Strengthening Tertiary Literacy Recovery: A Mixed-Methods Evaluation of the Partido State University Reading Center Intervention

Sheila E. Amoroso, MAEd

College of Education, Partido State University, Camarines Sur, Philippines

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ABSTRACT

The COVID-19 pandemic magnified existing literacy gaps among Filipino learners, prompting higher education institutions to adopt targeted interventions to mitigate learning loss. This study examined the implementation, outcomes, and effectiveness of the newly established Partido State University Reading Center, funded through the Commission on Higher Education's Institutional Development and Innovations Grant. Using a mixed-methods design, the study assessed the socio-demographic characteristics, reading attitudes, literacy needs of 696 freshmen STEM students and reading performance of 51 freshmen STEM students across the main and external campuses during Academic Year 2023–2024. Results revealed that the majority of qualifiers were aged 18–19 and came from mid-sized to large families, conditions that may shape access to learning resources. Students demonstrated substantial literacy needs, particularly in grammar (95%), vocabulary (90%), and higher-order comprehension skills such as summarizing (98%), synthesizing (95%), and inferring (90%). Environmental and social factors especially noisy study spaces (75.4%), peer influence (17.7%), and family influence (17.4%) emerged as significant demotivators to reading engagement. ICT access was characterized by a near-universal reliance on mobile phones (98%), highlighting digital inequities in laptop and desktop availability. Progress monitoring across four colleges showed varied literacy gains, with several cohorts (e.g., Lime and Aqua groups) demonstrating marked improvement, consistent with literature emphasizing the benefits of structured, multi-semester reading interventions. However, program completion rates remained critically low, with only 12.81% (51 of 398) completing the reading program, indicating barriers in motivation, scheduling, and continuity of intervention. The paired samples t-test revealed a significant improvement in reading performance among the 51 completers, $t(50) = 41.31$, $p < .001$, with posttest scores markedly higher than pretest scores, confirming the positive impact of the intervention on reading proficiency. Despite logistical challenges, the Reading Center effectively improved reading performance among consistent participants. The findings underscore the need for institutionalized, curriculum-integrated reading support; enhanced monitoring; differentiated instruction; and strengthened implementation across external campuses. Recommendations highlight the importance of creating conducive reading environments, leveraging community support systems, and integrating literacy development into academic programs to ensure sustainable reading proficiency gains.

Index terms: reading center, reading program, establishment, challenges, operationalization

INTRODUCTION

Literacy is traditionally defined as the ability to read and write; however, in the 21st century, it means much more than just decoding letters (Kress, 2010). The international community, including UNESCO, recognizes literacy as a fundamental human right and an essential building block for sustainable development.

As of recent data from UNESCO, about 754 million adults worldwide still lack basic literacy skills, two-thirds of them are women. Many children globally are not meeting minimum reading proficiency by age 10; in numerous low- and middle-income countries, large percentages of children attend school but do not learn foundational literacy and numeracy skills. This phenomenon is often referred to as "learning poverty."

Literacy, which has been used interchangeably with reading comprehension, is strongly linked to multiple positive outcomes: economic growth, improved health, civic participation, gender equality, and reduced poverty. Literacy empowers individuals to access information, engage in lifelong learning, and navigate the

increasingly complex demands of a digital world. Given these realities, global education agendas, such as the Sustainable Development Goal 4 (ensure inclusive and equitable quality education and promote lifelong learning for all), give priority to both basic literacy and functional literacy (which includes comprehension, critical thinking, making inferences, etc.).

While the Philippines has made significant strides in increasing literacy, there remain critical gaps especially in comprehension and functional literacy that indicate a need for additional, focused support. According to the Philippine Statistics Authority (PSA)'s 2024 Functional Literacy, Education, and Mass Media Survey (FLEMMS, 2008), the basic literacy rate among Filipinos aged 5 and over is about 93.1%. This means most people can read, write, and do simple computations. However, the functional literacy rate which adds comprehension and the ability to integrate information drops to about 70.8% among persons aged 10 to 64. That is, around 3 in 10 Filipinos of that age group struggle with comprehension even if they can read and write.

Other regional disparities are evident: some regions exceed the national average; others lag significantly, especially those with high poverty incidence. For example, the Bangsamoro region (BARMM) registers lower basic literacy and below-average functional literacy.

Studies and programs in the Philippines have demonstrated the positive effects of community-based literacy interventions (Gan & Ocampo, 2022). For instance, in the Bicol region, the Balsa Basa community literacy program showed that increased access to printed materials, pleasurable reading opportunities, and student empowerment (e.g., "little teachers") significantly improved reading attitudes and leisure reading practices.

A state university's "Reading Literacy Extension Program" for Grade 4 learners showed measurable improvement in reading levels (instructional, independent) among students from low-income families (pantaojournal.com). Other government initiatives like "Tara, Basa! Tutoring Program" intended to bridge foundational literacy gaps and support learners who struggle with reading.

In the case of Partido State University, establishing a reading center is one way to address some of the previously identified gaps in basic and higher education levels. It shall address the comprehension gap where functional literacy is substantially lower compared to basic literacy. It shall offer structured, supportive reading practice, with materials and guidance that go beyond decoding to understanding meaning. In addition, a reading center shall promote equity and inclusion since disparities in functional literacy correspond often with poverty, region, gender, and age (PSA, 2025; FLEMMS, 2008). As highlighted in various studies, regions with higher poverty incidence tend to have lower functional literacy (Philstar.com, 2025; PSA, 2025; Castillo, Tan, & Basilio, (2020; PSA, 2003). A reading center, especially if located in underserved areas, help reduce these inequities. In addition, establishing a reading center supports lifelong and community learning. Reading centers can serve not just children in formal education, but adults, out-of-school youth, and community members who may have missed early learning opportunities or who wish to improve their reading comprehension for work, civic engagement, or personal growth thereby supplementing formal education.

Amidst the Philippine schools' constraints - large class sizes, limited teaching hours, and resource limitations, reading centers can provide extra support—remediation, reading clubs, tutoring—that complements what schools do. It also builds a culture of reading since students' attitudes toward reading improve because of provision of reading materials, conducive reading environments and motivation. Reading centers can help foster such environments and build reading as a valued part of community life as shown in the Balsa Basa program which suggests that non-cognitive factors like attitudes and leisure reading practices strongly influence reading development.

Given these benefits in the micro level, establishing a reading center further aligns with the national and international goals. The Philippines, having a declining literacy levels, has policy interest in improving literacy interventions, with recommendations to expand reading programs, engage local government units, and make literacy "everyone's agenda."

Similarly, in the macro level, the Sustainable Development Goals (SDG) and UNESCO frameworks call for increased investment in literacy (for both youth and adults), better data, more inclusive policies, and interventions that raise not just reading ability but comprehension and functional utility.

Given these legal and educational bases, Partido State University has been quick to secure a research grant providing funding for the establishment of its own Reading Center in 2022 in response to the growing literacy problems in Partido area.

Specific Objectives

Specifically, this study aims to:

a) trace the process of establishing the reading center through the PSU experience;
b) describe the clients' socio-demographic profile and relevant perspectives in reading;
c) monitor the progress of the reading center users;
d) evaluate the effectiveness of the reading program;
e) identify key challenges in the process;
f) determine ways to improve its operations and services.

Research Problems:

a. How did the establishment of the reading center enhance the reading performance of the STEM students in the university?
b. Why is there a need to improve its operations and services?

METHODOLOGY

Research Design

This case study is guided by a process-oriented conceptual framework specifically the Structure-Process-Outcome Model of Donabedian (1966) which aligns well with studies examining how inputs (structures), procedures (processes), and outputs (outcomes) shape program effectiveness. Similarly, this study examines the establishment, operations, and outcomes of a reading center through the lens of institutional experience of PSU, community context, and service delivery. It also draws on the logic model approach that connects inputs, processes, client characteristics, challenges, and improvement strategies.

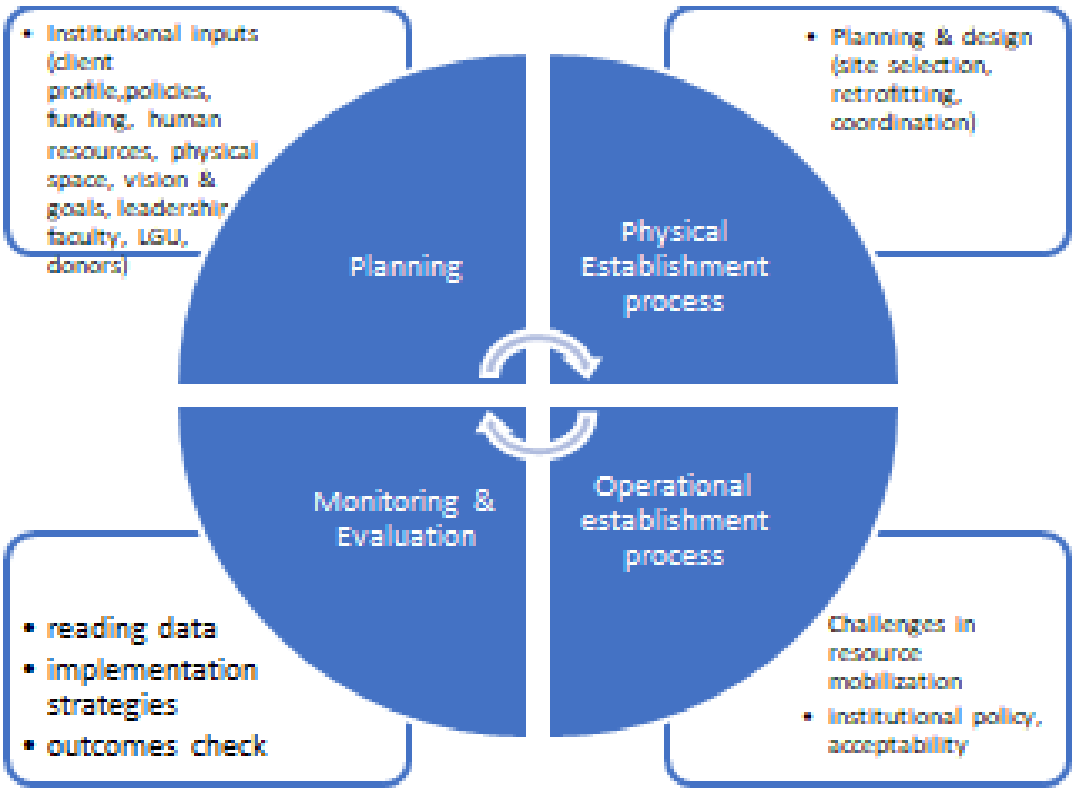

Figure 1. Conceptual Framework of the Study

The core constructs and relationships in the above conceptual framework provides four major cyclical parts, namely; 1) institutional inputs and planning, 2) physical establishment process, 3) operational establishment process, and 4) monitoring & evaluation.

The conceptual framework illustrates the cyclical and dynamic process of establishing and sustaining a reading center, as experienced by Partido State University. The framework is composed of four interconnected phases: Planning, Physical Establishment Process, Operational Establishment Process, and Monitoring & Evaluation. Each quadrant represents a critical component in the life cycle of the reading center, showing the interdependence of organizational, infrastructural, and programmatic elements.

1. Planning Phase

This phase represents the foundational stage of the reading center's development. It involves the mobilization of institutional inputs such as the Clients' profile or its target beneficiaries, the policies and administrative support, funding and budgeting, human resources (faculty, volunteers, staff), physical space availability, alignment of the vision and goals of the institution, the reading center, and its users, and most importantly, leadership engagement from key stakeholders including the university administration, faculty, local government units (LGUs), and donors.

This phase sets the direction and feasibility of the initiative. It ensures that the center is grounded in actual community and institutional needs, with clear alignment to broader literacy objectives.

2. Physical Establishment Process

Once planning is underway, attention turns to the physical setup of the center. This phase includes: site selection wherein choosing an accessible and suitable location is paramount, retrofitting or construction involving modifying the space to be conducive to reading and learning (lighting, furniture, shelves, digital tools, programmed reading materials, etc.), coordination with various units to ensure all teams (engineering, academic units, suppliers, local partners) work together for timely and cost-efficient implementation.

This component emphasizes the tangible aspects of center creation. The success of this phase ensures that the reading center is not only functional but also welcoming and learner-friendly.

3. Operational Establishment Process

This quadrant focuses on the initial operations of the reading center and the early experiences of implementation. It identifies challenges that typically emerge, such as: resource mobilization issues – including funding gaps, book and material shortages, or insufficient personnel; institutional policy constraints – such as unclear mandates or lack of integration into existing academic programs; community acceptability and engagement – particularly how receptive the target clients (college freshmen students, parents, community out-of-school youth) are to the reading center's services.

Addressing these concerns early on helps in building a resilient and responsive reading center that adapts to local realities.

4. Monitoring & Evaluation

This final component involves reflection, monitoring, and evaluation. It includes: reading data collection – assessing the reading levels, comprehension, and engagement of clients; review of implementation strategies – determining what worked and what needs adjustment; monitoring mechanisms – both internal (by the institution) and external (via funding partners or community feedback) to ensure accountability and effectiveness.

This phase ensures that the reading center is not a one-time project but part of a continuous improvement process. It closes the loop by feeding insights back into the planning and operational phases, making the cycle iterative and sustainable.

The framework is intentionally designed as a cycle, indicating that the establishment of a reading center is not linear, but rather an ongoing process of development, learning, and adaptation. The arrows connecting the quadrants highlight the feedback loops between outcomes and future planning. As outcomes are evaluated, they inform new plans, adjustments to operations, and even improvements to the physical space. This cyclical model supports evidence-based decision-making and promotes adaptive management - two critical principles in program sustainability and community engagement.

Informants/Respondents

This study made use of the following as informants of this study.

Table 1. Informants /Respondents per Objectives

OBJECTIVES	INFORMANTS/RESPONDENTS
Explore institutional experience in planning & establishing the reading center.	University officials, reading center coordinators, LGU partners, funding agency, faculty & staff, student-beneficiaries, volunteer-tutors/facilitators
Socio-demographic data and reading perceptions of learners and the reading center users.	College freshmen students enrolled in STEM courses and reading program qualifiers.
Trace institutional procedures & gather supplementary data on program implementation to identify key challenges.	University unit heads/staff, faculty members, reading coordinators/teachers, student-beneficiaries
Evaluate the physical and operational aspects.	Student-beneficiaries / reading program qualifiers
Suggest ways to improve the reading center operations.	Student-beneficiaries/reading program qualifiers

Table 1 outlines the objectives of the study alongside the corresponding informants or respondents who provided the necessary data. To explore the institutional experience in planning and establishing the reading center, insights were gathered from university officials, reading center coordinators, LGU partners, funding agencies, faculty and staff, as well as student-beneficiaries and volunteer tutors. For the objective of determining socio-demographic data and learner perceptions, the focus were on college freshmen enrolled in STEM programs and reading program qualifiers**.** In tracing institutional procedures and identifying key implementation challenges, information were drawn from university unit heads, faculty members, reading coordinators, and student-beneficiaries**.** Finally, to evaluate the physical and operational aspects of the reading center, feedbacks were collected from student-beneficiaries or program qualifiers**.** This alignment of objectives with specific respondents ensures that the study captures diverse perspectives, from institutional decision-makers to direct users of the program.

Research instruments

This case study employs a combination of qualitative and quantitative research instruments to capture the process, experiences, challenges, and outcomes involved. Aligning these various instruments to the specific purposes in gathering the necessary data is essential. In tracing the establishment process, the key informant information guide, document analysis, and observation were used. In describing clients' profile and reading attitudes/perspectives, survey, focus group discussion guide, and reading assessments were used. In identifying key challenges, key informant information guide, focus group discussion guide, and document analysis were used. Lastly, in determining ways to improve operations, the study used focus group discussion guide, survey questionnaire, feedback forms, key informant interview guide and observations.

Data Gathering Procedure

Employing a multi-method approach to collect both qualitative and quantitative data relevant to the establishment, implementation, and impact of a reading center, the data collection process was designed to align with the case study's specific objectives, ensuring that each phase of the reading center development and operation was documented and analyzed comprehensively.

1. **Preparation phase**

Before the actual data gathering, the following preparatory steps were undertaken;

a) Approval and coordination: the researcher sought formal approval from the concerned authorities (e.g., university officials, college/campus administrators, and reading center coordinators). Coordination meetings were conducted to identify appropriate informants and secure their informed consent.

b) Ethical considerations: Consent forms were prepared for participants. Anonymity and confidentiality were guaranteed in compliance with research ethics protocols.

c) Instrument validation: Drafts of interview guides, surveys, and observation checklists were subjected to expert validation. Minor revisions were made to ensure clarity, cultural relevance, and alignment with the study objectives.

2. **Data Collection activities**

The data collection was conducted in five phases, corresponding to the use of specific instruments:

To explore the institutional experience in planning and establishing the reading center, Key Informant Interviews (KII) using semi-structured interview guides were conducted with university officials, reading center coordinators, LGU partners, funding donors, faculty and staff involved in the project. Appointments for interviews were scheduled individually and were conducted both face-to-face or online (as appropriate). Each session lasted 30–60 minutes and was audio-recorded with permission. Notes were also taken to supplement recording.

In gathering collective insights from users and community members, focus group discussions were conducted having the following as participants; student-beneficiaries, faculty members, volunteer tutors or facilitators, school administrators, and parents.

Each FGD have various number of participants having a minimum of 6–8 participants and lasted about 60–90 minutes. A trained facilitator moderated discussion using a guide. An assistant documented response and noted non-verbal cues. FGDs were recorded with consent and later transcribed for analysis.

In gathering the socio-demographic data and perceptions of learners regarding reading and the reading center, the survey questionnaire was administered to college freshmen students and student qualifiers who are users of the reading center. There were 696 respondents online using Google Forms accessed using a QR code.

The questionnaire included some of their personal information such as age, home location, number of siblings, as well as closed-ended items on reading habits, reading attitudes, daily time allocation in reading, access to reading materials, availability of reading resources, ICT technology tools, demotivating factors in reading, level of motivation in independent reading, and reading program satisfaction. Responses were encoded and analyzed using descriptive statistics.

In tracing the institutional processes and gather supplementary data on program implementation to identify key challenges, a documentary analysis was conducted. Documents reviewed include: project proposals and memoranda of agreement, minutes of the meeting and communications, reading data and program reports, monitoring tools and progress notes. A document analysis matrix was used to extract relevant data such as timelines, stakeholder roles, budget allocations, and noted challenges. Key themes were coded to support findings from interviews and surveys.

In evaluating the physical and operational aspects of the reading center, an observation checklist was used. The following aspects were observed: layout, seating, lighting, and cleanliness, accessibility and signage, availability of books and materials, learners' behavior and interactions, staff roles and facilitation practices. The evaluators conducted one scheduled site visit to observe the reading center in use. A structured checklist guided the observation, with room for descriptive notes and sketches. Observations were documented immediately after the visit.

In tracking reading progress of student users, pre/post assessment/diagnostic tools were used to check the initial and post reading comprehension levels of college freshmen STEM students. The data were used to supplement outcomes check and validate program effectiveness.

In ensuring the validity and reliability of the findings, triangulation was employed by comparing and cross-verifying data from multiple sources (interviews, documents, surveys, and observations). Member checking was done by returning summarized findings to key informants to validate accuracy. Audit trail was maintained by documenting all procedures, decisions, and materials used during the research.

Data Analysis

The study employed both qualitative and quantitative data analysis techniques in order to comprehensively explore the process of establishing a reading center, understand the socio-demographic and attitudinal profile of its clients, identify operational challenges, and recommend improvements. Aligning with the specific objectives of the study and organizing data gathered into thematic and statistical categories ensure clarity, coherence, and triangulation of findings.

For qualitative data obtained through key informant interviews, focus group discussions, document analysis, and observations, a thematic analysis approach following Braun and Clarke's (2006) was used having six-phase framework: 1) familiarization with data, 2) coding, 3) theme identification, 4) theme review and refinement, 5) theme definition and naming, and 6) interpretation.

In analyzing the quantitative data generated from survey questionnaires, reading assessment, and client feedback forms, descriptive and inferential statistics were used depending on their applicability.

Descriptive statistics involving frequency counts, percentages, means, and standard deviations were used to summarize socio-demographic profile of respondents including number of siblings, age, etc.), reading habits and attitudes including frequency of reading, access to materials and preferences, and utilization and satisfaction with reading center services.

Reading assessment analysis were also used, pre- and post-test scores to compare measure changes in reading performance. Mean score improvements were computed, and paired t-tests were applied to determine statistical significance.

In order to strengthen the validity of the findings, data from different sources were triangulated using the interview and FGD results comparing with the survey data to confirm or explain patterns (e.g., why certain learners were more engaged). In addition, document analysis provided historical and procedural context to validate timeliness and institutional commitments discussed in interviews. Lastly, observational data were used to confirm actual use and physical conditions of the reading center, which help assess whether the design met user needs.

RESULTS AND DISCUSSION

Table 2 below provides the summary of the findings in alignment with its research objectives and its implications or answers to research problems.

Table 2. Summary of Findings and Implications to Objectives and Research Problems

Objective	Key Findings (Quantitative & Qualitative Synthesis)	Implications / Answers to Research Problems
a. Trace the process of establishing the Reading Center	• Establishment followed CHED–IDIG procurement guidelines and RA 7743.	The structured process ensured readiness and laid the foundation for effective reading support. Strengthens Research Problem (a) by showing institutional mechanisms that made literacy improvement possible.
	• Inputs included literacy gaps, physical space, HR availability, LGU cooperation, and supplier viability.	
	• Operations manual drafted; coordinators hired; workflows formalized.	

b. Describe socio-demographic and reading profiles	• Majority were 18–19 years old; mostly from Goa, San Jose, Tigaon, Sagñay.	Demonstrates that STEM freshmen enter college with substantial literacy gaps and limited study environments, supporting the need for intervention. Strengthens rationale for Research Problem (b).
	• Family size: 1–2 (22.7%), 3–4 (31.9%), 5–6 (21.4%), ≥7 (11.5%).	
	• Reading needs very high: summarizing (98%), grammar (95%), synthesizing (95%), inferring (90%).	
	• Demotivators: noisy environment (75.4%), peer/family influence (17–18%).	
	• ICT access highly mobile-dependent (98%); laptops limited (27%).	
c. Monitor progress of Reading Center users	• Regular attendees showed upward reading progress; irregular groups stagnated.	Shows that *consistent engagement* drives literacy gains, but structural constraints limit scalability — directly supporting Research Problem (b).
	• Completion rate low: 51/398 (12.81%).	
	• External campuses had weaker progress due to facilities and staffing issues.	
d. Evaluate program effectiveness	Inferential statistics:	Provides strong empirical evidence that the Reading Center significantly improved reading performance — directly answering Research Problem (a).
	• Pretest M = 4.25; Posttest M = 11.78.	
	• $t(50) = 41.31$, $p < .001$.	
	• Mean gain = 7.53 points.	
	• Cohen's d = 5.79 (extremely large effect).	
e. Identify key challenges	Physical: insufficient reading materials, lack of space, weak ICT facilities.	These barriers explain low completion rates and unequal access; substantiate the need to improve operations and services (Research Problem b).
	Operational: no curricular integration, no teaching deloading, understaffing, turnover, verticalization disruptions, no permanent plantilla, no research/extension support.	
f. Determine ways to improve operations and services	Recommendations emerging from data:	These strategies enhance program sustainability and address structural barriers, offering actionable improvements aligned with both Research Problems.
	• Curricular integration	
	• Staffing augmentation + deloading	
	• Reading facilities expansion	
	• ICT resource improvement	
	• Research and extension programming	
	• Clearer monitoring and feedback mechanisms	

The findings of the study demonstrate how the Reading Center at Partido State University (PSU) has contributed to addressing literacy gaps among STEM freshmen students, while also revealing the systemic, instructional, and environmental factors that shape reading performance. The discussion is organized around the major themes emerging from the results and interpreted through the study's conceptual framework and relevant national literacy policies.

Alignment of the Reading Center's Establishment with National Literacy and Higher Education Policies

The establishment of the Reading Center reflects PSU's compliance with RA 7743 (1994) mandating the development of reading centers in local communities, and with the CHED Institutional Development and Innovation Grant (IDIG) designed to strengthen institutional systems and improve learning outcomes in higher education. The step-by-step establishment process which includes proposal development, procurement, facility renovation, hiring coordinators, and crafting an operation manual, demonstrates institutional readiness and policy-aligned implementation.

From a theoretical perspective, this organizational groundwork supports the ecological systems theory (Bronfenbrenner, 1979), which posits that literacy development is influenced by institutional structures, resources, and environmental conditions. By creating an enabling learning environment and structured literacy

support system, PSU's Reading Center provides the institutional scaffolding that allows learners to engage meaningfully with reading tasks (Cervetti et al., 2020).

Moreover, research on pandemic learning recovery emphasizes the role of structured intervention spaces in mitigating learning loss (UNESCO, 2022). PSU's Reading Center embodies these principles through its targeted remediation, diagnostic assessments, and sustained instructional support.

Socio-Demographic Profile and Reading Needs: Implications for Instructional Scaffolding

The demographic data indicate that the majority of reading program qualifiers were first-year students aged 18–19, residing mainly within the Partido area. High dependency ratios reflected in large family sizes, combined with limited ICT access (only 27.4% with laptops), suggest that many students come from contexts where academic resources are limited.

These findings reinforce Vygotsky's theory of scaffolding, which emphasizes that learners require structured support to bridge gaps between existing skills and target competencies. The exceptionally high reading needs particularly in summarizing (98%), grammar (95%), synthesizing (95%), inferring (90%), and paraphrasing (90%) corroborate the need for explicit and sustained instruction in higher-order comprehension skills. Skills deficits in these areas also align with both national and international assessments such as National Achievement Test (NAT), Trends in International Mathematics and Science Study (TIMMS, 2019) and Programme for International Student Assessment (PISA, 2022) showing declining reading proficiency among Filipino learners.

This finding which identified literacy gaps in vocabulary, grammar, and comprehension mirror patterns found in recent Philippine literacy research. For instance, the World Bank (2022) reported that Filipino learners face persistent struggles in reading comprehension following the pandemic, emphasizing the need for institutionalized remediation programs. Similarly, Bernardo and colleagues (2021) found that Filipino college freshmen continue to exhibit foundational reading deficits rooted in earlier schooling disruptions, aligning with PSU's baseline profile where summarizing (98%), grammar (95%), and synthesizing (95%) emerged as major challenges.

Environmental demotivators, especially noise (75.4%), highlight the importance of Bronfenbrenner's (1979) ecological theory, which foregrounds environmental influences on learning behavior. These empirical observations affirm that literacy interventions should consider both individual competencies and contextual barriers.

Reading Progress and the Effects of Consistent Engagement

Monitoring data show that reading cohorts with regular attendance exhibited steady improvement, while irregular participants made limited or inconsistent progress. Low completion rates (12.81%) suggest that voluntary participation may not be sufficient to sustain engagement.

This pattern aligns with Rumelhart's (1980) Schema Theory, which argues that reading proficiency develops through repeated exposure to texts and structured activation of prior knowledge. Intermittent participation disrupts the consolidation of reading strategies, leading to inconsistent growth. These findings imply that institutional policies mandating participation. or integrating reading interventions into the curriculum, may enhance program fidelity and learner persistence.

Effectiveness of the Reading Program: Inferential Evidence and Theoretical Coherence

Table 4. Effect Size Comparison of Pretest and Posttest Scores

Comparison	t	df	p	Mean Difference	Interpretation	Cohen's d	Interpretation
Pretest vs. Posttest	41.31	50	< .001	7.53	Large improvement	5.79	Extremely large effect size

Legend: Posttest scores (M = 11.78, SD = 1.08) Pretest scores (M = 4.25, SD = 0.82), t(50) = 41.31, p < .001.

The core empirical finding, where $t(50) = 41.31$, $p < .001$, $d = 5.79$, provides robust evidence of the Reading Center's effectiveness. The extremely large effect size indicates transformative gains, far beyond typical educational interventions. Studies on targeted intervention programs reinforce the effectiveness of systematic, scaffolded reading instruction. Snow (2021) and Shanahan (2020) emphasize that structured reading environments, such as reading labs or centers, significantly improve comprehension skills when they provide explicit instruction and opportunities for guided practice, an approach mirrored by PSU's blended use of SRA kits, digital materials, and instructor-facilitated sessions. Furthermore, Guzman and Limpin (2023) found that reading interventions at the tertiary level lead to marked improvements in vocabulary and inferential comprehension, consistent with the substantial pre- to posttest gains observed in this study (Cohen's $d = 5.79$).

This finding can be further interpreted through reading acquisition theories of: 1) Vygotsky's (1978) principle of learning that comes through mediated support in his Sociocultural theory (1978) aligns with the Reading Center's use of guided reading activities, teacher scaffolding, and peer collaboration enhancing students' comprehension and motivation. The significant improvement in posttest scores echoes the concept of the Zone of Proximal Development (ZPD) of Vygotsky (1978), where learners achieve higher competence levels through expert teacher's guidance consistent with studies showing that scaffolded literacy activities enhance comprehension among struggling readers (Hammond & Gibbons, 2019).; and, 2) the Reading Comprehension as a Multifaceted Construct (Snow & Sweet, 2003) which frames comprehension as an interaction of reader skills, text features, and instructional context. The literacy needs identified in the study (e.g., summarizing, inferring, synthesizing) correspond directly to the cognitive processes described in this framework. PSU's intervention effectively targeted these processes, explaining the significant posttest gains reported.

This convergence of theory and data strengthens the evaluative rigor of the study and establishes a strong case for institutionalizing the program.

Challenges Constraining Implementation: Institutional and Systemic Factors

Physical constraints including limited space, insufficient materials, and inadequate ICT resources in satellite campuses reflect structural barriers that impede the optimal implementation of literacy programs. Operational issues such as lack of teaching deloading, absence of curricular integration, insufficient staffing, high personnel turnover, and gaps in research and extension initiatives, mirror broader systemic challenges in Philippine higher education.

These findings confirm earlier research emphasizing that literacy interventions succeed only when supported by robust institutional structures, trained personnel, and policy alignment. They also highlight the need for policy coherence between national frameworks (RA 7743, CHED-IDIG priorities, and the National Literacy Framework) and institutional practices.

Ways Forward (Actionable Policy Recommendations)

Based on the findings, the following policy-oriented recommendations are proposed:

1. Integrate the Reading Program into STEM Curricula

a) Mandate reading enhancement courses for all first-year STEM students.

b) Embed reading instruction within General Education and discipline-specific subjects.

2. Provide teaching deloading and strengthen staffing

a) Allocate official deloading for reading coordinators.

b) Hire permanent non-teaching personnel (plantilla positions).

c) Deploy campus-based coordinators to ensure consistent implementation.

3. Expand Reading Facilities and ICT Resources

a) Increase floor space and seating capacity.

b) Equip satellite campuses with desktop computers and stable internet access.

c) Increase procurement of reading kits and student record books.

4. Establish a Reading Research and Extension Program

a) Develop a university-wide literacy research agenda.

b) Launch community-based reading initiatives aligned with RA 7743.

c) Collaborate with LGUs, DepEd, and CHED for capacity-building projects.

5. Create a Monitoring and Feedback system

a) Implement digital tracking of learner progress.

b) Provide personalized feedback and differentiated instruction.

6. Strengthen Learning Environment Support

a) Develop quiet, well-ventilated reading spaces.

b) Provide study nooks for students from noisy or crowded households.

Future Research Directions

1. Longitudinal studies to measure retention of reading gains over multiple semesters.
2. Comparative studies between PSU's Reading Program and other models in HEIs.
3. Qualitative investigations into reading motivation and learner engagement.
4. Analysis of the influence of family structure, ICT access, and reading environment on literacy outcomes.
5. Experimental studies examining which program components (SRA kits, guided reading, strategy instruction) yield the greatest impact.

CONCLUSIONS

This study documented the Partido State University's experience in establishing and operationalizing its Reading Center as part of CHED's Institutional Development and Innovation Grant. The process revealed that the Center's creation was grounded in careful institutional planning, compliance with regulatory requirements, and coordination among administrative, academic, and external stakeholders. This systematic approach ensured that the Center's structure, human resources, instructional materials, and monitoring systems were in place before implementation, thereby fulfilling Objective (a) of tracing the establishment process.

Findings on the socio-demographic characteristics and reading attitudes of STEM freshmen (Objective b) revealed that most clients were young first-year students aged 18–19, residing largely within Partido municipalities, and coming from mid-sized to large families. Their literacy profiles showed substantial needs in vocabulary, grammar, summarizing, synthesizing, and inferential comprehension. Environmental and social factors—particularly noise, peer influence, and family conditions were identified as key demotivators. ICT access was heavily mobile-phone dependent, with limited access to laptops, desktops, and tablets. These characteristics highlight the critical need for structured literacy support at the tertiary level.

Progress monitoring across colleges (Objective c) showed varied yet generally positive trajectories. Cohorts with consistent attendance demonstrated increasing reading proficiency, while groups with irregular

participation exhibited limited gains. Despite wide participation, the completion rate remained low, with only 51 of the 398 reading program takers (12.81%) finishing the full intervention cycle. This pattern underscores the challenges of sustaining learner engagement in voluntary remedial programs.

The evaluation of program effectiveness (Objective d) demonstrated compelling empirical evidence. Paired samples t-test results showed that posttest scores were significantly higher than pretest scores, $t(50) = 41.31$, $p < .001$, with a mean gain of 7.53 points. The effect size was exceptionally large (Cohen's $d = 5.79$), indicating that the reading program produced substantial improvements in reading comprehension among those who completed the intervention. These findings directly answer Research Problem (a): the establishment and operation of the Reading Center significantly enhanced the reading performance of STEM students who actively participated in and completed the program.

However, the study also identified several critical challenges (Objective e). Physical constraints included limited reading materials, insufficient space, inadequate facilities in external campuses, and inconsistent access to digital devices. Operational challenges involved the lack of a mandated curricular policy for reading, absence of teaching deloading for reading coordinators, limited staffing, high turnover of non-teaching personnel, restructuring due to institutional verticalization, and the absence of approved research and extension programs on reading. These challenges explain the extremely low completion rates across campuses and provide evidence to answer Research Problem (b): improving the Reading Center's operations and services is necessary to address structural constraints, sustain learner participation, and ensure program continuity.

In light of these findings, several strategies can strengthen the Center's operations and services (Objective f). Institutional policies integrating the reading program into the curriculum should be adopted to ensure mandatory participation and reduce attrition. Staffing must be augmented through permanent plantilla positions, teaching deloading, and campus-based coordinators. Physical expansion of reading facilities, provision of adequate reading kits and digital resources, and development of quiet and supportive learning environments are essential. Finally, establishing research-based and extension-oriented initiatives will further enhance the Center's capacity to respond to literacy needs within and beyond the university.

The study demonstrates that while the Reading Center significantly improved reading performance among active participants, its long-term effectiveness and its capacity to serve all STEM students equitably depends on addressing systemic challenges and institutionalizing supportive policies. The insights from PSU's experience offer a model for other higher education institutions seeking to implement sustainable, evidence-based literacy interventions.

RECOMMENDATIONS

The discussion on the various challenges identified led to the following recommendations;

1. Propose an institutionalized reading program as an enhancement class for the STEM courses in the university;
2. Conduct intensive university-wide literacy enhancement campaign to support the college reading program mobilizing pre-service BSED teachers as volunteer-implementers.
3. Conduct intensive community-based extension literacy programs to support basic education learners in enhancing early literacy skills mobilizing pre-service BEED teachers as volunteer-implementers.
4. Mobilize the MAEd-INM students in the development of instructional materials to be utilized in the college's extension project along basic early literacy skills instruction.
5. Conduct parents' trainings/seminars on basic reading instruction and ways on how to increase their parental investment/involvement along their child's reading development;
6. Forge institutional collaborations to intensify the capacity-building initiatives of the colleges/campuses;
7. Conduct further research along literacy and instructional materials development utilizing context-based materials;
8. Conduct research-based extension projects both in basic and higher education levels along reading skills enhancement maximizing the reading center's usability and expanding its service area.
9. Intensify support for post-grad faculty specializations in reading or literacy development.

10. Provide sufficient annual budget to cover the procurement of students' reading materials and needed facilities improvement and other reading center activities.
11. Hire permanent non-teaching personnel who shall focus on the reading center operations both in main and other campuses.
12. Provide additional manpower (staff) in the reading center to augment the needs of the reading center users.
13. Institutionalize mechanism to allow proper deloading of teaching loads of instructors designated as reading coordinators/teachers.
14. Conduct annual research colloquium sponsored by the Reading Center for review and dissemination of both faculty and student researches related to reading instruction and development.

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