

# **Improved Reading Skills and Graduation Rates by High School Students in the Murray County Schools who used Fast ForWord® Products: 2010 - 2012**

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## **ABSTRACT**

**Purpose:** This study investigated the effects of the Fast ForWord products on the reading skills and graduation rates of high school students who used the products within the curriculum in a school setting.

**Results:** After Fast ForWord participation, a group of high school students who used Fast ForWord products made significant gains in early reading skills. In five months, the students' skills improved from the late sixth grade level (6.8) to the early eighth grade level (8.1). The majority of the students, who were selected because they were at-risk of failing Georgia's high school exit exams, passed the exams on their first try with 81% passing the English language Arts portion of the Georgia High School Graduation Test (GHS GT) before the end of 12<sup>th</sup> grade and 88% passing the Georgia High School Writing Test (GHS WT) before graduation.

**Study Design & Participants:** The design of this study was a single school case study using high stakes and nationally normed assessments. Study participants were high school students at risk of failing the high school exit exams in the Murray County Schools of Chatsworth, Georgia.

**Materials & Implementation:** Following staff training on the Fast ForWord products, the students used the Fast ForWord products during the 2010-2012 school years and had their reading and writing achievement evaluated with the Georgia High School Graduation Test (GHS GT) and Georgia High School Writing Test (GHS WT), and their reading skills evaluated with Reading Progress Indicator (RPI).

**Keywords:** Georgia, high school, rural district, observational study, Fast ForWord Literacy, Fast ForWord Literacy Advanced, Fast ForWord Reading Level 3, Fast ForWord Reading Level 4, Fast ForWord Reading Level 5, Georgia High School Graduation Test (GHS GT), Georgia High School Writing Test (GHS WT), Reading Progress Indicator (RPI).

## **INTRODUCTION**

Numerous research studies have shown that cognitive and oral language skills are underdeveloped in struggling readers, limiting the students' 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 results in dramatic improvements in the auditory processing and language skills of school children who have specific language impairments (Merzenich et al, 1996; Tallal et al., 1996) or are experiencing academic reading failure (Miller et al., 1999).

Further research has demonstrated that the use of an optimal learning environment with a focus on reading and cognitive skills not only benefits the auditory processing and language skills of school children who have specific language impairments,

but can benefit the reading achievement of a wide range of students.

Murray County High School, one of the two high schools in the Murray County Schools, was interested in evaluating the effectiveness of an optimal learning environment with a focus on early reading and cognitive skills as a way to improve the graduation rate of high school students. The administration has been quite successful at keeping students in school (the 2010 – 2011 dropout rate for the school was 0.0%), but they have been unable to adequately prepare all students to pass the state exit exams required for a regular high school diploma. In this study, commercially available computer-based products (Fast ForWord Literacy, Fast ForWord Literacy Advanced, Fast ForWord Reading Level 3, Fast ForWord Reading Level 4, and Fast ForWord Reading Level 5) were used to evaluate the effectiveness of an optimal learning environment with a focus on early reading and cognitive skills for improving the graduation rate of high school students<sup>1</sup>.

## **METHODS**

### **Participants**

Murray County, located in the northwestern Georgia, has 40,000 residents. The Murray County Schools serve 7,700 students in the county. Approximately 78% of the students in the district are Caucasian and 20% are Hispanic; 62% of the students are eligible for free or reduced-price lunches, 7% are English language learners, and 12% receive services for Special Education.

During the 2010-2011 school year, Murray County High School chose to use the Fast ForWord products and participate in the study reported here. The school serves students in grades 9 – 12 and has a schoolwide Title I program.

This study focuses on 93 students in the high school who were identified as at-risk for failing

the Georgia High School Graduation Test (GHSGT) or Georgia High School Writing Test (GHSWT) based upon low scores on the state's Criterion-Referenced Competency Tests (CRCT – administered to 8<sup>th</sup> graders) in English Language Arts or Reading and/or low scores on the state's English I End-of-Course Test (EOCT – typically administered to 9<sup>th</sup> graders).

### **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 importance of guided oral reading practice for building reading fluency; 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 the online reporting tool, Scientific Learning® Progress Tracker, to monitor student performance; and techniques for measuring the gains students have achieved after Fast ForWord participation.

### **Materials**

The Fast ForWord products are computer-based products that combine an optimal learning environment with a focus on early reading and cognitive skills. Each product includes several exercises designed to build cognitive skills critical for all learning, such as attention and memory. These exercises simultaneously develop academic skills critical for reading, such as English language conventions, phonemic awareness, vocabulary, and comprehension.

Some of the primary skills developed by these products are outlined in Table 1. More detailed descriptions of the exercises and learning modes within each product can be found online at <http://www.scientificlearning.com/exercises>.

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<sup>1</sup> Products used by fewer than five students are not included.

Primary Skills	Listening Accuracy & Auditory Sequencing	Auditory Word Recognition	English Language Conventions	Following Directions	Listening Comprehension	Phonological Skills / Phonemic Awareness	Phonics / Word Analysis	Fluency	Vocabulary	Reading Comprehension
Product Name										
Fast ForWord Literacy	•	•	•	•	•	•			•	
Fast ForWord Literacy Advanced	•		•	•	•	•	•		•	
Fast ForWord Reading Level 3						•	•	•	•	•
Fast ForWord Reading Level 4						•	•	•	•	•
Fast ForWord Reading Level 5						•	•	•	•	•

Table 1: The Fast ForWord and Reading Assistant products work on numerous cognitive and early reading skills. The primary skills focused on by each product are noted in the table.

### Assessments

The academic achievement of students at-risk for failing the Georgia High School Graduation Tests (GHSGT) and Georgia High School Writing Test (GHSWT) was evaluated after use of the Fast ForWord products. Students were identified as “at-risk” based upon low scores on the 8<sup>th</sup> grade administration of Georgia’s high stakes test, the Criterion-Referenced Competency Test (CRCT), and/or low scores on the 9<sup>th</sup> grade administration of the English I End of Course Test (ECOT). In addition to the high stakes tests, student skills were evaluated before and after participation with Reading Progress Indicator (RPI).

**Georgia High School Graduation Test (GHSGT):** In order to earn a regular education diploma in Georgia, students who entered high school before July, 2011, must pass a GHSGT in each of four areas: English language arts (ELA), Math, Social Studies, and Science. The assessments are first administered in the spring of the 11<sup>th</sup> grade, and up to five more times with the final assessment in the summer following 12<sup>th</sup> grade. A score of 200 or higher demonstrates basic proficiency.

**Georgia High School Writing Test (GHSWT):** Georgia students must pass a writing test in order to earn a regular education diploma. The two hour test requiring students to respond to one on-demand persuasive writing prompt is administered three times each year, starting in the fall of eleventh grade.

**Criterion-Referenced Competency Tests (CRCT):** The CRCT is designed to measure how well students acquire the skills and knowledge described in the Georgia Performance Standards (GPS). The CRCT is given every spring to all students to grades 3-8. Students are tested in Reading, English Language Arts and Mathematics. A score of 800 indicates Proficiency.

**End of Course Tests (EOCT):** The 11 EOCT are administered to high school students upon completion of classes covering core

subjects including various courses in Math, English Language Arts, Science, and Social Studies. For the purposes of this study, the test of interest is the English I EOCT.

**Reading Progress Indicator (RPI):** Reading Progress Indicator is a computerized assessment designed to rapidly measure the impact of the Fast ForWord products. It assesses a student’s early reading skills including phonemic awareness, decoding, vocabulary, and comprehension.

### Analysis

Scores were reported in terms of scaled scores for the state assessments including the GHSGT and GHSWT. Scaled scores and normal curve equivalents were used to analyze Reading Progress Indicator scores; scores were converted to grade-equivalent reading level for reporting purposes. RPI data were analyzed using a paired t-test. The analyses used a p-value of less than 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 and attendance levels). During the 2010 - 2011 and 2011 - 2012 school years, the Murray County Schools chose to use the 40-Minute protocols. These protocols call for students to use the products for 40 minutes a day, five days per week for nine to thirteen weeks. Most students in the study (73%) completed at least two products. Detailed product use is shown in Table 2.

Product Use by Study Participants						
	Number of Students	Days Participated	Number of Calendar Days	Percent Complete	Participation Level	Attendance Level
Fast ForWord Literacy	92	21	46	89%	98%	82%
Fast ForWord Literacy Advanced	89	32	69	71%	97%	82%
Fast ForWord Reading Level 3	67	20	44	77%	97%	85%
Fast ForWord Reading Level 4	42	20	38	79%	98%	85%
Fast ForWord Reading Level 5	44	15	28	18%	67%	69%
Total	93	82	174	--	93%	81%

Table 2. Usage data showing average product use for the students in the study 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. Total values reflect the average total number of days that students used products. Note: Most students used multiple products with 73% completing two or more products.

### Assessment Results

The academic achievement of students in Georgia is evaluated with a variety of high stakes assessments including the Criterion-Referenced Curriculum Tests (CRCT; grades 3 – 8), End of Course Tests (EOCT; grades 9-12), Georgia High School Graduation Tests (GHSGT; grades 11 – 12), and Georgia High School Writing Tests (GHSWT, grades 11-12).

Administrators at Murray County High School have found that students with low scores on the 8<sup>th</sup> grade CRCT and/or 9<sup>th</sup> grade English I EOCT are more likely to fail the Georgia High School Tests, preventing them from being able to earn a regular education high school diploma. Taking a proactive approach, the administrators started using the Fast ForWord products with 11<sup>th</sup> graders at risk of failing the GHSGT ELA and/or the GHSWT.

During the 2010 – 2011 school year, 48 at-risk 11<sup>th</sup> graders used the Fast ForWord products. Of those students, 73% went on to pass the GHSGT ELA on the first try; by graduation, 81% passed the GHSGT ELA and 88% passed the GHSWT.

During the 2011 – 2012 school year, 45 at-risk 11<sup>th</sup> graders used the Fast ForWord products (12 of those students were exempt from taking the GHSGT ELA exam). During the 2011 – 2012 school year, 52% of these students passed the initial administration of the GHSGT ELA exam while 87% passed the initial administration of the GHSWT exam. At this time, those students still have several opportunities to retake the exams.

**Reading Progress Indicator (RPI):** In addition to the high stakes tests, RPI was used to evaluate the impact of the Fast ForWord products on students in Murray County High School who used the Fast ForWord products during the 2010 – 2011 or 2011 – 2012 school years. RPI was administered before and after

each Fast ForWord product. Eighty-nine students had valid pre- and post-participation scores and are included in the RPI evaluation. Of the students, 78 (87%) showed improvement. Of the 89 students, most (85%) were 11<sup>th</sup> graders when they first used the products; the rest (15%) were 10<sup>th</sup> graders. Prior to using the Fast ForWord products, the reading skill level of the students was upper 6<sup>th</sup> grade, approximately four years below their grade level. On average, there were five months between the first and last administration of RPI. During that time, the students' made statistically significant improvements in their reading skills ( $t(88) = 11.3$ ;  $p < 0.01$ ), improving an average of one year and three months, and reaching an average skill level of early 8<sup>th</sup> grade (Figure 1).

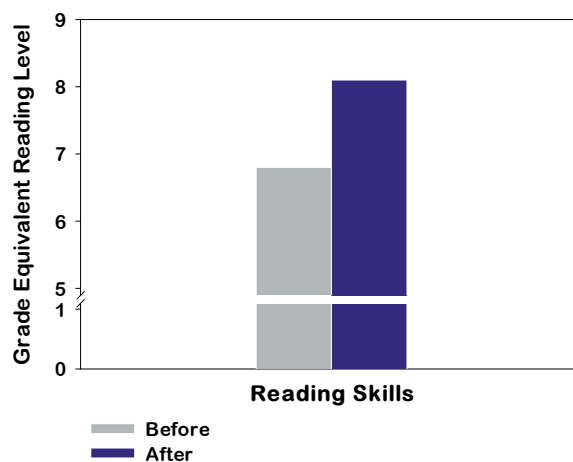


Figure 1. High school students whose skills were an average of four years below grade level made statistically significant improvements in their early reading skills ( $t(88) = 11.3$ ;  $p < 0.01$ ). On average, the 89 students improved one year and three months in the five months between assessments.

### DISCUSSION

During the 2010 – 2011 school year, Murray County High School had a 0.0% dropout rate. The school has

done an excellent job of ensuring that students stay enrolled. However, in order for a student to qualify for a regular high school diploma, the student must pass the state's high stakes exams. In both 2010 and 2011, the graduation rate was 78% with 10 – 15% of the students consistently struggling to pass exams. Taking a proactive approach, the school does not wait until students fail the first round of exams in 11<sup>th</sup> grade, but identifies those who are likely to struggle based on their 8<sup>th</sup> and 9<sup>th</sup> grade reading and English language arts achievement. Prior to the first administration of the GHSGT in the spring of the 11<sup>th</sup> grade, the at-risk students use the Fast ForWord products.

On average, during the 2010 – 2012 school years, Fast ForWord participants at Murray County High School significantly improved their reading skills. As shown by RPI scores, high school students who had made such slow progress during their academic careers that their skills were four years below grade level achieved one year and three months improvement in just five months. These students then went on to perform well on the high stakes tests. For the class of 2012, 81% passed the GHSGT ELA and 88% passed the GHSWT prior to graduation. For the class of 2013, whose students still have several opportunities to retake the exams, on the first try, 52% passed the GHSGT ELA and 87% passed the GHSWT.

## CONCLUSION

Language and reading skills are critical for all students, impacting their ability to benefit from instruction, follow directions and participate in class discussions. Strong linguistic skills also provide a critical foundation for building reading and writing

skills. After Fast ForWord use, students in Murray County High School who were at risk of academic failure made significant gains in their reading skills, and a majority passed their high school exit exams. These results replicate other studies and suggest that using the Fast ForWord products strengthened the students' foundational skills and better positioned them to benefit from the classroom curriculum.

### Notes:

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