



Intensive Reading Strategies Intervention for Low Achieving Adolescents

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Recent National Assessment of Educational Progress (NAEP) data suggest that many secondary students perform poorly on literacy tasks (National Center for Education Statistics, 2016, 2018, 2021). Furthermore, the literacy proficiency scores of students who receive free/reduced-price lunches are lower than those of students who are not eligible for free or reduced-priced lunches. Additionally, students in rural settings score lower than those in suburban settings. For some struggling students, in fact, school performance actually appears to plateau in middle school, while the demands of school continue to increase or even escalate throughout high school, resulting in a growing performance gap (Hock et al., 2009). Given data such as these, it is little wonder that students with low performance are at significant risk for dropping out of school (e.g., Hammond et al., 2007). In the face of such a challenge, secondary students, including students with high-incidence disabilities, require access to comprehensive, research-based interventions to meet the increasing literacy demands of schools.

A significant research base already exists to inform such interventions. For example, John Hattie's (2009) seminal study of over 800 meta-analyses, *Visible Learning*, concluded that direct instruction and meta-cognitive strategy instruction, as well as key instructional elements of both forms of instruction (e.g., feedback), have moderate and high effect sizes for students with and without disabilities. Empirical evidence has underscored the value of explicit, intensive, and specialized instruction to teach reading strategies to low-performing students, including students with learning disabilities, so that they can comprehend text at the levels required in high school and beyond (Hock et al., 2015; Kim et al., 2012; Schumaker & Deshler, 2010; Solis et al., 2014; Wanzek et al., 2011; Watson et al., 2012).

Based on over four decades of research and development, learning strategies from the *Strategic Instruction Model*, which employs direct instruction and cognitive strategies with feedback, have been validated to teach specific reading, remembering, and writing strategies (as well as other strategies) to low-performing adolescents (e.g., Schumaker & Deshler, 2010). Further, *Xtreme Reading (XR)* was developed as a comprehensive Tier 2 intervention comprised of eight strategies from the *Strategic Instruction Model* related to vocabulary, decoding, fluency, reading comprehension, and motivation. Xtreme Reading has been vetted and supported by the IES What Words Clearinghouse (Boulay, Goodson, Frye, Blocklin, & Price, 2015).

XR has been tested in several research studies. For example, the Portland Oregon School District implemented the program for five years. Results showed significant treatment effects for both middle school and high school participants (Faddis et al., 2011). More recently, Boudah (2018; 2022) published evidence of the impact of XR on adolescents who were multiple years behind in reading performance. In one school year, outcomes indicated that gains in student performance outpaced expected yearly gains, thus students "closed the gap" in student performance.

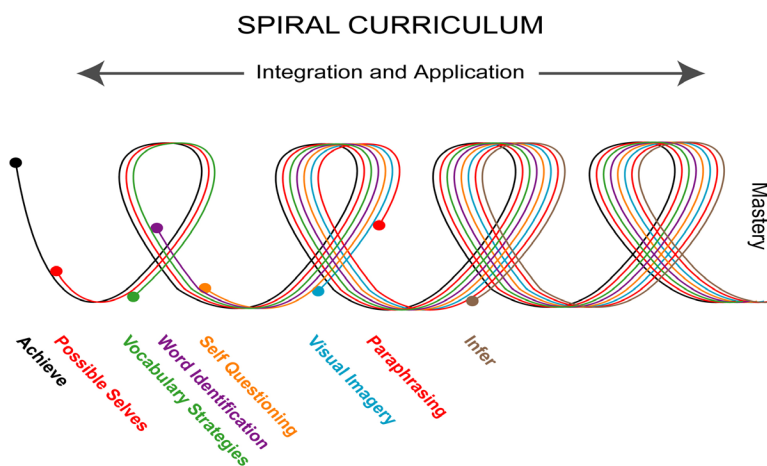
Methods

This school-based literacy intervention took place in a middle school in a small, rural district in the Southeastern US. All students qualified for free or reduced lunch, and approximately 17% of the student population was classified as students with disabilities. In recent years, middle school students in minority and disability subgroups had never met acceptable passage rates in achievement, based on state

mandated tests. School leaders began to search for a literacy intervention that would not be just another "pull out" program, but one that would be an integral part of a schoolwide focus on literacy; they chose *Xtreme Reading (XR)*. *XR* was originally created for students who were two or more years behind their peers in reading performance, including some students with disabilities, and those at risk for continued failure and dropout. Specifically, *XR* is appropriate for students who exhibit poor reading fluency, small sight vocabularies, limited understanding of words and multiple word meanings, limited background and conceptual knowledge, and have few strategies that enhance understanding and remembering of oral and written language.

XR is comprised of a spiral curriculum involving the instruction of eight reading, vocabulary, and motivation strategies delivered in a single school year. See Figure 1. *XR* entails explicit instruction in each strategy, guided practice, meaningful feedback, and independent practice in generalizing and combining strategies within and outside school.

Figure 1



Eight teachers volunteered to learn and implement *XR* as a Tier 2 intervention in a specially scheduled course. Teachers participated in *XR* professional development activities to learn the curriculum and methods, and each teacher received all necessary instructional and student materials. Each teacher also participated in classroom-embedded and ongoing coaching to demonstrate, support, and troubleshoot implementation challenges. The teachers implemented the *XR* curriculum during regularly scheduled school hours on the school campus. Fidelity to implementation was ensured by rigorous professional development and in-class instructional coaching by the professional developers; it was also validated by regularly scheduled principal walk throughs using protocols aligned with instructional components of *XR*.

Data Collection and Analysis

Data were collected from 71 students. 37% were sixth graders, 35% were seventh graders, and 28% were eighth graders. Approximately 46% were female, 54% were male, and 8% had learning disabilities. The sample population did not disproportionately represent any one group in the school.

Two standardized reading tests were administered as pre- and post-tests by the teachers in the *XR* classes at the beginning and end of the school year to measure growth in student reading performance. The Group Reading Assessment and Diagnostic Evaluation (GRADE) measures developmental reading skills and includes subtests for Listening Comprehension, Vocabulary, and Sentence and Passage Comprehension. The Test of Silent Contextual Reading Fluency (TOSCRF) is a measure of reading fluency and produces a single raw score. The tests were selected because they were standardized and could be administered to students in groups rather than individually, and in a brief amount of time so as not to negatively impact instructional time. Individual student data were included for analysis when a pre-test and a post-test score was reported for the GRADE and/or the TOSCRF. Data from fifty-four students

met the criteria for analysis (N = 54). To ensure anonymity of results, numbers replaced the names of students.

Raw scores were determined by scoring individual student pre- and posttest protocols according to test guidelines. Inferential statistical analyses were conducted with the raw scores using the Statistical Package for the Social Sciences (SPSS). Specifically, Paired-Samples *t*-tests were conducted to examine the difference in means between pretest and posttest raw scores earned by students on the GRADE total score, the GRADE Vocabulary score, the GRADE Combined Sentence and Passage Comprehension Score, and the TOSCRF total score. Also, raw scores were converted to grade equivalents for descriptive analyses.

Results

The results for the dependent outcome variables, including mean scores, statistical statements, and effect sizes, are shown in Table 1. Statistically significant differences were found for both the total GRADE score and the TOSCRF score, favoring the posttests. When the outcome data for the GRADE subtests were examined, a statistical difference was also found between the mean pretest and posttest scores for the Vocabulary subtest and combined Sentence and Passage Comprehension, favoring the mean posttest score in each case.

Table 1
GRADE and TOSCRF Results

Measure	Means		Within-Group Effects		
	Pre	Post	Statistic	<i>p</i> -value	Effect size
GRADE Total Raw Score	35.33	44.35	$t(53) = 8.087$	$p < 0.001^*$	$d = 1.101^c$
TOSCRF Raw Score	84.22	104.95	$t(54) = 6.808$	$p < 0.001^*$	$d = 0.918^c$
GRADE Combined Comprehension Subtest Score	20.59	28.31	$t(53) = 8.875$	$p < 0.001^*$	$d = 1.208^c$
GRADE Vocabulary subtest Score	14.74	16.22	$t(53) = 2.583$	$p 0.006^*$	$d = 0.352^a$

^a reflects small effect size, ^b reflects medium effect size, ^c reflects large effect size, and * indicates statistically significant *p*-value.

Descriptive reading performance gains by Grade Equivalency (GE) indicated that students gained an average of 1.20 years in vocabulary and comprehension, and 2.36 years in reading fluency in one school year. Additionally, the percentage of students passing the state assessment in reading increased from 25.2% to 32.1%.

Discussion

As noted earlier, NAEP data have indicated that many secondary students lack sufficient literacy skills, and students who receive free/reduced lunch, students from rural settings, and students with disabilities are particularly low-performing (NCES, 2016, 2018, 2021). Such demographic variables have been linked to a poor sense of connectedness (Gordon, Downey & Bangert, 2013; Balfanz, Herzog & Mac Iver, 2007; Chapman, Buckley, Sheehan & Shochet, 2013) and a higher risk for dropping out of school (e.g., Hammond, Smink, & Drew, 2007). Therefore, at-risk secondary students require comprehensive, research-based interventions to keep them in school and help ensure future well-being.

Results from this effort suggest that this intervention has promise for at-risk adolescents, perhaps even more so in addressing current COVID learning loss. Given the difference in pre to posttest means, results suggest that after students participated in Xtreme Reading classes, they closed the gap in reading performance, which is a substantive accomplishment for any low-performing adolescent. Moreover, when Kuhfeld, Soland, Lewis, and Morton (2022) recently analyzed negative changes in test scores during COVID school closings between fall 2019 and 2021 relative to average effect size of various interventions, they discovered that interventions such as tutoring, and summer programs produced limited to no effects on reading for middle school students. By contrast, this study corroborates earlier work by Boudah (2018; 2022) and illustrates that XR *can* provide a powerful intervention to address learning loss.

In conclusion, positive student outcomes do not exist without context. In this case, leadership and collaboration were key elements of success. The building principal made invaluable decisions to support the efforts. For example, she changed the school schedule so that the Xtreme Reading class would be taught later each morning because too many students were missing time from the class. In addition, she made extensive efforts to access data from elementary schools to make better data-informed decisions for appropriate tiered academic interventions of transitioning students and supported additional release time for participating teachers for planning and preparation. Teacher leadership was essential too. For example, teachers established a professional learning community in order to create necessary instructional materials that could be vetted and shared amongst the group. They were also instrumental in creating a second year Xtreme Reading class for students needing additional intervention. While collaborative support was essential from within the school, support was also important from outside the school. University educators and consultants were integral to writing a grant to access seed money for the efforts. They also provided on-going monthly teacher coaching and technical assistance for all dimensions of the effort.

Finally, interventions for at-risk adolescents, including Xtreme Reading, require specialized, intensive, often individualized student attention that translate to a significant investment of school time and monetary capital, sometimes even more than is anticipated (Hock, et al, 2009; Mastropieri, Scruggs & Graetz, 2003). That said, as Fuchs, Fuchs, and Vaughn (2014) insisted, “the cost of *not* providing intensive interventions (i.e., students exiting schools without the necessary skills to succeed) is more expensive” (p. 15).

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