

# Improved Early Reading Skills by Students in the Todd County School District who used Fast ForWord® Language Basics

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## ABSTRACT

**Purpose:** This study investigated the effects of the Fast ForWord Language Basics product on the early reading skills of students who used the product within the curriculum in a school setting. **Study Design:** The design of this study was a single school study using a nationally-normed test. **Participants:** Study participants were ten kindergarten students of Native American descent who were attending Spring Creek Elementary School in the Todd County School District of Mission, South Dakota. **Materials & Implementation:** Before and after participation on the Fast ForWord product, students were evaluated with the Test of Phonological Awareness (TOPA). **Results:** Kindergarten students successfully used the Fast ForWord Language Basics product and improved their early reading skills. On average, students improved their early reading skills, showing improvements in phonological awareness and significant improvements in letter-sound knowledge.

**Keywords:** South Dakota, public elementary school, rural district, Native American, observational study, Fast ForWord Language Basics, Test of Phonological Awareness (TOPA).

## 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 Todd County School District was 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 kindergarten students in a school setting. In this study, a commercially available computer-based product, Fast ForWord Language Basics, was used to evaluate the effectiveness of this approach at improving the early reading skills of students.

## METHODS

### Participants

The Todd County School District is a pre-kindergarten to twelfth grade district serving approximately 2,000 students in twelve schools. The Todd County School

District includes the Rosebud Sioux Reservation in south-central South Dakota. Spring Creek Elementary, one of the Reservation's elementary schools, chose to use the Fast ForWord Language Basics product during the 2005 – 2006 school year.

Spring Creek Elementary School is a K-8 school serving approximately 85 students. The school has a school-wide Title I program, with approximately 99 percent of the students being of Native American descent.

### 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 Language Basics product is a computer-based product that combines an optimal learning environment with a focus on early literacy and cognitive skills. The product includes three exercises designed to prepare students for the listening and attentional demands of the classroom. All of the exercises develop visual attention and auditory

discrimination skills as well as sustained auditory attention.

*Inside the Tummy:* Participants click and drag colored shapes into matching shape outlines in pre-defined patterns. This task helps participants improve fine motor skills, hand-eye coordination, and computer mousing skills.

*Flying Saucer:* Participants identify sounds presented in a sequence, then click on graphic icons associated with those sounds to reproduce the sequence. This task builds auditory discrimination ability, auditory working memory, and sequencing skills.

*Drag Racer:* Participants point and click on a (sometimes moving) graphic, then hold the mouse button down to hear a stream of identical sounds. Participants release the mouse button when there is a sound change. This task is designed to improve auditory discrimination and sustained auditory attention. It also develops mousing skills, and the ability to withhold a response until an auditory cue is presented.

#### Assessments

Students were assessed before and after Fast ForWord participation. All ten students had scores available from the Test of Phonological Awareness (TOPA) from these two testing times. School personnel administered the assessments and returned the tests to Scientific Learning Corporation for scoring and analysis.

**Test of Phonological Awareness (TOPA):** The TOPA is a nationally-normed, group-administered measure of phonological awareness with two subtests: Phonological Awareness and Letter Sounds.

The Phonological Awareness subtest measures the child's ability to isolate individual phonemes in spoken words. In the kindergarten version of the assessment, the child is asked to isolate initial

phonemes. There are ten Initial-Sound Same items and ten Initial-Sound Different items.

In the kindergarten version of the assessment, the Letter Sounds subtest requires children to indicate which letter corresponds to a specific phoneme.

The Institute for the Development of Educational Achievement, in accordance with the Reading First legislation, determined that the kindergarten versions of the TOPA subtests are appropriate outcome assessments for accurately measuring improvement in phonemic awareness, an early reading skill.

#### Analysis

Raw scores were converted into age-corrected Normal Curve Equivalents (NCE's). Constant scores in NCE's reflect expected improvement. Data were analyzed using paired t-tests. All 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 (attendance and participation level). During the 2005 – 2006 school year, Spring Creek Elementary School kindergartners used the Fast ForWord Language Basics product for 30 minutes per day, five days per week. Detailed product use is shown in Table 1.

Figure 1 shows the average daily progress through the Fast ForWord Language Basics product for the study participants. The final day shown is determined by the maximum number of days that at least two-thirds of the students participated. For students who used the product fewer than the number of days shown, percent complete is maintained at the level achieved on their final day of product use.

	Number of Students	Days Participated	Number of Calendar Days	Percent Complete	Participation Level	Attendance Level
Fast ForWord Language Basics	10	18	56	75%	93%	93%

*Table 1. Usage data showing the number of students who used the Fast ForWord Language Basics 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.*

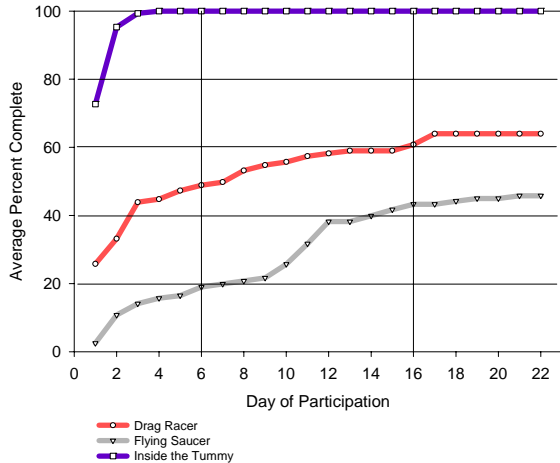


Figure 1. Average daily progress through the Fast ForWord Language Basics exercises. Results from 10 students are shown.

**Assessment Results**

**Test of Phonological Awareness (TOPA):** The TOPA was used to evaluate the phonological awareness skills of the students in this study, both before and after the students used the Fast ForWord Language Basics product. One student was slightly older than six years, eleven months at the second testing time, which is too old for the norms of the Kindergarten TOPA. However, his raw scores were converted using the tables appropriate for a six-year-old and his tests were included in the analysis. Normal Curve Equivalents (NCE's) from the TOPA were used in the analysis.

Students as a whole were performing in the below average range in phonological awareness and letter-sound skills before Fast ForWord use. After using the Fast ForWord Language Basics product, the students made improvements on the Phonological Awareness subtest of the TOPA, and significant gains in the Letter Sounds subtest, achieving letter-sound skills in the average range. Due to the small number of students in the study, caution should be used when generalizing these results to a larger population.

Subtest	n	Before		After		t statistic*
		Mean	SE	Mean	SE	
Phonological Awareness	10	18.5	4.7	24.1	2.6	1.4
Letter Sounds	10	21.4	4.7	41.2	6.1	2.7*

Table 2. Students improved their phonological awareness and letter-sound skills after Fast ForWord participation. \*p<0.05.

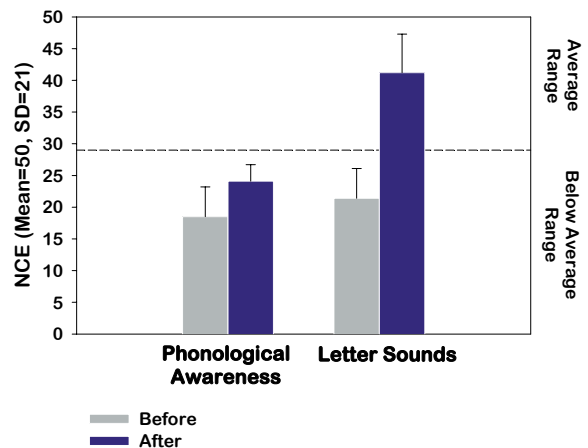


Figure 2. On average, ten kindergarten students made gains in early reading skills after using the Fast ForWord Language Basics product.

## DISCUSSION

Kindergarten students of Native American descent at Spring Creek Elementary School achieved dramatic improvements in their early reading skills following the use of the Fast ForWord Language Basics product, including significant improvements in their letter-sound correspondence skills. These findings demonstrate that, within Spring Creek Elementary School, an optimal learning environment coupled with a focus on cognitive and early reading skills can help young students attain a higher level of reading achievement.

## 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, kindergarten students in the Todd County School District improved their early reading skills. This suggests that using the Fast ForWord Language Basics product strengthened the students' foundational skills. As the students progress to the next grade, they are well-positioned to build on their early reading skills and to take advantage of the more challenging curriculum.

## Notes:

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