

# Improved Language and Early Reading Skills by Students who used Fast ForWord® Language to Reading

## Maps for Learning: Product Reports, 8(1): 1-4

### ABSTRACT

**Purpose:** This study investigated the effects of the Fast ForWord Language to Reading product on the language skills of children who used the product within the curriculum in a school setting. **Study Design:** The design of the study was a multiple site study using nationally-normed tests. **Subjects:** Study participants were 50 children ranging from 6 to 12 years of age from across the United States. Twenty-five children used the Fast ForWord Language to Reading product and the other 25 served as a control group. **Materials and Implementation:** Following staff training on the Fast ForWord Language to Reading product, 25 children used the Fast ForWord Language to Reading product for an average of 31 days over an average period of 49 calendar days. To evaluate performance, student skills were measured with the Woodcock Johnson Tests of Achievement, Psycho-Educational Battery- Revised (W J-R), the Clinical Evaluation of Language Fundamentals, Third Edition (CELF-3), the Test of Language Development (TOLD) and / or the Test of Auditory Comprehension of Language- Revised before and after use of the Fast ForWord Language to Reading product. **Results:** The statistical analysis indicated that, on average, there were significantly greater improvements in standard scores in the Fast ForWord group than in the control group.

### INTRODUCTION

Early laboratory tests of a prototype of a computer-based product combined an optimal learning environment with a focus on early reading and cognitive skills. The results were dramatic improvements in the auditory processing and language skills of elementary school children who had specific language impairments (Merzenich et al., 1996; Tallal et al., 1996) or were at-risk for academic failure (Miller et al., 1999). In this study, a commercially available computer-based product (Fast ForWord Language to Reading) was used to evaluate the effectiveness of improving the oral language and reading skills of children.

### METHODS

#### Participants

Fifty children ranging from ages 6 to 12 from across the United States participated in this study. Twenty-five children used the Fast ForWord Language to Reading product. They had been identified by licensed speech language pathologists as having a significant learning problem, many with multiple learning problems. All of these children, except one, had previously used and successfully completed the Fast ForWord Language product. The other 25 children served as a control group matched by gender, age, and performance on the WJ-R Letter-Word Identification subtest. They had not previously used the Fast ForWord Language product. These children had been identified by school personnel as at-risk for academic failure.

#### Implementation

Educators and clinicians were trained in current and established findings on the neuroscience of how phonemic awareness and the acoustic properties of speech impact rapid development of language and reading skills; the scientific background validating the efficacy of the products; methods for assessment of candidates for participation; the selection of appropriate measures for testing and evaluation; effective implementation techniques; approaches for monitoring student performance; and techniques for measuring the gains students have achieved after they have finished using the product.

#### Materials

All of the study participants except those students in the control group used the Fast ForWord Language to Reading product, a computer-based product combining an optimal learning environment with a focus on early reading and cognitive skills, used in conjunction with the school curriculum. The product includes five exercises designed to build skills that are critical for reading and learning, such as auditory processing, memory, attention, and language comprehension.

*Trog Walkers:* Students hear a series of short, non-verbal tones. Each tone represents a different fragment of the frequency spectrum used in spoken language. Students are asked to differentiate between these tones. The exercise improves working memory, sound processing speed, and sequencing skills.

*Polar Cop, Treasure in the Tomb:* Students hear a target phoneme, and then must identify the identical phoneme when it is presented later. These exercises improve auditory discrimination skills, increase sound processing speed, improve working memory, and help students identify a specific phoneme. *Polar Cop* also develops sound-letter correspondence skills. *Treasure in the Tomb* also develops grapheme recognition.

*Bug Out!:* Students choose a square on a grid and hear a sound or word. Each sound or word has a match somewhere within the grid. The goal is to find each square's match and clear the grid. This exercise develops skill with sound-letter correspondences as well as working memory.

*Start-Up Stories:* Students follow increasingly complex commands, match pictures to sentences, and answer multiple-choice questions about stories that are presented aurally.

### Assessments

Students in the study had their reading and language skills evaluated before and after they used the Fast ForWord Language to Reading product. School personnel and clinicians administered the Woodcock Johnson Tests of Achievement, Psycho-Educational Battery- Revised (W J-R), the Clinical Evaluation of Language Fundamentals, Third Edition (CELF-3), the Test of Language Development (TOLD) and the Test of Auditory Comprehension of Language- Revised. Scores were reported in terms of standard scores.

**The Woodcock Johnson Tests of Achievement, Psycho-Educational Battery- Revised (W J-R):** The W J-R is a wide-range, comprehensive set of individually- administered tests with alternate forms for measuring cognitive abilities, scholastic aptitudes, and achievement. The W J-R has a standardized mean of 100 and a standard deviation of 15 (in this metric, scores from 85 to 115 are within the normal range). The Basic Reading Skills cluster, a combination of the Word Attack and Letter Word Identification tests, was selected for use in this study. It has a test-retest reliability of 0.96.

### Clinical Evaluation of Language Fundamentals-3 (CELF-3):

The CELF-3 is a comprehensive language test widely used to measure a student's overall language ability. The Institute for the

Development of Educational Achievement, in accordance with the Reading First legislation, determined that the CELF-3 subtests are appropriate outcome assessments for accurately measuring improvement in the vocabulary skills of children in early elementary school. As defined by the Reading First legislation, vocabulary skills are an essential component of early reading. On the CELF-3, standard scores have a mean of 100 and a standard deviation of 15 (in this metric, scores from 85 to 115 are within the normal range).

**The Test of Language Development (TOLD):** The TOLD is a comprehensive test designed to measure a child's language development by assessing the ability to understand word meanings and sentences and the relationships between words. It measures a child's listening, organizing, grammar, speaking and vocabulary skills.

### The Test of Auditory Comprehension of Language- Revised:

The Test of Auditory Comprehension of Language is an individually administered measure of a child's auditory comprehension abilities, which include vocabulary, grammar, and syntax.

### Analysis

Standard scores were used for all analysis. ANOVA procedures were used to determine whether the students who used the Fast ForWord Language to Reading product were differentially affected from those who did not use the product. Dependent t-tests were also calculated and all analyses used a p-value of 0.05 as the criterion for identifying statistical significance.

## RESULTS

### Participation Level

Research conducted by Scientific Learning shows a relationship between product use and the benefits of the product. Product use is composed of content completed, days of use, and adherence to the chosen protocol (participation level). The Fast ForWord Language to Reading protocol used in this study called for students to use the product for 90 minutes a day, five days a week, for four to eight weeks. On average, the 25 students used the Fast ForWord Language to Reading product for 31 days over an average period of 49 calendar days, achieving a participation level of 84% and completing an average of 74% of the product content (Table 1).

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Number of Students	Average Days of Product Use	Average Number Of Calendar Days	Average Participation Level	Average Overall Percent Complete
25	31	49	84%	74%

*Table 1. Usage data showing the number of students who used the Fast ForWord Language to Reading product along with group averages for the number of days of use, participation level and percentage of content covered.*

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## Assessment Results

The Woodcock Johnson Tests of Achievement, Psycho-Educational Battery- Revised (W J-R): The Basic Reading Skills cluster, a combination of the Word Attack and Letter Word Identification tests, was used to assess student reading skills before and after use of the Fast ForWord Language to Reading product. Following participation in the Fast ForWord Language to Reading product, on average, students in the Fast ForWord group improved significantly more in their reading level than students who did not use the Fast ForWord Language to Reading product (Figure 1).

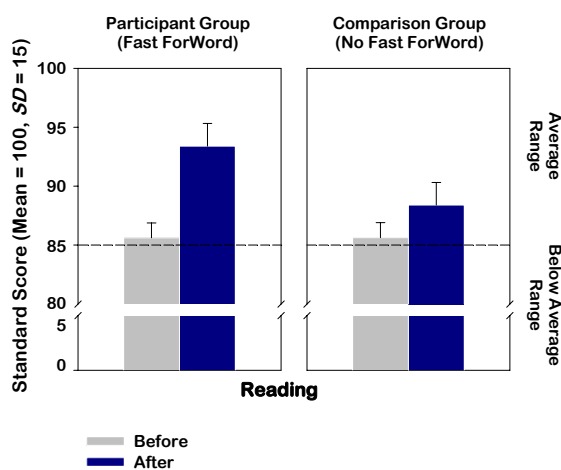


Figure 1. Standard scores on the W J-R before and after participation in the Fast ForWord Language to Reading product show that, on average, the Fast ForWord group had significantly greater improvements in Reading skills.

Clinical Evaluation of Language Fundamentals-3 (CELF-3), Test of Language Development (TOLD), Test of Auditory Comprehension of Language- Revised: Before and after use of the Fast ForWord Language to Reading product, school personnel and clinicians used these three language assessments to evaluate oral language skills including vocabulary, syntax, semantics, and the ability to understand relationships between words. Following participation in the Fast ForWord Language to Reading product, the Fast ForWord group, on average, showed significantly greater improvements in language skills than the students who did not use the product (Figure 2).

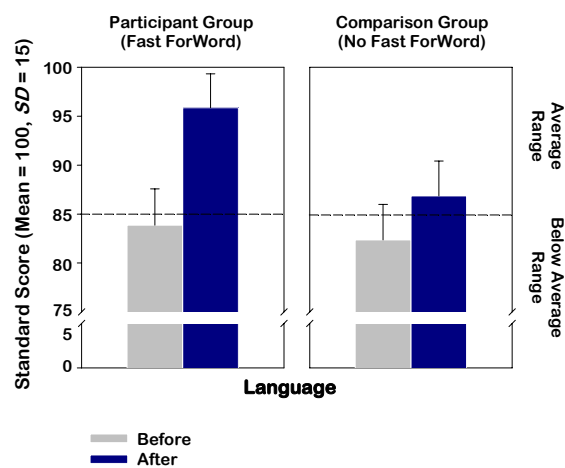


Figure 2. Standard scores on the CELF-3, TOLD, and Test of Auditory Comprehension of Language- Revised before and after use of the Fast ForWord Language to Reading product show that, on average, students in the Fast ForWord group had significantly greater improvements in Language skills.

## DISCUSSION

Results from this report include two groups of students: one group used the Fast ForWord Language to Reading product and the other served as a control group. All study participants were assessed using the Woodcock Johnson Tests of Achievement, Psycho-Educational Battery- Revised (W J-R), the Clinical Evaluation of Language Fundamentals, Third Edition (CELF-3), the Test of Language Development (TOLD) and the Test of Auditory Comprehension of Language- Revised before and after use of the Fast ForWord Language to Reading product.

On average, following participation in the Fast ForWord Language to Reading product, students in the Fast ForWord group made significantly greater improvements in their early reading skills (vocabulary) and overall language abilities than students who did not use the Fast ForWord Language

to Reading product. These findings demonstrate that an optimal learning environment coupled with a focus on cognitive and early reading skills, can help students attain a higher level of academic achievement.

## CONCLUSION

Language skills are critical for all students, impacting their ability to benefit from instruction, follow instructions, and participate in class discussions. Strong linguistic skills also provide a critical foundation for building reading and writing skills. On average, the students who participated in the Fast ForWord Language to Reading product made significant gains in their reading and language skills. After using the Fast ForWord Language to Reading product, students improved their critical early reading and cognitive skills, strengthened their vocabulary and increased their ability to benefit from the classroom curriculum.

**Notes:**

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