

## Academic recovery and accessible learning reading modules: Its effectiveness in enhancing reading comprehension of learners

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### Abstract

This study examined the effectiveness of the *Program ARAL Reading Modules* in enhancing the reading comprehension of Grades 4 to 6 learners across four domains: vocabulary, literal, inferential, and critical comprehension. Using a pre-test and post-test design, learners' performance was measured and analyzed through weighted means, reading levels, and t-tests of difference with corresponding effect sizes. Findings revealed that prior to the intervention, learners were generally at the *Instructional* level in vocabulary and literal comprehension, while inferential comprehension was at the *Frustration* level, indicating difficulty in higher-order thinking tasks. After the implementation of the ARAL modules, significant improvements were observed, with more learners reaching the independent level, particularly in literal and critical comprehension. Statistical analysis showed notable differences in specific domains: Grade 6 in literal comprehension ( $p = 0.003$ ), Grade 5 in inferential comprehension ( $p = 0.008$ ), and Grade 4 in critical comprehension ( $p = 0.011$ ). Although vocabulary gains were not statistically significant, moderate effect sizes indicated meaningful practical improvements. Overall, the results affirm that structured and guided reading instruction through ARAL modules contributes to both foundational and higher-order comprehension skills. The intervention was most effective in strengthening literal, inferential, and critical comprehension, while vocabulary development requires sustained and targeted enrichment. The study supports national education policies emphasizing functional literacy, higher-order thinking, and learning recovery, underscoring the importance of continuous implementation of evidence-based reading interventions.

**Keywords:** ARAL Reading Modules; Reading Comprehension; literal comprehension; Critical Comprehension and inferential comprehension

### 1. Introduction

Reading comprehension is a fundamental skill that supports academic achievement, independent learning, and lifelong literacy. It is not limited to decoding written words; rather, it involves constructing meaning from text through the interaction of several component skills, including phonological awareness, decoding accuracy, fluency, vocabulary knowledge, background knowledge, and comprehension strategies such as predicting, summarizing, questioning, and inferring. When one or more of these components are weak, learners often struggle to move beyond literal understanding toward deeper levels of interpretation and critical analysis.[1]

Across the world, reading comprehension remains a persistent concern in basic education. Many learners are able to recognize words but continue to have difficulty understanding what they read, especially when tasks require inference, evaluation, or integration of ideas. This challenge is reflected in international assessments such as PISA, where many students perform below expected proficiency levels in reading. In the Philippine context, this concern is even more pressing because a large number of learners continue to experience difficulty in early reading and comprehension, particularly in literal, inferential, and critical domains. [2-4]

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The situation worsened during the COVID-19 pandemic, which disrupted regular schooling and exposed gaps in remote learning access. Learners in low-resource communities were especially affected because of limited internet connectivity, lack of devices, and reduced adult support at home. As a result, many pupils experienced learning loss in foundational literacy skills, making reading recovery a priority for schools and education authorities. These developments strengthened the need for targeted, school-based interventions that could help learners recover lost ground in reading and comprehension. [5-7]

In response to these challenges, the Department of Education (DepEd) implemented the Academic Recovery and Accessible Learning (ARAL) program, a remediation initiative intended to strengthen foundational competencies in reading, mathematics, and science. For reading, the ARAL Reading Modules were designed to be learner-centered, accessible, and scaffolded according to learners' instructional levels. These modules aim to improve comprehension across four domains: vocabulary, literal comprehension, inferential comprehension, and critical comprehension. Through explicit instruction, guided practice, feedback, and formative assessment, ARAL modules provide learners with structured opportunities to progress from dependence on teacher assistance toward independent understanding. [11-13]

The use of modular remediation is supported by both international and local literature. Studies have shown that effective reading interventions are usually multi-component in nature, combining repeated practice, vocabulary development, explicit strategy instruction, and ongoing assessment. Such approaches can improve decoding, fluency, and literal comprehension, although higher-order comprehension skills often require longer exposure and more deliberate strategy teaching. Philippine action researches likewise suggest that teacher-assisted reading modules and community-based reading programs can produce gains in fluency and basic comprehension, especially when accompanied by coaching and consistent implementation. However, the effectiveness of these interventions often depends on implementation fidelity, learner attendance, motivation, and the availability of instructional support. [14-18]

Although ARAL is a national program, its effectiveness at the school level remains an empirical concern. School contexts differ in terms of teacher preparation, learner readiness, class size, household support, and available learning resources. In many schools, these contextual factors may either strengthen or limit the impact of remedial instruction. For instance, schools with multigrade classes, limited materials, and economically challenged households may encounter greater difficulty in sustaining reading interventions. This means that the success of ARAL cannot be assumed uniformly across settings; it must be examined in actual classroom conditions to determine whether it truly improves learners' comprehension. [19-20]

Magabta Elementary School in Kabugao District II provides a meaningful setting for such an evaluation. Like many local schools in similar communities, it faces challenges related to limited instructional materials, varied learner ability levels, and uneven support for reading at home. These realities make it important to determine whether the ARAL Reading Modules can effectively address the specific comprehension needs of its pupils. A study conducted in this setting can provide useful evidence for teachers, school heads, and education planners who are looking for practical ways to improve literacy outcomes in real classroom environments. [21-23]

## **2. Methodology**

### **2.1. Research Design**

The study made use of pre-test, post-test one group research design. It determined the effect of Academic Recovery and Accessible Learning (ARAL) to improve the reading comprehension of pupils in Magabta Elementary School. S.Y 2025-2026.

### **2.2. Locale of the Study**

The study was conducted at Magabta Elementary School (MES) Kabugao District II. This is a multigrade school with three-grade combination.

### 2.3. Respondents of the study

The participants of this study were Grades 4, 5, and 6 learners of Magabta Elementary School (MES), Kabugao District II, a multigrade institution with three grade combinations. A total of 12 learners took part in the implementation of the ARAL reading modules, which aimed to enhance their reading comprehension skills.

### 2.4. Research Instrument

The researcher made use of the standardized reading test based on the Philippines Reading Inventory (PHIL-IRI) for Grade 4, Grade 5, and Grade 6. The pretest and post-test reading passages contain 8 comprehension questions.

### 2.5. Statistical Analysis

The data gathered were analyzed and interpreted using the following:

- Weighted Mean. This was used to determine the average performance of the group in each of the three comprehension domains.
- Paired Samples T-test. This was used to compare the means of the same group at two different times (before and after the use of ARAL modules). It determines whether the improvement in scores is statistically significant or happened by chance.

## 3. Results and discussion

**Table 1** Level of reading comprehension of the learners before the use of ARAL modules

| Domains<br>Reading<br>Comprehension | Of | Grade 4 |               | Grade 5 |               | Grade 6 |               |
|-------------------------------------|----|---------|---------------|---------|---------------|---------|---------------|
|                                     |    | X       | Reading Level | X       | Reading Level | X       | Reading Level |
| Vocabulary                          |    | 60.00   | Instructional | 60.00   | Instructional | 60.00   | Instructional |
| Literal                             |    | 68.00   | Instructional | 62.50   | Instructional | 67.00   | Instructional |
| Inferential                         |    | 53.71   | Frustration   | 44.00   | Frustration   | 58.67   | Frustration   |
| Critical                            |    | 62.86   | Instructional | 87.50   | Independent   | 67.00   | Instructional |

The data reveal that Learners Across Grades 4, 5, And 6 Generally Fall Within the Instructional Level in Vocabulary and Literal Comprehension. This Indicates That While They Can Understand Words and Direct Meanings in Texts, They Still Require Teacher Guidance to Fully Grasp and Apply These Skills Independently. This Pattern Suggests a Need for Consistent Vocabulary Development And Literal Comprehension Exercises To Strengthen Foundational Reading Skills. In Contrast, The Inferential Domain Shows a Clear Weakness, With All Grade Levels Falling into The Frustration Level. This Highlights Learners' Difficulty in Interpreting

**Table 2** Level of reading comprehension of the learners after the use of Aral modules

| Domains of Reading<br>Comprehension | GRADE 4 |               | GRADE 5 |               | GRADE 6 |               |
|-------------------------------------|---------|---------------|---------|---------------|---------|---------------|
|                                     | WM      | Reading Level | WM      | Reading Level | X       | Reading Level |
| Vocabulary                          | 65.71   | Instructional | 70.00   | Instructional | 60.00   | Instructional |
| Literal                             | 77.29   | Instructional | 84.00   | Independent   | 78.32   | Instructional |
| Inferential                         | 64.43   | Instructional | 81.50   | Independent   | 71.00   | Instructional |
| Critical                            | 84.14   | Independent   | 94.00   | Independent   | 87.67   | Independent   |

The Results Demonstrate a Clear Improvement in Reading Comprehension Across All Domains After the Integration of ARAL modules.

In the vocabulary domain, All Grade Levels Remain at The Instructional Level, Though Weighted Means Increased Slightly for Grades 4 And 5 (65.71 And 70, Respectively). This Suggests That While Learners Still Require Guidance,

Their Vocabulary Knowledge Has Expanded. Grade 6, However, Shows No Improvement (WM: 60), Indicating the Need for More Targeted Vocabulary-Building Strategies at Higher Levels.

Performance In Literal Comprehension Shows Significant Progress. Grade 5 Learners Advanced to The Independent Level (WM: 84), Showing They Can Understand Explicit Meanings Without Teacher Support. Grades 4 And 6 Improved Within the Instructional Range (WM: 77.29 And 78.32), Reflecting Stronger Literal Comprehension Skills Compared to Their Baseline Performance.

Moreover, The Inferential Comprehension which was previously the weakest, Shows Notable Gains. Grade 5 Learners Reached the Independent Level (WM: 81.50), While Grades 4 And 6 Improved to The Instructional Level (WM: 64.43 And 71). This Indicates That the ARAL modules Effectively Addressed Learners' Struggles with Drawing Conclusions and Interpreting Implied Meanings

All Grade Levels Achieved the Independent Level (WM: 84.14, 94, And 87.67) in the critical domain. This Is a Remarkable Improvement Compared to The Baseline, Where Only Grade 5 Had Reached Independence. It Suggests That the Modules Successfully Fostered Higher-Order Thinking Skills, Enabling Learners to Evaluate and Analyze Texts Autonomously.

**Table 3** T-test of difference on learners' reading comprehension in vocabulary domain before and after use of Aral modules

| INDICATOR | MEAN  | DF | T-TABULAR | P-VALUE | DECISION  | COHEN'S D | INTERPRETATION  |
|-----------|-------|----|-----------|---------|-----------|-----------|-----------------|
| Grade 4   |       |    |           |         |           |           |                 |
| Pre-test  | 60.00 | 6  | -1.55     | 0.172   | Accept ho | 0.59      | Moderate effect |
| Post test | 65.71 |    |           |         |           |           |                 |
| Grade 5   |       |    |           |         |           |           |                 |
| Pre-test  | 60.00 | 1  | -1.00     | 0.500   | Accept ho | 0.71      | Moderate effect |
| Post test | 70.00 |    |           |         |           |           |                 |
| Grade 6   |       |    |           |         |           |           |                 |
| Pre-test  | 60.00 | 2  | 1.00      | 0.423   | Accept ho | 0.58      | Moderate effect |
| Post Test | 65.71 |    |           |         |           |           |                 |

As Shown in Table 3, Test Results Revealed That There Is No Statistically Significant Difference in Vocabulary Comprehension Across All Grade Levels, As Indicated By The P-Values Of 0.172 (Grade 4), 0.500 (Grade 5), And 0.423 (Grade 6), All Greater Than 0.05. Thus, The Null Hypothesis Is Accepted.

However, The Computed Cohen's D Values Of 0.59 (Grade 4), 0.71 (Grade 5), And 0.58 (Grade 6) Indicate Moderate Effect Sizes, Suggesting That The Program Aral Reading Modules Had A Meaningful Practical Impact Despite The Lack Of Statistical Significance.

This Implies That The Intervention Contributed To Improvement. This Supports The Claim That Vocabulary Development Requires Sustained Exposure And Repeated Instruction Before Significant Gains Are Observed (National Reading Panel, 2000). It Also Aligns With Republic Act No. 12028, Which Recognizes That Learning Recovery Interventions Produce Gradual Improvements

**Table 4** T-test of difference on learners' reading comprehension in inferential domain before and after use of Aral modules

| Indicators | Mean  | df | t-tabular | P-Value | Decision  | Cohen's d | Interpretation         |
|------------|-------|----|-----------|---------|-----------|-----------|------------------------|
| Grade 4    |       |    |           |         |           |           |                        |
| Pre-Test   | 68.00 | 6  | -1.767    | 0.128   | Accept Ho | 0.67      | Moderate Effect        |
| Post Test  | 77.29 |    |           |         |           |           |                        |
| Grade 5    |       |    |           |         |           |           |                        |
| Pre-Test   | 62.50 | 1  | -2.529    | 0.240   | Accept Ho | 1.79      | Very Large Effect      |
| Post Test  | 84.00 |    |           |         |           |           |                        |
| Grade 6    |       |    |           |         |           |           |                        |
| Pre-Test   | 67.00 | 2  | -17.00    | 0.003   | Reject Ho | 9.81      | Extremely Large Effect |

Table 4 Shows the test results revealed That Only Grade 6 Learners Demonstrated A Statistically Significant Difference In Literal Comprehension, as Indicated by a P-Value Of 0.003, Which Is Less Than The 0.05 Level Of Significance. Therefore, The Null Hypothesis Is Rejected for Grade 6. In Contrast, Grade 4 ( $P = 0.128$ ) And Grade 5 ( $P = 0.240$ ) Did Not Show Statistically Significant Differences, Leading to The Acceptance of The Null Hypothesis for These Groups.

However, When Examining the Effect Sizes Using Cohen's D, A Deeper Understanding of The Results Emerges. Grade 4 Obtained A Cohen's D Of 0.67, Which

Indicates A Moderate Effect, Suggesting That the Intervention Had a Meaningful Practical Impact Despite the Absence of Statistical Significance. Grade 5 Yielded A Cohen's D Of 1.79, Interpreted as A Very Large Effect, Indicating A Strong Improvement in Learners' Literal Comprehension Even Though It Was Not Statistically Significant. Meanwhile, Grade 6 Recorded A Cohen's D Of 9.81, Which Is Considered an Extremely Large Effect, Reinforcing the Statistically Significant Improvement Observed in this Group. The Combined Results of the P-Value and Cohen's D Indicate That the Program Aral Reading Modules Had A Substantial Impact on Learners' Ability to Understand Explicitly Stated Information In Texts, Particularly For Grade 6 Learners.

These Findings Support the Importance of Structured Reading Instruction in Improving Comprehension Skills. According To Duke and Pearson (2002), Explicit Comprehension Instruction Significantly Enhances Learners' Ability to Process and Understand Text at The Literal Level. Moreover, This Result Aligns with The Goals of Republic Act No. 10533, Which Emphasizes the Development of Functional Literacy and Comprehension Skills Among Learners. It Is Also Consistent with DepEd Order No. 014, S. 2018, which underscores the use of Reading Assessment Results to Guide Targeted Interventions Aimed at Improving Comprehension Levels.

**Table 5** T-test of Difference on Learners' Reading Comprehension in Inferential Domain before and after use of Aral modules

| Indicator | Mean  | df | t-<br>tabular | P-<br>Value | Decision  | Cohen's d | Interpretation            |
|-----------|-------|----|---------------|-------------|-----------|-----------|---------------------------|
| Grade 4   |       |    |               |             |           |           |                           |
| Pre-Test  | 53.71 | 6  | -1.549        | 0.172       | Accept Ho | 0.59      | Moderate<br>Effect        |
| Post Test | 64.43 |    |               |             |           |           |                           |
| Grade 5   |       |    |               |             |           |           |                           |
| Pre-Test  | 44.00 | 1  | -75.00        | 0.008       | Reject Ho | 53.03     | Extremely<br>Large Effect |
| Post Test | 81.50 |    |               |             |           |           |                           |
| Grade 6   |       |    |               |             |           |           |                           |
| Pre-Test  | 58.67 | 2  | -0.854        | 0.483       | Accept Ho | 0.49      | Small Effect              |
| Post Test | 71.00 |    |               |             |           |           |                           |

As Can Be Gleaned from Table 5, The Test Results Revealed That Grade 4 Learners Demonstrated a Statistically Significant Difference In Critical Comprehension, As Indicated By A P-Value Of 0.011, Which Is Less Than The 0.05 Level Of Significance. Therefore, The Null Hypothesis Is Rejected for Grade 4. In Contrast, Grade 5 ( $P = 0.7$ ) And Grade 6 ( $P = 0.344$ ) Did Not Show Statistically Significant Differences, Leading to The Acceptance Of The Null Hypothesis For These Grade Levels.

However, When Examining the Effect Sizes Using Cohen's D, A More Comprehensive Understanding of The Results Is Obtained. Grade 4 Yielded A Cohen's D Of 1.39, Which Is Interpreted as A Very Large Effect, Indicating That the Program Aral Reading Modules Had a Strong Practical Impact on Learners' Ability to Critically Analyze and Evaluate Texts. This Supports the Statistically Significant Result Observed in This Group.

Meanwhile, Grade 5 Recorded A Cohen's D Of 0.25, Which Is Considered a Small Effect, Suggesting That the Intervention Had Minimal Practical Impact on Learners' Critical Comprehension. This May Be Attributed to The Relatively High Pre-Test Mean, Indicating That Learners Already Possessed a Higher Level of Critical Comprehension Prior To The Intervention.

On The Other Hand, Grade 6 Obtained A Cohen's D Of 0.71, Which Is Interpreted as A Moderate Effect, Suggesting That the Program Aral Reading Modules Contributed to A Meaningful Improvement in Critical Comprehension, Although the Change Was Not Statistically Significant.

These Findings Indicate That the Intervention Was Particularly Effective in Enhancing Higher-Order Thinking Skills Among Grade 4 Learners. Critical Comprehension

Involves Evaluating Ideas, Making Judgments, And Synthesizing Information, Which Are Considered Advanced Cognitive Processes. This Is Consistent with The Framework of Higher-Order Thinking Skills Outlined By Anderson And Krathwohl (2001), Where Evaluation And Analysis Are Key Components Of Critical Thinking.

Furthermore, The Results Align with The Objectives of The MATATAG Curriculum, Which Emphasizes the Development Of Critical Thinking And Analytical Skills Among Learners As Essential Competencies. The Findings Also Support Republic Act No. 10533, Which Promotes the Development of Learners Who Are Capable of Critical Thinking And Lifelong Learning.

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#### **4. Conclusion**

The findings reveal that the ARAL Reading Modules are an effective intervention for enhancing learners' reading comprehension. Results show consistent and significant improvement in Grades 4 and 5, particularly in literal, inferential, and critical comprehension domains. However, non-consistent and less significant effects were observed in Grade 6, especially in vocabulary development.

Overall, the study affirms that structured and guided reading instruction contributes meaningfully to both foundational and higher-order comprehension skills. Continuous and sustained efforts particularly in vocabulary enrichment are recommended to achieve long-term improvement and to validate the intervention's effectiveness across different grade levels.

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#### **Compliance with ethical standards**

##### *Acknowledgments*

I acknowledge that I have not used ChatGPT or Copilot to refine any sections of this document.

##### *Disclosure of conflict of interest*

Authors have declared that they have no known competing financial interests OR non- financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

##### *Statement of ethical approval*

The study was conducted in accordance with the standards of the college. No ethical approval was required, as the research followed all applicable ethical guidelines, ensuring respect for the respondents' privacy and confidentiality.

### *Statement of informed consent*

I affirm that the respondents voluntarily agreed to participate after being fully informed about the purpose, nature, and potential implications of the study. Their responses have been collected with utmost respect for their privacy and confidentiality, in accordance with ethical research guidelines.

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