



RESEARCH BRIEF ✦ PEER-REVIEWED PUBLICATION

Impact of Core5 for Students with Reading and Language-Based Disabilities

Key Findings

- Students with reading and language-based disabilities who used Core5 **significantly outperformed control students** on a standardized reading assessment.
- The **effect size in this study was 0.24**, which is considered large and much greater than the average effect size for reading interventions with students who have learning disabilities.
- This study is a randomized control trial that meets Tier 1 (Strong) criteria, as defined by the Every Student Succeeds Act (ESSA).

Introduction

Approximately 15% of all public school students in the U.S. receive special education services under the Individuals with Disabilities Education Act (IES, 2021). More than 2 million of these students have a specific learning disability (SLD), a speech or language impairment (SLI), or developmental delay (DD) (NCES, 2022). Students with these disabilities often have difficulty learning to read (Catts, Adlof, Hogan, & Weismer, 2005). Those who struggle to master literacy skills in elementary school are likely to experience continued difficulty throughout formal schooling (DeBeer, Engels, Heerkens, & van der Klink, 2014). Educational technology has been lauded for its potential to enhance reading outcomes for students with disabilities because of its dynamic features, immediate feedback, and scaffolding based on individual students' needs.

15% of U.S.
public school
students
receive
special
education
services.

The Lexia Core5 Reading program (Core5) is an adaptive blended learning program designed to supplement reading instruction for students in Grades K-5, including those with reading and language-based disabilities. Embodying research-based best practices, Core5 provides sequential, multi-component instruction focused on key literacy skills: phonological awareness, phonics, structural analysis, fluency/automaticity, vocabulary, and comprehension. Students begin Core5 by taking an auto placement assessment that allows them to start the program at their ability level and progress at their own pace. Core5 includes audio and visual cues and incorporates a variety of features that students find motivating.

The current study examined Core5's effectiveness for students receiving special education services under the SLD, SLI, and/or DD categories. This study is a randomized control trial that meets Tier 1 (Strong) criteria, as defined by the Every Student Succeeds Act (ESSA).

Study Design

Five elementary schools in a mid-sized school district took part in the study. Participants were 115 students in grades K-5 who received special education support for reading difficulties. Students had IEP designations of SLD only (n=55), DD only (n=19), SLI only (n=15), or dual designations (n=26). Students in the upper elementary grades of 3-5 (n=92) were over-represented in the sample relative to students in the lower grades of K-3 (n=23). Students received “push-in” (n=12) or “pull-out” (n=47) only supplemental reading instruction, with the majority receiving both push-in and pull-out (n=56) instruction from a special education teacher. Twenty special education teachers participated in this study.



Student reading achievement was assessed using MAP Growth Reading. In Grades K-1, MAP measures (a) Foundational Skills (phonological awareness and phonics), (b) Vocabulary Use and Functions, (c) Literacy and Informational Text, and (d) Language and Writing. In Grades 2-5, MAP measures (a) Word Meaning and Vocabulary Knowledge, (b) Understanding and Integrating Key Ideas and Details for Literature and Informational Text, and (c) Understanding and Interpreting Craft and Structure for Literature and Informational Text. MAP generates a composite score for each student that ranges from 100 to 350 (NWEA, 2011).

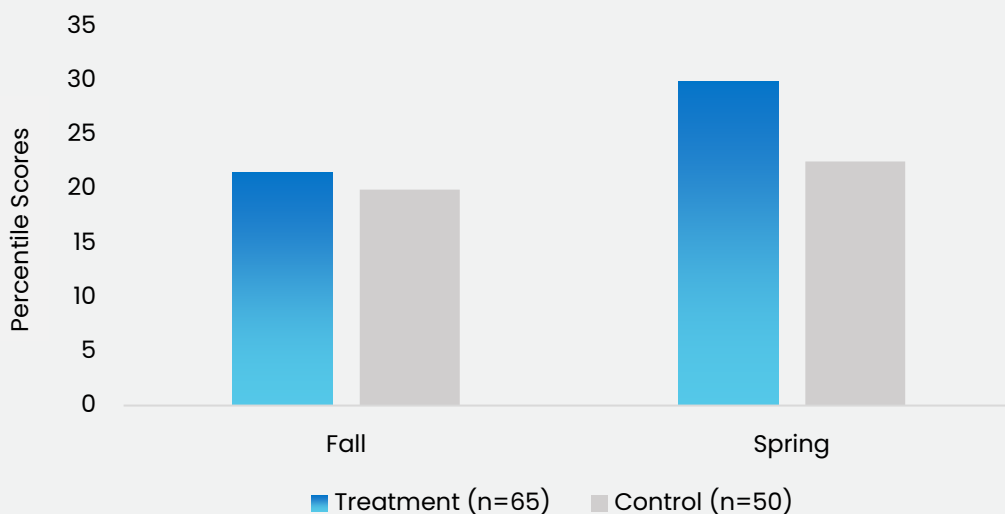
The district’s Fall administration of MAP served as a pretest. Following Fall MAP testing, 3 schools (65 students) were randomly assigned to the treatment group and the remaining 2 schools (50 students) served as the control group. Beginning in October, students in the treatment group used Core5 during push-in and/or pull-out special education reading sessions. Special education teachers in the control group continued to deliver supplemental reading instruction without Core5 (business-as-usual)¹. In late April/early May, students completed a Spring MAP assessment, which served as a posttest.

¹ All special education teachers for both groups used at least one paper-based intervention program by Wilson during supplemental instruction. Students in both groups also used an iPad version of Schoolwide’s Reading Fundamentals Program in their Tier I general education curriculum.

Results

Students with reading and language-based disabilities who used Core5 significantly outperformed control students on a standardized reading assessment.

Students in the treatment and control groups earned similar scores on MAP at pretest. After using Core5 for one school year, students in the treatment group earned significantly higher scores on MAP than students in the control group. On average, students who used Core5 gained about 8 percentile points while students in the control group gained about 2 percentile points.



**After using Core5,
students earned
higher MAP
scores than
control students.**

The effect size in this study is 0.24, which is considered large and much greater than the average effect size for reading interventions with students who have learning disabilities.

The difference in Spring MAP scores between students who used Core5 and control students was statistically significant and translated to an effect size of 0.24. Effect sizes describe the magnitude of the difference between treatment and control groups and allows educators

and researchers to compare the strength of program effects more easily across studies. An effect size of 0.24 is considered large for an educational intervention (Kraft, 2020). For reference, a review of reading interventions for students with learning disabilities found an average effect size of 0.14 (Scammacca, Roberts, Vaughn, & Stuebing, 2015); the effect size in this study was 64% larger than this average effect size.

This randomized control trial (RCT) meets the ESSA criteria for a Tier I (Strong) study and demonstrates the effectiveness of Core5 in real-world educational settings.

This study was designed to meet the criteria for Tier 1 (Strong) evidence, as defined by ESSA. Programs backed by Strong evidence have been evaluated via well-designed experimental studies, with students randomly assigned to use the target program or receive alternative instruction. Tier 1 criteria represent the highest standard of evidence under ESSA's evidence-based framework.

Want to Learn More?

If you would like more information about this study, please see the full article published in the peer-reviewed *Journal of Learning Disabilities*. For additional information or updates on research related to Core5, please contact research@lexialearning.com.

References

- Catts, H. W., Adlof, S. M., Hogan, T. P., & Weismer, S. E. (2005). Are specific language impairment and dyslexia distinct disorders? *Journal of Speech, Language, and Hearing Research*, 48(6), 1378-1396. [https://doi.org/10.1044/1092-4388\(2005/096\)](https://doi.org/10.1044/1092-4388(2005/096))
- DeBeer, J., Engels, J., Heerkens, Y., & van der Klink, J. (2014). Factors influencing work participation of adults with developmental dyslexia: A systematic review. *BMC Public Health*, 14(77). <https://doi.org/10.1186/1471-2458-14-77>
- Every Student Succeeds Act (ESSA), Pub. L. 114-95, 114 Stat. 1177 (2015-2016).
- Hurwitz, L. B., & Vanacore, K. P. (2022). Educational technology in support of elementary students with reading or language-based disabilities: A cluster randomized control trial. *Journal of Learning Disabilities*, 0(0), 1-14. <https://doi.org/10.1177/00222194221141093>
- IES National Center for Education Statistics. (2021). *Fast Facts: Students with Disabilities*. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=64>
- Kraft, M. A. (2020). Interpreting effect sizes of educational interventions. *Educational Researcher*, 49(4), 241-253. <https://doi.org/10.3102/0013189X20912798>
- National Center for Education Statistics. (2022). *Students with Disabilities. Condition of Education*. Retrieved from <https://nces.ed.gov/programs/coe/inicator/cgg>
- Northwest Evaluation Association. (2011). *Technical Manual for Measures of Academic Progress (MAP) and Measures of Academic Progress for Primary Grades (MPG)*.
- Scammacca, N. K., Roberts, G., Vaughn, S., & Stuebing, K. K. (2015). A meta-analysis of interventions for struggling readers in Grades 4-12: 1980-2011. *Journal of Learning Disabilities*, 48(4), 369-390. <https://doi.org/10.1177/0022219413504995>



Lexia®, a Cambium Learning Group company, is the Structured Literacy expert. For more than 30 years, the company has focused solely on literacy, and today provides science of reading-based solutions for both students and educators. With robust offerings for differentiated instruction, personalized learning, assessment, and professional learning, Lexia helps more learners read, write, and speak with confidence.



lexialearning.com

© 2023 Lexia, a Cambium Learning Group company. Lexia®, Lexia® Core5® Reading, and other trademarks, names, and logos used herein are the property of Lexia and/or its subsidiaries, and are registered and/or used in the United States and other countries. Additional trademarks included herein are the property of their respective owners. All rights reserved.