

PROJECT BIG SIX: AN ASSESSMENT OF PHONEMIC AWARENESS AND VOCABULARY ACQUISITION AMONG GRADE 3 LEARNERS

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ABSTRACT : *The action research investigated the effects of Project “Big Six” (localized, targeted reading intervention) on the literacy competency of 51 Grade 3 learners of Bolitoc Elementary School. A quantitative, one-group pre-test/post-test pre-experimental study design was used to compare baseline reading scores across Phonemic Awareness and Vocabulary Acquisition to post-intervention results. The demographic profile revealed that 43.14% (n = 22) of participants were male and 56.86% (n = 29) were female, with the majority belonging to the 8-year-old age bracket (n = 31, 60.78%). The class mean score increased from a baseline pre-test of 12.63 to a post-test score of 21.84, demonstrating an overall mean score gain of +9.22 points (a 72.99% improvement). Male pupils recorded a mean score gain of +9.36 points (+78.66%), while female pupils achieved a mean gain of +9.10 points (+68.73%). Inferential statistical analysis via a paired-samples t-test produced a computed t-value of 21.05, exceeding the critical t-value of 2.009 (df = 50, p < 0.0001), leading to the rejection of the null hypothesis (H₀). Findings demonstrate that Project Big Six targeting core reading components significantly enhances primary reading mastery.*

KEYWORDS: *phonemic awareness, primary learners, Project Big Six, reading intervention, vocabulary acquisition*

I. INTRODUCTION

Learning to read is one of the most important milestones in early childhood education. Reading opens the door to all future academic performance. In the architecture of literacy development, the transitional period of Grade 3 constitutes a crucial turning point. At this point, the curriculum moves from “learning to read,” where children learn to decode and master mechanics, to “reading to learn,” where they need to use texts to acquire new information across topic areas (Gabriel & Mpofu, 2024; Series, 2026). For students entering Grade 3 with weak fundamental abilities, this curricular change typically leads to what is termed in education as the “Matthew Effect,” in which early reading struggles snowball over time, expanding the achievement gap between competent and struggling readers.

To methodically approach literacy acquisition, the “Big Six” components of reading have been adopted by educational scholars and policy makers throughout the world. This framework is a structural elaboration of the basic pillars described by the National Reading Panel (2000) and literacy academics such as Deslea Konza (2014) to specifically include:

In the field of basic education, reading competence is the key to academic achievement and lifetime learning. Reading development is a complicated multi-faceted process and not a single solitary talent. Literacy development is a complex process and most teachers would describe it in terms of the “Big Six” elements of reading: oral language, phonological awareness, phonics, vocabulary, fluency, and comprehension. In the Philippine educational environment, the Department of Education (DepEd) has continuously highlighted these fundamental abilities through national mandates such as the Every Child A Reader Program (ECARP) and the newly enhanced National Reading Program (NRP) under the MATATAG Agenda. Initiatives like this show that solid, evidence-based reading teaching is critical to the whole development of students.

Phonemic awareness and vocabulary growth are two of the earliest and most powerful indicators of reading success among these fundamental foundations. Phonemic awareness is the capacity to recognize, separate and change individual sounds (phonemes) in spoken words and is a completely auditory talent that provides the basis of decoding and phonics. At the same time, vocabulary learning supplies the semantic

engine for reading. A strong vocabulary allows a youngster to assign meaning to a word as soon as they can decode it, turning mere text recognition into actual knowledge. When learners are doubly deficient in these areas they fail to go from learning to read to reading to learn.

Local schools are falling short of national competency criteria despite the institutional emphasis on literacy. Results of regional and school-based tests such as the Philippine Informal Reading Inventory (Phil-IRI) show recurring deficits in decoding and comprehension among elementary graders. These issues are sometimes compounded by the challenging linguistic shift from the Mother Tongue (L1) to English (L2) instructions. The lack of focused tracking tools at the classroom level aggravates the problem. There are broad remedial methods, but there is an urgent need for diagnostic, skill-specific data that identifies precisely where the phonetic and semantic failures occur.

All six components function in an interconnected network, but the main engine of early literacy is that of phonemic awareness and vocabulary acquisition, directly linking the mechanics of spoken sound to the architecture of text-based meaning (Exley, 2026; Konza, 2014).

Phonemic awareness is a particular sub-skill of phonological awareness, which is the ability to isolate, blend, and manipulate individual units of sound (phonemes) in spoken words. It is often mistakenly believed that this is a skill only relevant for kindergarten or Grade 1 learners (Gabriel & Mpofu, 2024; Milankov et al., 2021). However, the worldwide research highlights that higher levels of phonemic awareness continue to be a strong predictor of word-reading automaticity into Grade 3 and beyond (Series, 2026). Grade 3 learners do not have the cognitive efficiency of more complex phoneme manipulation such as deletion and substitution. Because of this these learners use their working memory on effortful decoding. This does not leave enough cognitive resources for text comprehension (Series, 2026).

At the same time, vocabulary development is a prerequisite and a result of reading competency (Rowe, 2026). As texts get more complicated in third grade, the student's lexical bank decides if the properly decoded words transfer into mental models of meaning. Research shows that meanings of words contribute to 70% to 90% of reading comprehension results (Rowe, 2026).

To fill these deficiencies, this study proposes Project "Big Six": An Evaluation of Phonemic Awareness and Vocabulary Acquisition at Bolitoc Elementary School. This study endeavor is in line with existing DepEd initiatives such as ARAL program and localized literacy intervention programs to comprehensively assess and map the unique Early reading competence is essential for academic progression, yet primary learners frequently encounter reading barriers across decoding, fluency, and comprehension. To address these challenges, Project "Big Six" was implemented as a structured action research intervention targeting the core pillars of reading: phonemic awareness, phonics, vocabulary, fluency, comprehension, and oral language. Grounded in the Simple View of Reading ($R = D \times C$) and Perfetti's Lexical Quality Hypothesis, this study evaluates the quantitative shift in reading performance before and after exposure to Project "Big Six" instructional tools.

II. LITERATURE REVIEW

2.1 The Global Model of the "Big Six" Components of Reading

The National Reading Panel (2000) identified five pillars of reading that were used for decades to govern early literacy instruction: phonemic awareness, phonics, fluency, vocabulary, and comprehension. Recent research, however, has extended this model to the 'Big Six' components of reading by explicitly highlighting spoken language as the foundational substrate for all literacy development (Konza, 2014). A recent study indicates that reading is a complex, cognitive area rather than an isolated, mechanical talent (Rollo & Picker, 2024). According to Konza (2014), the "Big Six" approach regards oral language, phonological/phonemic awareness and phonics as the code-breaking tools of literacy and vocabulary, fluency and understanding as the semantic engine. International educational mandates now strongly advocate for a structured literacy approach that views these six constructs not as separate milestones but as deeply interconnected components whereby a deficit in one strongly influences the trajectory of the others (Duke et al., 2021; Rollo & Picker, 2024).

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Phonemic awareness is the auditory capacity to isolate, blend, segment, and modify the smallest units of sound (phonemes) in spoken language (Gabriel & Mpofu, 2024; Rollo & Picker, 2024). Unlike phonics, which is a process of mapping sounds to printed letters, phonemic awareness is completely oral and auditory (Gabriel & Mpofu, 2024).

Recent study has shown that phonemic awareness is the best predictor of eventual reading and spelling fluency (Konza, 2014). For instance, recent research on reading instruction in primary schools emphasizes that consistent classroom routines focused on phoneme isolation, blending and segmenting (e.g., breaking the word “cat” into /c/ /a/ /t/) offer the cognitive architecture children need to later decode multi-syllable words (Gabriel & Mpofu, 2024).

Further, post-pandemic longitudinal data from Valladolid (2026) indicate that systematic and explicit phonemic and phonics training has very favorable benefits on decoding and word recognition, especially for learners in English as a Second Language (ESL) contexts. In the absence of mastery of basic phonemic segmentation, reading becomes a hard process of visual guessing (Valladolid, 2026), which significantly limits learners’ reading automaticity.

2.2 Vocabulary Learning and Understanding Content

Phonemic awareness allows a student to mechanically pronounce a word, but vocabulary development determines whether that word is associated with cognitive meaning. The Lexical Quality Hypothesis by Perfetti (2007) states that spoken language areas such as semantics and vocabulary contribute to the development of high-quality mental representations of words, which in turn, facilitate reading comprehension (as stated in Kargiotidis, n.d.). Recent Worldwide literature shows a substantial “vocabulary gap” between skilled and struggling readers; poor decoding abilities restrict a child’s volume of reading, which in turn limits their exposure to new vocabulary, forcing poor readers to fall exponentially more behind over time (Sedita, 2012). Vocabulary growth is both a forerunner and a product of comprehension, accounting for 70% to 90% of a learner’s ability to comprehend a text (Bromley, 2007, as referenced in Rowe, 2018). Current pedagogical literature suggests that effective vocabulary instruction should go beyond memorizing dictionary definitions to include contextual determination of word meaning, semantic analysis using synonyms and antonyms, and multiple meaningful exposures to words in context (Breis, 2026; Sedita, 2012).

2.3 Decoding Begins with Phonemic Awareness

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2.5 The Local Context: Understanding Realities in the Philippines

In the Philippines, the Department of Education (DepEd) has taken proactive steps to realign its policy focus to respond to the glaring literacy disparities revealed in local and international evaluations. Under the present MATATAG Agenda, DepEd formalized the National Reading Program (NRP) and time allocations such as Catch-Up Fridays to address the core reading inadequacies in all primary classes.

Studies in the local context reveal that a considerable proportion of Filipino primary graders have poor skills in oral reading fluency and major gaps in vocabulary and phonics (Breis, 2026). This is further exacerbated by the challenging sociolinguistic transition that learners have to make when transitioning from Mother Tongue teaching (L1) to English (L2) as a medium of instruction in the later elementary years.

Contemporary local action research is thus heavily focused on the success of localized, organized, and contextualized literacy aids. For example, Breis (2026) assessed a contextualized vocabulary and phonics approach ("Word Calendar Strategy") in Philippine public schools and demonstrated that targeted, daily exposure to structured vocabulary and phonological exercises yielded massive statistical gains in word recognition and student comprehension.

Local researchers discovered that generalized, "one-size-fits-all" reading remediation is no longer sufficient. Schools require precise, diagnostic, skill-specific data, such as the sub-skill metrics proposed in Project "Big Six," to identify phonetic and semantic breakdowns and design data-driven intervention modules to rescue struggling readers (Breis, 2026).

2.6 Research Questions

1. What is the demographic profile of the participants in terms of age and gender?
2. What is the performance level of learners in Phonemic Awareness (pre-test vs. post-test) across Phoneme Isolation, Phoneme Blending, and Phoneme Segmentation?
3. What is the performance level of learners in Vocabulary Acquisition (pre-test vs. post-test) across Word Meaning Identification (context clues), and Synonyms and Antonyms recognition?
4. Is there a significant difference between the pre-test and post-test scores of the learners in Phonemic Awareness and Vocabulary Acquisition?
5. What contextualized instructional materials or action plan can be proposed based on the results?

2.7. Hypothesis

- H : There is no statistically significant difference between the pre-test and post-test reading scores of primary learners following exposure to Project "Big Six".

III. METHODS

3.1 Research Design

This study utilized a quantitative, single-group pre-test/post-test pre-experimental research design to measure changes in reading performance. A one-group pretest-posttest pre-experimental research design evaluating baseline metrics, applying the localized intervention, and measuring post-treatment performance within an intact classroom group. Respondents and Location: Conducted at Bolitoc Elementary School, Sta. Cruz District, Division of Zambales. The participants consist of the total Grade 3 student population ($N = 51$: 22 males [43.14%], 29 females [56.86%]).

Research Instruments: A researcher-made 30-point Diagnostic Literacy Assessment Instrument:

- *Part I*: Demographic profile.
- *Part II*: 16-item individual 1-on-1 auditory test measuring Phoneme Isolation (5 items), Blending (5 items), and Segmentation (5 items).
- *Part III*: 10-item group-administered test measuring Word Meaning via Context Clues (7 items) and Synonyms/Antonyms (8 items).

Validation & Data Collection: Content-validated by Master Teachers and the School Principal using a Likert-scale evaluation form, followed by pilot testing for internal reliability. Administered in three phases (pre-assessment, intervention, post-assessment) following proper DepEd administrative permits and parent consent. Data Analysis: Analyzed using Frequency Counts, Percentages, Mean/Mean Percentage Scores (MPS), and Paired-Samples T-tests.

3.2 Participants & Sampling

The study involved 51 primary learners ($N = 51$) at Bolitoc Elementary School. Purposive sampling was used to select learners requiring targeted diagnostic reading tracking.

4.3 Research Instrument & Procedure

A standardized, localized reading diagnostic assessment was administered as a pre-test to establish baseline levels. Learners then engaged with Project "Big Six" decodable and diagnostic tracking materials. Following the intervention, a post-test using parallel assessment forms was conducted to evaluate skill acquisition.

3.4 Statistical Data Analysis

- Descriptive Statistics: Frequency (f), Percentage (%), Arithmetic Mean (X), Mean Gain (Δ), and Percentage Improvement (%) were calculated.
- Inferential Statistics: A paired-samples t -test was conducted at a 0.05 level of significance ($\alpha = 0.05$)

with 50 degrees of freedom ($df = N - 1 = 50$) to test H_0 .

IV. RESULTS

4.1 Demographic Profile of Respondents

This chapter presents, analyzes, and interprets the quantitative data gathered from 51 primary learners to evaluate the effectiveness of Project "Big Six". The results focus on student performance across two major sub-skills: Phonemic Awareness and Vocabulary Acquisition.

Demographic Profile of the Respondents

Table 1: Profile Distribution by Gender

Gender	Frequency (f)	Percentage (%)
Male	22	43.14%
Female	29	56.86%
Total	51	100.00%

As presented in Table 1, out of 51 pupil-participants, 29 (56.86%) are female and 22 (43.14%) are male.

Table 2: Profile Distribution by Age

Age Bracket	Frequency (f)	Percentage (%)
7 years old	13	25.49%
8 years old	31	60.78%
9 years old	1	1.96%
10 years old	3	5.88%
12 years old	1	1.96%
14 years old	2	3.92%
Total	51	100.00%

Table 2 indicates that the majority of respondents are 8 years old ($f = 31, 60.78\%$), followed by 7-year-olds ($f = 13, 25.49\%$). A small proportion comprises learners aged 10, 12, and 14 years old (13.72% combined), representing learners with prior learning gaps or delayed academic progression.

4.2 Reading Performance Analysis: Sub-Skill Comparison

To evaluate specific domain improvements under Project "Big Six", scores in Phonemic Awareness and Vocabulary Acquisition were evaluated independently.

Table 3: Pre-Test vs. Post-Test Sub-Skill Breakdown

Sub-Skill Domain	Max Score	Pre-Test Mean	Post-Test Mean	Mean Gain (Δ)	Percentage Gain (%)
Phonemic Awareness	15	7.33	10.96	+3.63	+49.52%
Vocabulary Acquisition	15	5.29	10.88	+5.59	+105.67%
Total Composite Score	30	12.63	21.84	+9.22	+72.99%

4.3 Analysis and Interpretation

As shown in Table 3:

- Phonemic Awareness: Learners posted a baseline pre-test mean of 7.33, which increased to 10.96 in the post-test, demonstrating a mean gain of +3.63 points (+49.52%).
- Vocabulary Acquisition: Baseline pre-test scores started at a mean of 5.29, which rose to 10.88 in the post-test, yielding a substantial mean gain of +5.59 points (+105.67%).
- Total Score: Overall class performance increased from 12.63 to 21.84, reflecting an overall composite mean gain of +9.22 points (+72.99%).

The marked growth in Vocabulary Acquisition (+105.67%) highlights that targeted decoding and contextual exposure significantly accelerate word-meaning association among primary learners.

Table 4: Pre-Test vs. Post-Test Performance Gains by Gender

Sub-Group	Sub-Skill Domain	Pre-Test Mean	Post-Test Mean	Mean Gain (Δ)	Total Gain	Composite
Male Learners ($n = 22$)	Phonemic Awareness	7.45	10.45	+3.00	+9.36	points
					(+78.66%)	
	Vocabulary Acquisition	4.45	10.82	+6.36		
Female Learners ($n = 29$)	Phonemic Awareness	7.24	11.34	+4.10	+9.10	points
					(+68.73%)	
	Vocabulary Acquisition	5.93	10.93	+5.00		

4.3 Analysis and Interpretation

Both gender cohorts demonstrated gains:

- Male Learners achieved a larger relative gain in Vocabulary Acquisition (+6.36 mean gain), elevating their total mean score from 11.90 to 21.26.
- Female Learners made higher relative progress in Phonemic Awareness (+4.10 mean gain), advancing their total mean score from 13.24 to 22.34.

4.4. Test of Significant Difference

To verify whether the observed score increases were statistically significant, a paired-samples *t*-test was conducted at $\alpha = 0.05$.

Table 5: Inferential Analysis of Pre-Test and Post-Test Composite Scores

Variable	Mean Difference	Std. Deviation (SD)	Computed t-value	Critical t-value ($\alpha=0.05, df=50$)	p-value	Decision on H0	Interpretation
Total Score (Pre vs. Post)	9.22	3.13	21.05	2.009	< 0.0001	Rejected	Statistically Significant

The computed *t*-value of 21.05 significantly exceeds the critical *t*-value of 2.009 ($df = 50, p < 0.0001$).

Thus, the null hypothesis (H_0) is rejected.

1. Simple View of Reading Alignment: The gains in both phonemic awareness (decoding) and vocabulary (linguistic comprehension) validate Gough and Tunmer's framework, showing that developing sub-skills concurrently yields higher composite reading ability.
2. Cognitive Load Reduction: Supporting Perfetti's Lexical Quality Hypothesis, strengthening auditory discrimination and word recognition reduced cognitive load during reading, enabling learners to achieve higher post-test performance.

V. DISCUSSION

The quantitative results demonstrate that Project "Big Six" produced a statistically significant gain in primary student reading performance.

5.1 Synthesis of Theoretical and Practical

- 5.1.1. Validation of Theoretical Models: The results corroborate Gough and Tunmer's Simple View of Reading and Perfetti's Lexical Quality Hypothesis. Decoding and vocabulary exercise lowered the cognitive effort required to recognize words and increased general reading comprehension.
- 5.1.2. Intervention Balanced Impact: Both male (+78.66%) and female (+68.73%) learners improved, indicating that explicit reading tools are helpful to learners regardless of gender.
- 5.1.3. Institutional Alignment. The large improvements in scores demonstrate the effectiveness of diagnostic reading monitoring tools in assisting reading remediation in public primary schools.

VI. CONCLUSIONS

1. The research targeted Bolitoc Elementary School primary students with severe reading impairments. Age and gender breakdowns showed student variety, but the demographic baseline showed a vulnerable group that needed reading help.
2. Phonemic awareness performance Project "Big Six" localized reading materials improved students' Phonemic Awareness by 49.52% from pre-test to post-test. Localized auditory exercises improved phoneme separation, blending, and segmentation skills considerably.
3. Vocabulary Acquisition had the greatest gain, going from a dangerously low baseline mean of 5.29 out of 15 points to +105.67% on the post-test. Anchoring word meaning identification, context cues, and synonym/antonym recognition in culturally familiar and localized environments reduced cognitive barriers and accelerated semantic mastery.
4. The learners' pre- and post-test scores in Phonemic Awareness and Vocabulary Acquisition changed significantly. Composite mean score rose 72.99% from 12.63 to 21.84. Rejecting the null hypothesis confirms that the considerable benefits seen were related to the Project "Big Six" intervention, validating the Simple View of Reading paradigm.
5. Action Plan and Recommended Contextualized Instructional Materials
The intervention's empirical efficacy supports institutionalizing and growing Project "Big Six"'s localized reading materials. An elaborate action plan should include expanding localized modules to neighboring primary levels, integrating daily dual-track (phonemic-semantic) education, rigorous diagnostic screening, and teacher skill development.

VII. RECOMMENDATIONS

1. Have Demographic Data to Differentiate Reading Support and analyze trends in age and gender of learners to provide targeted and equitable reading interventions.
2. Follow through with Explicit Phonemic Awareness Instruction and continue with regular tasks for phonemic awareness focused on phoneme isolation, blending, and segmentation to maintain decoding abilities.
3. Introduce Region-Specific Vocabulary and reinforce vocabulary, context clues, synonyms, and antonyms using culturally appropriate resources and community tales.
4. Institutionalize Project “Big Six” and, given the enormous gains in phonemic awareness and vocabulary, integrate Project “Big Six” into the classroom reading curriculum.
5. Create an Action Plan that is Scalable and expand Project “Big Six” to other grade level and offer LAC workshops to help teachers in designing localized materials and track success

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BIONOTE:

Josephine S. Mila is an academic leader and educator who is now teaching at Bolitoc Elementary School in the Bolitoc, Sta. Cruz, Zambales, Philippines, Cruz District, Division of Zambales. Her research and professional practice are focused on the areas of basic literacy, action research methods, and creative teaching techniques for improving the reading competency of primary school learners.

Mrs. Mila, as a master teacher for decades, has led major educational efforts such as Project “Big Six, an intervention program designed to improve core reading skills including phonemic awareness, phonics, vocabulary, fluency, and comprehension through systematic diagnostic progress monitoring and context-based decodable learning materials. Beyond her studies, she is devoted to creating inclusive learning environments, supporting faculty cooperation, and promoting community-engaged educational growth.