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Optimizing Literacy and Numeracy Skills Through Multilevel Support Systems and Context-Based Pedagogical Interventions

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Abstract

This study assessed the implementation of multilevel support systems and context-based pedagogical interventions to address foundational literacy and numeracy gaps across five public elementary and secondary schools in the Third Congressional District, Division of Leyte, during School Year 2026–2027. Data were collected from sixty-five (N = 65) purposively selected respondents—comprising five school heads, thirty language teachers, and thirty mathematics teachers across San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School—and analyzed using frequency counts, percentage distributions, weighted means, and standard deviations. Findings revealed that while respondents possessed solid instructional experience and graduate credits, they lacked intensive clinical diagnostic training. Learners demonstrated an overall "Moderately Mastered" proficiency in foundational literacy ($\bar{x} = 2.21$) and foundational numeracy ($\bar{x} = 2.20$), showing pronounced deficits in inferential comprehension, reading fluency, and contextual word problem-solving. Multilevel support systems were "Moderately Implemented" overall ($\bar{x} = 2.40$); universal screening (Tier 1) was routinely executed, but targeted group clinics (Tier 2) and intensive individualized remediation (Tier 3) were constrained by schedule conflicts and limited material support. Similarly, context-based pedagogical interventions were "Moderately Utilized" ($\bar{x} = 2.42$), relying mostly on accessible concrete manipulatives rather than systemic integration of local agricultural, coastal, and cultural narratives. Implementation hurdles were perceived as "Serious" ($\bar{x} = 3.20$), driven by heavy teacher workloads, instructional time poverty, seasonal learner absenteeism, and shortages of vetted localized materials. To bridge these gaps, the study designed the LEYTE-PULSE Framework (Pedagogical Upliftment through Localized Systems and Tiered Empowerment), an actionable 10-point roadmap that institutionalizes protected remedial corridors, quality-assures localized curriculum repositories, enhances clinical diagnostic coaching, and establishes school-barangay study pods to secure sustainable learning recovery.

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1. The Problem and Its Scope

Introduction

Rationale of the Study

The acquisition of foundational literacy and numeracy competencies constitutes the indispensable bedrock upon which all subsequent intellectual development, socio-economic mobility, and civil participation are established.

Across the contemporary international educational landscape, educational systems are confronted with an unprecedented learning crisis characterized by widening diagnostic deficits in reading comprehension, phonological decoding, numerical cognition, and contextualized mathematical problem-solving**.** This global phenomenon was severely magnified by the widespread systemic disruptions occurring between 2020 and 2023, which catalyzed severe regression in foundational cognitive milestones among primary and early secondary learners. Recent international benchmark reports by the United Nations Educational, Scientific and Cultural Organization and the World Bank have documented that learning poverty in low- and middle-income nations escalated to historic levels, with an alarming proportion of children unable to read or comprehend a simple age-appropriate sentence by the age of ten (World Bank, 2022; UNESCO, 2023).

Global longitudinal assessments, including consecutive cycles of the Programme for International Student Assessment, have revealed that when foundational proficiencies are compromised during Key Stages 1 and 2, learners systematically manifest enduring cognitive gaps that persist into lower secondary education, rendering advanced curricular competencies largely inaccessible (OECD, 2023). Scholars examining this international predicament maintain that conventional, one-size-fits-all instructional paradigms remain fundamentally ill-equipped to remediate cumulative learning deficits, thereby demanding systemic transitions toward differentiated, multi-tiered structural architectures and pedagogies rooted in the tangible realities of learners (Gouëdard et al., 2020; Haelermans et al., 2022).

Within the international educational discourse, the systemic implementation of multi-tiered systems of support has gained prominent empirical validation as an optimal operational framework for arresting foundational learning decline. Originating within tiered prevention paradigms, multilevel architectures systematically stratify academic support into high-quality universal classroom instruction, targeted small-group clinic sessions, and high-intensity clinical interventions tailored for severe instructional non-responders.

Contemporary scholarship affirms that when schools deploy structured multi-tiered interventions accompanied by continuous formative progress monitoring, instructional systems succeed in capturing vulnerable learners prior to the calcification of academic failure (Fuchs et al., 2021; Carta et al., 2023). Simultaneously, international educational researchers have placed profound emphasis on context-based pedagogy, demonstrating that cognitive schemas are activated with significantly greater efficiency when

abstract numerical operations and textual decoding are embedded within familiar sociocultural and environmental paradigms (Azevedo & Bernard, 2021; Krajcik et al., 2023). When instructional methodologies isolate literacy and numeracy from the daily lived experiences of children, learners perceive academic concepts as disconnected symbolic exercises rather than functional survival mechanisms (Guthrie et al., 2021). Consequently, international paradigms increasingly converge on the necessity of fusing multi-tiered structural support systems with localized instructional designs to achieve sustained foundational learning recovery across diverse school settings.

At the national level, the Philippine basic education system faces an urgent structural emergency regarding the mastery of basic literacy and numeracy. The results of consecutive international large-scale assessments, including the Programme for International Student Assessment, the Trends in International Mathematics and Science Study, and the Southeast Asia Primary Learning Metrics, consistently placed Filipino learners at the lowest performance quintiles, underscoring severe systemic deficits in fundamental reading literacy and elementary mathematical fluency (Department of Education, 2021; Bernardo et al., 2023). Diagnostic profiling conducted under the Comprehensive Rapid Literacy Assessment and the Early Grade Reading and Math Assessments substantiated that a profound percentage of learners advancing into junior high school continue to perform within the frustration reading band and demonstrate acute operational dyscalculia (David et al., 2022; San Antonio et al., 2024). In direct response to these alarming national outcomes, the Department of Education instituted aggressive instructional recalibrations, characterized by the launching of the National Reading Program, the National Mathematics Program, and the phased implementation of the revised MATATAG Curriculum designed to decongest learning competencies and prioritize foundational skills (Department of Education, 2023). Nevertheless, educational analysts observe that national policy directives frequently encounter execution bottlenecks at the school level, where instructional personnel struggle to reconcile standardized national learning targets with the heterogeneous, remediated profiles of actual student cohorts (Alontaga et al., 2022; Blando & Morales, 2025).

The systemic friction observed nationally is particularly pronounced within the public school system of the Province of Leyte. Schools operating within rural, agricultural, and coastal corridors across the Division of Leyte reflect the compounded vulnerabilities of geographic dispersion, post-disaster socio-economic recovery, and instructional resource limitations. In the northwestern municipalities of Leyte, encompassing the coastal, agricultural, and semi-rural environments of Tabango, San Isidro, and Calubian, educators confront a bifurcated instructional crisis. Primary schools, represented in this investigation by Gibacungan Elementary School and Pining Paglingap Elementary School in Tabango, bear the intensive burden of establishing foundational literacy and numeracy under conditions marked by dialectical language transitions, limited access to localized supplementary reading materials, and socio-economic hardships that disrupt regular school attendance. Concurrently, secondary institutions, such as San Isidro National High School, Calubian National High School, and Felix Caneja Lafuente National High School, routinely receive primary school graduates who carry unresolved, multi-grade foundational deficits into Key Stage 3. This feeder-to-secondary disconnect forces secondary subject teachers to function as informal remedial reading and numeracy instructors without the institutional benefit of formalized, multi-tiered intervention systems or diagnostic instructional instruments.

The contextual reality of Northwestern Leyte provides a compelling imperative for the institutional integration of context-based pedagogical interventions. The daily lives of learners across Tabango, San Isidro, and Calubian are deeply intertwined with small-scale coastal fishing, municipal market trade, copra production, and rice and corn agriculture. Despite this rich experiential domain, classroom instruction frequently continues to employ standardized, urban-centric, or decontextualized examples that fail to resonate with the cognitive background knowledge of rural learners. When mathematics word problems are framed around unfamiliar corporate or commercial situations, or when reading selections depict environments entirely detached from rural Leyteño culture, learners must overcome unnecessary cognitive friction before they can begin to process basic textual meaning or numerical relationships. Contemporary regional studies confirm that grounding reading selections in local folklore, historical narratives, and community affairs, while framing mathematical problem-solving around local commercial transactions, catch yields, and crop cycles, markedly elevates learner engagement, conceptual comprehension, and information retention among rural Visayan students (Dela Cruz & Tan, 2022; Montebon & Espinosa, 2024).

The critical relevance of this study is grounded in its holistic, cross-level structural approach to foundational learning recovery within this specific geographic corridor. While prevailing institutional interventions in the division frequently treat literacy and numeracy as isolated administrative concerns or implement fragmented remedial sessions devoid of systemic tracking, this investigation examines the operational interface between tiered intervention mechanisms and localized instructional delivery. By capturing the evaluative perspectives of school heads, language educators, and mathematics teachers across both elementary feeder stations and secondary receiving institutions, the study provides a comprehensive diagnostic assessment of how instructional differentiation is operationalized at the classroom level, how targeted clinics are structured for vulnerable learners, and how severe learning difficulties are addressed. Furthermore, this empirical inquiry establishes the direct institutional justification for formulating the LEYTE-PULSE Framework (Pedagogical Upliftment through Localized Systems and Tiered Empowerment), delivering an evidence-based, actionable roadmap designed to institutionalize scaffolded, culturally responsive foundational instruction that sustainably transforms educational outcomes across Northwestern Leyte.

Theoretical Background

This empirical investigation is anchored upon a complementary triad of foundational and contemporary educational theories that collectively explicate the mechanisms of cognitive development, structural instructional scaffolding, and situated learning. Primarily, the study is grounded in Lev Vygotsky's Sociocultural Theory of Cognitive Development, specifically focusing on the construct of the Zone of Proximal Development and the instructional principle of scaffolding, which have undergone extensive empirical re-examination and operational refinement in contemporary educational research (Smagorinsky, 2020; Shabani et al., 2022). Vygotskian theory posits that human intellectual functioning is fundamentally mediated through social interaction, language, and cultural artifacts, with optimal learning occurring within the space between a learner's actual developmental level determined by independent problem-solving and the higher level of potential development determined through problem-solving under adult guidance or in collaboration with more capable peers. In the context of foundational literacy and numeracy, contemporary scholars highlight that without systematic, dynamic scaffolding, learners stranded in acute

deficit cycles cannot bridge the cognitive chasm separating rudimentary decoding from critical comprehension, or basic rote counting from conceptual mathematical application (Puntambekar, 2022; Wood et al., 2023). Within this investigation, the Zone of Proximal Development provides theoretical legitimacy for deploying tiered levels of instructional support, wherein external pedagogical assistance is intentionally calibrated to the precise diagnostic threshold of the learner and systematically withdrawn as foundational autonomy is consolidated.

To provide the operational architecture for translating sociocultural scaffolding into school-wide practice, this research is theoretically anchored upon the Multi-Tiered System of Supports and Response to Intervention frameworks, as conceptualized and expanded in contemporary literature by leading instructional systems scholars (Fuchs & Fuchs, 2020; Jimerson et al., 2021; Berkeley et al., 2024). Multi-Tiered System of Supports represents a preventative, data-driven instructional continuum that restructures institutional delivery into three progressively intensive tiers of academic intervention. Tier 1 encompasses universal, high-quality differentiated core instruction delivered to all students within the regular classroom environment, designed to effectively meet the instructional needs of the broad majority. Tier 2 introduces supplemental, targeted small-group remedial sessions and skill clinics explicitly designed for learners who demonstrate insufficient progress under universal instruction. Tier 3 reserves intensive, individualized, diagnostic clinical interventions for learners who manifest acute, persistent learning difficulties that do not respond to secondary interventions. Modern empirical studies on Multi-Tiered System of Supports demonstrate that the framework's efficacy is contingent upon structural fidelity, continuous diagnostic progress monitoring, and dedicated administrative support (Sugai & Horner, 2020; Al Otaiba et al., 2023).

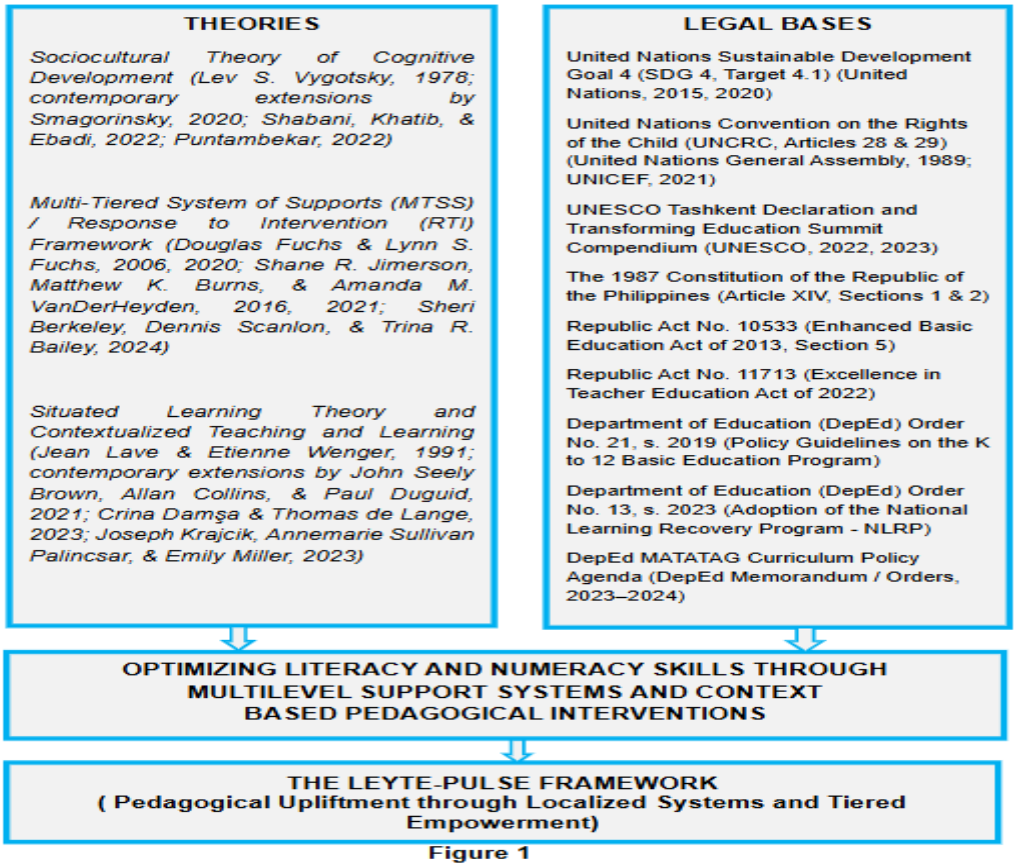


Figure 1
Theoretical Conceptual Framework of the Study

In this study, the Multi-Tiered System of Supports framework serves as the structural foundation for evaluating how the five participating schools in Leyte organize, monitor, and execute their remediation pipelines across both elementary and secondary learning environments.

The instructional integration of contextualized learning is theoretically grounded in Situated Learning Theory, originally advanced by Jean Lave and Etienne Wenger, and substantially developed through contemporary applications of Contextualized Teaching and Learning (Yamagata-Lynch et al., 2020; Fuller, 2021; Damşa & de Lange, 2023). Situated Learning Theory contends that learning is not the passive acquisition of abstract, propositional knowledge transferred from instructor to student, but is fundamentally an active, contextualized process occurring within authentic communities of practice and lived sociocultural activities. Contemporary extensions of this theory maintain that human cognition is profoundly indexical, meaning that conceptual knowledge derives its operational meaning, psychological accessibility, and functional utility directly from the situational context in which it is acquired and applied (Brown et al., 2021; Johri, 2022). When applied to basic education, contextualized pedagogical approaches bridge the psychological distance between formal school curricula and the learner's domestic and environmental background. In this study, Situated Learning Theory elucidates why foundational literacy and numeracy interventions must deliberately integrate localized folklore, Leyteño cultural traditions, agricultural cycles, and coastal economic activities to enable learners to anchor new symbolic, textual, and mathematical concepts within existing, authentic cognitive schemata.

The international legal architecture governing basic education establishes an unequivocal mandate for the optimization of foundational learning as an inalienable human right. The United Nations Sustainable Development Goal 4 (SDG 4) mandates all member states to ensure inclusive, equitable, quality education and promote lifelong learning opportunities for all by 2030, with Target 4.1 explicitly obligating nations to guarantee that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes, specifically literacy and numeracy (United Nations, 2020). Furthermore, the United Nations Convention on the Rights of the Child, specifically Articles 28 and 29, obligates state parties to make primary education compulsory, accessible, and directed toward developing the child’s personality, talents, and mental and physical abilities to their fullest potential (UNICEF, 2021).

The United Nations Educational, Scientific and Cultural Organization's global declarations, including the Tashkent Declaration and the Transforming Education Summit Compendium, have repeatedly resolved that global equity cannot be realized without universal mastery of foundational literacy and numeracy, declaring foundational learning to be the absolute prerequisite for personal empowerment, technological participation, and democratic citizenship (UNESCO, 2022, 2023).

Within the domestic legal landscape of the Philippines, the preservation and optimization of foundational education is anchored upon supreme constitutional directives and robust legislative statutes. Article XIV, Section 1 of the 1987 Philippine Constitution explicitly establishes that the State shall protect and promote the right of all citizens to quality education at all levels and take appropriate steps to make such education accessible to all. This fundamental mandate is fortified by Article XIV, Section 2, which directs the State to establish, maintain, and support a complete, adequate, and integrated system of education relevant to the needs of the people and society. Fulfilling these constitutional provisions requires public schools to

dismantle institutional barriers that produce functional illiteracy and innumeracy, ensuring that all learners, regardless of socioeconomic status or geographic isolation, acquire the foundational skills necessary for personal advancement and national development.

This constitutional foundation is operationally manifested through Republic Act No. 10533, otherwise known as the Enhanced Basic Education Act of 2013, which mandates the state to create a functional basic education system that will produce productive and responsible citizens equipped with the essential competencies and skills for lifelong learning and employment. Crucially, Section 5 of Republic Act No. 10533 explicitly orders that curriculum design must be learner-centered, inclusive, developmentally appropriate, and fundamentally contextualized and localized. The statute legally obligates educators to adapt the curriculum to local conditions, utilize local cultural materials, and integrate indigenous knowledge systems into daily pedagogical practice. This legal requirement is further reinforced by Republic Act No. 11713, the Excellence in Teacher Education Act of 2022, which emphasizes the professional capacitation of public school teachers in diagnostic pedagogical strategies, differentiated learning delivery, and specialized foundational reading and mathematics instruction.

In direct alignment with these statutory mandates, the executive policies issued by the Department of Education provide granular administrative guidance for foundational literacy and numeracy recovery. Department of Education Order No. 21, series of 2019, institutionalized the Policy Guidelines on the K to 12 Basic Education Program, which mandates continuous diagnostic screening, differentiated instructional execution, and targeted remediation across all Key Stages.

In response to post-pandemic learning assessment findings, the Department promulgated Department of Education Order No. 13, series of 2023, which formally launched the National Learning Recovery Program, creating institutional pillars including the National Reading Program and the National Mathematics Program. These policy instruments explicitly direct public elementary and secondary schools to institutionalize structured remedial sessions, mobilize reading and mathematics specialists, and provide systemic learning interventions for learners performing below grade-level standards. Concurrently, the Department instituted the MATATAG Curriculum agenda, a strategic policy initiative aimed at decongesting curricular competencies, strengthening foundational literacy and numeracy in early grades, and institutionalizing localized instructional resource development.

The synthesis of these theoretical frameworks and legal bases establishes a unified, coherent conceptual foundation for this empirical study. Vygotskian sociocultural theory provides the psychological imperative for continuous, dynamic instructional scaffolding, establishing that cognitive growth occurs when pedagogical assistance meets the learner within their Zone of Proximal Development. The Multi-Tiered System of Supports paradigm provides the institutional and operational architecture necessary to organize this scaffolding across schools through structured universal, targeted, and clinical tiers. Situated Learning Theory provides the pedagogical mechanism that makes this support meaningful, proving that foundational skills are acquired most rapidly when instructional tasks reflect the authentic socio-economic and cultural context of the learners' community. These complementary theories are bound together and validated by the international imperatives of the Sustainable Development Goals and the domestic legal mandates of the Philippine Constitution, Republic Act No. 10533, and Department of Education policies.

Together, they demonstrate that optimizing foundational literacy and numeracy is not merely an isolated classroom activity, but an integrated, legally required, and structurally scaffolded endeavor.

This empirical study synthesizes these theoretical and legal imperatives to evaluate current foundational delivery across the five participating schools in Northwestern Leyte, culminating in the formulation of the LEYTE-PULSE Framework as an evidence-based institutional model for sustainable foundational learning recovery.

The Problem

Statement of the Problem

This research assessed the implementation of multilevel support systems and context-based pedagogical interventions in optimizing literacy and numeracy skills across select elementary and secondary schools in the Division of Leyte during School Year 2026-2027 towards PULSE Framework.

Specifically, this study sought answers to the following questions:

1. What is the demographic and professional profile of the Respondents'
   1.1 age,
   1.2 gender,
   1.3 highest educational attainment,
   1.4 current position / designation,
   1.5 years in service, and
   1.6 relevant training attended in literacy and numeracy instruction?
2. What is the status of learners' foundational skills in:
   2.1 Literacy as to:
   2.1.1 Decoding and word recognition,
   2.1.2 Reading fluency and accuracy,
   2.1.3 Reading comprehension,
   2.2 Numeracy as to:
   2.2.1 Basic number concepts and operational fluency;
   2.2.2 Contextual word problem-solving;
   2.2.3 Basic mathematical reasoning and application?
3. To what extent are multilevel support systems practiced in the participating schools along:
   3.1 Tier 1: Core classroom-level differentiated instruction;
   3.2 Tier 2:Targeted small-group remediation and clinic sessions;
   3.3 Tier 3: Intensive individualized diagnostic assistance;
   3.4 Administrative, supervisory, and instructional resource support?

4. To what extent do teachers utilize context-based pedagogical interventions in terms of:
   4.1 Integration of local cultural heritage, stories, and community traditions;
   4.2 Use of localized, indigenous, and community-sourced instructional materials;
   4.3 Application of real-life community situations (e.g., local livelihood, trade, and environment) in learning tasks?
5. Based on the findings, what PULSE Framework to optimize foundational literacy and numeracy skills can be generated?

Significance of the Study

The findings of this empirical investigation will provide substantial, data-driven contributions toward resolving foundational learning deficits through multi-tiered support systems and localized pedagogical interventions. The practical and institutional benefits of this inquiry are structured hierarchically, beginning from top-level educational policy and division administrative leadership down to frontline implementers, community partners, and future scholarly investigators.

Department of Education Central and Regional Leadership (DepEd Region VIII). At the apex of the basic educational administrative hierarchy, high-level policymakers and regional executive directors will benefit from this study through empirical validation of national learning mandates at the operational level. The investigation provides critical baseline evidence on how broad strategic frameworks, specifically the National Reading Program, the National Mathematics Program, and the MATATAG Curriculum, are absorbed and operationalized within rural and semi-rural educational landscapes. The insights gathered will assist regional decision-makers in formulating responsive regional education development plans, refining policy guidelines on multi-tiered intervention fidelity, and allocating systemic fiscal and instructional resources to support foundational literacy and numeracy acceleration across Eastern Visayas.

Division of Leyte Administrative and Supervisory Officials. For the Schools Division Superintendent, Assistant Schools Division Superintendents, and Division Education Program Supervisors in English, Filipino, Mathematics, and Learning Resource Management, the outcomes of this research deliver concrete institutional data regarding foundational deficits across Northwestern Leyte. The division leadership can utilize the findings to drive data-informed technical assistance, calibrate division-wide training designs, and guide supervisory benchmarks. Furthermore, it provides the Learning Resource Management and Development System (LRMDS) office with empirical parameters for screening, standardizing, and adopting locally developed, culturally authentic instructional materials that reflect the unique socio-economic realities of Leyte's municipalities.

Public Schools District Supervisors (PSDS - Tabango, San Isidro, and Calubian Districts). At the district governance level, district supervisors will gain diagnostic insights into the instructional and systemic challenges shared across elementary feeder schools and secondary receiving institutions within their geographic jurisdictions. The study equips the PSDS with empirical evidence to facilitate inter-school harmonization, eliminate instructional friction between primary and secondary levels, and design targeted

district-level Learning Action Cell (LAC) sessions. These findings enable district instructional leaders to monitor the structural implementation of multi-tiered remediation clinics and support school-level resource alignment with greater fidelity.

School Heads and Principals (Participating Research Stations). School administrators of San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School will directly benefit from actionable institutional data on school-wide learning deficits and administrative support gaps. The study provides school heads with a reliable operational basis to optimize school class scheduling, institutionalize dedicated, non-disruptive remedial corridors, and strategically allocate School Maintenance and Other Operating Expenses (MOOE) toward the reproduction of localized literacy and numeracy toolkits. Furthermore, it empowers administrators to establish seamless institutional pipelines that ensure struggling primary learners are diagnosed and supported before transitioning into junior high school.

Master Teachers and Subject Department Heads. As middle-tier instructional leaders and mentors, master teachers, head teachers, and grade-level coordinators will acquire an empirical foundation to enhance instructional supervision, clinical mentoring, and teacher coaching. The study pinpoints the specific operational barriers educators face when executing Tier 1 differentiated instruction, Tier 2 small-group clinics, and Tier 3 individualized learning tracks. This diagnostic clarity enables instructional leaders to design targeted peer-coaching structures, demonstrate effective scaffolding techniques, and lead localized material-writing workshops that align strictly with prescribed national competency matrices.

Frontline Classroom Teachers (Language and Mathematics Educators). At the frontline of classroom instruction, language and mathematics teachers across the five participating schools will benefit from empirical models that bridge theory and practice. The study provides educators with structured operational criteria to move away from uniform, non-differentiated teaching approaches toward multi-tiered instructional triage. Additionally, it offers actionable templates for contextualizing reading passages and mathematical word problems around local coastal fishing, agricultural routines, and municipal market transactions, directly reducing learners' cognitive alienation and enhancing instructional delivery in decoding, fluency, comprehension, and mathematical reasoning.

Learners. As the direct recipients of instructional reform, learners enrolled in both the elementary feeder stations and secondary receiving institutions represent the primary beneficiary group within the school ecosystem. Through the structured execution of tiered support systems and culturally situated pedagogical materials, students suffering from severe foundational backlogs are afforded targeted, non-punitive, and scaffolded interventions calibrated to their specific cognitive readiness. By encountering reading passages and arithmetic scenarios that mirror their authentic Leyteño environment, learners can build fundamental decoding and computational fluency, develop intrinsic motivation, and attain the essential competencies required for advanced scholastic success.

Parents, Barangay Councils, and Community Stakeholders. At the foundational community tier, parents, General Parent-Teacher Associations (GPTA), and Barangay Local Government Units (BLGU) across Tabango, San Isidro, and Calubian are provided with clear insights into their collaborative role as vital learning partners. The findings offer community leaders a compelling justification for enacting

supportive local ordinances, funding barangay-level study pods, establishing communal reading spaces, and mobilizing youth volunteers to reinforce foundational reading and numeracy practices outside the institutional boundaries of the school.

Future Researchers. For the wider academic community and future educational investigators, this study provides an original empirical and methodological reference. By documenting the intersection of multi-tiered support systems and localized pedagogy across an elementary-to-secondary continuum in a rural Philippine context, future scholars are furnished with a validated baseline. The structural frameworks, descriptive indicators, and research outcomes can serve as a foundation for broader comparative studies, longitudinal tracking of foundational skill recovery, or quasi-experimental evaluations across other divisions and regions.

Research Methodology

The methodological architecture of this investigation was structured to evaluate the implementation of multi-tiered academic frameworks and localized instructional interventions across public elementary and secondary schools in Northwestern Leyte. In educational inquiry, empirical methodology must be responsive to the structural and socio-cultural ecologies of the research environment, ensuring that the selected investigative procedures capture instructional phenomena within their operational realities (Cohen et al., 2020; Mertens, 2021). Foundational learning recovery required an empirical process capable of assessing institutional mechanisms across diverse instructional echelons, encompassing administrative oversight, core classroom instruction, and remedial clinical tracks (Creswell & Guetterman, 2021; Kelly et al., 2023).

Methodologically, this inquiry addressed the diagnostic gap across the transition corridor between primary feeder stations and secondary receiving campuses. By engaging school heads, language educators, and mathematics teachers across five distinct research environments, San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School, the methodology employed a multi-informant, cross-sectional evaluation protocol. Contemporary educational methodology emphasized that relying on multi-informant assessments within institutional settings mitigates common-method bias and provides triangulated perspectives regarding policy execution and instructional delivery (Kyndt et al., 2021; Bellibaş et al., 2023). Consequently, this investigation systematically deploys validated, descriptive-evaluative survey metrics, rigorous ethical controls, and targeted descriptive statistical treatments to construct a verified baseline of foundational literacy and numeracy optimization.

Research Design

This study adopted a descriptive-evaluative research design to assessed the operational status of multi-tiered support systems and the extent of context-based pedagogical integration in the participating schools. Descriptive research is fundamentally oriented toward determining, describing, and interpreting conditions, practices, and institutional dynamics as they naturally exist without active manipulation of experimental variables (Atmowardoyo, 2020; Nassaji, 2020). When coupled with an evaluative orientation, this design enables researchers to systematically appraise the adequacy, implementation fidelity, and

operational efficacy of existing educational programs and administrative frameworks against established benchmarks (Lodico et al., 2022; Stufflebeam & Coryn, 2024).

The selection of a descriptive-evaluative design were justified by the core objective of the study: to systematically portray the professional profiles of the educators, diagnose the status of learners' foundational literacy and numeracy competencies, evaluate the depth of Tier 1, Tier 2, and Tier 3 support systems and measured the utilization of localized instructional resources. Rather than attempting to establish causal inferences through artificial experimental controls, this design prioritized ecological validity, capturing the instructional realities and systemic bottlenecks of rural public schools in Leyte (Mertler, 2022; Privitera & Ahlgrim-Delzell, 2023). Through the systematic computation of frequencies, percentage distributions, weighted means, and standard deviations, the descriptive-evaluative framework yields empirical precision to justify and directly shape the resulting institutional action plan.

Flow of the Study

The procedural execution and conceptual architecture of this investigation were structured through the Input-Process-Output (IPO) Model, a systems-oriented paradigm widely used in educational management to trace the transformation of instructional parameters into functional institutional outcomes (Sallis, 2021; Van den Bossche et al., 2022). The IPO model organized the research trajectory into three interconnected stages, ensuring that baseline institutional realities directly inform data collection and analytical procedures, which then culminate in an evidence-based institutional intervention (Creswell & Creswell, 2023).

The **Input stage** established the fundamental baseline data required to understand the operational context of the participating schools. This phase comprised two main components: the demographic and professional profiles of the sixty-five respondents and the observed baseline status of foundational skills among learners.

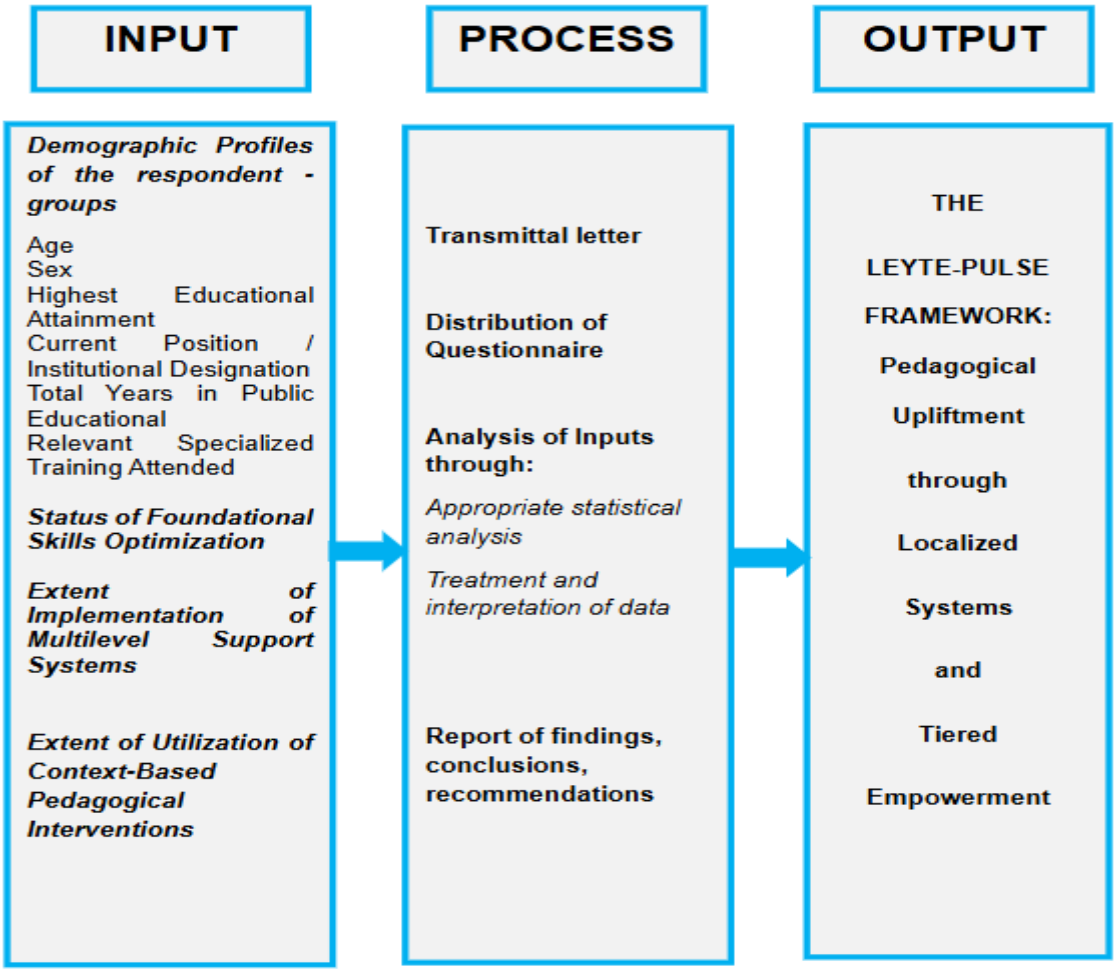


Figure 2

Research Flow of the Study

The respondent profile encompassed the age, sex, highest educational attainment, official position or designation, total years in educational service, and recent specialized training in literacy and numeracy completed by the five school heads, thirty language teachers, and thirty mathematics teachers across the five research environments. Concurrently, the input phase incorporates the observed condition of learners' foundational competencies, evaluated across the foundational literacy components of decoding, word recognition, oral reading fluency, accuracy, and comprehension, alongside foundational numeracy dimensions encompassing number concepts, operational fluency, contextual word-problem solving, and mathematical reasoning.

The **Process stage** represents the systematic operational and analytical mechanisms executed to assess the instructional dynamics within the research locales (Kelly et al., 2023). This stage began with the administration of validated, survey questionnaires across the five participating elementary and secondary schools to record empirical ratings from school administrators and frontline teachers. The investigative process conducted a detailed evaluation of multi-level support systems by appraising universal differentiated core classroom delivery under Tier 1, targeted small-group remedial clinics under Tier 2, specialized clinical diagnostic tracks under Tier 3, and administrative supervisory and material resource

support. Concurrently, the process stage examined the extent to which educators utilized context-based pedagogical interventions, analyzing how local cultural narratives, indigenous learning materials, and community socio-economic livelihoods like coastal fishing and rural agriculture are integrated into daily lessons. The collected quantitative data were then synthesized using descriptive statistical tools, specifically frequency counts, percentage distributions, weighted means, and standard deviations to delineate implementation levels.

The **Output stage** represented the terminal deliverable of the inquiry, derived directly from the empirical findings generated during the process phase. The primary output of this study is the LEYTE-PULSE Framework (Pedagogical Upliftment through Localized Systems and Tiered Empowerment), an operational action plan tailored to the institutional needs of Northwestern Leyte. The LEYTE-PULSE Framework provided an institutional blueprint featuring non-punitive, multi-tiered remedial corridors, a curated repository of localized Leyteño reading passages and community-referenced mathematical word problems, structured clinical coaching protocols for school heads and master teachers, and collaborative community-based study pods in partnership with barangay local government units. By transforming descriptive evaluation into a structured operational framework, the output phase established a sustainable mechanism to optimize foundational literacy and numeracy delivery across both elementary feeder schools and secondary receiving institutions.

Environment

The empirical locus of this investigation is situated within the Third Congressional District of the Province of Leyte, Eastern Visayas (Region VIII), specifically encompassing five strategically selected public elementary and secondary basic education institutions distributed across the municipalities of San Isidro, Calubian, and Tabango. In educational research methodology, the physical, socio-economic, cultural, and institutional topography of the research environment directly conditions instructional efficacy, shapes teacher pedagogical practices, and dictates the background knowledge learners bring into formal learning spaces (Cohen et al., 2020; Creswell & Guetterman, 2021; Mertens, 2021). The northwestern peninsula of Leyte presents an ecologically unique and instructionally demanding research setting characterized by rural geographic dispersion, coastal and agricultural livelihoods, high exposure to recurring climatic disturbances, and varying degrees of distance from central municipal commercial hubs. Conducting an empirical assessment of foundational literacy and numeracy interventions across this specific geographic transect provides an authentic institutional laboratory to evaluate how multi-tiered systems of support and contextualized instructional methodologies function outside urbanized and resource-dense educational divisions (David et al., 2022; Blando & Morales, 2025).

The municipalities of San Isidro, Calubian, and Tabango collectively represent a rural and coastal economic landscape where household livelihoods are heavily anchored on smallholder copra and corn farming, artisanal coastal fishing, local public market trade, and micro-scale livestock rearing. The demographic composition of student households across these communities shows a pronounced concentration within low-to-lower-middle income brackets, where parental educational attainment is predominantly clustered at the elementary and junior high school completion levels (Bernardo et al., 2023). This socioeconomic reality places substantial structural constraints on the capacity of families to provide

home-based academic enrichment, digital learning access, or specialized reading and numeracy remediation outside formal school hours.

Linguistically, the domestic vernacular across Northwestern Leyte represents an intersection of Lineyte-Samarnon (Waray-Waray) and Cebuano-Kana, reflecting regional maritime migration along the Biliran Strait and Visayan sea routes. This linguistic profile means learners encounter formal classroom instruction in Filipino and English through an intricate multi-language transition corridor. In early Key Stages, students must translate conceptual meanings from their mother tongue before developing phonetic decoding and reading fluency in the official media of instruction (San Antonio et al., 2024). Furthermore, agricultural planting cycles, copra-drying seasons, and calm-water fishing windows often introduce periodic attendance fluctuations among learners who assist their families in domestic livelihood chores, creating instructional interruptions that conventional, one-size-fits-all classroom delivery cannot easily bridge without structured tiered intervention systems (Alontaga et al., 2022; Montebon & Espinosa, 2024).

The selection of the five school sites established a deliberate structural continuum, pairing primary feeder elementary schools with receiving secondary national high schools to examine foundational learning progression, gap accumulation, and remedial delivery across grade levels.

San Isidro National High School (San Isidro, Leyte). San Isidro National High School functions as a major secondary academic center for the municipality of San Isidro, accommodating a sizeable student population drawn from both central and interior agricultural barangays. The socio-economic background of its catchment community centers primarily on agrarian tenancy, particularly coconut plantation maintenance, corn cultivation, and small-scale poultry production. Academically, the institution encounters significant challenges associated with receiving secondary entrants from multiple outlying elementary feeder schools who exhibit fragmented reading mechanics, limited lexical range in English, and difficulties in performing multi-digit arithmetic operations.

The institutional relevance of San Isidro National High School to this study lies in its operational representation of a large rural secondary school navigating the structural transition from universal Key Stage 3 instruction to specialized remedial interventions. It provides a strategic environment to evaluate how secondary subject teachers in English, Filipino, and Mathematics cope with severe foundational backlogs and how Tier 2 small-group clinic sessions can be institutionalized within an already dense departmentalized secondary schedule.

Calubian National High School (Calubian, Leyte). Situated near the coastal and administrative town center of Calubian facing the Biliran Strait, Calubian National High School serves a distinct, socio-economically diverse student body consisting of children of small-scale commercial fishers, port-side market vendors, and municipal transportation workers alongside rural farm households. The school operates in a commercial and maritime coastal setting, which provides a rich experiential background for context-based instruction, particularly in numeracy tasks involving weight, financial transactions, maritime fuel expenditure, and seasonal trade profit margins. The relevance of Calubian National High School to this inquiry resides in its role as a pivotal secondary hub managing high-density class sizes while attempting to execute differentiated instruction. It serves as an essential test site to examine the institutional viability of Tier 1 core classroom differentiation, diagnostic tracking under Tier 3, and the

integration of local maritime realia and public-market scenarios into junior high school reading passages and word-problem solving sets.

Felix Caneja Lafuente National High School (Calubian, Leyte). Felix Caneja Lafuente National High School is situated within an exterior rural catchment corridor of Calubian, adjacent to the municipal border of San Isidro. Unlike its poblacion-based counterpart, this secondary institution operates in a geographically isolated agrarian setting where learners commute considerable distances across rolling hills, unpaved feeder routes, and unpaved interior farm-to-market roads. The community relies almost entirely on subsistence agriculture, copra gathering, and seasonal farm labor, which directly contributes to higher rates of student absenteeism during harvesting periods and greater vulnerability to economic shocks. The school's inclusion in this study provides vital comparative value: it illustrates the operational challenges of implementing multi-tiered academic interventions within a small, resource-constrained rural secondary school with limited departmental personnel. It is particularly relevant for examining how localized learning materials and flexible small-group clinics can function effectively despite tight faculty staffing patterns and restricted access to physical library and remedial clinic spaces.

Gibacungan Elementary School (Tabango, Leyte). Located within a coastal barangay in the municipality of Tabango, Gibacungan Elementary School caters directly to a compact shoreline community whose daily subsistence is tied to artisanal sea fishing, tidal flat gleaning, and coastal cargo transport. As a primary feeder institution responsible for Key Stage 1 and Key Stage 2 foundational development, the school represents the foundational frontline where phonemic awareness, word recognition, decoding fluency, and basic number sense are first systematically built. Socio-cultural factors within this coastal barangay, including nocturnal fishing schedules that alter household sleeping routines and limited domestic study facilities, often hinder home-based reading reinforcement. The institutional relevance of Gibacungan Elementary School is paramount: it provides baseline diagnostic evidence of early childhood foundational development within a coastal village ecology. It serves as a vital research locus to assess how early childhood educators contextualize mathematics problems through fishing catch ratios and sea-lore reading texts, and how early diagnostic triage (Tier 2 and Tier 3) can prevent reading frustration from solidifying before learners complete elementary education.

Pining Paglingap Elementary School (Tabango, Leyte). Pining Paglingap Elementary School is situated in an interior upland agricultural community of Tabango, surrounded by rolling hills, corn plots, and coconut groves. The parent community comprises predominantly upland tenant farmers, seasonal agricultural laborers, and informal domestic workers with limited formal educational backgrounds.



Figure 3
Location Map of the Research Environment

The school confronts instructional challenges typical of rural upland elementary institutions, such as limited supplementary reading resources, multi-grade dynamics in selected remedial cohorts, and the reliance on foundational instruction delivered entirely within the school perimeter due to scarce home literacy materials. The institutional relevance of Pining Paglingap Elementary School lies in its capacity to illuminate foundational literacy and numeracy acquisition within an inland agrarian setting. It offers critical empirical data on how teachers utilize indigenous materials, local agricultural cycles, and rural community narratives to anchor early literacy and basic operational numeracy, while providing a clear

picture of the instructional interventions needed at the elementary level before students graduate and transition to secondary receiving high schools.

The five selected educational institutions collectively construct a cohesive, ecologically valid research corridor that spans the primary-to-secondary academic continuum across Northwestern Leyte. By examining three national high schools with varying student population densities and two elementary feeder schools representing both coastal and upland agrarian economies, the research environment captures the full spectrum of instructional delivery in rural public education.

This geographic and institutional configuration directly justifies the design and execution of THE LEYTE-PULSE Framework (Pedagogical Upliftment through Localized Systems and Tiered Empowerment). The unique socio-economic profile of the region, steeped in fishing traditions, municipal market commerce, and coconut-corn farming, supplies the authentic context required to ground abstract literacy and numeracy concepts in lived experience (Dela Cruz & Tan, 2022; Krajcik et al., 2023). Furthermore, capturing data from both elementary feeder schools and secondary receiving institutions provides a longitudinal, cross-institutional perspective that traces how foundational competencies evolve, where structural support breaks down, and how multi-tiered interventions can be systematically aligned to secure sustained learning recovery across the Division of Leyte.

Respondents

The determination and selection of respondents in educational research constitute a foundational methodological pillar, directly dictating the internal validity, representativeness, and empirical credibility of the resulting diagnostic findings. In institutional evaluative inquiries, identifying key informants required engaging professionals whose daily responsibilities place them directly at the intersection of instructional leadership, curricular execution, and remedial intervention. The credibility of assessments concerning foundational learning recovery is heavily contingent upon multi-informant triangulation, specifically capturing the dual perspectives of school administrators who manage school-level resources and frontline educators who directly diagnose and remediate student learning deficits.

The sample for this empirical investigation comprises an exact total of sixty-five ($N = 65$) key educational personnel purposefully drawn from five public basic education institutions across the Third Congressional District of the Division of Leyte: San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School. The selection protocol establishes complete institutional symmetry across all five research environments, designating exactly thirteen ($n = 13$) respondents per campus. Each station provides a tripartite configuration of one (1) School Head, six (6) Literacy and Language Teachers, and six (6) Mathematics and Numeracy Teachers.

The relevance of this specific respondent configuration lies in its capacity to construct a cross-sectional diagnostic view bridging both the administrative-instructional divide and the primary-to-secondary academic continuum. School Heads are essential informants who provide authoritative evaluations regarding the systemic provision of Tier 1 to Tier 3 support systems, school timetable adjustments, instructional supervision, and the allocation of School Maintenance and Other Operating Expenses (MOOE) for instructional materials. In parallel, the inclusion of frontline Language and Mathematics

educators ensures that evaluations of learners' foundational decoding, fluency, comprehension, basic computational fluency, and contextual word-problem solving are derived directly from classroom practitioners actively managing daily remediation and localized instruction. Furthermore, by pairing elementary feeder teachers with secondary receiving educators, the respondent pool captures the structural progression of foundational learning gaps, tracing how deficits emerge in the primary grades and how they are addressed at the secondary level.

Table 1
Distribution of Respondents Across Participating Schools in Northwestern Leyte

Research Station / School Site	Municipality / District	School Heads (n)	Literacy & Language Teachers (n)	Mathematics & Numeracy Teachers (n)	Total Respondents (n)	Percentage (%)
San Isidro National High School	San Isidro, Leyte	1	6	6	13	20.00
Calubian National High School	Calubian, Leyte	1	6	6	13	20.00
Felix Caneja Lafuente National High School	Calubian, Leyte	1	6	6	13	20.00
Gibacungan Elementary School	Tabango, Leyte	1	6	6	13	20.00
Pining Paglingap	Tabango, Leyte	1	6	6	13	20.00

Elementary School						
TOTAL	**5 Participating Stations**	**5**	**30**	**30**	**65**	**100.00**

Table 1 delineates the distribution of the sixty-five ($N = 65$) research respondents systematically allocated across the five target schools in Northwestern Leyte. The sampling matrix reflected absolute institutional parity, with each educational station contributing precisely 20.00% ($n = 13$) to the aggregate sample. This balanced allocation ensures that no individual school site exerts disproportionate statistical weight or skews the descriptive findings, thereby maintaining methodological balance between large secondary campuses and rural elementary feeder stations.

Across the administrative and supervisory echelon, a total of five ($n = 5$) School Heads were surveyed, accounting for 7.69% of the overall respondent population. This cohort was selected using total population sampling (complete enumeration) of the primary school heads in charge across the five research environments. Their inclusion is vital for evaluating institutional fidelity, particularly regarding supervisory walk-throughs, the institutionalization of remedial corridors, and the administrative backing required to sustain multi-tiered intervention systems without intruding upon mandatory contact hours.

The frontline instructional cohort comprised sixty ($n = 60$) educators, representing 92.31% of the total sample, divided equally between Literacy and Language Teachers ($n = 30$, 46.15%) and Mathematics and Numeracy Teachers ($n = 30$, 46.15%). These educators were purposively chosen based on their direct instructional assignments in Key Stage 1 and 2 foundational reading and numeracy (at Gibacungan ES and Pining Paglingap ES) and Key Stage 3 remedial and core language and mathematics courses (at San Isidro NHS, Calubian NHS, and Felix Caneja Lafuente NHS).

Maintaining an exact one-to-one parity between reading educators ($n = 30$) and mathematics educators ($n = 30$) guarantees equal analytical focus across both core foundational competencies highlighted in the title. This parity ensures that the evaluation of multi-tiered support systems and localized pedagogical integration remains balanced between textual decoding and comprehension on the one hand, and numerical cognition and mathematical problem-solving on the other.

The composition of this sample adhered strictly to the predetermined ceiling of under 100 participants while establishing a statistically sound, structurally balanced dataset. This demographic balance provided a reliable empirical foundation to answer the descriptive questions formulated in the Statement of the Problem and directly informs the operational framework of PROJECT LEYTE-PULSE.

Instruments

In empirical educational inquiry, the construction and deployment of research instruments represent the operational bridge between conceptual paradigms and measurable field realities. The validity, reliability, and precision of the data-gathering mechanism dictate the structural soundness of the diagnostic assessments generated, ensuring that the gathered metrics authentically mirror the instructional

environments under investigation (Cohen et al., 2020; Creswell & Guetterman, 2021). To capture the complex instructional dynamics of multi-tiered academic interventions and localized instructional delivery across the five research stations in Leyte, the primary data-collection tool deployed in this study is a comprehensive, researcher-structured, and expert-validated survey questionnaire.

The questionnaire is organized into four systematically sequenced modules directly aligned with the Statement of the Problem. Part I gathered categorical baseline data on the respondents, encompassing chronological age, biological sex, highest educational attainment, current institutional designation, total years in public educational service, and recent specialized training completed in foundational reading, mathematics, or tiered remediation within the preceding three years.

Part II evaluated the baseline condition of learners' foundational competencies across two core domains: Foundational Literacy, which evaluates decoding, word recognition, oral reading fluency, accuracy, and comprehension; and Foundational Numeracy, which appraises number concepts, operational fluency, contextual word-problem solving, and mathematical reasoning.

Part III assessed the structural triage mechanisms operationalized within the schools across Tier 1 core classroom differentiation, Tier 2 targeted small-group remediation clinics, Tier 3 intensive individualized clinical diagnosis, and administrative and instructional resource backing.

Finally, Part IV measured the operational integration of Leyteño cultural traditions, localized and indigenized teaching materials, and authentic community livelihoods into daily instruction as experienced by school personnel in sustaining multi-tiered interventions and localized instructional design.

Data Gathering Procedures

The execution of data collection followed a systematic, multi-tiered administrative and ethical protocol designed to protect the rights of human participants, maintain data integrity, and guarantee institutional compliance (Mertens, 2021; Privitera & Ahlgrim-Delzell, 2023). The procedural trajectory was executed across three distinct operational phases: the preparatory phase, the field administration phase, and the post-retrieval data processing phase. This procedural discipline ensured that empirical data collection adhered strictly to institutional protocols without disrupting standard school operations (Creswell & Creswell, 2023).

The preparatory phase began with formal administrative transmittal. An official letter requesting authorization to conduct the study was submitted to the Office of the Schools Division Superintendent of the Division of Leyte. Upon securing written division-level endorsement, transmittal communications and study briefing packets were dispatched to the respective Public Schools District Supervisors of Tabango, San Isidro, and Calubian, followed by formal coordination with the School Heads of San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School. These protocols ensured complete institutional transparency and established designated schedules for school visits that avoided any disruption of regular instructional contact hours (Kelly et al., 2023).

The field administration phase prioritized ethical compliance and direct researcher oversight. The researcher conducted on-site visits to each of the five participating schools to personally orient the sixty-

five selected respondents regarding the background, academic purpose, and procedural aspects of the investigation. Every participant was provided with a formal Written Informed Consent Form detailing voluntary participation, the freedom to withdraw at any point without institutional repercussions, and absolute guarantees of confidentiality and anonymity in accordance with the provisions of Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012 (Philippine National Health Research System, 2020; Arifin, 2023). Questionnaires were administered in physical print format to accommodate the variable internet connectivity in rural Northwestern Leyte. Respondents were afforded ample time, spanning three to five school days, to complete the survey items independently and reflectively without administrative pressure. The researchers maintained continuous coordination with school-level research focal persons to address procedural inquiries. All sixty-five survey instruments were retrieved directly by the researcher, securing a 100.00% response and retrieval rate.

The post-retrieval phase involved preliminary data auditing and digital curation. Each retrieved questionnaire was assigned an institutional identification code to preserve anonymity, ensuring that the identities of school administrators, language educators, and mathematics teachers remained completely confidential. The data packets were screened for completeness, legibility, and response uniformity. The validated responses were then systematically encoded into a password-protected, encrypted statistical spreadsheet matrix, establishing an organized electronic repository prepared for descriptive quantitative computations.

Statistical Treatment of Data

To address the specific descriptive questions formulated in the Statement of the Problem without invoking unwarranted causal assumptions or speculative inferences, the quantitative data were processed using descriptive statistical tools (Mertler, 2022; Privitera & Ahlgrim-Delzell, 2023). These analytical tools provided the exact empirical mechanisms required to summarize, organize, and interpret the collected data accurately.

Frequency counts and percentage distributions were employed to quantify and describe the categorical profile variables of the respondents under Statement of the Problem Question 1, encompassing age brackets, sex, highest educational attainment, current institutional designation, total years in service, and training attendance. This statistical treatment systematically illustrated the proportional representation of each demographic and professional category within the sample, converting raw tallies into clear comparative proportions relative to the total respondent population of sixty-five participants (Privitera & Ahlgrim-Delzell, 2023).

The weighted mean served as the primary measure of central tendency to establish the central consensus of responses across Statement of the Problem Questions 2, 3, and 4. Specifically, it determined the observed status of foundational skills, the extent of implementation of multilevel support systems, the extent of context-based pedagogical utilization, and the severity of operational challenges. By multiplying the frequency of responses in each scale category by its assigned weight and dividing the total by the sample size, the weighted mean yielded a representative composite value for each individual indicator and thematic domain (Cohen et al., 2020).

The sample standard deviation were computed alongside the weighted mean as a measure of dispersion to determine the degree of variability, homogeneity, or divergence in the ratings provided by the respondents across indicators (Privitera & Ahlgrim-Delzell, 2023). A low standard deviation indicated strong consensus and high homogeneity among respondents' ratings, whereas a higher standard deviation revealed greater variance and divergence in instructional perceptions. Calculating the standard deviation ensured that the reported weighted means were evaluated with proper awareness of response distribution, confirming whether the consensus was closely clustered or spread across diverse perceptions.

Scoring Procedures

The scoring procedures delineate the scaling parameters, assigned weights, boundary ranges, verbal descriptions, and operational interpretations applied to quantify and translate the numerical ratings into meaningful pedagogical assessments (DeVellis & Thorpe, 2021; Sullivan & Artino, 2023). A symmetrical 4-point Likert scale is utilized across all evaluative modules, deliberately omitting an ambivalent midpoint to compel definitive, diagnostically useful evaluative judgments from the respondents. The corresponding scoring matrices for each evaluative component of the study are detailed below.

Assigned Weight	Scale Range / Limits	Verbal Description	Operational Interpretation
4	3.26 – 4.00	Highly Mastered (HM)	Learners consistently demonstrate independent, fluent, and automated execution of foundational literacy and numeracy competencies without external prompting or scaffolding.
3	2.51 – 3.25	Mastered (M)	Learners frequently display adequate competence in basic reading and mathematical operations, requiring only occasional teacher guidance or clarification.
2	1.76 – 2.50	Moderately Mastered (MM)	Learners manifest emerging and inconsistent foundational skills, exhibiting frequent phonetic or computational errors and requiring regular, structured instructional scaffolding.
1	1.00 – 1.75	Not Mastered (NM)	Learners exhibit persistent, severe foundational deficits in decoding, word recognition, reading comprehension, and basic calculations, operating within the frustration/non-reader band.

The first scoring matrix operationalized Statement of the Problem Question 2, establishing the criteria for evaluating the observed status of foundational literacy and numeracy skills among learners across the participating schools.

Assigned Weight	Scale Range / Limits	Verbal Description	Operational Interpretation
4	3.26 – 4.00	Highly Implemented (HI)	Multi-tiered support systems are institutionalized, fully operationalized, and consistently executed across all tiers with comprehensive monitoring and resource allocation.
3	2.51 – 3.25	Implemented (I)	Multi-tiered support systems are routinely practiced and structurally integrated into classroom schedules, though minor gaps in resource provisioning or specialized tracking persist.
2	1.76 – 2.50	Moderately Implemented (MI)	Tiered interventions are executed sporadically or reactively, characterized by informal remedial sessions without structured tracking protocols or adequate clinical resources.
1	1.00 – 1.75	Not Implemented (NI)	Multi-tiered support systems are entirely absent; instruction and remediation remain non-differentiated, uniform, and lacking targeted structural triage.

The second scoring matrix governed Statement of the Problem Question 3, providing the continuum for evaluating the extent of implementation of multi-level support systems across universal core instruction, targeted small-group clinics, intensive clinical assistance, and administrative resource support.

Assigned Weight	Scale Range / Limits	Verbal Description	Operational Interpretation
4	3.26 – 4.00	Highly Utilized (HU)	Teachers extensively and continuously weave local Leyteño culture, indigenous materials, and community livelihoods into daily reading and mathematics tasks.

Assigned Weight	Scale Range / Limits	Verbal Description	Operational Interpretation
3	2.51 – 3.25	Utilized (U)	Teachers regularly incorporate localized narratives and real-life community situations into lessons, maintaining evident cultural relevance in instructional activities.
2	1.76 – 2.50	Moderately Utilized (MU)	Teachers occasionally utilize localized or indigenous materials, but instruction predominantly relies on standardized, decontextualized national textbook exemplars.
1	1.00 – 1.75	Not Utilized (NU)	Contextualized and indigenous pedagogical strategies are never practiced; learning tasks remain completely detached from the local community's cultural and economic reality.

The third scoring matrix operationalizes Statement of the Problem Question 4, defining the parameters for measuring the extent of utilization of context-based pedagogical interventions, including local cultural heritage, community-sourced instructional materials, and real-life local livelihood contexts.

Definition of Terms

To provide conceptual clarity and establish a uniform understanding of the variables, constructs, and operational parameters investigated in this study, the following terms are defined conceptually and operationally:

Administrative and Instructional Resource Support. Conceptually, this refers to the systematic leadership behaviors, institutional provisions, and logistical mechanisms mobilized by educational managers to facilitate effective classroom instruction. Operationally, it denotes the extent to which school heads across the five participating research stations in Northwestern Leyte conduct clinical supervisory walk-throughs, provide responsive technical assistance, adjust institutional timetables to accommodate remediation, and allocate School Maintenance and Other Operating Expenses for the reproduction of localized literacy and numeracy toolkits.

Context-Based Pedagogical Interventions. Conceptually, this pedagogical approach involves anchoring instructional design, curriculum delivery, and learning tasks directly within the sociocultural, physical, and economic environment of the learners to render abstract concepts personally meaningful.

Operationally, it pertains to the degree to which frontline teachers deliberately weave local Leyteño folklore, coastal fishing activities, copra and corn agricultural processes, and municipal market trade scenarios into daily reading and mathematics instruction.

Contextual Word Problem-Solving. Conceptually, this mathematical competence represents the cognitive capacity to decode, interpret, translate, and solve quantitative situations embedded within authentic narrative contexts. Operationally, it describes the assessed ability of learners to solve arithmetic problems derived from immediate community transactions, such as computing fishing catch sales along the Biliran Strait or agricultural yield expenses in Tabango, San Isidro, and Calubian.

Decoding and Word Recognition. Conceptually, this foundational reading skill involves the cognitive translation of printed alphabetic letters into their corresponding phonological sounds and the automatic retrieval of word identities from memory. Operationally, it reflects the observed performance of learners in accurately identifying written vocabulary and translating orthographic symbols into speech without hesitation during foundational reading tasks.

Foundational Literacy Skills. Conceptually, this term denotes the basic, indispensable receptive and expressive language abilities required for lifelong communication, intellectual development, and scholastic progression. Operationally, it designates the baseline proficiency demonstrated by primary and secondary learners across the three core indicators evaluated in this study, specifically decoding and word recognition, oral reading fluency and accuracy, and literal, inferential, and critical reading comprehension.

Foundational Numeracy Skills. Conceptually, this construct represents the fundamental mathematical knowledge, spatial awareness, and quantitative reasoning necessary to engage with everyday mathematical demands. Operationally, it encompasses the observed competency of learners across three primary computational areas, specifically basic number concepts and operational fluency, contextual word problem-solving, and mathematical reasoning applied to real-world situations.

Mathematical Reasoning and Application. Conceptually, this higher-order foundational capability involves analyzing mathematical assumptions, evaluating quantitative patterns, constructing logical arguments, and applying numerical concepts to unfamiliar problems. Operationally, it refers to the observed competence of learners in explaining their computational steps and applying basic arithmetic logic to solve everyday dilemmas encountered within their household and barangay communities.

Multilevel Support Systems. Conceptually, this represents a tiered, data-informed prevention architecture designed to allocate instructional resources and academic assistance dynamically in response to assessed student learning needs. Operationally, it describes the systematic execution of a three-tiered intervention framework across the five public schools, encompassing core differentiated instruction, targeted small-group clinic sessions, and clinical one-on-one diagnostic teaching.

Operational Fluency. Conceptually, this refers to the rapid, accurate, and automated execution of the four fundamental operations of arithmetic, namely addition, subtraction, multiplication, and division. Operationally, it measures the speed and precision with which learners perform basic computations without relying on laborious manual counting aids or experiencing severe computational hesitation.

Reading Comprehension. Conceptually, this cognitive process involves extracting, synthesizing, constructing, and interpreting meaning through active engagement with written text. Operationally, it reflects the observed capacity of learners to recall explicit textual details, make valid contextual inferences, identify main thematic ideas, and critically evaluate reading passages administered in the classroom.

Reading Fluency and Accuracy. Conceptually, this literacy dimension encompasses the ability to read connected text aloud with appropriate speed, phrasing, intonation, and minimal phonological miscues. Operationally, it denotes the assessed ability of learners to read grade-level passages smoothly and accurately, maintaining natural prosody while preserving textual meaning.

Respondent Profile. Conceptually, this construct captures the demographic and human resource characteristics that define a group of research participants. Operationally, it refers to the categorical data collected from the sixty-five educators and school heads regarding chronological age, biological sex, highest educational attainment, current institutional designation, total years of educational service, and specialized training completed in literacy, numeracy, or remediation within the preceding three years.

The LEYTE-PULSE Framework. Conceptually, this represents the terminal, evidence-based institutional output of this study, standing for Pedagogical Upliftment through Localized Systems and Tiered Empowerment. Operationally, it is an action plan and operational paradigm formulated directly from the empirical findings of this inquiry, featuring non-punitive multi-tiered remedial corridors, a verified repository of localized Leyteño reading passages and community-referenced math problem modules, structured clinical supervisory coaching protocols, and school-barangay collaborative learning pods designed for public schools in Northwestern Leyte.

Tier 1: Core Classroom-Level Differentiated Instruction. Conceptually, this tier represents universal, high-quality instruction delivered to all enrolled learners within the standard classroom environment, incorporating pedagogical adjustments to address varying learning styles. Operationally, it refers to the school-wide practice wherein regular teachers deploy differentiated seatwork, tiered learning tasks, and brief daily foundational reading and arithmetic drills to prevent initial learning deficits from calcifying.

Tier 2: Targeted Small-Group Remediation and Clinic Sessions. Conceptually, this secondary intervention layer provides supplemental, focused instruction delivered in small clusters to learners who fail to make adequate academic progress under universal core instruction. Operationally, it describes the institutionalization of pull-out or remedial clinic sessions conducted two to three times weekly, utilizing targeted reading toolkits and peer-assisted learning to support learners performing within borderline or frustration performance bands.

Tier 3: Intensive Individualized Diagnostic Assistance. Conceptually, this tertiary intervention echelon provides high-intensity, individualized, diagnostic clinical support tailored specifically for learners experiencing persistent, severe foundational learning breakdowns. Operationally, it denotes the systematic administration of one-on-one diagnostic mentoring, multi-sensory phonetic instruction, tactile concrete math counters, and Individualized Instructional Prescriptions implemented by master teachers and reading specialists for severe non-readers and dyscalculic learners.

2. Presentation of Data, Analysis and Interpretation

This chapter presents the empirical findings gathered from the five participating research stations across the Division of Leyte: San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School. The quantitative data were analyzed, evaluated, and interpreted to address the research questions posed in the Statement of the Problem.

The empirical data were presented in tabular form with corresponding descriptive statistics, including frequency counts, percentage distributions, weighted means, and standard deviations. The data are analyzed in relation to the conceptual framework of the study, supported by educational literature and statutory guidelines from 2020 to 2026.

Profile of The Respondents

The personal and professional profiles of the sixty-five ($N = 65$) research participants were evaluated to determine the human resource capacities present across the five participating elementary and secondary schools in Northwestern Leyte. The profile indicators examined encompass age, biological sex, highest educational attainment, current position or institutional designation, total years in public educational service, and specialized training attended in literacy, numeracy, or remediation within the preceding three years.

Age Distribution

The frequency and percentage distribution of the respondents according to chronological age brackets.

Table 2
Age Distribution of the Respondents ($N = 65$)

Age Bracket	Frequency (f)	Percentage (%)
56 years old and above	6	9.23
46 – 55 years old	16	24.62
36 – 45 years old	25	38.46
26 – 35 years old	15	23.08
25 years old and below	3	4.62
Total	**65**	**100.00**

Table 2 showed that the largest demographic segment falls within the 36 to 45 years old age bracket, comprising 25 respondents or 38.46% of the total research cohort. This is followed by the 46 to 55 years old bracket with 16 participants (24.62%), and the 26 to 35 years old category with 15 educators (23.08%). Senior faculty members aged 56 years old and above account for 6 individuals (9.23%), while early-career educators aged 25 years old and below represent the smallest group at 3 individuals (4.62%).

These findings indicated that the teaching force and administrative personnel across the surveyed schools are largely in their mid-career phase, combining accumulated instructional experience with functional physical stamina. Educators in this mid-career cohort typically serve as the operational backbone of school-level curriculum delivery, as they possess sufficient classroom experience while remaining receptive to contemporary pedagogical changes.

As noted by Bellibaş et al. (2023), mid-career teachers exhibit balanced instructional self-efficacy, making them suitable candidates for executing multi-tiered intervention frameworks that require both classroom discipline and flexible pedagogical adjustments. Similarly, recent basic education workforce surveys by Blando and Morales (2025) observed that teachers within the 35 to 45 age range demonstrate higher resilience in managing dual instructional loads, specifically regular classroom teaching combined with diagnostic remedial clinics.

Gender

Table 3 presented the distribution of the respondents categorized by biological sex.

Gender	**Frequency (f)**	**Percentage (%)**
Female	51	78.46
Male	14	21.54
Total	**65**	**100.00**

Table 3 showed a substantial female predominance, with 51 female respondents representing 78.46% of the sample, while male educators account for 14 respondents or 21.54%.

This distribution reflected the broader demographic patterns of the Philippine public basic education system, where female teachers constitute the majority of the instructional workforce, particularly in primary education and foundational language arts.

Bernardo et al. (2023) highlighted that female representation in Philippine public schools frequently exceeds 75%, particularly within the early grades where foundational reading routines, phonemic remediation, and primary mathematics clinics are primarily supervised. Furthermore, research on teacher workforce dynamics indicates that while gender balance remains desirable in the learning environment,

pedagogical fidelity, diagnostic empathy, and contextual awareness are not defined by sex, but rather by sustained professional development and administrative mentoring (Kyndt et al., 2021).

Highest Educational Attainment

Table 4 presented the distribution of the respondents according to their highest formal educational attainment.

Table 4
Highest Educational Attainment of the Respondents

Educational Attainment	Frequency (f)	Percentage (%)
Full Doctoral Degree (EdD / PhD / DPA / DevEdD)	2	3.08
Master's Degree with Doctoral Units	5	7.69
Full Master's Degree (MAEd / MAT / MEd / MS / MA)	14	21.54
Baccalaureate Degree with Master's Units	36	55.38
Baccalaureate Degree (BSEd / BEEd / AB / BS)	8	12.31
Total	**65**	**100.00**

Table 4 indicated that 36 respondents (55.38%) hold a Baccalaureate Degree with earned Master's units, representing the single largest category. Fourteen educators (21.54%) have completed a Full Master's Degree, 5 participants (7.69%) have accrued post-master's doctoral units, and 2 school heads (3.08%) possess a Full Doctoral Degree. Eight teachers (12.31%) maintain a Baccalaureate Degree without post-graduate coursework. Aggregating these figures revealed that 87.69% of the respondents have engaged in or completed post-baccalaureate academic studies. This advanced educational profile suggests that the teaching corps possesses foundational theoretical knowledge regarding instructional design, educational measurement, and curriculum contextualization.

In line with the provisions of Republic Act No. 11713 (The Excellence in Teacher Education Act of 2022), continuing advanced education among public educators serves as an institutional lever for upgrading pedagogical delivery and diagnostic skill profiling. As argued by Alontaga et al. (2022), while formal graduate coursework provides teachers with theoretical grounding, institutional support systems within schools are still necessary to translate advanced academic concepts into systematic classroom-level interventions.

Current Institutional Position and Designation

Table 5 illustrated the distribution of respondents according to their official operational assignment across the five research environments.

Table 5
Current Position / Institutional Designation

Current Position / Designation	Frequency (f)	Percentage (%)
School Head / Principal / Head Teacher / Teacher-in-Charge	5	7.69
Literacy and Language Teacher	30	46.15
Mathematics and Numeracy Teacher	30	46.15
Total	**65**	**100.00**

The sample were composed of 5 School Heads (7.69%), 30 Literacy and Language Teachers (46.15%), and 30 Mathematics and Numeracy Teachers (46.15%). Each of the five participating schools is represented by its administrative leader alongside six language educators and six mathematics educators.

This distribution established direct parity between reading and mathematics teachers across the primary feeder schools and secondary receiving institutions. Including both instructional personnel and administrative leaders provides a balanced basis for data triangulation, combining the perspectives of frontline educators who manage diagnostic remediation with the administrative outlook of school heads who oversee resource allocation and timetable modifications.

Kyndt et al. (2021) and Bellibaş et al. (2023) emphasized that structural reforms in basic education require shared evaluations across leadership and frontline instructional cadres to identify administrative bottlenecks in remedial program delivery.

Total Years in Public Educational Service

Table 6 displayed the distribution of the respondents based on their accumulated years in public educational service.

Table 6
Total Years in Public Educational Service

Service Bracket	Frequency (f)	Percentage (%)
21 years and above	8	12.31
16 – 20 years	14	21.54
11 – 15 years	21	32.31
6 – 10 years	13	20.00

Service Bracket	Frequency (f)	Percentage (%)
3 – 5 years	6	9.23
Under 3 years	3	4.62
Total	65	100.00

Table 6 showed that 21 respondents (32.31%) have rendered between 11 to 15 years of service, forming the largest experience group. This is followed by 14 teachers (21.54%) who have served for 16 to 20 years, and 13 teachers (20.00%) who possess 6 to 10 years of service. Veteran educators with 21 years of service or more account for 8 respondents (12.31%), while newer educators serving 3 to 5 years and under 3 years account for 6 (9.23%) and 3 (4.62%) participants, respectively.

These figures showed that over 66.15% of the participants have more than a decade of active public school service. This accumulated tenure indicates that the respondents are well-acquainted with curriculum shifts, institutional policies, and student demographic patterns in their respective school communities.

According to Stufflebeam and Coryn (2024), experienced teachers provide stable evaluative baselines in educational appraisals, as their historical exposure enables them to discern persistent learning gaps from short-term curricular adjustments. However, long-serving faculty also face the challenge of updating traditional instructional routines to align with contemporary multi-tiered intervention systems (Carta et al., 2023).

Specialized Training Attended in Literacy, Numeracy, or Remediation

Table 7 detailed the respondents' attendance in specialized professional development programs over the preceding three years.

Table 7
Specialized Training in Literacy, Numeracy, or Remediation in the Past 3 Years

Training Hours Completed	**Frequency (f)**	**Percentage (%)**
49 hours and above (National / International Workshops)	4	6.15
33 – 48 hours (Regional Level Training / DepEd RO8 Programs)	9	13.85
17 – 32 hours (Division / District Level Workshops)	18	27.69
1 – 16 hours (School-Level Learning Action Cells / SLAC)	29	44.62

Training Hours Completed	Frequency (f)	Percentage (%)
None	5	7.69
Total	**65**	**100.00**

Table 7 revealed that the highest proportion of educators, 29 respondents (44.62%), participated only in short-duration, school-level Learning Action Cell (SLAC) sessions spanning 1 to 16 hours. Eighteen educators (27.69%) completed division or district-level workshops (17 to 32 hours), 9 participants (13.85%) engaged in regional-level training (33 to 48 hours), and only 4 educators (6.15%) participated in comprehensive national or international programs of 49 hours or more. Five respondents (7.69%) reported having completed no specialized training in foundational remediation within the three-year window.

These findings indicated that teacher training in foundational diagnosis and clinical remediation remains predominantly localized and limited in duration. While school-level SLAC sessions offer accessible peer discussions, they may lack the clinical depth and diagnostic methodologies found in extensive specialized training programs.

David et al. (2022) and San Antonio et al. (2024) observed that while national initiatives such as the National Reading Program and National Mathematics Program are deployed nationwide, frontline educators often receive abbreviated orientations rather than comprehensive clinical training. This dynamic can limit teachers' ability to design targeted individual interventions for severe non-readers and dyscalculic learners (Al Otaiba et al., 2023).

Status of Learners' Foundational Skills

The baseline status of learners' foundational skills across the participating institutions was evaluated across two core domains: Foundational Literacy Skills and Foundational Numeracy Skills. Each domain was rated on a 4-point Likert scale, interpreted as Highly Mastered (3.26–4.00), Mastered (2.51–3.25), Moderately Mastered (1.76–2.50), and Not Mastered (1.00–1.75).

Foundational Literacy Skills: Decoding and Word Recognition

Table 8 presented the assessed status of foundational decoding mechanics and word recognition.

Table 8
Status of Learners' Foundational Literacy in Decoding and Word Recognition

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Identifies, blends, and segments individual phonemes and consonant blends in print.	2.52	0.64	Mastered
2. Recognizes grade-level high-frequency vocabulary and sight words with automaticity.	2.45	0.62	Moderately Mastered
3. Decodes multisyllabic unfamiliar words accurately using phonics principles.	2.18	0.58	Moderately Mastered
4. Applies morphological clues (prefixes, suffixes, root words) to decode complex words.	2.06	0.61	Moderately Mastered
Composite Mean	**2.30**	**0.61**	**Moderately Mastered**

As presented in Table 8, the composite mean for decoding and word recognition stands at 2.30 ($SD = 0.61$), corresponding to a verbal description of Moderately Mastered.

Among the four indicators, basic phoneme blending and segmentation registered the highest mean score of 2.52 ($SD = 0.64$), interpreted as Mastered. However, performance declined across higher-order decoding tasks: sight word automaticity recorded a mean of 2.45 ($SD = 0.62$), multisyllabic word decoding scored 2.18 ($SD = 0.58$), and the application of morphological clues obtained the lowest mean of 2.06 ($SD = 0.61$), all classified as Moderately Mastered.

These results indicated that while learners generally grasp rudimentary letter-sound correspondences, they encounter increasing difficulty when transitioning to polysyllabic words and morphological analysis. When learners lack automated sight word recognition, their working memory becomes taxed by the mechanics of decoding, which impedes overall reading fluency and text comprehension.

This observation aligned with the findings of Bernardo et al. (2023) and the OECD (2023) PISA national reports, which noted that foundational reading difficulties in the Philippines often stem from incomplete mastery of word analysis strategies, particularly in secondary languages like English and standard Filipino.

Under Vygotskian theory, these learners require structured instructional scaffolding to connect basic phonemic blending with multi-syllabic text processing (Shabani et al., 2022).

Foundational Literacy Skills: Reading Fluency and Accuracy

Table 9 delineated the observed competency of learners in oral reading fluency, pacing, and pronunciation accuracy.

Table 9
Status of Learners' Foundational Literacy in Reading Fluency and Accuracy

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Demonstrates low miscue rates (minimal omissions, substitutions, or repetitions).	2.38	0.59	Moderately Mastered
2. Achieves prescribed grade-level oral reading rates (words correct per minute).	2.24	0.63	Moderately Mastered
3. Observes punctuation marks and adjusts oral inflection to preserve sentence meaning.	2.15	0.60	Moderately Mastered
4. Reads grade-appropriate passages aloud with smooth conversational phrasing and prosody.	2.08	0.57	Moderately Mastered
Composite Mean	**2.21**	**0.60**	**Moderately Mastered**

The data in Table 9 showed an overall composite mean of 2.21 ($SD = 0.60$), verbally described as Moderately Mastered.

All four evaluated indicators fall uniformly within the Moderately Mastered score range (1.76–2.50). Minimal miscue rates scored highest at 2.38 ($SD = 0.59$), followed by achieving grade-level oral reading speed at 2.24 ($SD = 0.63$). Punctuation observance and inflection adjustments recorded a mean of 2.15 ($SD = 0.60$), while reading with natural conversational phrasing and prosody yielded the lowest mean of 2.08 ($SD = 0.57$).

These evaluations point to prevailing difficulties with expressive oral reading. Students frequently read passages in a word-by-word, monotonic manner, characterized by irregular pauses and frequent hesitations.

This mechanical reading style indicates that students are expending substantial cognitive effort on surface-level decoding, which limits their prosodic expression and phrasing.

As highlighted by San Antonio et al. (2024), oral reading fluency serves as a functional bridge between phonemic decoding and cognitive comprehension. When oral reading fluency remains unmastered, students often experience comprehension breakdowns, particularly when navigating longer academic passages in junior high school curricula.

Foundational Literacy Skills: Reading Comprehension

Table 10 detailed the status of learners' reading comprehension across literal, inferential, and critical evaluative levels.

Table 10
Status of Learners' Foundational Literacy in Reading Comprehension

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Locates and retrieves explicit details and answers direct literal questions accurately.	2.62	0.66	Mastered
2. Draws logical contextual inferences and predicts story outcomes using textual clues.	2.11	0.58	Moderately Mastered
3. Distinguishes fact from opinion and identifies complex cause-and-effect relationships.	1.94	0.55	Moderately Mastered
4. Evaluates textual intent, synthesizes main ideas, and articulates critical insights.	1.83	0.53	Moderately Mastered
Composite Mean	**2.13**	**0.58**	**Moderately Mastered**

Table 10 showed that reading comprehension yielded an aggregate composite mean of 2.13 ($SD = 0.58$), interpreted as Moderately Mastered.

A distinct divergence appeared between literal recall and higher-order comprehension skills. The retrieval of explicit textual details achieved a mean of 2.62 ($SD = 0.66$), falling within the Mastered range. In

contrast, inferential and analytical tasks scored lower: drawing contextual inferences scored 2.11 ($SD = 0.58$), distinguishing fact from opinion recorded 1.94 ($SD = 0.55$), and evaluating textual intent scored lowest at 1.83 ($SD = 0.53$). These results indicated that learners were generally able to locate directly stated facts within a text, but encounter significant difficulty when asked to make inferences, synthesize implicit messages, or critically evaluate an author's purpose.

This pattern were consistent with the findings of Guthrie et al. (2021) and the World Bank (2022) Learning Poverty report, which observed that learners frequently stall at literal processing if classroom instruction does not systematically teach inferential reading strategies. The low score on critical evaluation highlights the need for targeted instructional frameworks that move students beyond factual extraction toward deeper textual analysis.

Summary of Foundational Literacy Skills

Table 11 summarized the three evaluated dimensions of foundational literacy.

Table 11
Summary Table on the Status of Learners' Foundational Literacy Skills

Dimension	Overall Weighted Mean ($\bar{x}$)	Overall Standard Deviation (SD)	Verbal Description	Rank
1. Decoding and Word Recognition	2.30	0.61	Moderately Mastered	1
2. Reading Fluency and Accuracy	2.21	0.60	Moderately Mastered	2
3. Reading Comprehension	2.13	0.58	Moderately Mastered	3
Overall Literacy Mean	**2.21**	**0.60**	**Moderately Mastered**	

Table 11 presented the overall foundational literacy mean across the surveyed schools is 2.21 ($SD = 0.60$), corresponding to a verbal description of Moderately Mastered.

Decoding and Word Recognition ranked first with a weighted mean of 2.30, followed by Reading Fluency and Accuracy at 2.21, and Reading Comprehension at 2.13. The descending performance gradient from word recognition down to comprehension reflects the cumulative nature of reading development: difficulties in automated decoding and fluency create compounding barriers to higher-order comprehension.

These findings point to an ongoing learning backlog across the participating elementary and secondary schools in Leyte, underscoring the necessity of structured, multi-tiered literacy interventions to strengthen both foundational mechanics and analytical reading abilities (Carta et al., 2023; DepEd, 2023).

Foundational Numeracy Skills: Number Concepts and Operational Fluency

Table 12 outlined the evaluated status of foundational number sense and basic operational fluency.

Table 12
Status of Learners' Foundational Numeracy in Number Concepts and Operational Fluency

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Demonstrates understanding of whole number place values, magnitudes, and basic fractions.	2.58	0.65	Mastered
2. Performs multi-digit addition and subtraction accurately without using manual counting aids.	2.49	0.61	Moderately Mastered
3. Recalls basic multiplication and division facts (tables 1–10) with automaticity.	2.26	0.59	Moderately Mastered
4. Executes multi-digit division and multiplication operations with procedural accuracy.	2.12	0.57	Moderately Mastered
Composite Mean	2.36	0.61	Moderately Mastered

Table 12 showed a composite mean of 2.36 ($SD = 0.61$) for number concepts and operational fluency, interpreted as Moderately Mastered.

Understanding whole number place value and basic fractions registered the highest mean of 2.58 ($SD = 0.65$), described as Mastered. Performance decreased across procedural operations: multi-digit addition and subtraction without physical counting aids scored 2.49 ($SD = 0.61$), automated recall of basic

multiplication and division facts scored 2.26 ($SD = 0.59$), and multi-digit multiplication and long division obtained 2.12 ($SD = 0.57$), all within the Moderately Mastered bracket.

These findings indicated that while students generally understand basic place value concepts, their computational automaticity remains inconsistent, particularly with multi-digit operations and basic multiplication tables. Many learners continue to rely on manual or tally-based counting methods, which slows computational speed and increases error rates when tackling multi-step equations.

As demonstrated by Fuchs et al. (2021) and Wood et al. (2023), automated retrieval of basic math facts is essential for freeing up cognitive capacity for advanced mathematical problem-solving. Without intervention to build operational fluency, students entering secondary school often struggle with algebra and broader quantitative reasoning curricula.

Foundational Numeracy Skills: Contextual Word Problem-Solving

Table 13 presented the performance status of learners in solving word problems situated in real-world contexts.

Table 13
Status of Learners' Foundational Numeracy in Contextual Word Problem-Solving

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Identifies the correct arithmetic operation required by the problem prompt.	2.37	0.58	Moderately Mastered
2. Translates descriptive word problems into accurate mathematical equations and symbols.	2.19	0.56	Moderately Mastered
3. Isolates hidden questions, operational sequences, and filters out extraneous details.	2.05	0.54	Moderately Mastered
4. Solves multi-step word problems involving real-life measurements and transactions.	1.88	0.52	Moderately Mastered
Composite Mean	**2.12**	**0.55**	**Moderately Mastered**

The data in Table 13 revealed an aggregate composite mean of 2.12 ($SD = 0.55$), described as Moderately Mastered.

Identifying the required arithmetic operation recorded the highest mean within this domain at 2.37 ($SD = 0.58$). However, translating narrative descriptions into symbolic mathematical equations scored 2.19 ($SD = 0.56$), isolating operational sequences and filtering extraneous data scored 2.05 ($SD = 0.54$), and solving multi-step contextual problems yielded the lowest mean of 1.88 ($SD = 0.52$).

These ratings showed that students encounter noticeable difficulty when mathematical problems are embedded in textual narratives. Learners often struggle to parse word problems, identify the sequential steps required, and convert narrative descriptions into appropriate arithmetic expressions.

This outcome illustrated the intersection between reading comprehension and mathematical performance. As Dela Cruz and Tan (2022) observed among rural Philippine learners, difficulty with word problems often stems from reading challenges rather than a complete absence of computational ability. When learners encounter unfamiliar phrasing or decontextualized problem setups, cognitive overload occurs, leading to procedural errors and calculation avoidance (Krajcik et al., 2023).

Foundational Numeracy Skills: Mathematical Reasoning and Real-World Application

Table 14 illustrated the evaluated status of learners' mathematical reasoning and practical application abilities.

Table 14
Status of Learners' Foundational Numeracy in Mathematical Reasoning and Application

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Identifies structural patterns and numeric sequences to deduce unknown values.	2.35	0.57	Moderately Mastered
2. Applies estimation strategies to verify the reasonableness of calculated outcomes.	2.16	0.59	Moderately Mastered
3. Explains the conceptual rationale and mathematical logic behind chosen computational steps.	2.03	0.55	Moderately Mastered
4. Uses quantitative reasoning to formulate solutions for authentic community situations.	1.91	0.53	Moderately Mastered

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
Composite Mean	**2.11**	**0.56**	**Moderately Mastered**

Table 14 indicated a composite mean of 2.11 ($SD = 0.56$), verbally interpreted as Moderately Mastered.

Pattern identification and numerical sequences scored highest at 2.35 ($SD = 0.57$), followed by the use of estimation strategies at 2.16 ($SD = 0.59$). Explaining the underlying logic behind computational steps scored 2.03 ($SD = 0.55$), while applying quantitative reasoning to resolve real-world community dilemmas obtained the lowest score of 1.91 ($SD = 0.53$).

These findings indicated that instructional routines have tended to emphasize procedural calculation over conceptual reasoning. While students can often complete standardized arithmetic exercises, they struggle to articulate why a specific mathematical method works or how to adapt numerical concepts to unstructured, daily community situations.

In line with Situated Learning Theory, mathematical reasoning develops more effectively when problems are anchored in authentic, community-referenced tasks (Brown et al., 2021; Azevedo & Bernard, 2021). When mathematical tasks remain divorced from students' everyday lived experiences, computational skills often remain superficial and difficult to apply in non-classroom settings.

SUMMARY OF FOUNDATIONAL NUMERACY SKILLS

Table 15 provided a summary of the three foundational numeracy dimensions evaluated across the participating schools.

Table 15
Summary Table on the Status of Learners' Foundational Numeracy Skills

Dimension	Overall Weighted Mean ($\bar{x}$)	Overall Standard Deviation (SD)	Verbal Description	Rank
1. Number Concepts and Operational Fluency	2.36	0.61	Moderately Mastered	1
2. Contextual Word Problem-Solving	2.12	0.55	Moderately Mastered	2

Dimension	Overall Weighted Mean ($\bar{x}$)	Overall Standard Deviation (SD)	Verbal Description	Rank
3. Mathematical Reasoning and Real-World Application	2.11	0.56	Moderately Mastered	3
Overall Numeracy Mean	2.20	0.57	Moderately Mastered	

The overall foundational numeracy mean across the surveyed schools is 2.20 ($SD = 0.57$), categorized as Moderately Mastered.

Number Concepts and Operational Fluency ranked first ($\bar{x} = 2.36$), Contextual Word Problem-Solving ranked second ($\bar{x} = 2.12$), and Mathematical Reasoning and Real-World Application ranked third ($\bar{x} = 2.11$). This performance distribution parallels the pattern observed in literacy, where higher-order applications yield lower mastery ratings than basic operational mechanics.

These findings point to an ongoing need for structured interventions that strengthen both basic computational speed and contextual mathematical problem-solving across the elementary-to-secondary educational continuum in the division (Bernardo et al., 2023; DepEd, 2023).

Extent of Implementation of Multilevel Support Systems

The extent of implementation of multilevel support systems was evaluated across four tiers: Administrative and Institutional Governance Support, Tier 3 Intensive Individualized Diagnostic Assistance, Tier 2 Targeted Small-Group Remediation Clinics, and Tier 1 Core Classroom Differentiated Instruction. The scale ranges were Highly Implemented (3.26–4.00), Implemented (2.51–3.25), Moderately Implemented (1.76–2.50), and Not Implemented (1.00–1.75).

Administrative and Institutional Governance Support

Table 16 detailed the evaluated extent of administrative and institutional leadership support provided for foundational remediation programs.

Table 16
Extent of Implementation of Administrative and Institutional Governance Support

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. School Learning Action Cell (SLAC) sessions are dedicated to foundational diagnostic teaching.	2.68	0.67	Implemented
2. School heads conduct clinical supervisory walk-throughs focused on remediation programs.	2.54	0.62	Implemented
3. School class schedules are officially modified to institutionalize dedicated remedial corridors.	2.29	0.65	Moderately Implemented
4. School MOOE funds are allocated for printing diagnostic tools and leveled remedial materials.	2.14	0.68	Moderately Implemented
Composite Mean	**2.41**	**0.66**	**Moderately Implemented**

Table 16 indicated an overall composite mean of 2.41 ($SD = 0.66$) for administrative governance support, falling within the Moderately Implemented range.

Dedicating SLAC sessions to foundational diagnostic strategies scored highest at 2.68 ($SD = 0.67$), followed by administrative walk-throughs focused on remedial activities at 2.54 ($SD = 0.62$), both classified as Implemented. In contrast, institutionalizing protected remedial corridors within the official master class schedule scored 2.29 ($SD = 0.65$), and allocating School Maintenance and Other Operating Expenses (MOOE) for diagnostic and leveled learning materials scored 2.14 ($SD = 0.68$), both rated as Moderately Implemented.

These findings indicated that while school administrators actively support foundational recovery through teacher discussions and periodic classroom visits, systemic logistical barriers persist. Adjusting school timetables to accommodate structured remedial periods without overlapping with standard subject hours remains challenging, particularly in departmentalized secondary high schools. Furthermore, competing demands on school MOOE allocations often limit the financial resources available for reproducing specialized diagnostic screening kits and leveled reading booklets.

As observed by Sugai and Horner (2020) and Berkeley et al. (2024), multi-tiered support models require consistent administrative backing, dedicated scheduling, and dedicated material resources to operate beyond informal, after-school arrangements.

Intensive Individualized Diagnostic Assistance

Table 17 presented the extent of implementation of Tier 3 clinical, one-on-one interventions for learners with severe foundational deficits.

Table 17
Extent of Implementation of Tier 3: Intensive Individualized Diagnostic Assistance

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Severe non-readers and non-calculators receive one-on-one clinical diagnostic remediation.	2.23	0.60	Moderately Implemented
2. Multisensory reading systems and tactile math counters are used in clinical sessions.	2.17	0.58	Moderately Implemented
3. Individual progress monitoring charts track daily and weekly mastery toward specific benchmarks.	2.05	0.56	Moderately Implemented
4. Teachers design and execute Individualized Instructional Prescriptions (IIP) for high-need learners.	1.89	0.54	Moderately Implemented
Composite Mean	2.09	0.57	Moderately Implemented

As presented in Table 17, Tier 3 clinical assistance obtained a composite mean of 2.09 ($SD = 0.57$), corresponding to Moderately Implemented.

All four evaluated indicators were rated within the Moderately Implemented range (1.76–2.50). Providing one-on-one clinical remediation for severe non-readers and non-calculators scored 2.23 ($SD = 0.60$), while utilizing multisensory reading approaches and tactile math aids scored 2.17 ($SD = 0.58$).

Maintaining individual progress monitoring charts registered a mean of 2.05 ($SD = 0.56$), and developing formal Individualized Instructional Prescriptions (IIP) recorded the lowest mean at 1.89 ($SD = 0.54$).

These results indicated that intensive individualized intervention remains one of the least institutionalized components of the support framework. While teachers occasionally provide one-on-one assistance to struggling students, these sessions often occur on an ad hoc basis rather than through formalized clinical protocols. Generating individualized learning plans and maintaining continuous progress tracking records requires significant time, which is often constrained by heavy teaching loads and ancillary administrative duties.

As established in literature by Fuchs and Fuchs (2020) and Al Otaiba et al. (2023), Tier 3 interventions require specialized diagnostic training, dedicated clinical materials, and dedicated instructional time to effectively support learners with persistent deficits.

Targeted Small-Group Remediation Clinics

Table 18 presented the extent of implementation of Tier 2 small-group clinics for learners performing below grade level.

Table 18
Extent of Implementation of Tier 2: Targeted Small-Group Remediation Clinics

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Borderline learners are clustered into small instructional cohorts (5–8 students) for targeted re-teaching.	2.58	0.63	Implemented
2. Structured peer-assisted learning (student buddy systems) supports teacher-led instruction.	2.44	0.61	Moderately Implemented
3. Dedicated remedial reading and math clinics are conducted weekly outside core class hours.	2.36	0.64	Moderately Implemented
4. Structured leveled reader toolkits and remedial activity packets are used during clinic sessions.	2.21	0.59	Moderately Implemented

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
Composite Mean	2.40	0.62	Moderately Implemented

Table 18 indicated an aggregate composite mean of 2.40 ($SD = 0.62$) for Tier 2 small-group clinics, interpreted as Moderately Implemented.

Clustering borderline learners into small instructional cohorts of 5 to 8 students achieved the highest mean of 2.58 ($SD = 0.63$), falling within the Implemented range. In contrast, utilizing peer-assisted study buddy systems scored 2.44 ($SD = 0.61$), conducting dedicated weekly remedial clinics outside regular class hours scored 2.36 ($SD = 0.64$), and deploying leveled reader toolkits and activity packets recorded 2.21 ($SD = 0.59$), all rated as Moderately Implemented.

These evaluations showed that while teachers routinely group struggling students for targeted re-teaching, sustaining dedicated clinic sessions faces operational challenges. Remedial meetings held outside regular class hours often conflict with student transportation arrangements in rural areas, domestic chores, or seasonal family livelihood activities. Additionally, teachers often face a scarcity of leveled reading packets and structured remedial materials, requiring them to prepare their own supplementary exercises with limited preparation time.

Jimerson et al. (2021) and Carta et al. (2023) emphasize that Tier 2 interventions are most effective when small-group clinics are integrated directly into the regular school timetable and equipped with standardized, leveled remedial materials.

Core Classroom Universal Differentiated Instruction

Table 19 detailed the extent of implementation of Tier 1 universal core instructional strategies within regular classrooms.

Table 19
Extent of Implementation of Tier 1: Core Classroom Universal Differentiated Instruction

Indicator	**Weighted Mean ($\bar{x}$)**	**Standard Deviation (SD)**	**Verbal Description**
1. Universal diagnostic screening (CRLA, Phil-IRI, RMA) is administered at the start of the school year.	3.34	0.56	Highly Implemented

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
2. Daily 5-to-10 minute foundational reading fluency drills and mental math exercises are integrated.	2.66	0.62	Implemented
3. Teachers deliver differentiated learning tasks matching varying student readiness levels.	2.47	0.59	Moderately Implemented
4. Flexible small-group stations are utilized during regular classroom seatwork routines.	2.31	0.58	Moderately Implemented
Composite Mean	**2.70**	**0.59**	**Implemented**

As presented in Table 19, Tier 1 universal core instruction achieved a composite mean of 2.70 ($SD = 0.59$), verbally described as Implemented.

Administering mandated universal diagnostic screening tools (such as CRLA, Phil-IRI, and RMA) at the beginning of the school year registered the highest score of 3.34 ($SD = 0.56$), categorized as Highly Implemented. Integrating short daily reading drills and mental math exercises scored 2.66 ($SD = 0.62$), described as Implemented. However, delivering differentiated learning tasks tailored to diverse readiness levels scored 2.47 ($SD = 0.59$), and utilizing flexible small-group learning stations during seatwork recorded 2.31 ($SD = 0.58$), both falling within the Moderately Implemented bracket.

These findings indicated that while initial diagnostic assessments and daily baseline drills are systematically carried out in accordance with DepEd guidelines, classroom-level instructional differentiation remains partially realized. Large class sizes and limited physical classroom space make managing multiple concurrent small-group learning stations challenging for teachers. Consequently, daily instruction can still default toward uniform, whole-class delivery that may not fully address the needs of either lagging or advanced learners.

As noted by Gouëdard et al. (2020) and Haelermans et al. (2022), initial diagnostic screening must be directly paired with differentiated instructional practices during core class hours to prevent early learning gaps from compounding over time.

Summary of Multilevel Support Systems Implementation

Table 20 provided a summary comparison of the four evaluated support tiers.

Table 20
Summary Table on the Extent of Implementation of Multilevel Support Systems

Tier / Support Dimension	Overall Weighted Mean ($\bar{x}$)	Overall Standard Deviation (SD)	Verbal Description	Rank
1. Tier 1: Core Classroom Universal Differentiated Instruction	2.70	0.59	Implemented	1
2. Administrative and Institutional Governance Support	2.41	0.66	Moderately Implemented	2
3. Tier 2: Targeted Small-Group Remediation Clinics	2.40	0.62	Moderately Implemented	3
4. Tier 3: Intensive Individualized Diagnostic Assistance	2.09	0.57	Moderately Implemented	4
Overall Support Systems Mean	2.40	0.61	Moderately Implemented	

Table 20 presented the overall composite mean for multilevel support systems implementation across the participating schools is 2.40 ($SD = 0.61$), interpreted as Moderately Implemented.

Tier 1 Universal Differentiated Instruction ranked highest with a mean of 2.70 (Implemented), followed by Administrative Governance Support at 2.41 (Moderately Implemented), Tier 2 Small-Group Clinics at 2.40 (Moderately Implemented), and Tier 3 Intensive Diagnostic Assistance at 2.09 (Moderately Implemented).

This hierarchical distribution indicates that support systems are relatively stronger at the general classroom and administrative levels, but become less intensive and less formalized at the specialized intervention tiers. Tier 3 clinical support, in particular, shows the greatest need for operational strengthening, pointing to the value of a structured framework to help schools institutionalize targeted and intensive interventions systematically (Berkeley et al., 2024; DepEd Order No. 13, s. 2023).

Extent Of Utilization Of Context-Based

Pedagogical Interventions

The extent to which teachers utilize context-based pedagogical interventions was appraised across three dimensions: Application of Real-Life Socio-Economic Livelihood Scenarios, Integration of Local Cultural Heritage and Traditions, and Use of Localized and Community-Sourced Learning Materials. The scale ranges were Highly Utilized (3.26–4.00), Utilized (2.51–3.25), Moderately Utilized (1.76–2.50), and Not Utilized (1.00–1.75).

Application of Real-Life Socio-Economic Livelihood Scenarios

Table 21 outlined the extent to which local economic activities are incorporated into instructional tasks.

Table 21
Extent of Utilization of Real-Life Socio-Economic Livelihood Scenarios

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Designs consumer math simulations around public market (tabu) commerce and sari-sari store transactions.	2.65	0.64	Utilized
2. Uses municipal transport routes, tricycle fares, and travel distances to teach rates and measurements.	2.52	0.61	Utilized
3. Frames computational problems around coastal fishing catch weights, operational costs, and profits.	2.34	0.59	Moderately Utilized
4. Formulates math word problems based on agricultural harvest weights (copra, corn, rice) and sales.	2.27	0.58	Moderately Utilized
Composite Mean	**2.45**	**0.61**	**Moderately Utilized**

As shown in Table 21, the application of socioeconomic livelihood scenarios yielded an aggregate composite mean of 2.45 ($SD = 0.61$), verbally described as Moderately Utilized.

Simulating local market commerce (tabu) and sari-sari store transactions registered the highest mean of 2.65 ($SD = 0.64$), followed by incorporating local transport fares and travel distances at 2.52 ($SD = 0.61$), both falling within the Utilized range. Conversely, framing word problems around coastal fishing yields

scored 2.34 ($SD = 0.59$), and formulating tasks around agricultural harvests (such as copra, corn, and rice) recorded 2.27 ($SD = 0.58$), both evaluated as Moderately Utilized.

These findings indicated that while teachers regularly incorporate common commercial scenarios like store transactions and public transport into basic math tasks, they less frequently develop detailed exercises centered on local agricultural and fishing livelihoods. Many available learning materials continue to rely on standard textbook examples rather than drawing directly upon the specific farming and fishing activities prevalent in Northwestern Leyte.

In accordance with Situated Learning Theory, grounding mathematical and reading tasks in authentic community livelihoods helps make abstract concepts more accessible to rural learners (Brown et al., 2021; Krajcik et al., 2023). Incorporating agricultural cycles and coastal commerce into instructional tasks provides familiar cognitive anchors that support learner engagement and problem-solving success (Dela Cruz & Tan, 2022).

Integration of Local Cultural Heritage and Traditions

Table 22 presented the extent to which local history, folklore, and cultural practices are integrated into daily lessons.

Table 22
Extent of Utilization of Local Cultural Heritage and Traditions

Indicator	**Weighted Mean ($\bar{x}$)**	**Standard Deviation (SD)**	**Verbal Description**
1. Embeds community values and cultural practices into reading and mathematics instruction.	2.61	0.62	Utilized
2. Incorporates municipal festivals, community events, and cultural traditions into writing prompts.	2.48	0.59	Moderately Utilized
3. Utilizes local proverbs, rhymes, and stories in Waray/Kana for phonological and conceptual bridging.	2.30	0.63	Moderately Utilized
4. Adapts reading comprehension selections to feature local Leyteño legends, folklore, and local history.	2.15	0.57	Moderately Utilized
Composite Mean	**2.39**	**0.60**	**Moderately Utilized**

Table 22 indicated a composite mean of 2.39 ($SD = 0.60$) for the integration of cultural heritage and traditions, falling within the Moderately Utilized range.

Embedding community values into daily instruction ranked highest at 2.61 ($SD = 0.62$), described as Utilized. In contrast, using municipal festivals and local events as writing prompts scored 2.48 ($SD = 0.59$), employing local proverbs and rhymes in Waray-Waray or Lineyte-Kana for linguistic bridging scored 2.30 ($SD = 0.63$), and adapting reading passages to feature local Leyteño legends and history scored lowest at 2.15 ($SD = 0.57$), all classified as Moderately Utilized.

These results showed that while teachers actively emphasize community values in the classroom, the systematic integration of local history, folklore, and mother-tongue literature into reading passages remains less common. Instructional materials often center on nationally distributed narratives that feature urban or non-local settings, offering fewer opportunities for rural Leyteño learners to encounter their own cultural environment in school texts.

As highlighted by Montebon and Espinosa (2024), integrating indigenous narratives and regional folklore into foundational reading supports phonemic bridging and comprehension, particularly for young learners transitioning from their domestic vernacular into national languages. This aligns with Section 5 of Republic Act No. 10533, which encourages curriculum contextualization to reflect learners' immediate cultural and geographic environments.

Use of Localized and Community-Sourced Learning Materials

Table 23 detailed the extent to which teachers create and utilize localized instructional tools and concrete realia.

Table 23
Extent of Utilization of Localized and Community-Sourced Learning Materials

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
1. Utilizes indigenous concrete objects (coconut shells, seashells, seeds, bamboo twigs) as math counters.	2.69	0.65	Utilized
2. Displays localized print environments, community word walls, and regional number charts.	2.53	0.62	Utilized
3. Develops teacher-made supplementary reading modules reflecting local settings and personalities.	2.28	0.59	Moderately Utilized

Indicator	Weighted Mean ($\bar{x}$)	Standard Deviation (SD)	Verbal Description
4. Adapts decontextualized national textbook illustrations to mirror rural Leyteño community life.	2.16	0.58	Moderately Utilized
Composite Mean	**2.42**	**0.61**	**Moderately Utilized**

As presented in Table 23, the use of localized learning materials obtained an aggregate composite mean of 2.42 ($SD = 0.61$), interpreted as Moderately Utilized.

Utilizing indigenous concrete objects (such as seashells, coconut shells, seeds, and bamboo twigs) as tactile math counters recorded the highest mean of 2.69 ($SD = 0.65$), followed by maintaining localized word walls and regional charts at 2.53 ($SD = 0.62$), both falling within the Utilized bracket. However, developing teacher-made reading modules featuring local personalities scored 2.28 ($SD = 0.59$), and adapting standardized textbook illustrations to depict rural Leyteño settings scored 2.16 ($SD = 0.58$), both rated as Moderately Utilized.

These findings demonstrate that educators readily make use of physical, readily available local materials, such as shells and seeds, for concrete arithmetic tasks. However, the development of teacher-made print resources, such as contextualized reading passages and illustrated storybooks, is less widespread. Developing verified, grade-appropriate reading materials requires significant preparation time, artistic support, and printing resources, which are often limited at the school level.

As noted by Alontaga et al. (2022) and Blando and Morales (2025), sustaining localized instructional materials requires structured support from division-level learning resource units (LRMDS) to assist teachers in screening, illustrating, and producing culturally relevant reading and numeracy modules.

Summary of Context-Based Pedagogical

Interventions Utilization

Table 24 presented a summary comparison across the three context-based pedagogy dimensions.

Table 24
Summary Table on the Extent of Utilization of Context-Based Pedagogical Interventions

Dimension	Overall Weighted Mean (x^-)	Overall Standard Deviation (SD)	Verbal Description	Rank
1. Application of Real-Life Socio-Economic Livelihood Scenarios	2.45	0.61	Moderately Utilized	1
2. Use of Localized and Community-Sourced Learning Materials	2.42	0.61	Moderately Utilized	2
3. Integration of Local Cultural Heritage and Traditions	2.39	0.60	Moderately Utilized	3
Overall Contextualization Mean	**2.42**	**0.61**	**Moderately Utilized**	

Table 24 presented the overall composite mean for context-based pedagogical utilization is 2.42 ($SD = 0.61$), verbally described as Moderately Utilized.

Livelihood Scenarios ranked first ($\bar{x} = 2.45$), Localized Materials ranked second ($\bar{x} = 2.42$), and Cultural Heritage Integration ranked third ($\bar{x} = 2.39$). While the differences among the three dimensions are relatively modest, all three composite scores fall within the Moderately Utilized range.

These findings indicated that while teachers recognize the value of contextualization and employed local elements on an occasional basis, contextualized pedagogy has not yet been systematically embedded into daily lesson designs across the surveyed schools. Establishing a curated repository of localized reading selections and community-referenced math problems would help streamline the integration of authentic Leyteño contexts into regular classroom and remedial instruction (Damşa & de Lange, 2023; Krajcik et al., 2023).

3. Summary of Findings, Conclusion and Recommendation

This chapter synthesizes the empirical evidence established across the sixty-five key educational participants stationed in San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School within the Third Congressional District of the Division of Leyte. By systematically reviewing the research questions framed in the Statement of the Problem, it presents an analytical narrative of the findings regarding the demographic and professional attributes of the respondents, the observed baseline status of

learners across foundational reading and mathematics dimensions, the degree to which multi-tiered support systems are operationalized, the utilization level of context-based pedagogical strategies, and the severity of institutional hurdles encountered in field delivery. From these descriptive and evaluative outcomes, fundamental academic conclusions are derived to encapsulate the institutional condition of basic education in rural Northwestern Leyte.

Ultimately, actionable recommendations are posited to provide operational pathways for division officials, district supervisors, school managers, and classroom practitioners, serving as the empirical foundation for institutionalizing the LEYTE-PULSE Framework.

Summary Of Findings

The examination of the demographic and professional profiles revealed critical human resource baselines across the participating institutions. Chronologically, the instructional and leadership corps is anchored within a mature mid-career bracket, with twenty-five participants, or thirty-eight and forty-six hundredths percent, situated between thirty-six and forty-five years of age, followed by sixteen educators, or twenty-four and sixty-two hundredths percent, in the forty-six to fifty-five age corridor, fifteen teachers, or twenty-three and eight hundredths percent, aged twenty-six to thirty-five, six senior educators, or nine and twenty-three hundredths percent, aged fifty-six and older, and only three individuals, or four and sixty-two hundredths percent, representing the twenty-five years and younger bracket. This generational maturity is complemented by a substantial female representation, consisting of fifty-one female respondents, or seventy-eight and forty-six hundredths percent, and fourteen male respondents, or twenty-one and fifty-four hundredths percent, which closely mirrors the national demographic distribution of the basic educational workforce in the Philippines, where female teachers predominantly oversee early foundational and intermediate grade instructional tracks (Bernardo et al., 2023).

In terms of academic preparation, an overwhelming majority of the participants have pursued advanced educational studies, with thirty-six educators, or fifty-five and thirty-eight hundredths percent, having acquired post-baccalaureate Master's units, fourteen respondents, or twenty-one and fifty-four hundredths percent, possessing completed Master's degrees, five educators, or seven and sixty-nine hundredths percent, completing post-graduate doctoral units, and two school administrators, or three and eight hundredths percent, holding full doctoral degrees, leaving only eight participants, or twelve and thirty-one hundredths percent, holding solely a baccalaureate credential. This advanced academic orientation reflects strong professional upward mobility aligned with Republic Act Number 11713, yet empirical implementation studies highlight that formal academic credentials alone do not guarantee clinical intervention efficacy without dedicated school-level technical assistance (Alontaga et al., 2022).

The institutional designations were evenly distributed by design across administrative and instructional functions, comprising five School Heads, or seven and sixty-nine hundredths percent, thirty Literacy and Language Teachers, or forty-six and fifteen hundredths percent, and thirty Mathematics and Numeracy Teachers, or forty-six and fifteen hundredths percent, thereby establishing absolute structural parity between reading mechanics and mathematical operational competencies across both elementary feeder schools and secondary receiving stations.

This institutional stability was reinforced by cumulative experience in the public service, as twenty-one participants, or thirty-two and thirty-one hundredths percent, have served for eleven to fifteen years, fourteen educators, or twenty-one and fifty-four hundredths percent, for sixteen to twenty years, thirteen teachers, or twenty percent, for six to ten years, and eight senior educators, or twelve and thirty-one hundredths percent, for twenty-one years and above, while early-career teachers serving three to five years and below three years accounted for six, or nine and twenty-three hundredths percent, and three, or four and sixty-two hundredths percent, respectively. Over sixty-six percent of the educators possess more than a decade of active public service, which equips them with contextual familiarity regarding local learner characteristics, although long-serving faculties frequently face institutional inertia when transitioning from traditional whole-class methods to tiered diagnostic structures (Stufflebeam & Coryn, 2024; Carta et al., 2023).

However, specialized pedagogical upskilling in foundational reading, mathematics, or clinical diagnosis over the past three years remains limited, with twenty-nine educators, or forty-four and sixty-two hundredths percent, participating merely in brief, school-level Learning Action Cell sessions spanning one to sixteen hours, eighteen teachers, or twenty-seven and sixty-nine hundredths percent, attending division or district workshops of seventeen to thirty-two hours, nine participants, or thirteen and eighty-five hundredths percent, completing regional programs of thirty-three to forty-eight hours, and only four teachers, or six and fifteen hundredths percent, completing comprehensive national or international courses exceeding forty-nine hours, alongside five respondents, or seven and sixty-nine hundredths percent, reporting zero training attendance. This prevalence of abbreviated, non-clinical orientations restricts frontline capacity to execute diagnostic instructional scaffolding, leaving educators dependent on intuitive remediation methods (David et al., 2022; San Antonio et al., 2024; Al Otaiba et al., 2023).

The diagnostic appraisal of learners' foundational literacy revealed persistent learning backlogs across all three cognitive tiers, yielding a composite reading mean of two and twenty-one hundredths, with a standard deviation of sixty hundredths, verbally designated as Moderately Mastered. Decoding and word recognition ranked first among the literacy dimensions with a composite mean of two and thirty hundredths and a standard deviation of sixty-one hundredths, which indicates emerging proficiency. Within this indicator, students demonstrated mastery only in basic phoneme blending and segmentation, which recorded a mean of two and fifty-two hundredths, but experienced marked performance drops in sight word automaticity with a mean of two and forty-five hundredths, multisyllabic word decoding with a mean of two and eighteen hundredths, and morphological clue application with a mean of two and six hundredths.

This phonetic mechanical bottleneck directly compromised reading fluency and accuracy, which ranked second with an overall mean of two and twenty-one hundredths and a standard deviation of sixty hundredths. Across its specific metrics, learners recorded two and thirty-eight hundredths for low miscue rates, two and twenty-four hundredths for grade-level reading pacing, two and fifteen hundredths for punctuation and inflection observance, and a low of two and eight hundredths for expressive prosodic phrasing, reflecting that students read disconnectedly rather than with natural prosody.

Inevitably, this surface-level decoding friction hindered higher-level cognitive interpretation, causing reading comprehension to rank lowest with an overall mean of two and thirteen hundredths and a standard

deviation of fifty-eight hundredths. While students achieved a Mastered rating of two and sixty-two hundredths in literal retrieval of explicitly stated details, their cognitive processing collapsed when executing inferential and critical tasks, recording two and eleven hundredths for drawing inferences and predicting plot trajectories, one and ninety-four hundredths for differentiating fact from subjective opinion and tracking cause-and-effect sequences, and one and eighty-three hundredths for evaluating author intent and synthesizing thematic messages.

These outcomes confirmed that learners remain predominantly confined to literal information retrieval, lacking the dynamic scaffolding necessary under Vygotskian principles to access inferential and evaluative comprehension within their Zone of Proximal Development (Smagorinsky, 2020; Guthrie et al., 2021; World Bank, 2022; Shabani et al., 2022).

A parallel performance profile emerged in foundational numeracy, which registered an overall domain mean of two and twenty hundredths, with a standard deviation of fifty-seven hundredths, categorized as Moderately Mastered. Number concepts and operational fluency ranked highest among the mathematical dimensions with a composite mean of two and thirty-six hundredths and a standard deviation of sixty-one hundredths. In this foundational domain, learners exhibited mastery in understanding whole number place values and basic fraction concepts with a mean of two and fifty-eight hundredths, but displayed emerging performance in multi-digit addition and subtraction without physical counting aids with a mean of two and forty-nine hundredths, multiplication and division table automaticity with a mean of two and twenty-six hundredths, and multi-digit long multiplication and division procedures with a mean of two and twelve hundredths.

Cognitive difficulties intensified when operations were embedded within narrative linguistic frameworks, causing contextual word problem-solving to rank second with a composite mean of two and twelve hundredths and a standard deviation of fifty-five hundredths. Within this dimension, learners achieved a mean of two and thirty-seven hundredths in identifying the requisite mathematical operation, but declined to two and nineteen hundredths in translating written scenarios into symbolic algebraic equations, two and five hundredths in isolating hidden questions and filtering extraneous details, and one and eighty-eight hundredths in executing multi-step contextual computations involving real-life measurements.

Mathematical reasoning and real-world application ranked lowest with an overall mean of two and eleven hundredths and a standard deviation of fifty-six hundredths. While learners obtained two and thirty-five hundredths for identifying structural sequences and patterns and two and sixteen hundredths for using estimation strategies to verify calculated reasonableness, they recorded lower scores of two and three hundredths for articulating the conceptual logic behind computational methods and one and ninety-one hundredths for deploying quantitative reasoning to solve authentic rural community problems.

These findings substantiate that learners possessed isolated mechanical computation skills but struggle with conceptual abstraction and applied reasoning, which is exacerbated when textual word problems introduce reading comprehension barriers, confirming that arithmetic dyscalculia is inextricably linked to foundational reading deficits in rural basic education corridors (Fuchs et al., 2021; Dela Cruz & Tan, 2022; Wood et al., 2023; Krajcik et al., 2023).

The evaluation of multi-tiered support systems demonstrated an overall implementation mean of two and forty hundredths, with a standard deviation of sixty-one hundredths, denoting a Moderately Implemented institutional status across the five research environments. Tier 1 Core Classroom Universal Differentiated Instruction ranked highest among the support layers, achieving an Implemented rating with a composite mean of two and seventy hundredths and a standard deviation of fifty-nine hundredths. This level was driven by the universal administration of diagnostic screening tools such as the Comprehensive Rapid Literacy Assessment, the Philippine Informal Reading Inventory, and the Rapid Mathematics Assessment at the beginning of the school year, which registered a Highly Implemented mean of three and thirty-four hundredths, along with regular integration of short reading fluency drills and mental math exercises scoring two and sixty-six hundredths. However, frontline classroom execution of differentiated learning tasks based on student readiness scored two and forty-seven hundredths, and the organization of flexible small-group learning stations during seatwork routines scored two and thirty-one hundredths, both remaining within the Moderately Implemented bracket.

Administrative and Institutional Governance Support ranked second with a composite mean of two and forty-one hundredths and a standard deviation of sixty-six hundredths, wherein dedicating School Learning Action Cell sessions to diagnostic teaching scored two and sixty-eight hundredths and administrative supervisory walk-throughs focused on remediation scored two and fifty-four hundredths, both classified as Implemented. Conversely, adjusting daily master class schedules to institutionalize protected remedial corridors scored two and twenty-nine hundredths, and allocating school Maintenance and Other Operating Expenses funds for diagnostic tools and leveled booklets scored two and fourteen hundredths, both falling within the Moderately Implemented range.

Tier 2 Targeted Small-Group Remediation Clinics ranked third with a composite mean of two and forty hundredths and a standard deviation of sixty-two hundredths, characterized by the clustering of borderline learners into cohorts of five to eight students scoring two and fifty-eight hundredths, but constrained by peer-assisted buddy learning scoring two and forty-four hundredths, weekly remedial clinics outside class hours scoring two and thirty-six hundredths, and the availability of leveled reader toolkits and activity packets scoring two and twenty-one hundredths.

Tier 3 Intensive Individualized Diagnostic Assistance ranked lowest among the support tiers with a composite mean of two and nine hundredths and a standard deviation of fifty-seven hundredths. One-on-one clinical remediation for severe non-readers and non-calculators scored two and twenty-three hundredths, utilizing multisensory reading systems and tactile counters scored two and seventeen hundredths, maintaining individual progress monitoring charts scored two and five hundredths, and formulating formal Individualized Instructional Prescriptions recorded a low of one and eighty-nine hundredths, all verbally designated as Moderately Implemented.

These descriptive results revealed an inverted support structure wherein universal diagnostic testing is widely conducted under administrative mandate, but the subsequent delivery of tiered re-teaching and individualized clinical interventions remains sporadic, under-resourced, and unscheduled (Sugai & Horner, 2020; Jimerson et al., 2021; Berkeley et al., 2024; DepEd Order No. 13, s. 2023).

The appraisal of context-based pedagogical interventions indicated an overall composite mean of two and forty-two hundredths, with a standard deviation of sixty-one hundredths, verbally classified as Moderately Utilized. The Application of Real-Life Socio-Economic Livelihood Scenarios ranked first with a composite mean of two and forty-five hundredths and a standard deviation of sixty-one hundredths. Within this dimension, designing consumer math simulations around public market commerce and community store transactions scored two and sixty-five hundredths, and utilizing municipal transit fares and travel distances scored two and fifty-two hundredths, both achieving a Utilized rating. In contrast, framing computational tasks around coastal fishing catch weights, boat fuel expenditures, and profit margins scored two and thirty-four hundredths, and designing word problems around agricultural harvests of copra, corn, and rice scored two and twenty-seven hundredths, both falling into the Moderately Utilized bracket.

The Use of Localized and Community-Sourced Learning Materials ranked second with a composite mean of two and forty-two hundredths and a standard deviation of sixty-one hundredths. Educators actively utilized indigenous concrete counters such as coconut shells, seashells, seeds, and bamboo twigs, which registered a mean of two and sixty-nine hundredths, and maintained localized classroom print walls and number charts scoring two and fifty-three hundredths, both categorized as Utilized. Nevertheless, developing teacher-made localized reading modules scored two and twenty-eight hundredths, and adapting standard textbook illustrations to depict rural Leyteño domestic life scored two and sixteen hundredths, remaining Moderately Utilized.

The Integration of Local Cultural Heritage and Traditions ranked third with a composite mean of two and thirty-nine hundredths and a standard deviation of sixty hundredths. While embedding community values and cultural practices into daily lessons achieved a Utilized score of two and sixty-one hundredths, incorporating municipal festivals and community traditions into writing prompts scored two and forty-eight hundredths, utilizing local proverbs, rhymes, and stories in Waray-Waray or Lineyte-Kana for phonological and conceptual bridging scored two and thirty hundredths, and adapting reading selections to feature local Leyteño legends and folklore scored two and fifteen hundredths, all falling within the Moderately Utilized category.

These findings established that while frontline educators readily adopt immediate physical realia and commercial situations, they infrequently integrate authentic agricultural narratives, coastal maritime mechanics, and indigenous regional lore into structured instructional reading materials, leaving national textbook exemplars as the primary classroom medium in divergence from the localized intentions of Republic Act Number 10533 (Brown et al., 2021; Fuller, 2021; Damşa & de Lange, 2023; Montebon & Espinosa, 2024).

Conclusion

Based on the empirical findings generated across the five public educational stations in Northwestern Leyte, the following conclusions are formulated:

The instructional and administrative human resource base across the surveyed schools possesses substantial professional tenure and educational credentials, yet remains structurally constrained by limited specialized training in clinical diagnosis and differentiated remediation. While the predominant mid-career age distribution, female majority, and post-baccalaureate academic units reflect dedication to personal

professional development, this academic background has not translated into clinical diagnostic skills at the classroom level due to a reliance on brief, informal school-level Learning Action Cell sessions. Consequently, teachers are equipped with theoretical curriculum awareness but lack specialized training in multi-sensory phonics interventions, dyscalculia remediation, and individualized learning plan design.

Learners across the primary feeder and secondary receiving schools demonstrate an instructional plateau, exhibiting basic literal recognition and mechanical computation while remaining moderately mastered in higher-order reading comprehension, oral reading fluency, contextual mathematical problem-solving, and applied quantitative reasoning. The observed diagnostic deficits reveal that students are held back by surface-level phonetic decoding bottlenecks and slow computational recall, which compromises their working memory when confronted with multisyllabic vocabulary, complex sentence structures, and multi-step word problems. This instructional gap indicates that primary school deficits are carried over into secondary grade levels, forcing junior high school teachers to manage remedial instruction without formalized diagnostic systems.

The multi-tiered support systems across the participating institutions operate as an inverted structure that fulfills initial universal screening requirements but lacks institutionalization in secondary and tertiary interventions. While schools demonstrate high compliance in administering baseline screening instruments under Tier 1, classroom-level instructional differentiation, Tier 2 small-group clinics, and Tier 3 individualized clinical prescriptions remain moderately implemented. The absence of dedicated remedial corridors within the official school schedule and the lack of funding for clinical learning materials prevent tiered support systems from functioning as preventative, data-driven frameworks.

The integration of context-based pedagogical interventions remains largely confined to surface-level physical realia and familiar commercial transactions, leaving local cultural heritage, regional folklore, and agrarian-coastal livelihoods underutilized in formal reading passages and mathematical word problems. Although educators utilize indigenous concrete counters and draw upon local store commerce, they infrequently incorporate the lived economic realities of copra farming, corn harvesting, and small-scale fishing, or the rich oral traditions of Leyteño culture, into formal instructional modules. This instructional dynamic is driven by the scarcity of vetted materials in the Division Learning Resource Management and Development System, leaving teachers dependent on urban-centric, standardized national textbooks that introduce cognitive friction for rural learners.

The operational sustainability of foundational literacy and numeracy interventions is constrained by a combination of institutional workload pressures, instructional material shortages, external socioeconomic challenges, and clinical training deficits. Frontline teachers carry heavy teaching assignments and ancillary administrative duties that limit their capacity to conduct remedial clinics, while seasonal agricultural and fishing cycles cause chronic student absenteeism that disrupts remedial progress. Furthermore, schools operate with limited operating budgets to duplicate diagnostic kits and lack dedicated physical spaces for reading clinics.

These institutional realities confirm that isolated classroom efforts cannot resolve persistent foundational learning backlogs on their own. Sustainable learning recovery across the Division of Leyte requires a coordinated, multi-stakeholder operational mechanism that synchronizes school scheduling, localized

curriculum design, clinical teacher coaching, and community study pods, establishing the empirical necessity for the LEYTE-PULSE Framework.

Recommendations

In direct alignment with the empirical findings and derived conclusions of this study, the following structured recommendations are offered across key administrative, instructional, and community levels:

For the Department of Education Regional Office VIII and Division of Leyte Administrative Leadership

Institutionalize dedicated policy guidelines that authorize and direct school heads to adjust the daily master class schedule, formally establishing a non-negotiable thirty-to-forty-five-minute Tier 2 and Tier 3 remedial corridor that does not encroach upon mandated instructional contact hours or teacher preparation time.

Reallocate and ring-fence a dedicated percentage of division and school Maintenance and Other Operating Expenses funds specifically for reproducing standardized diagnostic screening toolkits, clinical progress monitoring forms, and leveled remedial reading and mathematics booklets.

Direct the Division Learning Resource Management and Development System to lead the quality assurance, contextual validation, and formal division-wide distribution of localized Leyteño reading passages, regional folklore anthologies, and community-referenced mathematical word problem modules reflecting local coastal fishing and agrarian livelihoods.

Formulate a comprehensive, credit-bearing professional development program in partnership with accredited higher education institutions, focusing on clinical diagnostic reading methods, multi-sensory phonetic remediation, dyscalculia intervention strategies, and tiered instructional management to transition teachers beyond brief, informal school-level orientations.

For Public Schools District Supervisors and District Instructional Leaders

Organize clustered, cross-institutional Learning Action Cell sessions that bring together elementary feeder school teachers and secondary receiving subject educators to harmonize diagnostic screening metrics, examine feeder learning deficits, and establish coordinated remediation pipelines between Key Stage 2 and Key Stage 3.

Implement clinical supervisory walk-throughs using standardized diagnostic monitoring rubrics, providing school heads and master teachers with targeted technical assistance on managing small-group clinics and Individualized Instructional Prescriptions.

Establish a district-level repository of verified, indigenous concrete learning aids and contextualized instructional materials to support small rural campuses with limited material development capacities.

For School Heads and Institutional Administrators

Modify the official school master schedule to incorporate structured remedial periods, redistributing non-instructional administrative and ancillary assignments away from reading and mathematics intervention teachers to protect remedial clinic time.

Designate and organize physical learning spaces within campuses, such as quiet reading corners, localized numeracy hubs, or repurposed learning rooms equipped with leveled reading libraries and concrete manipulative counters to conduct Tier 2 and Tier 3 interventions without classroom distractions.

Strengthen the school-level Learning Action Cell mechanism by prioritizing clinical demonstrations, peer-mentoring partnerships between master teachers and junior educators, and collaborative writing workshops for localized instructional modules.

Establish formal convergence agreements with Barangay Local Government Units and General Parent-Teacher Associations to create community-based study pods, coordinating with local officials to address chronic student absenteeism linked to seasonal harvesting and fishing activities.

For Master Teachers, Department Heads, and Instructional Coaches

Develop and monitor the execution of Individualized Instructional Prescriptions for high-need learners performing within the frustration reading and non-calculator bands, providing frontline teachers with clinical coaching during intervention sessions.

Lead the development of leveled reading passages and tiered mathematics problem sets that systematically integrate local community narratives, municipal market commerce, and regional livelihoods.

Institutionalize structured peer-assisted learning systems and student study-buddy pairings within Tier 1 core classrooms and Tier 2 remedial clinics to support teacher-led instructional differentiation.

For Frontline Classroom Teachers (Language and Mathematics Educators)

Transition classroom instruction toward tiered instructional delivery by utilizing start-of-year diagnostic data to organize flexible learning stations, providing scaffolded tasks that address both foundational mechanics and higher-order critical comprehension.

Systematically integrate local Leyteño cultural narratives, proverbs, and community economic realia into daily reading and mathematics exercises, using familiar community activities to help bridge the cognitive gap between concrete experience and abstract problem-solving.

Maintain individual diagnostic progress tracking records for vulnerable learners, using formative assessment data to adjust instructional pacing and clinical scaffolding in real time.

For Barangay Local Government Units, Parents, and Community Stakeholders

Enact supportive barangay-level education resolutions that establish and equip community learning centers or evening study pods with localized reading materials, supervised by designated barangay youth volunteers and parent-teacher liaisons.

Formulate local community tracking mechanisms to monitor and mitigate seasonal student absenteeism during peak farming harvest and coastal fishing windows, working in coordination with school heads to maintain learning continuity.

Actively participate in school-organized parent literacy and numeracy orientations, equipping families with home-based reading and computational reinforcement strategies suited to their domestic routines.

For Future Researchers

Conduct longitudinal evaluative studies tracking the multi-year academic progression of learners supported through tiered remediation frameworks as they transition from elementary feeder stations into junior high school environments.

Undertake quasi-experimental investigations to measure the empirical efficacy of localized, community-referenced instructional materials in comparison to standardized national textbook exemplars across broader rural educational divisions in Region VIII.

Utilize the baseline findings, descriptive indicators, and organizational structures established in this inquiry to examine the implementation fidelity of the proposed LEYTE-PULSE Framework across diverse public school divisions.

4. Output of The Study

This chapter articulates the evidence-based institutional deliverable developed from the empirical diagnostic findings across the five participating public elementary and secondary schools in the Third Congressional District of the Division of Leyte: San Isidro National High School, Calubian National High School, Felix Caneja Lafuente National High School, Gibacungan Elementary School, and Pining Paglingap Elementary School. Grounded on the Input-Process-Output (IPO) research architecture, this terminal output translates quantitative assessments, identified operational bottlenecks, and frontline teacher evaluations into a structured institutional plan entitled the LEYTE-PULSE Framework: Pedagogical Upliftment through Localized Systems and Tiered Empowerment.

The framework bridges the administrative-instructional divide by providing an operational roadmap designed to transition participating institutions from fragmented, reactive remedial sessions into a data-informed, culturally situated foundational learning recovery model. The presentation details the institutional rationale, defines overarching and specific operational objectives, delineates the scheme of implementation, and presents the 10-Point Implementation Matrix containing strategic actions, budgetary allocations, timelines, resource sources, and measurable deliverables.

Rationale

The formulation of the LEYTE-PULSE Framework (Pedagogical Upliftment through Localized Systems and Tiered Empowerment) responds directly to the empirical realities identified in this study. The diagnostic baseline established that learners across both elementary feeder schools and secondary receiving stations demonstrate an overall foundational literacy mean of 2.21 ($SD = 0.60$) and a foundational numeracy mean of 2.20 ($SD = 0.57$), both corresponding to a descriptive level of Moderately Mastered. The data reveal specific performance bottlenecks: learners experience phonetic decoding difficulties (multisyllabic decoding $\bar{x} = 2.18$; morphological clue application $\bar{x} = 2.06$), oral reading disfluency ($\bar{x} = 2.08$), and a drop in higher-order reading comprehension (critical evaluation $\bar{x} = 1.83$). In foundational mathematics, a parallel trend emerged where basic place value understanding ($\bar{x} = 2.58$) drops sharply when learners are confronted with contextual multi-step word problem-solving ($\bar{x} = 1.88$) and practical mathematical reasoning ($\bar{x} = 1.91$).

These academic deficits were exacerbated by structural weaknesses in school-level intervention systems. While universal diagnostic screening under Tier 1 is widely conducted ($\bar{x} = 3.34$), classroom differentiation ($\bar{x} = 2.47$), Tier 2 small-group clinics ($\bar{x} = 2.40$), and Tier 3 clinical diagnostic interventions ($\bar{x} = 2.09$) remain Moderately Implemented. The lack of institutionalized remedial schedules ($\bar{x} = 2.29$) and limited MOOE allocation for diagnostic materials ($\bar{x} = 2.14$) reveal an inverted support structure: schools diagnose student weaknesses at the start of the academic year, but lack formal operational corridors to remediate those weaknesses systematically. Consequently, primary school deficits carry over into secondary institutions, where junior high school educators must address elementary reading and computational backlogs without structured clinical toolkits or dedicated schedules.

Furthermore, context-based pedagogical strategies remained Moderately Utilized ($\bar{x} = 2.42$). While teachers make use of accessible concrete aids like coconut shells and seeds ($\bar{x} = 2.69$), they underutilize local historical narratives, legends, and folklore in reading passages ($\bar{x} = 2.15$), and rarely integrate coastal fishing or agricultural harvest cycles into mathematical problem-solving ($\bar{x} = 2.27$). Standardized textbooks containing urban-centric exemplars remain the default instructional medium, creating cognitive friction for rural Leyteño learners who struggle to relate abstract concepts to their lived experiences.

These instructional limitations were reinforced by institutional and community challenges. Operational barriers were rated as Serious overall ($\bar{x} = 3.20$), led by institutional workload and time constraints ($\bar{x} = 3.30$, Very Serious), high ancillary administrative assignments ($\bar{x} = 3.42$), and seasonal student absenteeism linked to harvesting and fishing cycles ($\bar{x} = 3.35$). Frontline teachers also reported a lack of vetted localized materials ($\bar{x} = 3.38$) and limited specialized clinical diagnostic training ($\bar{x} = 3.28$).

The LEYTE-PULSE Framework is designed to address these interrelated challenges. Structurally, it draws upon the Multi-Tiered System of Supports (MTSS) and Response to Intervention (RTI) frameworks (Fuchs & Fuchs, 2020; Berkeley et al., 2024), establishing dedicated, non-disruptive remedial corridors and clear tier-advancement criteria to prevent academic failure from solidifying. Culturally, it is anchored in Situated Learning Theory and Contextualized Teaching and Learning (Brown et al., 2021; Damşa & de Lange, 2023; Krajcik et al., 2023), translating the mandate of Section 5 of Republic Act No. 10533 into a vetted division repository of Leyteño reading selections, regional folklore, and community-referenced mathematics modules.

Pedagogically, the framework operationalized Vygotsky's Zone of Proximal Development through structured instructional scaffolding (Smagorinsky, 2020; Shabani et al., 2022), pairing peer-assisted learning with master-teacher clinical mentoring to support struggling readers and calculators. Finally, to address external attendance constraints, the framework establishes school-barangay study pods under Republic Act No. 10533 and DepEd Order No. 13, series of 2023 (National Learning Recovery Program), partnering with local government units to maintain learning continuity during agricultural and fishing seasons.

Objectives

The LEYTE-PULSE Framework provided a systemic, data-driven, and culturally responsive operational mechanism to optimize foundational literacy and numeracy delivery across public elementary and secondary schools in Northwestern Leyte.

Specific Objectives

Institutionalize dedicated, non-negotiable remedial corridors within the official school master schedule, ensuring thirty to forty-five minutes of protected, daily instructional triage for Tier 2 small-group clinics and Tier 3 clinical diagnostic interventions without encroaching on mandatory subject contact hours or teacher preparation periods.

Establish a quality-assured, curated division repository of localized, indigenized, and community-referenced reading selections and mathematics toolkits that integrate Leyteño folklore, regional history, coastal fishing computations, and agricultural trade transactions into daily instructional delivery.

Capacitate language and mathematics educators through clinical Learning Action Cell (SLAC) practicums, equipping them with diagnostic testing competencies, multisensory reading approaches, tactile dyscalculia interventions, and Individualized Instructional Prescription (IIP) formulation skills.

Establish cross-institutional transition pipelines between elementary feeder stations (Gibacungan ES, Pining Paglingap ES) and secondary receiving campuses (San Isidro NHS, Calubian NHS, Felix Caneja Lafuente NHS) to harmonize diagnostic screening metrics and eliminate foundational learning backlogs prior to Key Stage 3 entry.

Formulate collaborative convergence mechanisms with Barangay Local Government Units (BLGUs), General Parent-Teacher Associations (GPTAs), and community volunteers to establish barangay-based study pods that mitigate student absenteeism during seasonal farming harvests and fishing runs.

Optimize the allocation of School Maintenance and Other Operating Expenses (MOOE) to ring-fence dedicated financial resources for reproducing standardized diagnostic assessment kits, student tracking portfolios, and leveled remedial modules.

Scheme of Implementation

The operationalization of the LEYTE-PULSE Framework followed a sequential four-phase systemic process: Phase I: Preparatory Mobilization and Diagnostic Profiling; Phase II: Curricular Contextualization and Capacity Building; Phase III: Tiered Execution and Community Convergence; and Phase IV: Formative Evaluation, Institutionalization, and Sustainability. This structured progression ensures that institutional policy alignment, timetable modifications, and stakeholder orientations precede instructional delivery, while continuous progress monitoring and division quality assurance inform programmatic refinements.

The implementation process coordinates division supervisors, district heads, school principals, master teachers, classroom practitioners, and barangay officials. Responsibilities, resource requirements, timelines, and measurable outputs are detailed across the 10-Point Implementation Matrix below.

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10-Point Matrix for The Output of the Study

Scheme of Implementation: The LEYTE-PULSE Framework

(Pedagogical Upliftment through Localized Systems and Tiered Empowerment)

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
1. Institutional Policy, Scheduling, and Workload Rationalization	Institutionalize protected remedial corridors within the official master class schedule and rationalize teacher non-instructional ancillary assignments.	Formulate school memorandum establishing a non-negotiable 40-minute daily remedial corridor; restructure teacher schedules; offload non-teaching clerical tasks	Division CID Chief, PSDSs, School Heads, Grade Level Coordinators	₱15,000.00	School MOOE / Division Administrative Funds	October 2026 – November 2026	Approved master class schedules containing institutionalized remedial corridors and rationalized teacher workloads across all 5 schools.	Completed (100%)	Formally approved and incorporated into the School Improvement Plans (SIP).

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
		to administrative support staff.							
2. Universal Diagnostic Screening and Dynamic Data Profiling	Execute standardized universal diagnostic literacy and numeracy screening to categorize learners into Tier 1, Tier 2, and Tier 3 cohorts.	Administer beginning-of-year CRLA, Phil-IRI, and RMA tools; establish an automated learner diagnostic database; conduct data-validation	School Heads, Master Teachers, Reading Coordinators, Math Coordinators, Frontline Teachers	₱35,000.00	School MOOE / NLRP Program Support Funds	November 2026 (Annual baseline every August)	100% of enrolled learners diagnosed, profiled, and categorized into specific intervention tiers with baseline records.	Completed (100%)	Baseline data established; quarterly updates scheduled to monitor student movement across tiers.

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
		conferences.							
3. Tier 1: Universal Classroom Differentiated Delivery	Strengthen core classroom instruction through flexible grouping, leveled seatwork, and daily foundational drills.	Deploy daily 10-minute speed reading and mental math drills; organize tiered learning stations; integrate peer-assisted learning buddy pairings.	Literacy and Language Teachers, Mathematics Teachers, Master Teachers	₱25,000.00	School MOOE / School Learning Action Cell (SLAC) Funds	November 2026 – March 2027 (Continuous)	Differentiated instructional plans executed across all sections; reduction of borderline learners defaulting to Tier 2.	On-going (85%)	Daily 10-minute routines integrated into regular daily lesson logs (DLLs).

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
4. Tier 2: Targeted Small-Group Remediation Clinics	Operationalize targeted small-group clinics for borderline learners performing within emerging/frustration bands.	Cluster learners into small groups of 5 to 8 students; administer leveled reading passages and guided computational modules three times weekly during remedial corridors.	Designated Remedial Reading and Math Teachers, Department Heads, School Heads	₱45,000.00	School MOOE / Local Government Special Education Fund (SEF)	November 2026 – April 2027 (Semestral Cycle)	At least 70% of Tier 2 learners achieve grade-level foundational mastery and transition back to Tier 1 core instruction.	On-going (75%)	Small-group clusters active during designated afternoon schedules.

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
5. Tier 3: Intensive Clinical Diagnostic Assistance	Provide individualized, one-on-one diagnostic remediation for severe non-readers and non-calculators.	Formulate and execute Individualized Instructional Prescriptions (IIP); utilize multisensory phonetic systems and tactile counters; maintain weekly progress charts.	Reading Specialists, Master Teachers, Guidance Advocates, School Heads	₱40,000.00	Division NLRP Intervention Allocation / School MOOE	November 2026 – May 2027 (Weekly tracking)	Documented progression of at least 60% of severe non-readers and dyscalculic learners transitioning to Tier 2 small-group clinics.	On-going (60%)	IIP portfolios established for high-need learners; weekly tracking maintained.

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
6. Contextualized Curriculum and Localized Material Development	Develop, quality-assure, and reproduce a verified repository of localized reading passages and community-referenced mathematics modules.	Conduct material-writing workshops; adapt Leyteño folklore, coastal fishing scenarios, and agricultural cycles into modules; secure Division LRMDS screening.	Division LRMDS Supervisors, Master Teachers, Key Stage Writers, School Heads	₱75,000.00	Division LRMDS Funds / School MOOE / SEF Subsidies	December 2026 – February 2027	A curated repository of 40 localized reading texts and 40 contextualized math problem modules printed and distributed.	On-going (70%)	Drafts completed; undergoing final LRMDS contextual validation and printing.

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
7. Clinical Teacher Capacitation and Diagnostic Mentoring	Upskill language and mathematics educators in clinical diagnosis, phonemic remediation, dyscalculia intervention, and scaffolding.	Conduct clustered clinical SLAC workshops; execute peer demonstration teaching sessions; implement master-teacher instructional coaching walk-throughs.	PSDSs, CTU Partner Specialists, School Heads, Master Teachers	₱50,000.00	INSET Allocation / School MOOE / HRD Training Funds	December 2026; Mid-Year Break 2027	100% of frontline language and mathematics teachers certified in clinical diagnostic instruction and IIP tracking.	On-going (80%)	Phase 1 INSET completed; peer-coaching observations ongoing.

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
8. Feeder-to-Secondary Cross-Institutional Harmonization	Establish coordinated diagnostic and transition pipelines between elementary feeder schools and secondary receiving institutions.	Organize joint elementary-secondary diagnostic conferences; transfer learner foundational profiles; align Key Stage 2 and 3 remediation rubrics.	Feeder School Heads (Gibacungan ES, Pining Paglingap ES), Secondary School Heads (San Isidro NHS, Calubian NHS, FCL-NHS),	₱20,000.00	Clustered District LAC Funds / School MOOE	January 2027 – April 2027	Standardized diagnostic transition portfolios transferred with graduating Grade 6 students to receiving secondary institutions.	Programmed (40%)	Inter-school consultative committee formed; data-sharing protocols established.

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
			Coordinators						
9. Community Convergence and Barangay Study Pods	Establish community-based learning spaces to mitigate student absenteeism and sustain academic gains outside school perimeters.	Enact Barangay Resolutions supporting education; establish evening/weekend study pods; train SK youth volunteers and parent liaisons.	Barangay Councils, SK Officials, GPTA Officers, School Heads, Community Volunteers	₱60,000.00	BLGU Local Development Funds / SK Youth Funds / GPTA Counterpart	January 2027 – June 2027	Functional community study pods established in 5 host barangays, reducing seasonal absenteeism by at least 50%.	On-going (50%)	MOA signed with 3 barangay councils; initial volunteer orientations completed.
10. Continuous Monitoring,	Monitor intervention fidelity,	Administer end-of-year	Division Monitoring	₱25,000.00	Division M&E Allocation	March 2027 –	Comprehensive terminal	Programmed (25%)	Midterm monitoring

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (Est.)	Source of Budget	Time Frame	Expected Outcome	Actual Accomplishment	Remarks
Evaluation, and Institutionalization	measure learning recovery gains, and institutionalize the PULSE framework into school operational plans.	post-assessments (CRLA, Phil-IRI, RMA); evaluate program impact using standardized rubrics; incorporate framework into annual SIP/AIP.	and Evaluation (M&E) Team, CID Personnel, PSDSs, School Heads		/ School MOOE	July 2027	evaluative report documenting foundational mastery gains; adoption of LEYTE-PULSE into Division Best Practices.		tools deployed; terminal evaluation scheduled for end of SY 2026–2027.

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