Brevard Public School Students Experience Success on FCAT after using *Voyager Passport* Reading Intervention

Julia A. Peyton, Ph.D. and Janet R. Macpherson, Ph.D.
Voyager Expanded Learning, Inc.
Dallas, TX

This study investigated the program effects of Voyager Passport™ on the reading achievement and FCAT passing rate of third through sixth grade students in the Brevard Public Schools who used this product as part of the reading intervention during the 2006-2007 school year. This study used a pretest posttest quasi-experimental design. The study participants included 646 students at 12 schools who received the Voyager Passport reading intervention and a comparison group of 1,854 students who did not. Student growth was measured using oral reading fluency, as measured by the DIBELS™ (Dynamic Indicators of Basic Early Literacy Skills) Oral Reading Fluency assessment and two years of FCAT scores. Results indicate that students who participated in Voyager Passport made statistically significant gains on the FCAT developmental scale scores.

INTRODUCTION

Although many children will have difficulty learning to read, regardless of their core reading program, they cannot simply be left to fall behind. Research has provided the knowledge and tools teachers need to ensure every student becomes a successful reader (Shaywitz, 2003).

Many studies have shown a strong correlation between reading fluency and reading achievement. Drs. Joseph Torgesen and Julie Buck (2005) explain the relationship between oral reading fluency and performance on the FCAT in their oft cited study: *The Relationship Between Performance on a Measure of Oral Reading Fluency and Performance on the Florida Comprehensive Assessment Test.* Ninety-one percent of the students with ORF scores of 110 words correct per minute or higher also attained achievement level 3 or higher on the FCAT-SSS test. Students at FCAT-SSS achievement level 3 or higher are considered to be at or above their grade level in reading. They further note the strong correlation between the students' ORF scores and the FCAT-SSS comprehension scores, with validity coefficient of 0.70.

Oral Reading Fluency is the key to predicting which students will achieve grade-level reading. Several studies show that more than 80% of students who can read third-grade level text at a rate of 110 words per minute pass the high-stakes state reading assessments.

Current research converges on the certainty that few students acquire reading naturally, and that most students benefit from explicit and direct, structured instruction (National Reading Panel, 2000). This research, based on sound, scientific observations and analyses, provides evidence for not only what instruction works, but why and how it works (Reyna, 2004). Those students who struggle learning to read are served as well in small groups of three to four students as they are individually (Torgesen, 2004; Vaughn & Linan-Thompson, 2003).

Administrators and teachers in the Brevard Public Schools understood the need for explicit, systematic reading instruction for students who were struggling to learn to read. Students in the Brevard Public Schools in need of reading intervention were enrolled in classes that used the *Voyager Passport* curriculum.

METHODS

Participants

During the 2006-07 school year, 646 students in grades three through six at 12 schools in the Brevard School District in Florida used the Passport program. Grades of students were relatively evenly divided with 36% in grade 3, 23% in grade 4, 23% in grade 5 and 18% in grade 6. The majority of students began the program in September through November, although others entered throughout the year from December to May.

Achievement levels and reading scale scores from the previous and current years' *Florida Comprehensive Assessment Tests* (*FCAT*) were available. Sixty percent of the students had 2006 and 2007 *FCAT* scores. In 2006, 47% of students scored at Level 1, 34% at Level 2, 16% at Level 3, and 3% at Level 4.

Data were available for another 1,854 students who did not use *Voyager* Passport, but still have *FCAT* scores. These students can be thought of as a control group. Of these students, 8% of students scored at Level 1, 9% at Level 2, 44% at Level 3, 34% at Level 4 and 6% at Level 5 in 2006.

Implementation

Brevard implemented an in-school, pull out model for the reading intervention. Lessons were to be delivered to students five days a week for 40 to 45 minutes per day. The teachers were responsible for the testing of the students and for placing the assessment scores into the PMRN data system. Voyager support persons facilitated the transfer of student data to VPORT®, the Voyager data management system.

Materials

Voyager Passport provides direct, systematic instruction in each of the essential reading components and is designed as an intervention program for students for whom the core reading program is not sufficient. The lessons are based on the scientific knowledge about effective reading instruction. The lessons address decoding strategies, fluency, and comprehension. Each student receives a set of individual instructional materials for the duration of the program.

Phonemic Awareness: To make the greatest gains in reading, students must learn to blend and segment individual sounds in words. Student gains in reading and spelling are strongest when print is integrated with phonemic awareness instruction (Hatcher, Hulme, & Ellis, 1994). For third grade students, the phonemic activities are integrated into the phonics and spelling lessons where students can apply knowledge of the alphabetic principle and coordinate orthographic, phonemic, and graphemic knowledge.

Phonics: Phonics instruction is the systematic use of sound-symbol relationships to teach the reading and writing of words. *Voyager Passport* utilized the extensive research base in phonics to develop systematic and explicit phonics and spelling lessons, shown to be the most effective way to ensure appropriate reading growth (National Reading Panel, 2000). The instruction builds in difficulty incorporating letter combinations, affixes, and strategies for decoding multisyllabic words. Words with irregular spelling patterns are also taught explicitly with extensive review.

Fluency: Fluency is the ability to accurately and quickly read text. Fluent reading allows readers to focus on comprehending and gaining meaning from text. Fluency instruction in *Voyager Passport* provides specific time for practicing reading and rereading text accurately, efficiently, and with expression. Once students can read connected text, repeated reading with feedback is an effective practice for improving fluency and reading achievement (Chard, Vaughn, & Tyler, 2002; Homan, Klesius, & Hite, 1993; National Reading Panel, 2000). As students develop more advanced reading skills, fluency lessons focus on text-level reading with teachers modeling appropriate reading rates and expression. Strategies for chunking text are also explicitly taught and timed readings motivate and challenge students to improve their reading rates.

Vocabulary: Vocabulary refers to the words a person understands and uses in listening, speaking, reading, and writing. Students learn word meanings through direct and indirect experiences with oral and printed language (Beck, McKeown, & Kucan, 2002; National Reading Panel, 2000). *Voyager Passport* addresses vocabulary instruction through a sequence of word introduction, with read-alouds, student passage reading, comprehension activities, and text discussions. The design allows repeated exposure to new vocabulary in a variety of contexts using oral and written language.

Comprehension: Comprehension is the ability to understand and gain meaning from language. Snow, Burns, and Griffin (1998) assert that the student needs both background knowledge and conceptual sophistication to understand the meaning of a word or text. Students extract meaning as well as construct meaning as they build representations and gain new meaning (Snow & Sweet, 2003). *Voyager Passport* teaches strategies for understanding text, including teaching students to monitor their comprehension, organizing and retelling information presented, recognizing story structure, generating questions about the text, predicting outcomes in the text, and confirming or revising predictions (National Reading Panel, 2000; Pressley & Wharton-McDonald, 1997; Rosenshine, Meister, & Chapman, 1996).

Assessments

Students received both the Florida state test and DIBELS (Dynamic Indicators of Basic Early Literacy Skills) assessments. The DIBELS scores were entered into the PMRN system and then transferred to the Voyager VPORT system, from where the rest of the reporting takes place. As a result of this, the nomenclature of the VIP measures will be used and discussed in this report.

Voyager Passport provides Vital Indicators of Progress (VIP®) measures which are one-minute individually-administered fluency indicators to monitor growth in *Voyager* Reading Programs. The cutoffs and goals are based on finding a point where the odds would be in favor (at least 80%) of the student achieving subsequent literacy outcomes as developed by the DIBELS™ Benchmarks (Good, Simmons, Kame'enui, Kaminski, & Wallin, 2002). Results for the VIP benchmarks identify if a student is a struggling, an emerging, or an on-track reader.

The RCT measure (Reading Connected Text), equivalent to the DIBELS ORF measure, is a standardized, individually administered test of reading fluency with

connected text for students in grades 1 through 5 and above. RCT is a set of equivalent passages and administration procedures designed to identify students who may need additional instructional support, and to monitor progress toward instructional goals.

Student performance is measured by having students read a passage aloud for one minute. Words omitted, substituted, and hesitations of more than three seconds are scored as errors. Words self-corrected within three seconds are scored as accurate. The number of correct words per minute from the passages is the oral reading fluency rate which is reported as the "RCT score." The tool provides information on student performance in English.

Typically the DIBELS goals are used with the VIP® fluency measures based on time of year (Good, Simmons, Kame'enui, Kaminski, & Wallin, 2002). The Hasbrouck and Tindal Oral Reading Fluency Norms (2006) are mentioned as a point of reference for oral reading fluency where appropriate. The DIBELS/VIP passages however are standardized passages based on end of grade level reading targets and calibrated across nine readability formulas. Hasbrouck and Tindal Norms were developed using data collected from real teachers across the nation using the text they selected individually perceived as grade level text. In both cases the samples for the norms are quite substantial and provide valuable and reliable reference points for oral reading fluency. For the purposes of this study, the end of year DIBELS goal of 110 words per minute is used.

FCAT. Students in the Brevard Public Schools in Florida were given *Florida's Comprehensive Assessment Test* (*FCAT*) in the spring 2006 and 2007 to evaluate their progress on the Sunshine State Standards (SSS) in reading. Scores include a scale score ranging from 1-500 and an Achievement Level, defined below.

Table 1. FCAT achievement level definitions (Florida Department of Education, 2008)

Level	Achievement Level Policy Definitions
5	Success with the most challenging content. A student scoring in Level 5 answers most of the test questions correctly, including the most challenging questions.
4	Success with challenging content. A student scoring in Level 4 answers most of the test questions correctly, but may have only some success with questions that reflect the most challenging content.
3	Partial success with challenging content, but performance is inconsistent. A student scoring in Level 3 answers many of the test questions correctly but is generally less successful with questions that are the most challenging.
2	Limited success with challenging content.
1	Little success with challenging content.

Data Gathering and Analysis

Student RCT scores were reported from the VPORT system and matched with FCAT scores provided by the Brevard Public Schools. An RCT gain score was computed by subtracting the first Benchmark RCT from the third Benchmark RCT. An *FCAT* developmental scale score gain was computed by subtracting the 2006 developmental scale score from the 2007 developmental scale score. All analyses used a .05 criterion for identifying statistical significance.

Repeated measures analyses of variance were used to assess differences in (a) RCT wpm score by grade and (b) FCAT reading developmental scale score Partial ea-square (η^2) was used to consider effect size.

Correlations were computed for the relationship between the FCAT achievement level and the Benchmark 3 status category by grade. A chi-square analysis for the aggregated dataset was used to further describe the relationship. Cramer's V was the effect size measure.

Regression was used to predict *FCAT* developmental scale scores from the Benchmark 3 RCT wpm score. R^2 was used as the effect size measure.

RESULTS

Participation Level

Analysis of the combined VPORT and FCAT data yielded 646 students in grades 3-6 had the appropriate scores for analysis. Grades of students were relatively evenly divided with 36% in grade 3, 23% in grade 4, 23% in grade 5 and 18% in grade 6. Approximately 85% at each grade had Passport RCT scores for three benchmark periods.

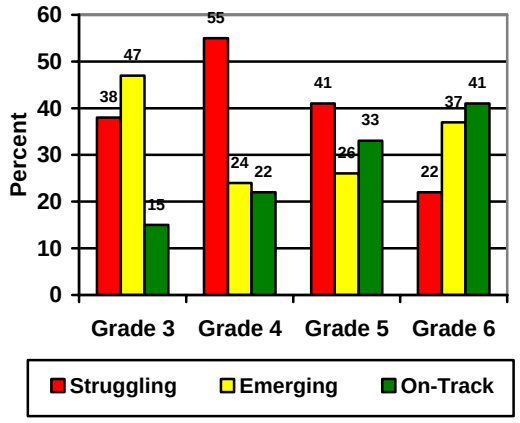
Achievement levels and reading scale scores from the previous and current years' *Florida Comprehensive Assessment Tests* (*FCAT*) were available. Sixty percent of the students had 2006 and 2007 *FCAT* scores. In 2006, 47% of students scored at Level 1, 34% at Level 2, 16% at Level 3, and 3% at Level 4.

Data were available for another 1,854 students who did not use *Voyager Passport*, but still have *FCAT* scores. These students can be thought of as a control or comparison group. Of these students, 8% of students scored at Level 1, 9% at Level 2, 44% at Level 3, 34% at Level 4 and 6% at Level 5 in 2006.

RESULTS

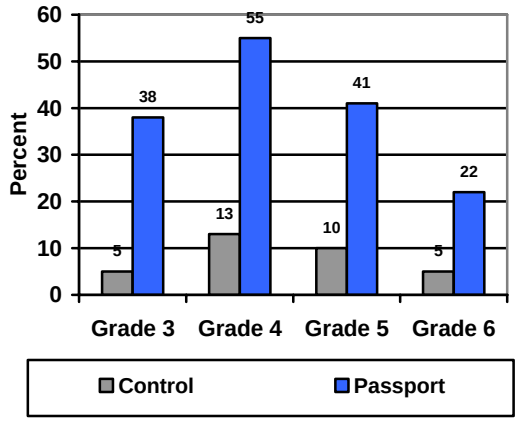
Participants by grade. At grades 3, 4 and 5, the greatest percentage of students at Benchmark 1were either struggling or emerging (Figure 1).

Figure 1. Passport reading status categories for Benchmark 1.



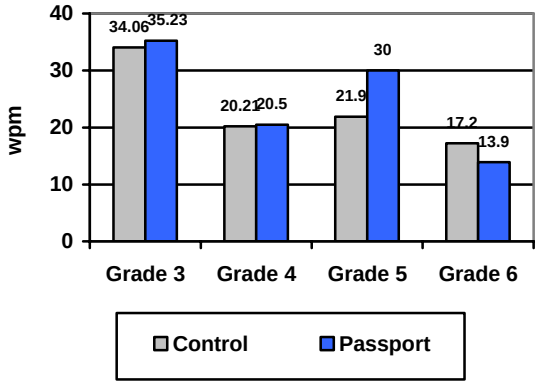
Participants by Passport participation. As expected, students with more reading difficulties used Passport. At each grade, the percentage of students struggling at Benchmark 1 was as much as four times higher among those using Passport (Figure 2).

Figure 2. Percentages of students who were struggling at Benchmark 1 by program participation.



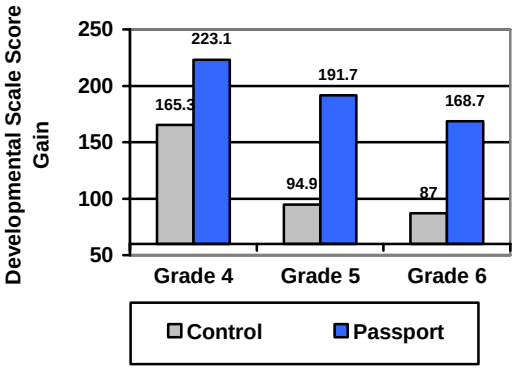
Gains in RCT scores. At grade 5 only, there was a significant difference in RCT gains from Benchmark 1 to Benchmark 3 [F (1, 488) = 18.644, $p < .001$, $\eta^2 = .037$]. Gains at other grade levels were similar, regardless of whether students used the Passport program (Figure 3). Considering the beginning Benchmark status of Passport students (see Figure 2), the fact that there were few differences among control and Passport students in terms of fluency gain is still important.

Figure 3. Gains in RCT fluency wpm by Passport participation and grade.



Growth in *FCAT* developmental scale score. Because both 2006 and 2007 *FCAT* reading developmental scale scores were provided, growth in this measure could be assessed based on Passport participation. At each grade and across all grades, students who used Passport had higher developmental scale score gains than students who did not participate [F (1, 1611) = 44.782, $p < .001$, $\eta^2 = .027$] (Figure 4). Third grade students are not represented in this growth analysis because most of these students did not have two *FCAT* scores for comparison.

Figure 4. Gains in FCAT reading developmental scale scores by Passport participation and grade.



DISCUSSION

The Hawthorne Effect (Mayo, 1933) recognizes that people participating in a study or under the observation of researchers will improve in the desired direction just based on the attention or observation. Studies such as the one described in this paper, based on real-world practices of implementation of standard-protocol interventions with teachers using it as they actually would without researcher involvement, have a lot to tell us. We learn that teachers can in fact implement a program and produce positive growth for students in typical settings.

Greater oral reading fluency is indicative of more practice reading. Fluency is defined by three constructs, quick and accurate word recognition, appropriate use of prosody, and in many cases comprehension (Kuhn & Stahl, 2003). More experience with text provides opportunities to learn about a wider range of topics, build automaticity with printed words, and demonstrate greater comprehension as a result of increased content exposure.

When students read more, they become more proficient with reading and thereby have higher fluency rates. Teachers were able to use *Voyager Passport* during the school day for an additional 45 minutes targeting struggling students which afforded an opportunity for students who needed additional reading instruction beyond the core to receive instruction in reading skills paired with accessible level text.

CONCLUSION

Students made positive growth in oral reading fluency during the *Voyager Passport* reading intervention which translated into higher developmental scale score growth for students in the fourth through sixth grades. This demonstrates that growth in fluency transfers to greater success on high-stakes measures such as the FCAT. More struggling students are identified as needing and participate in reading intervention programs. Progress made by the group of struggling students in this study, to the point of making comparable gains in fluency to a control group of students with far fewer struggling readers, indicates the efficacy of the *Voyager Passport* reading intervention.

REFERENCES

Beck, I.L., McKeown, M.G., & Kucan, L. (2002). *Bringing words to life: Robust vocabulary instruction*. New York: The Guilford Press.

Chard, D.J., Vaughn, S., & Tyler, B.J. (2002). A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities. *Journal of Learning Disabilities, 35*, 386-406.

Good, R. H., Simmons, D., Kame'enui, E., Kaminski, R. A., & Wallin, J. (2002).*Summary of decision rules for intensive, strategic, and benchmark instructional recommendations in kindergarten through third grade* (Technical Report No. 11). Eugene, OR: University of Oregon.

Hatcher, P.J., Hulme, C., & Ellis, A.W. (1994). Ameliorating early reading failure by integrating the teaching of reading and phonological skills: The phonological linkage hypothesis. *Child Development, 65*, 41-57.

Hasbrouck, J., & Tindal, G. A. (2006). Oral reading fluency norms: A valuable assessment tool for reading teachers. *The Reading Teacher, 59*(7), 636–644.

Homan, S.P., Klesius, J.P., & Hite, C. (1993). Effects of repeated readings and nonrepetitive strategies on students' fluency and comprehension. *Journal of Educational Research, 87*, 94-100.

Kuhn, M. R., & Stahl, S. A. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology, 95*(1), 3-21.

Mayo,E. (1933). *The human problems of an industrial civilization.* New York: MacMillan.

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4754). Washington, DC: U.S. Government Printing Office.

Pressley, M., & Wharton-McDonald, R. (1997). Skilled comprehension and its development through instruction. *School Psychology Review, 26*, 448-466.

Reyna, V.F. (2004). Why scientific research? The importance of evidence in changing educational practice. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research* (pp. 47-58). Baltimore: Paul H. Brookes Publishing Co.

Rosenshine, B., Meister, C., & Chapman, S. (1996). Teaching students to generate questions: A review of the intervention studies. *Review of Educational Research, 66*, 181-221.

Shaywitz, S. (2003). *Overcoming dyslexia*. New York: Alfred A. Knopf.

Snow, C.E., Burns, M.S., & Griffin, P. (1998). (Eds.). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

Snow, C.E., & Sweet, A.P. (2003). Reading for comprehension. In A.P. Sweet & C.E. Snow (Eds.), *Rethinking reading comprehension* (pp. 1-11). New York: The Guilford Press.

Torgesen, J. K., & Buck, J. (2005). *The Relationship Between Performance on a Measure of Oral Reading Fluency and Performance on the Florida Comprehensive Assessment Test,* (Technical Report No. 1) Florida Center for Reading Research: Tallahassee, Florida.

Torgesen, J. K. (2004). Lessons learned from research on interventions for students who have difficulty learning to read. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research* (pp. 355-382). Baltimore: Paul H. Brookes Publishing Co.

Vaughn, S., & Linan-Thompson, S. (2003). Group size & time allotted to intervention: Effects for students with reading difficulties. In B. Foorman (Ed.), *Preventing and remediating reading difficulties: Bringing science to scale*, (pp. 299-324). Baltimore: York Press.

