

What Works Clearinghouse



Headsprout® Early Reading

Program Description¹

*Headsprout® Early Reading*² is an Internet-based supplemental early literacy curriculum consisting of eighty 20-minute animated episodes, the first 40 of which are appropriate for prekindergarten age students. The episodes are designed to teach phonemic awareness, phonics, fluency, vocabulary, and comprehension.

The program adapts to a child’s responses, providing additional instruction and review if a child does not choose the correct answer. Teachers may use stories based on the episodes to reinforce instruction provided in the lessons.

Research³

One study of *Headsprout® Early Reading* meets What Works Clearinghouse (WWC) evidence standards and no studies meet WWC evidence standards with reservations. This study included 62 preschool children across five classrooms in two Head Start centers in Florida.⁴

Based on this study, the WWC considers the extent of evidence for *Headsprout® Early Reading* to be small for oral language and print knowledge. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Headsprout® Early Reading* in the phonological processing, early reading and writing, cognition, and math domains.

Effectiveness

Headsprout® Early Reading was found to have potentially positive effects on oral language and print knowledge.

	Oral language	Print knowledge	Phonological processing	Early reading and writing	Cognition	Math
Rating of effectiveness	Potentially positive	Potentially positive	na	na	na	na
Improvement index	+22 percentile points	+22 percentile points	na	na	na	na

na = not applicable

1. The descriptive information for this program was obtained from a publicly available source: the program’s website (www.headsprout.com/, downloaded August 2009). The WWC requests developers to review the program description sections for accuracy from their perspective. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review.
2. The evidence presented in this report is applicable only to the first 40 episodes of *Headsprout® Early Reading*.
3. The studies in this report were reviewed using WWC Evidence Standards, Version 2.0 (see the WWC Procedures and Standards Handbook, Chapter III).
4. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

Absence of conflict of interest

Effectiveness of reading and mathematics software products: Findings from two student cohorts (Campuzano et al., 2009), which was prepared by staff of Mathematica Policy Research,

was determined ineligible for review, and thus presented no conflict of interest.

Additional program information

Developer and contact

Developed and distributed by Headsprout®. Address: 127 Broadway Ave E., Suite #200, Seattle, WA 98102. Email: schoolinfo@headsprout.com. Web: www.headsprout.com/school/products/basics.cfm. Telephone: (206) 329-3660.

Scope of use

Headsprout® Early Reading was developed in 1999 and is currently being used by school districts in almost every state across the country, as well as numerous locations overseas.

Teaching

Headsprout® Early Reading is a supplemental early literacy curriculum accessed via the Internet. The prekindergarten curriculum—which emphasizes phonemic awareness, phonics, fluency, vocabulary, and comprehension—is made up of forty 20-minute animated episodes (the first half of the 80 episode K-2 curriculum), 30 stories, and 100 printable flashcards. Animated cartoon characters guide children through interactive episodes in locations such as outer space, under the sea, or the land of the dinosaurs. Children use the mouse to navigate through the episode; for example, helping a worm get home by

identifying, from among four pairs of letters, the letters that represent a sound they learned. The worm moves closer to his hole with each correct answer. The curriculum provides individualized, adaptive instruction, and children work through the lessons at their own pace. The program responds to a child's pattern of errors with tutorials and reviews to provide extra assistance to children struggling to comprehend the material. Children must meet specific performance criteria in order to progress to the next lesson. Cumulative review is built into the curriculum to help ensure retention. Printed versions of stories in the episodes are found in six Headsprout® Readers. The stories only contain material that children have learned up to that point in the curriculum. The Readers serve to reinforce the skills taught during the series and provide children with the opportunity to practice basic reading. The program generates performance reports, allowing teachers to monitor their students' progress.

Cost

A subscription must be purchased for each student and can be carried over into the following year until the student completes the entire program. Discounts are available for larger purchases. No other cost information was provided.

Research

One study reviewed by the WWC investigated the effects of *Headsprout® Early Reading*. This study (Huffstetter, 2005) is a randomized controlled trial that meets WWC evidence standards. Eleven studies do not meet either WWC evidence standards or eligibility screens. One study uses a single subject design for which the WWC is currently developing standards and, therefore, could not be reviewed at this time.

Huffstetter (2005) conducted a randomized controlled trial with 62 children in two Head Start centers in Florida. Thirty-one children were randomly assigned to an experimental group, and the other 31 were assigned to the comparison group. The experimental group received instruction through the *Headsprout Reading Basics™* program⁵, whereas the comparison group received instruction through *Millie's Math House®*, which teaches

5. Previously, the first 40 episodes of *Headsprout® Early Reading* were called *Headsprout Reading Basics™*.

Research *(continued)*

mathematic principles. The majority of children in the study (nearly 84%) were African-American.

Extent of evidence

The WWC categorizes the extent of evidence in each domain as small or medium to large (see the WWC Procedures and Standards Handbook, Appendix G). The extent of evidence takes into account the number of studies and the total sample size across

the studies that meet WWC evidence standards with or without reservations.⁶ The WWC considers the extent of evidence for *Headsprout® Early Reading* to be small for oral language and print knowledge. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Headsprout® Early Reading* in the domains of phonological processing, early reading and writing, cognition, and math.

Effectiveness Findings

The WWC review of interventions for early childhood education addresses children's outcomes in six domains: oral language, print knowledge, phonological processing, early reading and writing, cognition, and math. The studies included in this report cover two domains: oral language and print knowledge. The findings below present the authors' estimates and WWC-calculated estimates of the size and the statistical significance of the effects of *Headsprout® Early Reading* on children.⁷

Oral language. Huffstetter (2005) analyzes the differences between *Headsprout® Early Reading* and comparison groups for one measure in the oral language domain, the Test of Language Development–Primary: 3rd Edition (TOLD–P:3). The authors report, and the WWC confirms, a statistically significant positive effect of *Headsprout® Early Reading* on oral language of children in this study.

Print knowledge. Huffstetter (2005) analyzes the differences between *Headsprout® Early Reading* and comparison groups for one measure in the print knowledge domain, the Test of Early Reading Ability–3rd Edition (TERA–3). The authors report, and the WWC confirms, a statistically significant positive effect of *Headsprout® Early Reading* on print knowledge of children in this study.

Rating of effectiveness

The WWC rates the effects of an intervention in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative. The rating of effectiveness takes into account four factors: the quality of the research design, the statistical significance of the findings, the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies (see the WWC Procedures and Standards Handbook, Appendix E).

The WWC found *Headsprout® Early Reading* to have potentially positive effects on oral language and print knowledge

Improvement index

The WWC computes an improvement index for each individual finding. In addition, within each outcome domain, the WWC computes an average improvement index for each study and an average improvement index across studies (see WWC

Procedures and Standards Handbook, Appendix F). The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement

6. The extent of evidence categorization was developed to tell readers how much evidence was used to determine the intervention rating, focusing on the number and size of studies. Additional factors associated with a related concept—external validity, such as the students' demographics and the types of settings in which studies took place—are not taken into account for the categorization. Information about how the extent of evidence rating was determined for *Headsprout® Early Reading* is in Appendix A5.
7. The level of statistical significance was reported by the study authors or, when necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation, see the WWC Tutorial on Mismatch. For the formulas the WWC used to calculate the statistical significance, see WWC Procedures and Standards Handbook, Appendix C for clustering and WWC Procedures and Standards Handbook, Appendix D for multiple comparisons. For the *Headsprout® Early Reading* study summarized here, no corrections for clustering or multiple comparisons were needed.

index is entirely based on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analysis. The improvement index can take on values between -50 and +50, with positive numbers denoting favorable results for the intervention group.

The improvement index is +22 percentile points for one finding in the oral language domain and +22 percentile points for one finding in the print knowledge domain.

References **Meets WWC evidence standards**

Huffstetter, M. (2005). *The effects of an Internet-based program on the early reading and oral language skills of at-risk preschool students and their teachers' perceptions of the program*. Unpublished doctoral dissertation, University of South Florida, Tampa. (68813195)

Studies that fall outside the Early Childhood Education review protocol or do not meet WWC evidence standards

Budlong Elementary, Los Angeles Unified School District. (2007). *Results count: Outcome data and case studies* (pp. 3–6).

Seattle, WA: Headsprout. The study is ineligible for review because it does not use a sample within the age or grade range specified in the protocol.

Campuzano, L., Dynarski, M., Agodini, R., & Rall, K. (2009). *Effectiveness of reading and mathematics software products: Findings from two student cohorts* (NCEE 2009-4041). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. The study is ineligible for review because it does not use a sample within the age or grade range specified in the protocol.

Additional source:

Dynarski, M., Agodini, R., Heaviside, S., Novak, T., Carey, N., Campuzano, L., Means, B., Murphy, R., Penuel, W., Javitz, H.,

Summary

The WWC identified 13 studies on *Headsprout® Early Reading* and reviewed 12 of them.⁸ One of these studies meets WWC evidence standards; the remaining 11 studies do not meet either WWC evidence standards or eligibility screens. Based on the one study, the WWC found potentially positive effects on oral language and print knowledge. The conclusions presented in this report may change as new research emerges.

Emery, D., & Sussex, W. (2007). *Effectiveness of reading and mathematics software products: Findings from the first student cohort*. Washington, DC: U.S. Department of Education, Institute of Education Sciences.

Clarfield, J. (2006). Examining the efficacy of two computerized reading programs for kindergarten students at-risk for reading and behavior problems. (Doctoral dissertation, University of Massachusetts Amherst, 2006). *Dissertation Abstracts International*, 67, 05A. The study is ineligible for review because it does not use a sample within the age or grade range specified in the protocol.

Clarfield, J., & Stoner, G. (2005). The effects of computerized reading instruction on the academic performance of students identified with ADHD. *School Psychology Review*, 34(2), 246–254. The study is ineligible for review because it does not use a sample within the age or grade range specified in the protocol.

Layng, T. V. J., Twyman, J. S., & Stikeleather, G. (2003). *Headsprout Early Reading™: Reliably teaching children to read. Behavioral Technology Today*, 3, 7–20. The study is ineligible for review because it does not use a comparison group.

Layng, T. V. J., Twyman, J. S., & Stikeleather, G. (2004). Selected for success: How *Headsprout Reading Basics™* teaches beginning reading. In D. J. Moran, & R. W. Malott (Eds.), *Evidence-based educational methods* (pp. 171–197). San Diego, CA: Elsevier Academic Press. The study does not meet WWC

8. A single-case design study was identified but is not included in this review because the WWC does not yet have standards for reviewing regression discontinuity or single-case design studies.

References *(continued)*

evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.

Learners using *Headsprout* at home. (2007). *Results count: Outcome data and case studies* (pp. 11–12). Seattle, WA: Headsprout. The study is ineligible for review because it does not examine an intervention implemented in a way that falls within the scope of the review.

NY students reading above grade level with *Headsprout*. (2007). *Results count: Outcome data and case studies* (pp. 7). Seattle, WA: Headsprout. The study does not meet WWC evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.

PS 106, New York Public Schools. (2007). *Results count: Outcome data and case studies* (pp. 1–2). Seattle, WA: Headsprout. The study is ineligible for review because it does not use a sample within the age or grade range specified in the protocol.

Vail Unified School District, Vail, Arizona. (2007). *Results count: Outcome data and case studies* (pp. 8–9). Seattle, WA: Headsprout. The study is ineligible for review because it does not use a comparison group.

Woodcock Johnson Letter-Word Identification subtest pre- and posttest scores. (2007). *Results count: Outcome data and case studies* (pp. 10). Seattle, WA: Headsprout. The study is ineligible for review because it does not use a comparison group.

Studies with disposition pending

Layng, T. V. J., Twyman, J. S., & Stikeleather, G. (2004). Engineering discovery learning: The contingency adduction of some precursors of textual responding in a beginning reading program. *Analysis of Verbal Behavior, 20*, 99–109. The study is not included because it uses a design for which the WWC is currently developing standards.