A Pilot Study Showing Increased Achievement by Students in the Lafourche Parish Public Schools who were Struggling to Pass the High School Exit Exam

ABSTRACT

Purpose: This pilot study investigated the effects of the Fast ForWord products on the reading achievement of students who used the products within the curriculum in a school setting. **Study Design:** The design of this study was a single school study using Louisiana's high school exit exam. **Subjects:** Study participants were 10th through 12th grade students at Thibodaux High School in the Lafourche Parish Public Schools in Thibodaux, Louisiana. The students had previously taken the Graduate Exit Exam (GEE), but had not passed it. **Methods & Implementation:** Before and after participation on the Fast ForWord products, students were evaluated with the Louisiana Graduate Exit Exam (GEE). **Results:** In this pilot study, the students improved their score on the ELA section of the GEE by nearly 40 points, and half of them achieved the level required to be eligible for a standard high school diploma.

Keywords: Louisiana, high school, urban, observational study, Fast ForWord Literacy, Fast ForWord Literacy Advanced, Fast ForWord Reading Level 3, Louisiana Graduate Exit Exam (GEE).

INTRODUCTION

Numerous research studies have shown that cognitive and oral language skills are under-developed in struggling readers, limiting their academic progress (Lyon, 1996). University-based research studies reported the development of a computer software product that focused on learning and cognitive skills, and provided an optimal learning environment for building the memory, attention, processing and sequencing skills critical for reading success (Merzenich et al., 1996; Tallal et al., 1996). This prototype of the Fast ForWord Language software showed that an optimal learning environment and focus on early reading and cognitive skills resulted in dramatic improvements in the auditory processing and language skills of school children who had specific language impairments (Merzenich et al, 1996; Tallal et al., 1996) or were experiencing academic reading failure (Miller et al., 1999).

The Lafourche Parish Public Schools were interested in evaluating the effectiveness of an optimal learning environment with a focus on early reading and cognitive skills as a way for improving reading skills of students in a school setting and helping students to graduate. In this study, commercially available computer-based products (Fast ForWord Literacy, Fast ForWord Literacy Advanced, and Fast ForWord Reading Level 3) were used to evaluate the effectiveness of this approach at improving the reading skills of students.

METHODS

Participants

The Lafourche Parish Public Schools are located in Thibodaux, Louisiana, 65 miles southwest of New Orleans. The district is made up of 30 schools serving approximately 15,000 students. Seventy percent of the students are Caucasian, 22% are African American; 58% of the students are eligible for free or reduced-price meals. The District's mission is to "offer exemplary academic, vocational, and co-curricular programs and to develop in all students a strong sense of responsibility, citizenship, and respect for others."

One of the high schools in the district, Thibodaux High School, took part in this study to evaluate the impact of the Fast ForWord products on students struggling to pass the Graduate Exit Exam. This report focuses on eight students who were assessed with the Graduate Exit Exam (GEE) before and after Fast ForWord participation. School personnel administered the assessments and reported scores for analysis.

Implementation

Educators were trained in current and established neuroscience findings on 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 potential candidates for participation; the selection of

appropriate measures for testing and evaluation; effective implementation techniques; approaches for using Progress Tracker reports to monitor student performance; and techniques for measuring the gains students have achieved after they have finished using Fast ForWord products.

Materials
The Fast ForWord products are computer-based products that combine an optimal learning environment with a focus on early reading and cognitive skills. The products used in this study (Fast ForWord Literacy, Fast ForWord Literacy Advanced, and Fast ForWord Reading Level 3) include five to six 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, all help develop certain critical skills as detailed in the following exercise descriptions.

Space Racer[1] and Sky Rider[2]: 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.

Galaxy Goal[2]: Students hear a single syllable that is repeated several times, and then interrupted by a different syllable. Students must respond when they hear the change in the syllable. This exercise improves auditory processing, develops phoneme discrimination, and increases sustained and focused attention.

Spin Master[2], Meteor Ball[3], and Lunar Leap[3]: 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. *Meteor Ball* also develops sound-letter correspondence skills. *Lunar Leap* also develops grapheme recognition.

Lunar Tunes[2] and Laser Match[3]: 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 *Lunar Tunes* exercise develops auditory word

recognition and phoneme discrimination, improves working memory, and increases sound processing speed. The *Laser Match* exercise develops skill with sound-letter correspondences as well as working memory.

Star Pics[2]: Students see 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.

Stellar Stories[2] and Galaxy Theater[3]: Students listen to stories, then answer multiple-choice questions about them, match pictures to sentences, and follow commands of increasing complexity. As participants integrate information across the sentences of a paragraph, and across the paragraphs of a story, they build listening comprehension skills. These exercises create a foundation for reading by developing basic language skills such as auditory word recognition and auditory memory, while simultaneously building more complex grammatical skills.

Scrap Cat[3]: In Scrap Cat, a series of words is visually presented and participants are asked to sort each word into the correct semantic, phonological, syntactic, or morphological category. For this exercise only, the participant can click a button to hear any word and see it defined. This exercise develops decoding, vocabulary, and word recognition skills.

Canine Crew[3]: In Canine Crew multiple words are presented together in a grid and participants are asked to find pairs that match on the basis of the current criterion. This criterion shifts from words that rhyme, to synonyms, to antonyms, to homophones, as the participant progresses. This exercise develops vocabulary, decoding, and automatic word recognition.

Chicken Dog[3]: Participants hear a word and see it partially spelled. They must complete the word by filling in the missing letter or letter group. Five options are always provided, including options that represent common visual and phonological errors. This exercise develops basic spelling patterns, letter-sound correspondences, and decoding.

Twisted Pictures[3]: Participants are presented with a variety of pictures and asked to select the sentence that

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[1] Exercise from the Fast ForWord Literacy product.
[3] Exercise from the Fast ForWord Literacy Advanced product.

[3] Exercise from the Fast ForWord Reading Level 3 product.

most accurately describes each picture from among four alternatives. The descriptive sentences incorporate a wide range of syntactic structures. As the participant progresses, the sentences get longer and more difficult vocabulary is included. This exercise builds sentence comprehension by developing syntax, working memory, logical reasoning, and vocabulary.

Book Monkeys[3]: Participants read narrative and expository passages and answer comprehension questions about each passage. The multiple-choice questions demand that the participant use memory for literal detail, generation of inferences, or grasp of among four alternatives. This task develops paragraph comprehension, inferential and cause-and-effect reasoning, working memory, flexible reading, and vocabulary.

Hog Hat Zone[3]: In Hog Hat Zone, short passages from classic children's literature are presented, with occasional gaps in the text where words are missing. Participants are asked to fill in each gap with the correct word from among four alternatives. The missing words are morphologically important items such as pronouns, auxiliary verbs, and words with suffixes and prefixes. This task develops paragraph comprehension, complex morphology, flexible reading, and vocabulary.

Assessments
Before and after Fast ForWord participation, students were evaluated with the Louisiana Graduate Exit Exam.

Louisiana Graduate Exit Exam (GEE): The Graduate Exit Exam is a criterion-referenced test aligned with Louisiana curricular content. Students initially take the English / Language Arts subtests in 10th grade; they may retake the tests in the summer or fall. Students must achieve a score of *Approaching Basic* or above on the reading section in order to be eligible for a standard high school diploma.

Analysis
Scores were reported in terms of scaled scores. Scaled scores can be translated into five performance levels: Unsatisfactory, Approaching Basic, Basic, Mastery, and Advanced. Due to the small size of this study, results are reported descriptively; no inferential statistics were performed.

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 and attendance level). During the 2007–2008 school year, the Lafourche Parish Public Schools chose to use the 50-Minute Fast ForWord Literacy and Fast ForWord Literacy Advanced protocols, and the 30-Minute Fast ForWord Reading Level 3 protocol. These protocols call for students to use the products for 30 or 50 minutes a day, five days per week for eight to sixteen weeks. Detailed product use is shown in Table 1.

	Number of Students	Sessions Participated	Number of Calendar Days	Percent Complete	Participation Level	Attendance Level
Fast ForWord Literacy	8	20	30	86%	99%	89%
Fast ForWord Literacy Advanced	5	3	5	13%	100%	81%
Fast ForWord Reading Level 3	8	18	29	43%	99%	87%
Total	8	39	36			

Table 1. Usage data showing the number of students who used each Fast ForWord product along with group averages for the number of days participated, the number of calendar days between start and finish, the percentage of product completed, the participation level and the attendance level. Note: students frequently completed sessions on more than one product in a day.

Assessment Results
Graduate Exit Exam (GEE):
Scores from the GEE were reported as scaled score. Levels associated with each scaled score were also available.

Nine students had scaled scores available for analysis from before and after Fast ForWord participation however the scores for one of those students were incomplete (only three of the six ELA subtests had scores). Therefore, eight students will be used in this analysis. Before Fast ForWord participation, the

students' average scaled score was 220.1, and all eight of the students were at the Unsatisfactory level. After Fast ForWord participation, seven of the eight students increased their scaled score; the students' average scaled score was 259.3, an increase of nearly 40 points. One of the students reached Basic while another three reached Approaching Basic. Since a level of Approaching Basic is sufficient for earning a high school diploma, four students (50%) had ELA scores that were sufficient for a high school diploma. Of the eight students, the average increase was 39 points.
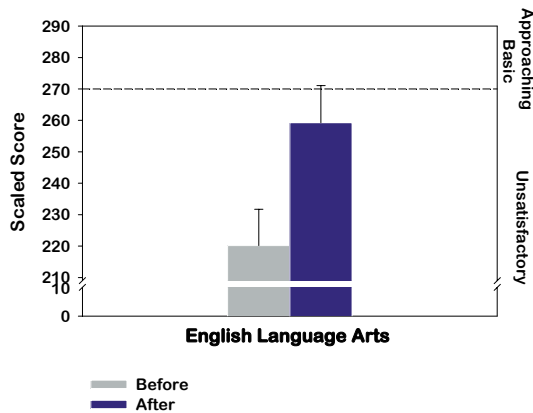
Figure 3. On average, Fast ForWord participants made substantial gains on the Graduate Exit Exam (GEE). Results from eight students are shown.

GEE (ELA)	Unsatisfactory	Approaching Basic	Basic
Before	8	0	0
After	4	3	1

Table 2. Students must achieve an ELA level of Approaching Basic or higher in order to be eligible for a high school diploma. Half the students whose ELA scores prevented them from achieving a high school diploma had eligible ELA scores after using the Fast ForWord products.

DISCUSSION

During the 2007 – 2008 school year, students who were struggling to reach minimal achievement levels for a high school diploma used the Fast ForWord products. On average, after Fast ForWord use, students dramatically improved their achievement on the ELA section of the GEE. The number of students in the study who passed the ELA section of the GEE increased from 0% to 50%.

CONCLUSION

Language and reading skills are critical for all students, impacting their ability to benefit from instruction, follow directions, and participate in class discussions. Students struggling with mastering content needed for graduation in the Lafourche Parish Public Schools made dramatic improvements after using the Fast ForWord products. This suggests that using the Fast ForWord products strengthened the students' foundational skills, better positioning them to partake in the classroom curriculum.

Notes:

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