What Works Clearinghouse

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Fast ForWord®

Program description[1]

Fast ForWord® is a family of computer-based products. According to the developer's web site, the programs help students develop and strengthen the cognitive skills necessary for successful reading and learning. Participants spend 30 to 100 minutes a day, five days a week, for four to 16 weeks with these adaptive exercises. *Fast ForWord® Language* builds fundamental cognitive skills of memory, attention, processing, and sequencing in the context of key language and reading skills, including listening accuracy, phonological awareness, and language structures. Programs in the *Fast ForWord® to Reading* series provide the next sequence of cognitive skills designed to help students acquire reading skills.

Research

Five studies of *Fast ForWord®* met the What Works Clearinghouse (WWC) evidence standards and one study met WWC evidence standards with reservations. The six studies included 587 Kindergarten through third-grade students in several school districts across the country.[2] Intervention students in the studies used either *Fast ForWord® Language, Fast ForWord® to Reading Prep, Fast ForWord® to Reading 1*, or *Fast ForWord® to Reading 2*. The WWC considers the extent of evidence for *Fast ForWord®* to be small for alphabetics and comprehension. No studies that met WWC evidence standards with or without reservations addressed fluency or general reading achievement.

Effectiveness

Fast ForWord® was found to have positive effects on alphabetics and mixed effects on comprehension.

	Alphabetics	*Fluency*	*Comprehension*	*General reading achievement*
Rating of effectiveness	Positive effects	na	Mixed effects	na
Improvement index[3]	Average: +8 percentile points Range: –20 to +15 percentile points		Average: +1 percentile points Range: –12 to +19 percentile points	

na = not applicable

1. The descriptive information for this program was obtained from a publicly available source: the program's Web site (www.scilearn.com, downloaded March 2007). 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 based on available research. Findings and conclusions may change as new research becomes available.
3. These numbers show the average and range of student-level improvement indices for all findings across the study.

Additional program information[1]

Developer and contact

Developed by Paula Tallal, *Fast ForWord®* is distributed by Scientific Learning Corporation. Address: 300 Frank H. Ogawa Plaza, Suite 600, Oakland, CA 94612-2040. Email: customerservices@scilearn.com. Web: http://www.scilearn.com. Telephone: (888) 665-9707. Fax: (510) 444-3580. The program can be purchased from local *Fast ForWord®* providers listed in the searchable database on the Scientific Learning Corporation web site.

Scope of use

The *Fast ForWord®* family of products entered the market with *Fast ForWord® Language* in 1997, *Fast ForWord® Language to Reading* in 1998, and *Fast ForWord® to Reading* in 2000. It has been used by more than 570,000 students in more than 3,700 schools nationwide.

Description of intervention

The *Fast ForWord® Language* and *Fast ForWord® to Reading* software packages use computer exercises develop and strengthen the cognitive processes necessary for reading. *Fast ForWord® Language* attempts to build fundamental cognitive skills of memory, attention, processing, and sequencing in the context of key language and reading skills, including listening accuracy, phonological awareness, and language structures. According to the developers' web site, *Fast ForWord® to Reading* is designed to improve cognitive skills through exercises focused on sound-letter comprehension, phonological awareness, beginning word recognition, and English language conventions. As students listen through headphones and respond using the mouse, the software adapts to individual skill levels and responses, adjusting the learner's content exposure and difficulty of items presented so that the student responds correctly approximately 80% of the time. The developer suggests intensive use either for 30 minutes a day, five days a week, for 12 to 16 weeks or for 90-100 minutes a day, five days a week, for four to eight weeks. All children start at the same basic level and advance only after attaining a predetermined level of proficiency. The rate at which a child progresses through the program is thus determined by the child.

Cost

A single license for *Fast ForWord® Language* is $900, with discounts available for multiple licenses. Each license for *Fast ForWord® to Reading* is $500, with no quantity discount.

Research

The WWC reviewed 115 studies of the effectiveness of *Fast ForWord®* on beginning reading outcomes. Five studies (Borman & Benson, 2006; Scientific Learning Corporation, 2005a, 2005b, 2005c, and 2006) were randomized controlled trials that met WWC evidence standards.[4] One other study (Overbay & Baenen, 2003) was a quasi-experimental design that met WWC standards with reservations. The remaining studies did not meet WWC evidence screens.

Met evidence standards

The Borman & Benson (2006) study included 112 academically at-risk second-grade students attending four urban schools in Baltimore, Maryland. Sixty students received the *Fast ForWord® Language* program as a supplemental targeted pullout program during the regular school day. The 52 students in the comparison group received non-literacy instruction or participated in special activities and classes, such as art and gym, for their supplemental instruction.

4. One additional Scientific Learning Corporation (2005d) study presents findings from one of the three districts included in Scientific Learning Corporation (2005a) and is included in the subgroup findings (see Appendix A4) rather than as a separate study included in the intervention rating.

Research *(continued)*

The Scientific Learning Corporation (2005a) study included 197 first- and second-grade students attending schools in three school districts. Students in the intervention group (75 first- and 23 second-grade students) used *Fast ForWord® to Reading 1*. Students in the comparison group (78 first- and 21 second-grade students) used only the regular school curriculum.

The Scientific Learning Corporation (2005b) study included a broad range of 50 third-grade students from a school in Lancaster, South Carolina. Twenty-five intervention group students used *Fast ForWord® to Reading 2*. The 25 comparison group students used only the regular school curriculum.

The Scientific Learning Corporation (2005c) study included 15 second- and 23 third-grade students who were struggling readers from a school in Fern Park, Florida. The 20 intervention group students used *Fast ForWord® to Reading 1* or *2*. The 18 comparison group students used only the regular school curriculum.

The Scientific Learning Corporation (2006) study included 48 Kindergarten students who were low-performing readers from a single suburban school. The 25 intervention group students used *Fast ForWord® to Reading Prep*. The 23 comparison group students used only the regular school curriculum.

Met evidence standards with reservations

The Overbay & Baenen (2003) study compared 71 third-grade students from schools in the Wake County Public School System in North Carolina that used elements of the *Fast ForWord®* program with 71 third-grade students from non-*Fast ForWord®* schools. The students were matched on demographic factors and reading pretest scores.

Extent of evidence

The WWC categorizes the extent of evidence in each domain as small or moderate to large (see the What Works Clearinghouse Extent of Evidence Categorization Scheme). The extent of evidence takes into account the number of studies and the total sample size across the studies that met WWC evidence standards with or without reservations.[5]

The WWC considers the extent of evidence for *Fast ForWord®* to be small for alphabetics and comprehension. No studies that met WWC evidence standards with or without reservations addressed fluency or general reading achievement.

Effectiveness

Findings

The WWC review of beginning reading programs addresses student outcomes in four domains: alphabetics, fluency, comprehension, and general reading achievement.[6] Studies included in this report cover two domains: alphabetics and comprehension. Within alphabetics, three constructs were studied: phonological awareness, letter knowledge, and phonics. The findings below present the authors' estimates and WWC-calculated estimates of the size and the statistical significance of the effects on students.[7] The results are presented by domain for each of the *Fast ForWord®* studies that the WWC reviewed.

Alphabetics. Three studies examined the effects of *Fast ForWord®* on phonological awareness, letter knowledge, and phonics.

5. 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.
6. For definitions of the domains, see the Beginning Reading Protocol.
7. The level of statistical significance was reported by the study authors or, where 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. See Technical Details of WWC-Conducted Computations for the formulas the WWC used to calculate the statistical significance. In the case of *Fast ForWord®*, no corrections for clustering were needed. Only the Scientific Learning Corporation (2005a) study reported statistically significant findings that were verified for individual outcomes, so the WWC only adjusted for multiple outcomes for this study.

Scientific Learning Corporation (2005a) reported a statistically significant positive difference between the *Fast ForWord®* group and the comparison group using two measures of phonological awareness (Test of Phonological Awareness (TOPA) letter sounds and phonological awareness subtests). The authors subsequently confirmed in data provided directly to the WWC that the two subtests were also individually statistically significant.

Scientific Learning Corporation (2005b) reported statistically significant positive differences between the *Fast ForWord®* group and the comparison group using two phonics measures (Test of Word Reading Efficiency (TOWRE) sight word efficiency and phonemic decoding efficiency subtests). However, subsequent author calculations provided directly to the WWC showed that the individual subtests were not statistically significant.

Scientific Learning Corporation (2006) reported a statistically significant positive difference between the *Fast ForWord®* group and the comparison group on measures of phonological awareness and phonics including the Woodcock Johnson (WJ) letter word identification subtest and a negative difference using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) initial sound fluency subtest (phonological awareness) and the letter naming fluency subtest (letter knowledge).[8] According to WWC calculations, the positive effect on the WJ and the negative effect on the two DIBELS subtests were not statistically significant. The study authors provided the WWC with analysis of additional measures: the phonological awareness subtest of the TOPA and the initial sound discrimination, initial sound knowledge, and non-word recognition subtests of Reading Edge. The WWC found positive, but not statistically significant, effects on all these outcomes. The average effect size across all outcomes was not large enough to be considered substantively important according to WWC criteria.

Comprehension. Three studies examined the effects of *Fast ForWord®* on reading comprehension.

Borman & Benson (2006) reported no statistically significant difference in comprehension between the *Fast ForWord®* group and the comparison group using the total reading portion of the Terra Nova.

The Scientific Learning Corporation (2005c) reported a statistically significant positive difference between the intervention and comparison groups using the Degrees of Reading Power test.

Overbay & Baenen (2003) reported a negative, but not statistically significant, difference between the *Fast ForWord®* and comparison groups using the North Carolina End of Grade Test. Although it was not statistically significant, the negative effect size was large enough to be considered substantively important according to WWC criteria (that is, less than –0.25).

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 Intervention Rating Scheme).

8. The statistical significance of the WJ finding had a p value = .06, which does not meet the WWC criterion for a statistically significant finding. The study authors did not report on the statistical significance of the DIBELS findings.

The WWC found *Fast ForWord*® to have positive effects on alphabetics and mixed effects on comprehension

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 Technical Details of WWC-Conducted Computations). The improvement index represents the difference between the percentile rank of the average student in the intervention condition versus the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement index is based entirely on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analyses. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.

The average improvement index for alphabetics is +8 percentile points, with a range of –20 to +15 percentile points; the average improvement index for comprehension is +1 percentile points, with a range of –12 to +19 percentile points.

Summary

The WWC reviewed 115 studies on *Fast ForWord*®.[9] Five of these studies met WWC evidence standards, one study met WWC evidence standards with reservations, and the remaining studies did not meet WWC evidence screens. Based on these six studies, the WWC found positive effects on alphabetics and mixed effects on comprehension. The evidence presented in this report may change as new research emerges.

References

Met WWC evidence standards

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Additional source:

Borman, G. D., & Benson, J. *Can brain research and computers improve literacy? A randomized field trial of the Fast ForWord® Language computer-based training program.* Unpublished report.

Scientific Learning Corporation. (2005a). Improved early reading skills by students in three districts who used Fast ForWord® to Reading 1. *MAPS for Learning: Product Reports*, *9*(1), 1–5.

Additional source:

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Scientific Learning Corporation. (2005b). Improved reading skills by students in the Lancaster County School District who used Fast ForWord® to Reading 2. *MAPS for Learning: Educator Reports*, *9*(8), 1–4.

Scientific Learning Corporation. (2005c). Improved reading skills by students in Seminole County School District who used Fast ForWord® to Reading 1 and 2. *MAPS for Learning: Educator Reports*, *9*(17), 1–6.

Scientific Learning Corporation. (2006). Improved reading skills by students who used Fast ForWord® to Reading Prep. *MAPS for Learning: Product Reports*, *10*(1), 1–6.

Met WWC evidence standards with reservations

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9. One single-case design study was identified but is not included in this review because the WWC does not yet have standards for reviewing single-case design studies.

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10. The outcome measures are not relevant to this review: this study did not focus on one of the domains specified for this WWC review.
11. The sample is not appropriate to this review: the parameters for this WWC review specified that students should be in grades Kindergarten through third grade during the time of the intervention; this study did not focus on the targeted grades.
12. The sample is not appropriate to this review: this study does not disaggregate data for students in other grades from students in grades Kindergarten through third grade, the focus of this WWC review.
13. Does not use a strong causal design: this study did not use a comparison group.
14. The sample is not appropriate to this review: this study did not focus on students learning to read in English, one of the parameters for this WWC review.

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15. Does not use a strong causal design: this study, which used a quasi-experimental design, did not use equating measures to ensure that the comparison group was equivalent to the treatment group.

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For more information about specific studies and WWC calculations, please see the WWC *Fast ForWord*® Technical Appendices.

17. Pending development of WWC evidence standards for single subject designs.