishes the foundation for evidence-based decision-making, instructional supervision, teacher support, and alignment of institutional priorities. This is followed by Program Planning and Alignment, ensuring that educational interventions respond to learner's needs, assessment evidence, identified literacy gaps, and policy directions. Implementation Fidelity then translates these plans into consistent and quality educational practices through clearly defined standards, responsibilities, timelines, and monitoring mechanisms.

The framework further highlights Resource Optimization and Stakeholder Engagement as enabling conditions for effective implementation. Equitable allocation and efficient use of resources provide the necessary institutional support, while collaboration among teachers, school heads, parents, learners, and community partners promote shared accountability. These processes directly support Literacy-Focused Instruction and Support, targeting reading, writing, numeracy, digital literacy, remediation, enrichment, and real-life application of skills.

Importantly, Monitoring, Evaluation, and Feedback functions as a continuous mechanism for evidence-informed improvement. Learner assessment results, program indicators, teacher feedback, and school performance data are used to identify gaps and guide corrective actions. Successful practices are subsequently embedded through Sustainability and Institutionalization, integrating effective strategies into school policies, improvement plans, professional development, resource planning, and organizational routines.

Overall, the framework proposes that sustainable institutional capacity emerges from a continuous feedback loop in which strategic leadership informs planning, planning guides implementation, resources and stakeholders enable delivery, literacy interventions generate outcomes, and monitoring provides evidence for further improvement. Thus, the framework positions functional literacy improvement not merely as an instructional concern but as an institution-wide, evidence-driven, and sustainable development process.

IV. LIMITATIONS

The study is subject to several limitations. First, its cross-sectional and nonexperimental design limits the interpretation of the findings to statistical associations and does not establish causal relationships among school management effectiveness, educational program implementation, and functional literacy outcomes. Second, the data were based primarily on the perceptions of 400 elementary teachers from selected public schools in Cavite Province, which may limit the generalizability of the findings to other educational contexts. Third, the assessment of functional literacy outcomes relied on teacher perceptions rather than direct standardized measures of learner achievement. Finally, although the mediation analysis identified a significant indirect effect, the results should be interpreted as evidence of statistical mediation rather than definitive causal mediation. These limitations should be considered when interpreting the findings and applying the proposed Sustainable Institutional Development Framework beyond the study setting.

V. CONCLUSION

The study establishes that school management effectiveness, educational program implementation, and learners' functional literacy outcomes are significantly and positively interconnected in the participating public elementary schools. School management effectiveness and educational program implementation were both rated high, while functional literacy outcomes were likewise favorable. However, comparatively lower ratings in resource management, resource adequacy and utilization, sustainability mechanisms, stakeholder participation, numeracy and problem-solving, and information and digital literacy indicate areas requiring sustained institutional attention.

The correlation findings demonstrate substantial positive associations among school management effectiveness, educational program



Figure 1

Proposed Sustainable Institutional Development Framework

The Sustainable Institutional Development Framework illustrates a holistic and cyclical approach to strengthening school capacity and improving functional literacy outcomes (Figure 1). The framework emphasizes that

implementation, and functional literacy outcomes. More importantly, mediation analysis confirmed that educational program implementation significantly partially mediates the relationship between school management effectiveness and functional literacy outcomes (indirect effect = 0.362, 95% CI [0.286, 0.445]). The persistence of a significant direct effect ($\beta = 0.262$, $p < .001$) further indicates that management effectiveness is statistically associated with literacy outcomes through program implementation as well as through other institutional and instructional pathways.

These findings suggest that effective school management becomes more educationally consequential when institutional priorities are translated into coherent, adequately supported, faithfully implemented, and systematically monitored educational programs. Accordingly, the study proposes the Sustainable Institutional Development Framework (SIDF), which integrates strategic and instructional leadership, program planning and alignment, implementation fidelity, resource optimization, stakeholder engagement, literacy-focused support, monitoring and evaluation, and institutionalization. The framework positions program implementation as a critical mechanism linking management capacity with learner outcomes.

Overall, the study concludes that sustainable improvement in functional literacy requires an integrated institutional approach rather than isolated instructional interventions. Strengthening leadership must therefore be accompanied by robust implementation systems, strategic resource utilization, stakeholder collaboration, continuous monitoring, and institutionalization of effective practices.

However, the reported relationships involving functional literacy outcomes are based on teacher-reported perceptions and should not be interpreted as independently verified measures of learners' actual literacy performance. In particular, the study did not directly validate these outcomes using standardized or independently administered student assessment scores. Thus, the findings primarily reflect how teachers perceived school management, program implementation, and learners' functional literacy within the participating schools.

Given the cross-sectional nature of the study, the mediation findings should likewise be interpreted as statistically supported associations rather than causal effects. Future research may strengthen the evidence base by integrating independent learner assessment results, longitudinal data, and multiple sources of outcome evidence to validate and further examine the proposed relationships.

Author Contributions

All authors contributed to the development and completion of the study. The authors participated in the conceptualization and formulation of the research objectives and framework. The study methodology, research instrument development, data collection, statistical analysis, interpretation of findings, and development of the Sustainable Institutional Development Framework were undertaken collaboratively by the research team. All authors contributed to the preparation, critical review, and revision of the manuscript and approved the final version for submission. All authors assume responsibility for the integrity, accuracy, and scholarly presentation of the work.

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Ethics Approval and Informed Consent

The study was conducted in accordance with appropriate ethical principles governing research involving human participants. Necessary institutional permissions were obtained from the concerned education authorities and school heads prior to data collection. The researchers explained the objectives, procedures, confidentiality provisions, and voluntary nature of participation to all respondents, and informed consent was obtained before participation. Respondent confidentiality and privacy were maintained throughout data collection, processing, and analysis, and the information obtained was used solely for the purposes of the study.

Competing Interests

The authors declare that there are no competing interests that could have influenced the conduct, analysis, or reporting of this study.

Data Availability

The data generated and analyzed during this study are not publicly available due to confidentiality and ethical considerations concerning the participating schools, education personnel, and other respondents. The data may be made available from the corresponding author upon reasonable request, subject to appropriate ethical, institutional, and data-protection requirements.

Declaration of AI Use

The authors disclose that artificial intelligence (AI) tools were used solely as supplementary assistance during the preparation of this manuscript, particularly for language refinement, grammar checking, and improvement of clarity and organization. AI tools were not used to generate, fabricate, manipulate, or interpret the research data, statistical results, or empirical findings. The authors retain full responsibility for the accuracy, originality, integrity, interpretation, and final content of the manuscript and have reviewed and verified all AI-assisted outputs prior to submission.

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References

- Ang, J. V., Adlit, M. F., Docdoc, V. A., Comeros, J. S., & Lagnason-Pacheco, L. (2025). School-based management implementation and educational outcomes in Philippine public schools: An explanatory sequential inquiry. *Edelweiss Applied Science and Technology*, 9(4), 2625–2644. <https://doi.org/10.55214/25768484.v9i4.6611>
- Bellibaş, M. S., Gümüş, S., & Liu, Y. (2021). Does school leadership matter for teachers' classroom practice? The influence of instructional leadership and distributed leadership on instructional quality. *School Effectiveness and School Improvement*, 32(3), 387–412. <https://doi.org/10.1080/09243453.2020.1858119>
- Bernardo, A. B. I., & Mante-Estacio, M. J. (2023). Metacognitive reading strategies and its relationship with Filipino high school students' reading proficiency: Insights from the PISA 2018 data. *Humanities and Social Sciences Communications*, 10, 400. <https://doi.org/10.1057/s41599-023-01886-6>
- Brooks, J. S., & Brooks, M. C. (2024). Hot leadership, cool leadership: How education policies are implemented (and ignored) in schools. *Educational Policy*, 38(7), 1608–1637. <https://doi.org/10.1177/08959048241268309>
- Chaveza, V. L. A. (2025). Assessing student and school level predictor variables of reading literacy performance in the Philippines. *Pedagogies: An International Journal*. <https://doi.org/10.1080/1554480X.2025.2564361>
- Department of Education. (2002). Reading literacy program (DepEd Order No. 45, s. 2002). <https://www.deped.gov.ph/>
- Department of Education. (2012). Revised school-based management (SBM) framework (DepEd Order No. 83, s. 2012). <https://www.deped.gov.ph/>
- Department of Education. (2013). Every Child a Reader Program (ECARP) (DepEd Order No. 40, s. 2013). <https://www.deped.gov.ph/>
- Department of Education. (2015). Guidelines on the implementation of the Early Language, Literacy, and Numeracy Program: Professional development component (DepEd Order No. 12, s. 2015). <https://www.deped.gov.ph/>
- Department of Education. (2017). Guidelines for the utilization of funds for the Early Language, Literacy, and Numeracy Program (DepEd Order No. 18, s. 2017). <https://www.deped.gov.ph/>
- Department of Education. (2022). Adoption of the Basic Education Development Plan 2030 (DepEd Order No. 24, s. 2022). <https://www.deped.gov.ph/>
- Eyala, K., & Te'eni-Harari, T. (2024). Systematic review: Characteristics and outcomes of in-school digital media literacy interventions, 2010–2021. *Journal of Children and Media*, 18(1), 8–28. <https://doi.org/10.1080/17482798.2023.2265510>
- Fidelis, J. M., Nogueira, C. P., Lima, E. M., & Dorneles, B. V. (2022). A influência da compreensão leitora na resolução de problemas matemáticos: Um estudo com crianças de 3º e 4º anos do ensino fundamental. *Educação Matemática Pesquisa*, 24(1), 456–485. <https://doi.org/10.23925/1983-3156.2022v24i1p456-485>
- Gatcho, A. R. G., & Sali, F. Z. V. (2026). The paradox of graduate programs in Reading Education in the Philippines amid a literacy crisis. *Frontiers in Education*, 11, 1721429. <https://doi.org/10.3389/feduc.2026.1721429>
- Guo, P., & Wang, Z. (2025). Implementation fidelity of universal design for learning and effects on student achievement, engagement and belonging. *Scientific Reports*, 15, 45430. <https://doi.org/10.1038/s41598-025-30079-1>

- Ilomäki, L., Lakkala, M., Kallunki, V., Mundy, D., Romero, M., Romeu, T., & Gouseti, A. (2023). Critical digital literacies at school level: A systematic review. *Review of Education*, 11(3), e3425. <https://doi.org/10.1002/rev3.3425>
- Iswara, H. S., Ahmadi, F., & Ary, D. D. (2022). Numeracy literacy skills of elementary school students through ethnomathematics-based problem solving. *Interdisciplinary Social Studies*, 2(2), 1604–1616. <https://doi.org/10.55324/iss.v2i2.316>
- Liebowitz, D. D., & Porter, L. (2019). The effect of principal behaviors on student, teacher, and school outcomes: A systematic review and meta-analysis of the empirical literature. *Review of Educational Research*, 89(5), 745–782. <https://doi.org/10.3102/0034654319866133>
- Lingam, G. I., Lingam, N., & Singh, S. K. (2021). Instructional leadership practices: Teachers' perceptions of a rural school principal in Fiji. *Australian Journal of Teacher Education*, 46(6), 20–35. <https://doi.org/10.14221/ajte.2021v46n6.2>
- Lyon, A. R., Corbin, C. M., Brown, E. C., Ehrhart, M. G., Locke, J., Davis, C., Picozzi, E., Aarons, G. A., & Cook, C. R. (2022). Leading the charge in the education sector: Development and validation of the School Implementation Leadership Scale (SILS). *Implementation Science*, 17, Article 48. <https://doi.org/10.1186/s13012-022-01222-7>
- Ma, X., Shen, J., & Reeves, P. (2023). Measuring integrity and fidelity of program implementation: Validating an instrument designed for school renewal. *Evaluation and Program Planning*, 100, 102341. <https://doi.org/10.1016/j.evalprogplan.2023.102341>
- Maxwell, S. E., & Cole, D. A. (2020). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods*, 12(1), 23–44. <https://doi.org/10.1037/1082-989X.12.1.23>
- Patiam, A. M. C. (2025). Evaluation of contextualized SBM practices in selected public elementary schools in the Philippines: Inputs for compliance and performance monitoring. *Educational Process: International Journal*, 18, e2025514. <https://doi.org/10.22521/edupij.2025.18.514>
- Roque, J. (2023). The effect of the implementation of school-based management in decision makers and stakeholders of selected public schools in the Philippines. *Journal for Educators, Teachers and Trainers*, 14(2). <https://doi.org/10.47750/jett.2023.14.02.028>
- Shen, J., Ma, X., Mansberger, N., Wu, H., Palmer, L. A. B., Poppink, S., & Reeves, P. L. (2021). The relationship between growth in principal leadership and growth in school performance: The teacher perspective. *Studies in Educational Evaluation*, 70, 101023. <https://doi.org/10.1016/j.stueduc.2021.101023>
- Shen, J., & Wu, H. (2025). The relationship between principal leadership and student achievement: A multivariate meta-analysis with an emphasis on conceptual models and methodological approaches. *Educational Administration Quarterly*, 61(2), 234–281. <https://doi.org/10.1177/0013161X241286527>
- Tan, C. Y., Dimmock, C., & Walker, A. (2024). How school leadership practices relate to student outcomes: Insights from a three-level meta-analysis. *Educational Management Administration & Leadership*, 52(1), 28–51. <https://doi.org/10.1177/17411432211061445>
- Tomas, M. J. L., Villaros, E. T., & Galman, S. M. A. (2021). The perceived challenges in reading of learners: Basis for school reading programs. *Open Journal of Social Sciences*, 9, 107–122. <https://doi.org/10.4236/jss.2021.95009>
- van Dijk, W., Lane, H. B., & Gage, N. A. (2023). How do intervention studies measure the relation between implementation fidelity and students' reading outcomes? A systematic review. *The Elementary School Journal*, 124(1). <https://doi.org/10.1086/725672>
- Villanueva, J. S., & Ortega-Dela Cruz, R. (2024). The praxis of school-based management on curriculum and learning in the Philippines. *International Journal of Social Sciences & Educational Studies*, 6(2), 89–101. <https://doi.org/10.23918/ijsses.v6i2p89>
- Wu, H., & Shen, J. (2021). The association between principal leadership and student achievement: A multivariate meta-meta-analysis. *Educational Review*, 75, 1–20. <https://doi.org/10.1016/j.edurev.2021.100423>
- Yongco, J. S. (2026). Impact of leadership styles on teacher performance and student achievement in Philippine secondary schools. *Discover Sustainability*, 7, 491. <https://doi.org/10.1007/s43621-026-02794-w>