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# From Struggle to Progress: Improving Reading Performance Through Adaptive Differentiated Strategies Among Grade 11 Learners with Special Educational Needs

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## ABSTRACT

This classroom-based action research examined changes in the written reading performance of Grade 11 learners with special educational needs after participation in an adaptive differentiated reading intervention in an inclusive Senior High School setting. A one-group pretest-posttest pre-experimental design was used with 10 purposively selected learners enrolled in the Open High School Program of Benigno V. Aldana National High School. Parallel researcher-developed and expert-validated 50-item assessments measured word recognition, decoding and morphology, vocabulary development, main idea and supporting details, inference and cause-and-effect, and applied comprehension. The intervention comprised nine three-hour sessions using word chunking, morphology and vocabulary mapping, guided and repeated reading, graphic organizers, sentence starters, shortened texts, large-print materials, extended time, and teacher-guided support. Means, standard deviations, mean gains, a paired-sample t test, a 95% confidence interval, and Cohen's dz were computed. The overall mean increased from 19.20 out of 50 (SD = 3.97; 38.40%, Limited Reading Baseline) to 37.90 (SD = 4.70; 75.80%, Developing Post-Test Reading Performance). The mean gain was 18.70 points, 95% CI [16.76, 20.64], and the difference was statistically significant, $t(9) = 21.82$, $p < .001$, $dz = 6.90$. All learners moved from limited or emerging baseline categories to developing or strong posttest categories. The findings provide strong local evidence that adaptive, differentiated, and accessible reading support was associated with substantial improvement; however, the small sample and absence of a comparison group limit causal and generalizable conclusions.

**Keywords:** *adaptive differentiated strategies, reading performance, special educational needs, inclusive education, action research, Senior High School*

## INTRODUCTION

Reading literacy is foundational to participation in schooling, access to disciplinary knowledge, and later educational and occupational opportunities. Yet reading development remains uneven when schools do not identify and remove barriers that restrict learners' access to instruction. UNESCO (2020) frames inclusion as a system-wide responsibility to recognize learner variability and redesign educational

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environments so that all learners can participate meaningfully. International assessment evidence likewise shows that reading underperformance remains closely connected with inequity, and the Philippine results in PISA 2022 underscore the urgency of sustained, school-level literacy responses for adolescents who have not yet attained functional proficiency (OECD, 2023a, 2023b).

The challenge is especially consequential for learners with special educational needs (SEN), who may enter secondary school with unresolved difficulties in decoding, vocabulary, fluency, comprehension, communication, or the transfer of reading skills to academic tasks. Adolescent reading intervention therefore requires more than repeated exposure to grade-level texts. Evidence-based guidance recommends explicit instruction, guided practice, feedback, and systematic work in word reading, fluency, vocabulary, and comprehension for learners in Grades 4-9 who read below expectations (Vaughn et al., 2022). Research with learners with intellectual disabilities similarly indicates that reading-related skills can develop when teaching is systematic, sequenced, accessible, and consistently implemented (Ulriksen et al., 2024).

Differentiated instruction offers a practical framework for responding to this variability without abandoning shared curricular goals. Tomlinson (2017) conceptualizes differentiation as intentional adjustment of content, process, product, and the learning environment according to learner readiness, interest, and profile. Universal Design for Learning complements this approach by encouraging multiple means of engagement, representation, and action or expression so that barriers are anticipated rather than addressed only after learners fail (CAST, 2018). In inclusive settings, differentiation is most effective when it is deliberately planned, continuously monitored, and supported through teacher collaboration and sustained professional learning (Langelaan et al., 2024; Lindner & Schwab, 2025).

The Philippine policy environment provides a clear mandate for such responsive practice. Department of Education guidelines require schools to provide appropriate programs, services, supports, and accommodations for learners with disabilities within the K-12 system (Department of Education, 2021). Republic Act No. 11650 (2022) further institutionalizes inclusive education and reinforces the right of learners with disabilities to accessible, quality education. At the same time, national learning recovery initiatives prioritize foundational literacy and encourage localized interventions that respond to documented learning gaps (Department of Education, 2023a, 2023b). These policies establish inclusion not merely as placement in a general classroom, but as the provision of instruction that enables genuine participation and progress.

Within the Open High School Program of Benigno V. Aldana National High School, classroom evidence showed that selected Grade 11 learners with SEN continued to experience difficulty in foundational and higher-order reading tasks. Conventional whole-class instruction did not consistently provide the pacing, text accessibility, explicit modeling, and response supports required by these learners. The instructional problem therefore called for an intervention that retained common reading outcomes while adapting task length, presentation, scaffolding, time, and teacher support. The resulting Adaptive Differentiated Strategies integrated word chunking, morphology work, vocabulary mapping, guided and repeated reading, graphic organizers, sentence starters, shortened passages, large-print materials, extended time, and structured feedback.

Action research was appropriate because the purpose was to address a specific classroom problem through a planned cycle of assessment, intervention, monitoring, and reflection. Teacher-led inquiry can generate context-sensitive evidence for instructional improvement while preserving attention to the realities of the local learning environment (Mills, 2018). The one-group pretest-posttest structure also allowed the same learners' performance to be examined before and after the intervention using parallel domains and defined scoring procedures (Creswell & Creswell, 2018).

Accordingly, this study aimed to determine the improvement in the reading performance of Grade 11 learners with SEN after exposure to Adaptive Differentiated Strategies. It addressed three questions: (1) What was the learners' pretest reading performance before the intervention? (2) What was their posttest reading performance after the intervention? and (3) Was there a statistically significant difference between

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their pretest and posttest reading performance? The study sought to produce usable evidence for inclusive reading instruction, progress monitoring, and school-based learning recovery.

## METHODS

### Research Design

The study employed a one-group pretest-posttest pre-experimental action research design. The same participants completed a baseline assessment, received the Adaptive Differentiated Strategies intervention, and completed a parallel posttest. This design was suitable for examining change within an authentic classroom setting and for informing immediate instructional decisions. Because the study did not include a comparison group or random assignment, the results were interpreted as evidence of improvement associated with the intervention rather than as definitive proof of causality (Creswell & Creswell, 2018).

### Research Locale

The research was conducted in the Open High School Program of Benigno V. Aldana National High School in Cablong, Pozorrubio, Pangasinan, Philippines. The program served learners in an inclusive Senior High School environment and provided a relevant setting for a flexible, school-based intervention responsive to diverse reading and access needs.

### Sampling Technique and Participants

Purposive sampling was used to select 10 Grade 11 learners who had identified special educational needs and demonstrated substantial reading support needs based on classroom performance and the baseline assessment. The group included one learner with an intellectual disability, one learner with a moderate speech impairment, and other learners requiring significant support in reading. The small, targeted sample was consistent with the action research purpose of improving practice for a clearly identified group rather than estimating population parameters.

### Research Instruments

Data were collected using parallel researcher-developed 50-item written reading pretest and posttest instruments. Each assessment contained five 10-item domains: (a) word recognition, decoding, and morphology; (b) vocabulary development; (c) main idea and supporting details; (d) inference and cause-and-effect; and (e) applied comprehension. The instruments and intervention worksheets were reviewed by experts in instructional material development, including a book author and Department of Education module developers, for relevance, clarity, suitability, and alignment with the learners' reading needs and the objectives of the study. The Standards for Educational and Psychological Testing informed the emphasis on alignment between the intended constructs, item content, administration, and score interpretation (American Educational Research Association et al., 2014).

Overall scores were interpreted in five bands: 41-50, Strong; 31-40, Developing; 21-30, Emerging; 11-20, Limited; and 0-10, High-Priority Support. The written assessments were administered with accessibility supports that did not alter the reading constructs.

### Intervention and Data Collection

The pretest was administered on January 9, 2026, followed by nine three-hour intervention sessions from January 16 to March 13 and the posttest on March 20. The sequence addressed decoding, vocabulary and fluency, main idea and details, inference, cause-and-effect, feedback, and integrated mastery through chunking, morphology work, vocabulary mapping, modeled and repeated reading, graphic organizers, guided questioning, stations, and corrective feedback.

Adaptations included shortened and large-print texts, one-sentence chunks, visual supports, sentence starters, oral or written response options, additional time, and teacher assistance. Common objectives were retained while access, pacing, scaffolding, and response demands were varied. Scores were recorded under coded identifiers and checked before analysis.

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### Data Analysis

Means, standard deviations, percentages, frequency distributions, and gains described performance. The Shapiro-Wilk test examined normality of the paired differences, and a paired-sample t test evaluated the pretest-posttest difference at a two-tailed alpha of .05 (Mishra et al., 2019). A 95% confidence interval and Cohen's dz described precision and magnitude, interpreted alongside categorical movement and design limitations (Funder & Ozer, 2019).

### Ethical Considerations

School and division permission was obtained. Learners were assigned coded labels, records were handled in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173, 2012), and results were reported in aggregate. Accommodations reduced access barriers without changing the learning goals or assessment domains.

## RESULTS AND DISCUSSION

### Baseline Reading Performance Before the Intervention

Table 1. *Pretest Reading Performance by Reading Area*

| Reading Area | Highest Possible Score | Mean | SD | Mean Percentage | Description |
|---|---|---|---|---|---|
| Word Recognition, Decoding, and Morphology | 10 | 4.50 | 1.08 | 45.00% | Emerging |
| Vocabulary Development | 10 | 4.50 | 1.27 | 45.00% | Emerging |
| Main Idea and Supporting Details | 10 | 3.90 | 1.60 | 39.00% | Limited |
| Inference and Cause-and-Effect | 10 | 3.20 | 0.92 | 32.00% | Limited |
| Applied Comprehension | 10 | 3.10 | 1.60 | 31.00% | Limited |
| Overall Pretest Performance | 50 | 19.20 | 3.97 | 38.40% | Limited Reading Baseline |

As shown in Table 1, the learners obtained an overall pretest mean of 19.20 out of 50 (SD = 3.97), equivalent to 38.40% and interpreted as a Limited Reading Baseline. Even the two strongest domains-word recognition, decoding, and morphology and vocabulary development-averaged only 4.50 out of 10. The weakest results occurred in applied comprehension (M = 3.10) and inference and cause-and-effect (M = 3.20), indicating greater difficulty when learners had to connect ideas, draw conclusions, explain relationships, or apply information beyond literal recall.

The baseline pattern justified an intervention that addressed both foundational and meaning-level processes. Explicit adolescent reading support is most effective when word reading, fluency, vocabulary, and comprehension are taught through structured routines rather than treated as isolated or assumed prerequisites (Vaughn et al., 2022). For learners with SEN, the low performance across domains also illustrates why inclusive placement must be accompanied by planned adaptations in materials, pacing, feedback, and opportunities to respond (Lindner & Schwab, 2025).

### Post-Intervention Reading Performance

Table 2. *Posttest Reading Performance by Reading Area*

| Reading Area | Highest Possible Score | Mean | SD | Mean Percentage | Description |
|---|---|---|---|---|---|
| Word Recognition, Decoding, and Morphology | 10 | 8.50 | 1.35 | 85.00% | Strong |

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| Reading Area | Highest Possible Score | Mean | SD | Mean Percentage | Description |
|---|---|---|---|---|---|
| Vocabulary Development | 10 | 8.30 | 0.95 | 83.00% | Strong |
| Main Idea and Supporting Details | 10 | 7.50 | 1.08 | 75.00% | Developing |
| Inference and Cause-and-Effect | 10 | 7.00 | 0.82 | 70.00% | Developing |
| Applied Comprehension | 10 | 6.60 | 1.43 | 66.00% | Developing |
| Overall Posttest Performance | 50 | 37.90 | 4.70 | 75.80% | Developing Post-Test Reading Performance |

After the intervention, the overall mean increased to 37.90 out of 50 (SD = 4.70), or 75.80%, interpreted as Developing Post-Test Reading Performance. Word recognition, decoding, and morphology (M = 8.50) and vocabulary development (M = 8.30) reached the Strong level, consistent with the intervention's emphasis on chunking, morphology, repeated exposure, vocabulary mapping, and guided reading.

Main idea and supporting details, inference and cause-and-effect, and applied comprehension improved to the Developing level. Applied comprehension remained lowest (M = 6.60), indicating a continuing need for practice in independent transfer and higher-order processing. Foundational routines may respond quickly to explicit modeling, whereas inference and application require sustained integration of prior knowledge, textual evidence, and strategic reasoning.

Table 3. *Distribution of Learners Across Performance Categories Before and After the Intervention*

| Performance Category | Score Range | Pretest Frequency | Pretest Percentage | Posttest Frequency | Posttest Percentage |
|---|---|---|---|---|---|
| Strong | 41-50 | 0 | 0% | 5 | 50% |
| Developing | 31-40 | 0 | 0% | 5 | 50% |
| Emerging | 21-30 | 4 | 40% | 0 | 0% |
| Limited | 11-20 | 6 | 60% | 0 | 0% |
| High Priority | 0-10 | 0 | 0% | 0 | 0% |
| Total | - | 10 | 100% | 10 | 100% |

The categorical distribution in Table 3 demonstrates that the improvement was not confined to a small number of participants. Before the intervention, six learners (60%) were in the Limited category and four (40%) were Emerging. After the intervention, five learners (50%) were Developing and five (50%) were Strong; no learner remained in the three lowest categories. This group-wide movement is practically important in an inclusive setting because the intervention combined shared objectives with multiple access routes and differentiated supports, consistent with the principles of differentiated instruction and Universal Design for Learning (CAST, 2018; Tomlinson, 2017).

**Magnitude and Statistical Significance of Improvement**

Table 4. *Mean Gain in Reading Performance by Reading Area*

| Reading Area | Pretest Mean | Posttest Mean | Mean Gain | Percentage-Point Gain | Interpretation |
|---|---|---|---|---|---|
| Word Recognition, Decoding, and Morphology | 4.50 | 8.50 | 4.00 | 40.00 | Marked Improvement |
| Vocabulary Development | 4.50 | 8.30 | 3.80 | 38.00 | Marked Improvement |

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| Reading Area | Pretest Mean | Posttest Mean | Mean Gain | Percentage-Point Gain | Interpretation |
|---|---|---|---|---|---|
| Main Idea and Supporting Details | 3.90 | 7.50 | 3.60 | 36.00 | Marked Improvement |
| Inference and Cause-and-Effect | 3.20 | 7.00 | 3.80 | 38.00 | Marked Improvement |
| Applied Comprehension | 3.10 | 6.60 | 3.50 | 35.00 | Marked Improvement |
| Overall Reading Performance | 19.20 | 37.90 | 18.70 | 37.40 | Substantial Improvement |

All five reading areas improved, with domain gains ranging from 3.50 to 4.00 points. The largest gain occurred in word recognition, decoding, and morphology (4.00), while vocabulary development and inference and cause-and-effect each increased by 3.80 points. Applied comprehension recorded the smallest domain gain (3.50), although this still represented a 35-percentage-point increase. Overall performance rose by 18.70 points, equivalent to a 37.40-percentage-point gain. The breadth of the gains suggests that the intervention addressed both word-level access and comprehension, while the remaining hierarchy of scores identifies higher-order comprehension as the priority for continued instruction.

Table 5. *Paired-Sample Comparison and Magnitude of Overall Improvement*

| Statistical Indicator | Estimate |
|---|---|
| Pretest mean (SD) | 19.20 (3.97) |
| Posttest mean (SD) | 37.90 (4.70) |
| Mean gain (SD of paired differences) | 18.70 (2.71) |
| Shapiro-Wilk normality test | $W = 0.875$, $p = .114$ |
| Paired-sample t test | $t(9) = 21.82$, $p < .001$ |
| 95% confidence interval for mean gain | 16.76 to 20.64 |
| Cohen's dz | 6.90 |
| Decision at alpha = .05 | Reject the null hypothesis |

The Shapiro-Wilk result indicated that the paired gain scores did not significantly depart from normality, $W = 0.875$, $p = .114$, supporting use of the paired-sample t test. The posttest mean was significantly higher than the pretest mean, $t(9) = 21.82$, $p < .001$. The 95% confidence interval for the average gain, 16.76 to 20.64 points, was entirely above zero. Cohen's dz of 6.90 indicates an exceptionally large standardized within-group change, reflecting the combination of a large mean gain and relatively small variability in the individual gain scores.

The statistical result should nevertheless be interpreted within the boundaries of the design. The very large effect size describes change in this selected group but does not remove threats associated with a small sample, the absence of a comparison group, repeated testing, or other contextual influences. Accordingly, the strongest defensible conclusion is that the intervention was associated with substantial and educationally meaningful improvement in this classroom context. The convergence of higher means, positive gains in every domain, a confidence interval well above zero, and movement of every learner into the Developing or Strong categories strengthens the practical case for continuing and refining the intervention.

## CONCLUSION

The selected Grade 11 learners with SEN began with a Limited Reading Baseline and showed their greatest difficulty in inference, cause-and-effect, and applied comprehension. After nine sessions of

Adaptive Differentiated Strategies, overall performance improved to the Developing level, with Strong outcomes in word recognition, decoding and morphology, and vocabulary. Every learner moved from the Limited or Emerging baseline categories to the Developing or Strong posttest categories. The significant mean gain and consistent improvement across all five domains support adaptive differentiated instruction as a feasible school-based response to reading difficulty in an inclusive Open High School Program.

The intervention was effective as a coordinated package of explicit instruction, accessible texts, guided and repeated practice, scaffolded comprehension, flexible response supports, extended time, and immediate feedback. It should be sustained through regular progress monitoring and greater emphasis on inference, cause-and-effect, and independent application. School leaders can support implementation through protected intervention time, accessible materials, collaborative planning, and professional learning. Future research should use larger samples, follow-up assessment, comparison conditions, and qualitative evidence. Given the purposive sample of 10 learners and the absence of a control group, the findings represent strong local action-research evidence rather than generalizable causal proof.

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