

Decreasing the Achievement Gap: Improved Reading Skills by Struggling Readers in the Dallas Independent School District who used Fast ForWord[®] Products: A Four Year Longitudinal Study

MAPS for Learning: Educator Reports, 12(1): 1-9

ABSTRACT

Purpose: This study investigated the effects of the Fast ForWord products on the reading skills of students who used the products within the curriculum in a school setting between 2004 and 2007. **Study Design:** The design of this study was a multi-year, multiple school case study using high stakes assessments. **Participants:** Study participants were 828 high school students in the Dallas Independent School District in Dallas, Texas. **Materials & Implementation:** Following staff training on the Fast ForWord products, a group of students used the products during the 2004-2005, 2005-2006 or 2006-2007 school years and had their reading abilities assessed with the Texas Assessment of Knowledge and Skills (TAKS). **Results:** After using Fast ForWord products, struggling readers, on average, made significant progress towards closing the achievement gap. Comparing the performance of students in the study with their peers statewide, the performance discrepancy decreased by 25% after Fast ForWord participation. The improvements in the TAKS scores were maintained longitudinally.

Keywords: Texas, public, middle school, high school, urban, observational study, longitudinal study, Fast ForWord Middle & High School, Fast ForWord Language to Reading, Fast ForWord to Literacy Advanced, Fast ForWord to Reading 1, Fast ForWord to Reading 2, Fast ForWord to Reading 3, Fast ForWord to Reading 4, Texas Assessment of Knowledge and Skills (TAKS).

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).

In 2000, the Dallas Independent School District started using the products at Barbara Manns Alternative High School. Then, during the 2001 – 2002 school year, the District's Division of Evaluation and Accountability did a study on the products and, among Fast ForWord participants, found substantial increases in the number of students passing the Texas Assessment of

Academic Skills (TAAS) with 90% of the teachers reporting improvements in skills critical to learning including listening skills, the ability to follow the flow of a conversation, and the ability to recall a series of events in proper sequential order. During the 2003 - 2004 school year, the district developed a comprehensive reading plan for all secondary students identified for tier two interventions; Fast ForWord products were included as a reading intervention strategy. In an ongoing effort to provide the best opportunities for their students, the district continues to monitor the progress of students who use the Fast ForWord products, and adjust the implementations to best address the needs of the students.

Now that the high schools have been using the Fast ForWord intervention products for several years, the Dallas Independent School District was interested in a longitudinal evaluation of the impact on the state's current high stakes tests – the Texas Assessment of Knowledge and Skills (TAKS). In this study, commercially available computer-based products (Fast ForWord Middle & High School, Fast ForWord Language to Reading, Fast ForWord to Reading 1, Fast ForWord to Reading 2, Fast ForWord to Reading 3, and Fast ForWord to Reading 4) were used to evaluate the effectiveness of this approach for

improving the academic performance of high school students.

METHODS

Participants

Dallas is the third largest city in Texas and the ninth largest in the nation. The population of approximately 1,200,000 is 51% Caucasian, 36% Hispanic and 26% African-American. Dallas is considered to be among the 100 most diverse communities in the nation. During the 2005 – 2006 school year, the Dallas Independent School District spanned 351 square miles and 11 municipalities. More than 161,000 students were enrolled in its 217 schools. The student population was 63% Hispanic and 31% African-American. Students in the district came from homes where more than 70 different languages were spoken.

The Dallas Independent School District uses the Fast ForWord products with middle and high school students who are eligible for tier two intervention as defined by their comprehensive reading plan. Tier two eligibility was defined as students reading below the 40th percentile or students who had a TAKS Reading score below 2100. For students who met eligibility, there is a ninth grade elective credit reading course that includes Fast ForWord participation for those who need intervention. The comprehensive reading plan is applied equitably across all students including English language learners, those receiving services for special education, and students at risk for academic failure.

This study focuses on the 828 high school students in Dallas who have used Fast ForWord products, and have TAKS scores available from both before, and after, participation. These students represent 20 of the 26 high schools in the District that are using the Fast ForWord products. Since the District targets ninth graders for the intervention, 92% of the students with scores available for this study used the Fast ForWord products as freshmen.

Since the TAKS is typically administered in February, it was considered that students had used the products during the school year in question if they started between March 1st of the preceding school year, and December 31st. Therefore, a student was considered to have used the products between the 2005 and 2006 administrations of the TAKS if they started using the products between March 1, 2005 and December 31, 2005.

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 by the Dallas Independent School District, Fast ForWord Middle & High School, Fast ForWord to Literacy Advanced, Fast ForWord Language to Reading, Fast ForWord to Reading 1, Fast ForWord to Reading 2, Fast ForWord to Reading 3, and Fast ForWord to Reading 4, include five to six exercises designed to build skills critical for reading and learning, such as auditory processing, memory, attention, and language and reading comprehension. While there are differences between these products, all help develop certain critical skills as detailed in the following exercise descriptions.

Sweeps¹ and Trog Walkers/Sky Rider²: 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.

Streams¹: 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.

IDs¹, Polar Cop/ Meteor Ball², and Treasure in the Tomb/Lunar Leap²: 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/Meteor Ball* also

¹ Exercise from the Fast ForWord Middle & High School product.

² Exercise from the Fast ForWord Language to Reading/Fast ForWord to Literacy Advanced product.

develops sound-letter correspondence skills. *Treasure in the Tomb/Lunar Leap* also develops grapheme recognition.

Matches¹ and Bug Out!/Laser Match²: 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!/Laser Match* exercise develops skill with sound-letter correspondences as well as working memory.

Cards¹: 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.

Stories¹ and Start-Up Stories/Galaxy Theater²: 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 simultaneously develop basic language skills such as auditory word recognition, auditory memory, and basic vocabulary, along with more complex language skills such as attending to word and sentence structure. These exercises provide a comprehensive "cross-training" of oral language skills, to create a solid foundation for reading.

Bear Bags³ and Bear Bags: More Lunch⁴: In these exercises, the participant is asked to help Mama Bear sort words (on pieces of toast) into phoneme-based categories (in lunch bags). They develop phonemic awareness and decoding of single-syllable words. Bear Bags also develops understanding of alphabetic principles (phonics) and Bear Bags: More Lunch also develops grapheme/phoneme associations.

Magic Rabbit³ and Magic Bird⁴: These exercises combine spelling and word-building practice with spelling patterns and word families commonly studied in 1st grade for *Magic Rabbit* and in 2nd grade for *Magic Bird*. The task is designed to emphasize the

relationships between words by showing how one word can be turned into another by simply changing a single letter in any position. Using a click and drag interface, the participant must either select the missing letter to complete a partially spelled word or rearrange scrambled letter tiles to spell a word. These exercises develop spelling and sensitivity to letter-sound correspondences.

Flying Fish³ and Fish Frenzy⁴: In these exercises, a fishing pelican pronounces a word. Then a series of spoken and/or written words (on fish) fly across the pond and the participant clicks on the word when it matches the pronounced word. These exercises develop decoding skills, identification of sight words, and auditory memory.

Quail Mail³: In Quail Mail, a squirrel mail carrier pulls words out of a mailbag and the participant sorts them into different categories by clicking on the appropriate mailbox. This exercise encourages flexibility during reading and automatic access to the various dimensions of vocabulary.

Bedtime Beasties³ and Leaping Lizards⁴: These exercises use the "cloze task," in which a written and aurally presented sentence has a word missing. The participant must select the correct word to complete the sentence from four choices. Vocabulary skills and sentence comprehension are developed in these exercises.

Buzz Fly³ and Dog Bone⁴: In these exercises, the participant listens to a passage and answers comprehension questions relating to each passage. The questions are aurally presented and written, and the response choices are presented as pictures. Responses are presented as words or short phrases in *Dog Bone*. These exercises develop listening comprehension and working memory skills as measured by performance on multiple choice questions.

Ant Antics⁴: The participant will be presented with a picture and then asked to pick one of the four alternatives that best describes an aspect of that picture. This exercise improves vocabulary skills and sentence comprehension.

Scrap Cat⁵: 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

³ Exercise from Fast ForWord to Reading 1 product.

⁴ Exercise from Fast ForWord to Reading 2 product.

⁵ Exercise from Fast ForWord to Reading 3 product.

it defined. This exercise trains decoding, vocabulary, and word recognition skills.

*Canine Crew*⁵: 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 trains vocabulary, decoding, and automatic word recognition.

*Chicken Dog*⁵: 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 trains basic spelling patterns, letter-sound correspondences, and decoding.

*Twisted Pictures*⁵: Participants are presented with a variety of pictures and asked to select the sentence that 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*⁵: 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 causal relationships to select the best answer from among four alternatives. This task develops paragraph comprehension, inferential and cause-and-effect reasoning, working memory, flexible reading, and vocabulary.

*Hog Hat Zone*⁵: 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.

*Hoof Beat*⁶: The participant is presented with a question and four possible answers. The participant

must choose the most appropriate answer. The questions relate to semantics, phonology, morphology, orthography, and syntax. The exercise encourages flexibility during reading and automatic access to the various dimensions of vocabulary and is designed to build vocabulary by showing the participant how words function.

*Jitterbug Jukebox*⁶: The participant hears a word spoken aloud and letters appear on the keys of a jukebox. The participant must spell the word by clicking on the jukebox keys. Jitterbug Jukebox helps participants improve spelling and sensitivity to letter-sound correspondences. This exercise includes many of the 500 most commonly used words in written English including most word families found in 3rd and 4th grade content standards.

*Goat Quotes*⁶: In Goat Quotes four newspapers paraphrase a headline at the top of a news kiosk. The participant must select the correct paraphrase. The exercise is designed to sample the basic syntactic (i.e., grammatical) structures of spoken English generally mastered in the early elementary grades. The exercise develops logical thinking and working memory skills as well careful reading.

*Book Monkeys: Book Two*⁶: Participant reads a passage, chart, or schedule and then answers questions related to the material. This exercise develops a participants' ability to read for literal meaning, cause-and-effect relationships, and inferential comprehension. It also develops a participant's working memory as well as vocabulary skills, which are crucial for flexible, fluent reading.

*Stinky Bill's Billboard*⁶: Participants must select the word that accurately completes a sentence. In this exercise, participants improve sentence comprehension while practicing the decoding of words in realistic contexts. This exercise also helps build vocabulary and awareness of word structure.

*Lulu's Laundry Line*⁶: Short passages are presented with occasional gaps where punctuation is missing. The participant must read the words and understand the passage in order to determine the correct punctuation. The exercise develops punctuation skills as well as automaticity for decoding and sentence comprehension.

⁶ Exercise from the Fast ForWord to Reading 4 product

Assessments

Before and after Fast ForWord participation, student reading skills were assessed with the Texas Assessment of Knowledge and Skills (TAKS). Scores are reported in terms of the Reading Scale Score. The District provided available TAKS scores for 2004 to 2007 for students who had used the products.

Texas Assessment of Knowledge and Skills (TAKS): The Texas Assessment of Knowledge and Skills is administered annually throughout Texas. The TAKS is closely aligned with state curricular standards (Texas Essential Knowledge and Skills). The reading portion of the TAKS, which is administered to students in grades 3-9, measures a student's ability to comprehend and critically analyze culturally diverse written texts.

Analysis

Average student performance on the TAKS depends upon both the grade and the year of the assessment, making analyses challenging. Following discussions with the Dallas ISD Evaluation and Accountability Group, several approaches were taken.

Scores were averaged across all students for whom they were available the year before, and the year after, Fast ForWord participation. Average scores statewide for corresponding years and grades were combined, weighting the averages by the number of Fast ForWord participants each year, and in each grade. This gave a grand average statewide for students in grades corresponding to the Fast ForWord participants and showed the relative scores for Fast ForWord participants before and after participation.

As a follow-up analysis, the Texas Growth Index (TGI) was calculated. The TGI provides an estimate of a student's growth on the TAKS in two consecutive years. A TGI of 0 indicates that the student made the expected improvement. A negative score is less than the typical (or expected) improvement while a positive score is more than the typical (or expected) improvement.

The TGI is only appropriate for evaluating groups of students, and should only be used with students who have been promoted by one grade between consecutive assessments.

An individual student's TGI is based upon the score from the previous year, the score from the current year, and the student's grade. Group TGI scores are determined by averaging the TGI scores of the individuals.

For the longitudinal analysis, two approaches were taken. The first longitudinal analysis included all 74 students who used the Fast ForWord products during the 2004 – 2005 school year and had test scores available from 2004 (before) and 2007 (two years after) Fast ForWord participation.

The second longitudinal analysis looked at students who had four years of data. In this analysis, not all students had used the products during the 2004 – 2005 school year. Five hundred forty-four students had data from four years. Although all students had four data points, some students had three data points from before participation and one from after while others had only one or two data points from before, with the rest from after. Average scores were calculated for two years before participation, one year before, immediately before, immediately after, one year after, and two years after. These averages were compared to statewide averages for students in comparable grades and years.

As a follow-up analysis, the TGI was calculated. Since the TGI can only be calculated for students who are in consecutive grades at consecutive administrations, students who were retained or skipped a grade were not included in this analysis. It was possible to calculate the TGI for 347 students. One hundred eighty-eight students had scores from 6th grade through 9th grade, 124 had scores from 7th – 10th grade, and 35 had scores from 8th – 11th grade.

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). The Dallas Independent School District chose to use the 48- and 50-Minute protocols for the Fast ForWord products. These protocols called for students to use the product for 48 or 50 minutes a day, five days per week for eight to twelve weeks. Detailed product use is shown in Table 1. Note that many students used multiple products.

	Number of Students	Days Participated	Number of Calendar Days	Percent Complete	Participation Level	Attendance Level
Fast ForWord Middle & High School	828	35	99	69%	82%	64%
Fast ForWord Language to Reading	401	28	78	55%	79%	63%
Fast ForWord to Literacy Advanced	110	31	75	61%	83%	70%
Fast ForWord to Reading 1	68	15	32	80%	88%	66%
Fast ForWord to Reading 2	102	17	44	67%	85%	69%
Fast ForWord to Reading 3	135	20	54	54%	83%	69%
Fast ForWord to Reading 4	36	19	35	67%	92%	83%
Total	828	59.8	165.1	--	82.1%-	65.3%

Table 1. Detailed product use data for students who had TAKS scores from the year before and after Fast ForWord participation, and who are included in the first analysis below. The data show 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. Total values reflect the average total number of days that students used products as well as overall average participation and attendance levels. Percent complete pertains to content within a specific product. Since different students used different products, calculating a “total percent complete” does not have meaning and is not shown. Note: Students often use multiple products.

Assessment Results

Statewide, average TAKS scores vary by year and by grade: For 2004 – 2007, we investigated the performance of students from 6th grade through 11th grade. The average scores each year for the state are presented in Table 2.

Grade	2004	2005	2006	2007
6	2260			
7	2210	2224		
8	2247	2288	2292	
9		2218	2247	2241
10			2229	2238
11				2288

Table 2: Average scores on the TAKS, for the state, from 2004 through 2007. Only grades relevant to this report are shown.

Pre/post results from the Texas Assessment of

Knowledge and Skills (TAKS): The first analysis investigated the immediate impact of Fast ForWord participation on students. Data were reported for the year before and the year after Fast ForWord participation for 828 students.

Nearly all 828 students used Fast ForWord products as 9th, 10th, or 11th graders (one was an 8th grader). Before Fast ForWord participation, the participants’ average score on the TAKS was 2048. The average score for students across the state varies by grade and year (see Table 2). Calculating the average score for students in grades comparable to those of the Fast ForWord participants showed that, at the time of the Fast ForWord participants’ pre-test, the state average TAKS score was 2266. Following Fast ForWord participation, the 828 Fast ForWord participants had

an average score of 2065 – an improvement of 17 points. Again calculating the state-average score for students in comparable grades – this time at the time of the participants’ post-test – the average score was 2233, a drop of 33 points (Table 3).

Initially, the gap between the students who used Fast ForWord products, and students in comparable grades was 218 points. After Fast ForWord participation, the gap was closed to 168 points, a decrease of 23% (Table 3).

TAKS Scores	Pre	Post	Difference
Statewide	2266.2	2232.5	-33.7
Fast ForWord	2047.8	2064.6	16.8

Table 3: After Fast ForWord participation, 828 students who were evaluated with the TAKS improved their scores while the scores of students in corresponding grades, statewide, decreased. Students who used Fast ForWord products narrowed the gap between their scores, and the scores of students across the state, by 23%.

Seven hundred two students were in consecutive grades for the TAKS assessments administered before and after Fast ForWord participation, and were included in the calculation of the Texas Growth Index. (TGI). Across the 702 students, the average TGI was -0.06, very close to the expected score of 0.0.

First Longitudinal Analysis: Texas Assessment of Knowledge and Skills (TAKS) – 2004 vs 2007:

Seventy-four students used the Fast ForWord products during the 2004 – 2005 school year and had TAKS scores available from 2004 (before participation) and 2007 (two years after initial participation). Most of the students (93%) were 9th graders at the time of participation; the rest were 10th graders. On average, in 2004, before participation, the students’ average TAKS score was 2075 compared with 2243 for

students in comparable grades in 2004 statewide. In 2007, the average TAKS score for the students who had initially used the Fast ForWord products during the 2004 – 2005 school year was 2112 compared to 2268 for students in comparable grades, statewide. The gap was decreased by 6% (Table 4).

TAKS Scores	2004	2007	Difference
Statewide	2242.9	2268.5	25.5
Fast ForWord	2075.4	2111.7	36.2

Table 4: More than two years after their initial participation, 74 students who used Fast ForWord products improved 42% more than their peers statewide, narrowing the gap between the scores of the participants, and the scores of their peers.

Second Longitudinal Analysis: Four Years of Results from the Texas Assessment of Knowledge and Skills (TAKS): Five hundred forty-four students had TAKS Reading scores available from four years: 2004 through 2007. The majority (92%) used the Fast ForWord products during their 9th grade year. The rest of the students were in 10th or 11th grade at the time of Fast ForWord participation.

A comparison of the scores of the students in the study to average statewide scores for students in corresponding grades and years showed that students who used the Fast ForWord products were closing the gap, achieving improvements in their TAKS scores after participation. The average gap size in the three years prior to Fast ForWord participation was 203 points while the average gap size in the three years after participation was 151 points, a decrease of 25% (Figure 1).

Further analyses required that students not only have four years of data, but also that they had steadily been promoted by one grade level in each of those four years. Three hundred sixty-eight students had four years of data and steadily progressed through consecutive grade levels; 347 had used Fast ForWord products as 9th graders. In an effort to evaluate the ninth grade implementation, only data from the ninth graders were included in the following longitudinal analysis.

Thirty-five of the students were in the ninth grade during the 2004 – 2005 school year, and so have data from their 8th grade through 11th grade years; 124 students were in 8th grade during the 2004 – 2005 school year, and so have data from their 7th grade through 10th grade years; 188 students were in 7th grade during the 2004 – 2005 school year, and so have data from their 6th through 9th grade years. Table 5 shows average scores for each cohort of students along with state average scores. Before Fast ForWord

participation, average TAKS scores for students in the study were 186 points behind the average for their peers, statewide. After participation, the participants had reduced the discrepancy to 132 points.

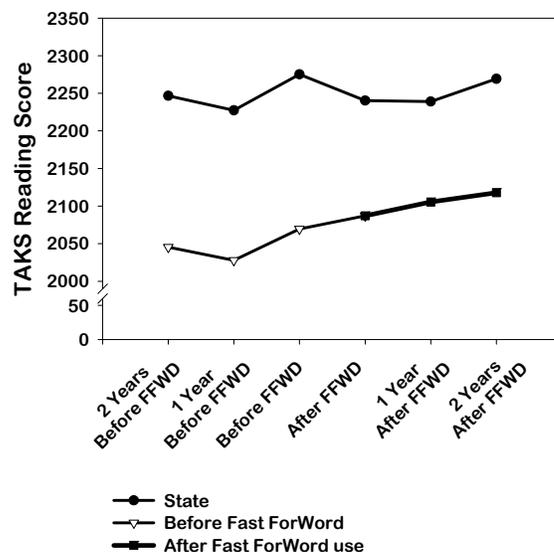


Figure 1. This graph represents data from four years: some students have one year of data prior to Fast ForWord use while other students have two or three years of data prior to Fast ForWord use. Five hundred forty-four students who used Fast ForWord closed the gap with their peers statewide. This closure was maintained for the two years of the study.

Since this analysis only uses students who were promoted one grade each year, the TGI scores could be calculated for all 347 students in this group and then averaged to find a group TGI score. Students had up to two years of Growth Index scores from before Fast ForWord participation, and up to three years of scores from after participation. Average TGI for the two years before participation was -0.20. Average TGI for the three years after was -0.08. Although the students did not make the expected growth, they were very close after Fast ForWord participation (Figure 2).

DISCUSSION

Across the 828 students evaluated the year before and after Fast ForWord participation, the participants decreased the TAKS Reading achievement gap between struggling readers and students statewide by 23%. A group of 74 students who used the products during the 2004 – 2005 school year and were evaluated in both 2004 and 2007 showed that while the results were not quite as large two years later, the gap was still 6% narrower than prior to Fast ForWord participation.

There was interest in inspecting the results year-by-year. During the 2004 – 2005, 2005 – 2006 and 2006

– 2007 school years, struggling students attending high schools in the Dallas Independent School District, used Fast ForWord products. During the three test administrations prior to Fast ForWord use, participants’ TAKS scores were an average of 200 to 206 points below those of their peers, statewide. The students made significant improvements in their TAKS scores after using the Fast ForWord products, with a gap of 134 to 153 points during the three TAKS administrations after Fast ForWord participation. Across the 544 students who had scores for up to three years before participation, or three years after participation, the average decrease in the gap was 25%. The gap narrowed the year immediately after Fast ForWord participation, and continued to decrease the following year. In the final year of this study, the gap returned to the levels immediately following Fast ForWord participation – 25% smaller than the average for the three years prior to Fast ForWord participation.

	2004	2005	2006	2007
6th Grade Cohort – 35 Students				
	Grade 6	Grade 7	Grade 8	Grade 9
State average	2260	2224	2292	2241
Cohort average	2077	2041	2067	2077
7th Grade Cohort – 124 Students				
	Grade 7	Grade 8	Grade 9	Grade 10
State average	2210	2288	2247	2238
Cohort average	2057	2104	2136	2124
8th Grade Cohort – 188 Students				
	Grade 8	Grade 9	Grade 10	Grade 11
State average	2247	2218	2229	2288
Cohort average	2106	2096	2121	2144

Table 5: Average scores on the TAKS, statewide, from 2004 through 2007 and average scores for students who had scores available from 2004 through 2007, were promoted one grade each year, and used the Fast ForWord products in ninth grade. Shaded boxes indicate that the scores were from tests administered after Fast ForWord participation.

The 347 students who were in four consecutive grades during the four years of the study had similar results with an average gap before participation of 186 points, and an average gap after participation of 132 points. When average Texas Growth Index scores from all available years before Fast ForWord participation are compared to average scores from all available years after participation, the results show that before participation, the students were not achieving their

expected growth. After participation, student growth approaches expectations (Figure 2).

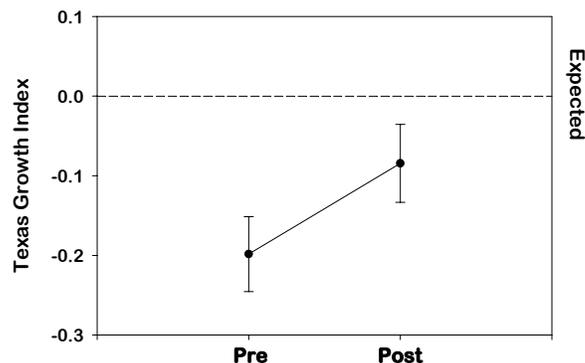


Figure 2: After Fast ForWord participation, student growth approached expectation. Results from 544 students are included.

Looking at the 11th grade scores from the students who participated as 9th graders allows the district to review its curricular needs and add additional intervention and content for students who are progressing. In addition, it allows the district to consider options for the timing and use of Fast ForWord products. For example, using Fast ForWord products in the middle schools would help students strengthen their foundational skills earlier in their academic career, and would allow students time to progress through more content thereby narrowing the gap still more.

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, high school students in the Dallas Independent School District made significant gains in their reading achievement narrowing the gap between the TAKS scores of struggling readers in the Dallas Independent School District, and students statewide. The achievement levels of the struggling readers continued to increase the following year. This supports other studies showing that using the Fast ForWord products strengthens students’ foundational skills and better positions them to benefit from the classroom curriculum. It also supports studies showing that the acquisition of reading skills continues to be accelerated for Fast ForWord participants.

These struggling high school students with a history of little or no improvement have accelerated their acquisition of reading skills and are now narrowing the gap. Dallas ISD is pleased to be able to share the

data from the last four years demonstrating the impact of the Fast ForWord products. These data demonstrate that Dallas ISD is successfully using Fast ForWord products as part of their comprehensive reading plan, and guides the district in their continued efforts to close the gap.

Notes:

To cite this report: Scientific Learning Corporation. (2008). Decreasing the Achievement Gap: Improved Reading Skills by Struggling Readers in the Dallas Independent School District who used Fast ForWord® Products: A Four Year Longitudinal Study, MAPS for Learning: Educator Reports, 12(1): 1-9.

REFERENCES

Lyon, G.R. (1996). Learning Disabilities. *The future of children: Special education for students with disabilities.* 6:54-76.

Merzenich MM, Jenkins WM, Johnston P, Schreiner CE, Miller SL, & Tallal P (1996). Temporal processing deficits of language-learning impaired children ameliorated by training. *Science*, 271, 77-80.

Miller, S.L., Merzenich, M.M., Tallal, P., DeVivo, K., Linn, N., Pycha, A., Peterson, B.E., Jenkins, W.M., (1999). Fast ForWord Training in Children with Low Reading Performance, *Nederlandse Vereniging voor Lopopedie en Foniatrie: 1999 Jaarcongres Auditieve Vaardigheden en Spraak-taal.* (Proceedings of the 1999 Dutch National Speech-Language Association Meeting).

Tallal P, Miller SL, Bedi G, Byrna G, Wang X, Nagarajan SS, Schreiner C, Jenkins WM, Merzenich MM (1996). Language comprehension in language-learning impaired children improved with acoustically modified speech. *Science* 271:81-84.

Texas Education Agency: TAKS Summary Reports.
<http://www.tea.state.tx.us/student.assessment/reporting/results/summary/taks.html>