

Improved Reading Skills by Students in the Cobb County School District in Georgia who used Fast ForWord® Products

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ABSTRACT

Purpose: This study investigated the effects of Fast ForWord products on the reading skills of children when used within the curriculum in a school setting. **Study Design:** The design of the study was a single-school case study. Dependent t-tests were used to evaluate changes in student test performance, and a multivariate analysis of variance was used to compare the improvement of participants with the improvement of a comparison. **Subjects:** Study participants were 215 students from the Cobb County School District in Marietta, Georgia. **Materials & Implementation:** Following staff training on the products, 215 Cobb County School District students used the Fast ForWord Language product for an average of 23 days over an average period of 45 calendar days. Sixty-six students also used the Fast ForWord Language to Reading product for an average of 23 days over an average period of 50 days. To evaluate performance, student skills were measured before and after participation on the Fast ForWord products using the Basic Literacy Test, and classroom administered reading inventories. **Results:** The statistical analysis indicated that, on average, there were significant improvements in the scores for curriculum based measures of reading skills as well as on scores for state assessments. Relative to a comparison group, students using Fast ForWord products made significantly greater gains on reading skills.

Keywords: Georgia, elementary school, suburban district, observational study, Fast ForWord Language, Fast ForWord Language to Reading, Basic Literacy Test.

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). The Cobb County School District was interested in evaluating the effectiveness of this approach for improving their curriculum and instruction for elementary school students. In this study, commercially available computer-based products (Fast ForWord Language and Fast ForWord Language to Reading) were used to evaluate the effectiveness of this approach for improving the oral language and reading skills of children.

METHODS

Participants

During the fall of 2001 and spring of 2002, 215 students at Cobb County School District in Marietta, Georgia, used the Fast ForWord Language product. Sixty of these students, along with an additional six students, also used the Fast ForWord Language to Reading product. The study participants were elementary school students.

Implementation

Educators in the Cobb County School District 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 used the Fast ForWord Language product, and sixty of these students, with an additional six, went on to use the Fast ForWord Language to Reading product. Both of these are computer-based products that combine an optimal learning environment with a focus on early reading and cognitive skills. The products include five to seven exercises designed to build skills critical for reading and learning, such as auditory processing, memory, attention, and language comprehension. While there are differences between these products, both help develop certain critical skills.

Circus Sequence¹ and Trog Walkers²: 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 exercises improve working memory, sound processing speed, and sequencing skills.

Old MacDonald's Flying Farm¹: Students hear a single syllable that is repeated several times, and then interrupted by a different syllable. They must respond when they hear a change in the syllable. This exercise improves auditory processing, develops phoneme discrimination, and increases sustained and focused attention.

Phoneme Identification¹, Polar Cop², and Treasure in the Tomb²: 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.

Phonic Match¹ and Bug Out²: 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. The *Phonic Match* exercise develops auditory word recognition and phoneme discrimination, improves working memory, and increases sound processing speed. The *Bug Out!* exercise develops skill with sound-letter correspondences as well as working memory.

Phonic Words¹: Students see two pictures representing words that differ only by the initial or final consonant (e.g., "face" versus "vase", or "tack" versus "tag"). When students hear one of the words, they must click the picture that matches the word. This exercise increases sound processing speed, improves auditory recognition of phonemes and words, and helps students gain an understanding of word meaning.

Language Comprehension Builder¹: Students listen to a sentence that depicts action and complex relational themes. Students must match a picture representation with the sentence they just heard. This exercise develops oral language and listening comprehension, improves understanding of syntax and morphology, and improves rate of auditory processing.

Block Commander¹: In Block Commander, a three-dimensional board is filled with familiar shapes that students select and manipulate. The students are asked

to follow increasingly complex commands. This exercise increases listening comprehension, improves syntax, develops working memory, improves sound processing speed, and increases the ability to follow directions.

Start-Up Stories²: Students follow increasingly complex commands, match pictures to sentences, and answer multiple-choice questions about stories that are presented aurally.

Assessments

Student performance was assessed using state and/or curriculum based measurements. The state-based measurement was the Basic Literacy Test while the curriculum-based measures were reading inventories, one of which measured results in terms of Lexiles, and the other of which measured results in terms of an instructional reading level (Table 1). School district personnel administered the assessments before and after participation in the Fast ForWord products.

Assessment	Description
Basic Literacy Test	The Basic Literacy Test is the assessment portion of Georgia's Reading First program. It is individually administered, and assesses a student's decoding skills, sight-word knowledge, and reading comprehension.
Scholastic Reading Inventory	Scholastic Reading Inventory (SRI) is a reading comprehension test that expresses each student's score in terms of Lexiles. On average, students progress about three Lexiles per week. Students with scores below 100 are considered "below reading," but may also be given a score.
Curriculum-Based Reading Inventory	The instructional reading level is the grade level of material that a student finds challenging, but not frustrating, when reading in a typical classroom setting. Typically, a student reading at his or her instructional reading level will have over 95% word-identification accuracy and over 75% comprehension.

Table 1. The Basic Literacy Test is the assessment portion of Georgia's Reading First Initiative which is a program based on reading research conducted by the U.S. Department of Education. The reading inventories are used by the Cobb County School District to assess reading skills.

Analysis

Dependent t-tests were conducted to determine whether using the Fast ForWord products significantly improved a student's language and reading skills, and a multivariate analysis of variance was performed to compare the results of participants to those of a comparison group. All analyses used a p-value of 0.05 as the criterion for identifying statistical significance.

¹ Exercise from the Fast ForWord Language product.

² Exercise from the Fast ForWord Language to Reading product.

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 protocol used in the Cobb County School District called for students to use the Fast ForWord products for 90 - 100 minutes a day, 5 days a week, for 4 to 8 weeks.

During the fall of 2001 and spring of 2002, 215 students in the Cobb County School District used the

Fast ForWord product. On average, these students used the product for 23 days over an average period of 45 calendar days. They achieved an average participation level of 73% and completed an average of 67% of the product content. Sixty of the students, along with an additional six, went on to use the Fast ForWord Language to Reading product for an average of 23 days over an average period of 50 calendar days. They achieved an average participation level of 50% and completed an average of 66% of the product content (Table 2).

Product	Number of Students	Average Days of Product use	Average Number of Calendar Days	Average Participation Level	Average Overall Percent Complete
Fast ForWord Language	215	23	45	73%	67%
Fast ForWord Language to Reading	66	23	50	50%	66%

Table 2. Usage data showing the number of students who used the Fast ForWord products in the fall of 2001 and spring of 2002 along with group averages for the number of days of use, calendar days between start and finish, participation level and percentage of content covered.

Assessment Results

A group of 13 students who used the Fast ForWord products had their reading skills evaluated with the Basic Literacy Test. Prior to using the products, the average student score was below 35. After using Fast ForWord products, on average, the scores increased significantly to nearly 55 (Figure 1).

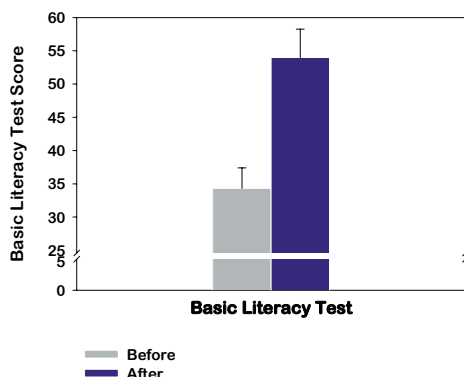


Figure 1. Improvements in reading skills: Basic Literacy Test scores of Cobb County School District students before and after using the Fast ForWord products.

Thirty-six students were assessed using the Scholastic Reading Inventory. On average, students made significant improvements in reading level after using the Fast ForWord products (Figure 2).

On the other classroom administered reading inventory, 61 students from the second and third grades were assessed: 30 who used the Fast ForWord products, and 31 who had not. The improvement in the instructional reading level of the group that used the Fast ForWord products was significantly greater

than the improvement of the group that did not (Figure 3).

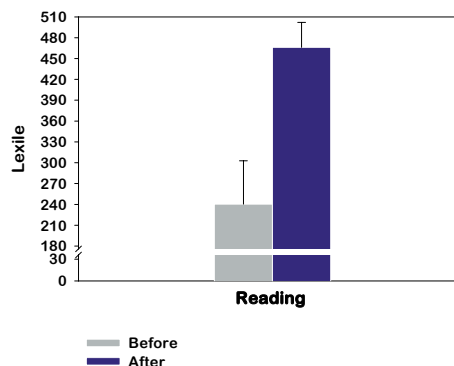


Figure 2. Improvements in reading comprehension: scores in terms of Lexiles of Cobb County School District students before and after using the Fast ForWord products.

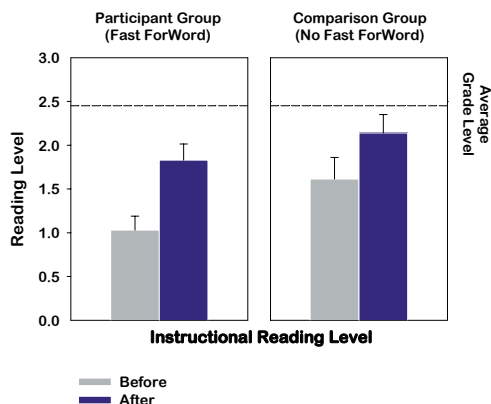


Figure 3. Improvements in reading skills: the improvement in instructional reading level of Cobb County School District students using the Fast ForWord products was significantly greater than the improvement of a group of comparison students.

DISCUSSION

Before participation on the Fast ForWord products, students in the Cobb County School District had an average score of 35 on the Basic Literacy Test. After Fast ForWord participation, the students, on average, made significant improvements in their scores. On the reading inventories, students, on average, made significant improvements in reading level after participation in the Fast ForWord products, and the improvement in the instructional reading level was significantly greater for the participants than for a comparison group.

CONCLUSION

Scores from before and after participation show that, on average, after using Fast ForWord products, students within the Cobb County School District demonstrated substantial increases in curriculum-based measures of their reading skills as well as in scores on state assessments. This suggests that using Fast ForWord products strengthened the students' foundational skills and helped them benefit more from the classroom curriculum.

Notes:

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