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Meaning First Literacy Intervention for Comprehension Growth in Key Stage 1

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ABSTRACT

This study examined how a meaning-centered literacy intervention could strengthen comprehension growth among Key Stage 1 learners in Baggao, Cagayan. Using a staggered multiple-baseline quasi-experimental design, the study involved 48 learners and 12 Key Stage 1 teachers. The six-week Meaning First Literacy Intervention integrated meaningful text discussion, contextual vocabulary instruction, guided questioning, learner explanation, text-to-experience connections, and comprehension monitoring. Data were gathered through the Meaning First Literacy Comprehension Measure and the Meaning First Instructional Implementation Scale. Piecewise linear mixed-effects growth modeling, Hedges' g, and repeated-measures concordance analysis were used to determine changes in comprehension trajectories, intervention effects, and implementation consistency. Results showed minimal improvement during baseline periods but a significant acceleration in comprehension growth after intervention exposure. Large effect sizes were observed in meaning retrieval, vocabulary and semantic integration, and inferential meaning-making, with vocabulary and semantic integration producing the strongest gain. Teacher implementation was generally consistent, and stronger implementation was significantly associated with greater learner growth. However, inferential meaning-making remained the weakest comprehension domain, while comprehension monitoring showed the lowest implementation level. The findings indicate that meaning-centered literacy instruction can promote substantial comprehension development when foundational reading processes are linked with purposeful interpretation. Sustained support for inferential reasoning and comprehension monitoring is recommended to deepen early literacy outcomes.

Keywords: *comprehension growth; early literacy; inferential meaning-making; Key Stage 1; meaning-centered instruction; vocabulary integration*

INTRODUCTION

Reading comprehension develops when children move beyond recognizing printed words and begin constructing meaning from language, ideas, and experiences represented in a text. During the early years of schooling, this transition is especially important because reading gradually becomes a means for learning across subject areas. Evidence from reading research shows that effective early literacy instruction requires more than mastery of letter sound relationships. Children also need vocabulary, oral language, background knowledge, fluency, and opportunities to understand and discuss what they read (Castles et al., 2018).

Comprehension, therefore, should not be treated as a skill introduced only after learners become accurate decoders. Duke and Cartwright (2021) explain that skilled reading involves interacting processes that include word recognition, language comprehension, motivation, knowledge, and active self-regulation. This view supports literacy instruction that connects foundational reading skills with purposeful meaning-making. For young learners,

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texts become more valuable when instruction helps them relate words and sentences to ideas, situations, and prior knowledge rather than concentrating mainly on accurate oral reading.

This concern is particularly important in Philippine basic education. The 2022 Learning Poverty Brief reported that a large proportion of Filipino children at age 10 could not read and understand an age-appropriate text, highlighting the need to strengthen foundational literacy before learning difficulties become more persistent in later grades (World Bank & UNESCO, 2022). Similar concerns were reflected in the Southeast Asia Primary Learning Metrics, where Filipino learners performed below the participating-country average in reading, mathematics, and writing (Department of Education, SEAMEO, & UNICEF, 2021). These findings suggest that interventions in the early grades should address not only reading accuracy but also the learner's ability to understand, interpret, and communicate meaning from text.

The Philippine Key Stage 1 curriculum gives clear importance to this direction. It identifies oral language, phonological awareness, phonics, word study, vocabulary, grammar awareness, text comprehension, and text creation as interconnected areas of literacy development from Kindergarten to Grade 3 (Department of Education, 2023). Such expectations call for classroom interventions that maintain systematic support for foundational skills while giving learners meaningful reasons to read. When meaning is placed at the center of literacy experiences, decoding and vocabulary development can function as pathways toward understanding rather than as isolated classroom exercises.

Guided by this need, Meaning First Literacy Intervention for Comprehension Growth in Key Stage 1 focuses on a literacy approach in which understanding is deliberately foregrounded through meaningful texts, vocabulary development, guided questioning, oral interaction, and connections between learners' experiences and what they read. In elementary schools in Baggao, Cagayan, examining this approach may provide useful evidence on how Key Stage 1 teachers can support children who are still developing the foundational processes needed for comprehension. The study therefore seeks to contribute an intervention-oriented perspective that brings together essential reading skills and purposeful meaning-making during the stage when children's literacy foundations are being formed.

Literature Review

Meaning Construction and Early Reading Comprehension

Comprehension begins to develop before children become fully independent readers because understanding written text draws heavily on language knowledge already formed through listening, speaking, and interaction. A systematic meta-analytic review by Hjetland et al. (2020) found that linguistic comprehension and code-related abilities follow distinct but connected pathways toward later reading comprehension. Their findings emphasize that early reading instruction should not focus solely on recognizing letters and words. Learners also need opportunities to interpret ideas, connect information, and develop an understanding of what language communicates. This supports a meaning-first orientation in Key Stage 1, where reading activities can deliberately connect word recognition with understanding from the beginning of literacy instruction.

Vocabulary Development as a Foundation for Meaning

Vocabulary provides learners with the language needed to understand what a text communicates. When children encounter unfamiliar words without adequate support, even accurate decoding may produce limited understanding. Wright and Cervetti (2017), in their systematic review of vocabulary instruction and text comprehension, found that directly teaching word meanings generally improved comprehension of texts containing the taught vocabulary, particularly when learners actively processed words rather than simply memorizing definitions. Meaningful vocabulary instruction may therefore involve discussing words within stories, connecting them with familiar experiences, and allowing children to use them in spoken or written responses. Such practices closely support comprehension-focused literacy intervention among early-grade learners.

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Inferential Thinking and Guided Comprehension

Understanding a text also requires learners to identify ideas that are not always directly stated. Young readers must gradually learn to connect details, use prior knowledge, anticipate relationships, and form reasonable interpretations from textual information. Elleman (2017) synthesized 25 studies on inference instruction and found positive effects on general, inferential, and literal reading comprehension, with particularly meaningful benefits for less-skilled readers in some comprehension outcomes. These findings show the value of teacher guidance through carefully structured questions and discussions. Within Key Stage 1, prompts such as asking why an event occurred, what may happen next, or how two ideas are related can help learners move from recalling words toward actively constructing meaning.

Early Literacy Intervention and Comprehension Growth

Targeted literacy support is particularly important when learners begin to demonstrate difficulty in developing foundational reading abilities. Denton et al. (2022) examined 47 intervention studies involving 7,446 learners from kindergarten through Grade 3 who had or were at risk for reading difficulties. Their meta-analysis found an educationally meaningful positive effect of early reading interventions on reading comprehension. The evidence also showed the value of interventions that address foundational skills while maintaining comprehension as the larger purpose of reading. For Key Stage 1 learners, this suggests that intervention should not separate decoding from meaning unnecessarily. Instead, structured practice in foundational skills can be connected with vocabulary, discussion, questioning, and understanding of age-appropriate texts so that progress in reading contributes directly to comprehension growth.

METHODS

Research Design

The study employed a staggered multiple-baseline quasi-experimental design across Key Stage 1 grade bands. This design allowed comprehension performance to be observed repeatedly before and during the implementation of the Meaning First Literacy Intervention, with the intervention introduced at different points across Grades 1, 2, and 3. Rather than relying only on a single pretest and posttest comparison, the design traced changes in comprehension trajectories and examined whether improvement became evident following exposure to the intervention. The instructional program ran for six weeks and emphasized purposeful text engagement, vocabulary in meaningful passages, guided questioning, oral meaning construction, and inferential thinking. Teacher implementation records were used alongside learner comprehension measures to determine whether observed growth corresponded with consistent delivery of the intervention.

Research Locale

The investigation was conducted in public elementary education settings in Baggao, Cagayan. The municipality provided an appropriate setting because its elementary schools served learners across geographically varied communities under the Schools Division Office of Cagayan. The official DepEd school directory identifies public elementary institutions across the Baggao East, Baggao North, Baggao South, and Baggao West districts, establishing a sufficiently varied setting for examining early literacy instruction. The specific participating schools were withheld in the manuscript to preserve institutional confidentiality.

Participants and Sampling Technique

The study involved 48 Key Stage 1 learners and 12 Key Stage 1 teachers, for a total of 60 participants. The learner group consisted of 16 pupils from Grade 1, 16 from Grade 2, and 16 from Grade 3, while the teacher group included four teachers from each grade level. Criterion-based stratified sampling was used to obtain representation across the three Key Stage 1 levels while keeping the intervention group manageable for repeated assessment and close instructional monitoring. Learners were selected from official class lists based on

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demonstrated need for additional comprehension support, regular attendance, and availability throughout the intervention period. Teachers were included when they were currently assigned to Grades 1 to 3, directly handled literacy instruction, and participated in the implementation of the intervention.

Research Instrument

Data were gathered using the researcher-developed Meaning First Literacy Comprehension Measure (MFLCM) and the Meaning First Instructional Implementation Scale (MFIIS). The MFLCM contained 24 developmentally adjusted items covering three domains: meaning retrieval, vocabulary and semantic integration, and inferential meaning-making. Parallel forms were prepared for Grades 1, 2, and 3 to reflect differences in reading complexity while retaining the same comprehension constructs. The MFIIS contained 15 indicators that documented teachers' use of meaningful text discussion, contextual vocabulary work, questioning, learner explanation, text-to-experience connections, and comprehension monitoring.

Content validation was conducted by five specialists in early literacy, language education, educational assessment, and elementary instruction. Item-level Content Validity Index values ranged from 0.80 to 1.00, while the Scale Content Validity Index based on average agreement was 0.95, indicating strong correspondence between the items and the intended constructs. The instruments were pilot tested with 30 Key Stage 1 learners and 8 elementary teachers outside the main study group. The MFLCM obtained a Cronbach's alpha coefficient of .92, while the MFIIS produced an alpha coefficient of .90. Item-total correlations for the comprehension measure ranged from .43 to .78. Items requiring wording adjustment were revised before final administration.

Data Gathering Procedure

Permission to conduct the research was secured from the appropriate education authorities and participating school administrators before data collection began. Teachers received an orientation on the instructional sequence, assessment procedures, intervention materials, and documentation requirements. Baseline comprehension probes were first administered to the learner groups according to the staggered schedule. The Meaning First Literacy Intervention was then introduced progressively across the grade-level cohorts and was implemented during scheduled literacy periods for six weeks. Short comprehension probes were administered regularly to capture changes in learner performance rather than depending exclusively on endpoint scores. Teacher implementation was documented through the MFIIS and instructional records. All completed instruments were checked, coded, and entered into a secured dataset before analysis.

Data Analysis

The principal analysis used piecewise linear mixed-effects growth modeling. This treatment was selected because the study generated repeated comprehension scores from the same learners across baseline and intervention periods. The model estimated the learner's baseline comprehension trajectory, the immediate change associated with the introduction of the intervention, and the change in growth rate during intervention exposure. Measurement occasions were nested within learners, while grade level was entered as a fixed effect to account for developmental differences across Grades 1 to 3. Restricted maximum likelihood estimation was applied, and standardized regression coefficients with 95% confidence intervals were reported. Hedges' g was additionally computed to express the magnitude of comprehension improvement in a form suitable for interpreting educational significance. Teacher implementation scores were examined using repeated-measures concordance analysis and were linked with learner growth estimates to determine whether stronger intervention enactment corresponded with greater comprehension gains.

Ethical Considerations

The study observed voluntary participation, informed consent, parental consent, learner assent, confidentiality, and the participants' right to withdraw without penalty. Codes replaced personal identifiers in all research files, and learner results were reported only in aggregated form. The intervention involved ordinary

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literacy activities appropriate to Key Stage 1 and did not expose participants to procedures beyond normal educational risk. Data were stored securely and were used solely for the stated research purposes.

RESULTS AND DISCUSSION

Table 1. *Comprehension Performance of Key Stage 1 Learners Across the Staggered Intervention*

Grade Level	n	Baseline Observations	Baseline Mean	SD	Baseline Slope	Intervention Endpoint Mean	SD	Mean Gain
Grade 1	16	3	9.88	2.31	0.07	15.75	2.42	5.87
Grade 2	16	4	10.75	2.18	0.05	17.00	2.21	6.25
Grade 3	16	5	11.44	2.36	0.03	17.75	2.28	6.31
Overall	48	3 to 5	10.69	2.31	0.05	16.83	2.37	6.14

Note. MFLCM maximum score = 24.

Table 1 presents a clear difference between the relatively stable baseline period and the pattern observed after the Meaning First Literacy Intervention was introduced. Baseline slopes ranged only from 0.03 to 0.07, indicating little spontaneous improvement before intervention exposure. The overall baseline mean of 10.69 increased to 16.83, producing a mean gain of 6.14 points. Grade 3 learners recorded the highest endpoint score, although all three grade groups demonstrated comparable gains. The staggered pattern strengthened the interpretation because improvement became visible after intervention introduction rather than developing steadily during baseline. The finding agrees with Gersten et al. (2020), whose meta-analysis of rigorous primary-grade intervention studies found a significant positive effect of targeted reading intervention on reading outcomes.

The results nevertheless indicated that learners entered the intervention with substantial comprehension difficulty. Even after six weeks, the overall endpoint mean represented 70.13% of the total possible score, showing that meaningful progress did not eliminate all comprehension limitations. The intervention therefore appeared effective as an acceleration strategy rather than as a complete resolution of early literacy difficulty.

Table 2. *Piecewise Linear Mixed-Effects Model for Comprehension Growth*

Model Parameter	B	SE	95% CI	t	p
Intercept	10.52	0.36	[9.80, 11.24]	29.22	<.001
Baseline time	0.05	0.06	[-0.07, 0.17]	0.83	.410
Immediate intervention-level change	0.62	0.21	[0.20, 1.04]	2.95	.005
Change in intervention growth slope	0.91	0.09	[0.73, 1.09]	10.11	<.001
Grade 2 versus Grade 1	0.72	0.33	[0.06, 1.38]	2.18	.034
Grade 3 versus Grade 1	1.30	0.34	[0.62, 1.98]	3.82	<.001
Intervention slope × Grade 2	0.06	0.12	[-0.18, 0.30]	0.50	.619
Intervention slope × Grade 3	0.02	0.12	[-0.22, 0.26]	0.17	.868

Note. Marginal R^2 = .72; conditional R^2 = .85; random intercept variance = 1.76; residual variance = 0.91.

Table 2 shows that comprehension scores were essentially unchanged during baseline, $B = 0.05$, $p = .410$. Once the intervention began, however, an immediate increase of 0.62 points was observed, followed by a substantial positive shift in the rate of growth, $B = 0.91$, $p < .001$. This slope change was the strongest statistical result of the study. It indicated that learners did not simply finish with higher scores but improved at a distinctly faster rate while receiving meaning-focused instruction.

Grade 2 and Grade 3 learners began from somewhat higher comprehension levels than Grade 1 learners. However, neither grade-by-intervention interaction was significant. This suggested that the growth pattern associated with the intervention was broadly similar across all three Key Stage 1 levels. Such a result is important

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because the intervention did not appear useful only for older or initially stronger readers. Jiang and Logan (2019) likewise demonstrated that language-focused classroom intervention could improve proximal vocabulary and comprehension-monitoring outcomes and could contribute indirectly to reading comprehension across the primary grades.

Table 3. *Domain-Specific Comprehension Outcomes and Effect Sizes*

Comprehension Domain	Baseline Mean	SD	Endpoint Mean	SD	Mean Gain	Hedges' g	Interpretation
Meaning retrieval	4.21	1.62	6.35	1.47	2.14	1.36	Large
Vocabulary and semantic integration	3.71	1.55	5.88	1.48	2.17	1.42	Large
Inferential meaning-making	2.77	1.49	4.60	1.52	1.83	1.20	Large

Note. Each domain had a maximum score of 8.

Table 3 reveals that all three comprehension domains improved substantially, although growth was not uniform. Vocabulary and semantic integration produced the largest standardized effect, $g = 1.42$, followed by meaning retrieval, $g = 1.36$. These outcomes indicated that learners became more capable of connecting word meanings with textual information rather than treating vocabulary as isolated knowledge. The pattern is consistent with Silverman et al. (2020), who found positive effects of language-comprehension interventions on vocabulary, listening comprehension, and reading-comprehension measures, while emphasizing the contribution of vocabulary and semantic knowledge to understanding text.

Inferential meaning-making also produced a large effect, $g = 1.20$, but remained the weakest domain at the end of the intervention. Its endpoint mean of 4.60 out of 8 showed that learners continued to experience difficulty when answers required combining textual clues, prior knowledge, and implied relationships. This residual weakness is important because it prevents the results from suggesting that comprehension difficulty was fully resolved. Meaning retrieval improved more readily, whereas deeper interpretation appeared to require longer and more sustained instructional support.

Table 4. *Teacher Implementation of the Meaning First Literacy Intervention*

Implementation Component	Mean Fidelity (%)	SD
Meaningful text discussion	92.1	4.8
Contextual vocabulary instruction	88.7	5.7
Guided comprehension questioning	86.4	6.1
Learner explanation of meaning	83.9	6.8
Text-to-experience connections	89.5	5.4
Comprehension monitoring	77.8	7.3
Overall implementation fidelity	86.4	5.6

Repeated-measures concordance: Kendall's $W = .71$, $\chi^2(5) = 42.60$, $p < .001$
Fidelity-growth relationship: standardized $\beta = .34$, SE = .14, 95% CI [.06, .62], $p = .019$

Table 4 indicates generally strong implementation, with an overall fidelity level of 86.4%. Meaningful text discussion received the highest implementation score at 92.1%, while comprehension monitoring obtained the lowest at 77.8%. Kendall's coefficient showed substantial consistency in implementation patterns across the six-week period, $W = .71$, $p < .001$. More importantly, stronger teacher implementation was positively associated with learner comprehension growth, $\beta = .34$, $p = .019$. Learners exposed to more consistent enactment of the intervention tended to demonstrate stronger growth trajectories.

The weaker score for comprehension monitoring provides another practical concern emerging from the study. Teachers implemented discussion and contextual vocabulary more consistently than activities requiring learners to recognize confusion, check understanding, and repair meaning independently. This may partly explain

why inferential comprehension remained the most difficult learner outcome. Van Dijk et al. (2023) emphasized that implementation fidelity, particularly adherence, dosage, and instructional quality, should be incorporated directly into reading intervention research because variation in delivery can affect the interpretation of learner outcomes.

Taken together, the findings showed that the Meaning First Literacy Intervention was associated with a clear change in comprehension growth after a stable baseline period. The strongest evidence came from the significant intervention slope change, the large domain-level effects, and the positive relationship between implementation quality and learner growth. At the same time, inferential meaning-making and comprehension monitoring remained comparatively weak. These findings suggest that placing meaning at the center of early literacy instruction can accelerate comprehension development, but learners who struggle with deeper interpretation require continued scaffolding beyond the initial intervention period.

CONCLUSION

The Meaning First Literacy Intervention strengthened comprehension growth among Key Stage 1 learners, as reflected in the improved growth trajectory after intervention exposure, large gains across comprehension domains, and the positive relationship between implementation quality and learner progress. The intervention was particularly effective in meaning retrieval and vocabulary and semantic integration, while inferential meaning-making remained comparatively weaker. These results indicate that early literacy instruction becomes more productive when learners are consistently guided to connect words, ideas, experiences, and textual meaning rather than treating reading as a decoding task alone. It is therefore recommended that Key Stage 1 teachers sustain meaning-centered literacy routines, strengthen explicit support for inferential thinking, and devote greater attention to comprehension monitoring so that learners can recognize and address breakdowns in understanding. School-level literacy programs may also incorporate structured teacher support, common intervention materials, and periodic monitoring of implementation quality to maintain consistency and improve learner outcomes across the early grades.

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