

Improved Academic Achievement: Fast ForWord and the Bulloch County Schools Pilot, An Independent Study (2009 – 2010)

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ABSTRACT

Purpose: For the first time, all students within a specific grade in the Bulloch County Schools were given access to the Fast ForWord products, providing an excellent opportunity to study the impact of the products on student achievement. This study investigated the impact of the Fast ForWord products on students of various ability levels as well as the importance of product completion and completion rate.

Results: Sixty-four percent of the Fast ForWord participants made reading gains on the NWEA Measures of Academic Progress (MAP). For students who made gains, the gains were very large, corresponding to the 98th percentile of the **Growth National Percentile Rank**, a measure of improvement relative to “academic peers” – students in similar grades and at similar achievement levels. These large gains were apparent regardless of the highest Fast ForWord product completed or the prior achievement levels of students. Students who completed the products the most quickly tended to have the greatest gains.

Study Design & Participants: Study participants were 205 sixth graders from Langston Chapel Middle School in the Bulloch County School District in Bulloch County, Georgia. The students used the Fast ForWord products for at least one semester during the 2009-2010 school year, regardless of MAP or Georgia’s Criterion Referenced Content Tests (CRCT) level, Special Education (SPED) eligibility, English Language Learner (ELL) determination, or Gifted classification.

Materials & Implementation: Students in the Bulloch County Schools are regularly evaluated with the Northwest Evaluation Association’s Measures of Academic Progress (MAP). Following the Spring, 2009 administration of the MAP, all sixth graders at Langston Chapel Middle School used the Fast ForWord products for at least one semester during the 2009-2010 school year. The Spring, 2010 administration of the MAP was used as the post-test.

Keywords: Georgia, middle school, urban district, observational study, high achieving students, low achieving students, Fast ForWord Literacy, Fast ForWord Literacy Advanced, Fast ForWord Reading Levels 1-5, Measures of Academic Progress (MAP).

INTRODUCTION

The Bulloch County Schools started using the Fast ForWord products during the 2007-2008 school year. During the 2009-2010 school year, for the first time, one of the schools used the Fast ForWord products across an entire grade. This provided a valuable opportunity to evaluate the impact of the products on students at different levels of academic achievement as well as to evaluate the effect of various products and their impact on academic achievement when completed at varying rates.

METHODS

Participants

The Bulloch County School District serves more than 9,500 students. This particular study took place at Langston Chapel Middle School, a 6th – 8th grade school serving approximately 620 students. Langston Chapel Middle School has the district’s highest concentration of English Language Learners as well as a high minority population (65%). Approximately 15% of the school’s students receive Special Education services. During the 2009-2010 school

year, all sixth graders at Langston Chapel Middle School were scheduled to use the Fast ForWord products during at least one semester.

Two hundred five of the sixth graders completed one or more Fast ForWord products and were eligible for this study. Of those students, 173 had MAP scores from Spring, 2009 and Spring, 2010, and were included in the analysis.

Implementation

The Bulloch County Schools started using the Fast ForWord products at selected schools during the 2007-2008 school year with Langston Chapel Middle School starting in the Fall of 2007. The district's focus was on students close to the "Proficient" cut-off on the Reading or English Language Arts CRCT (800) so students with scores between 780 and 810 were targeted.

The middle school's Fast ForWord Participation and Attendance were routinely considered "Gold Cap" which, at the time, was a Participation Composite Score (Attendance * Participation) of 70% or higher, Completion of at least 70% of the product by students participating for 60 to 90 days, and a group of at least 36 students using the products. In the Fall of 2009, the Langston Chapel Middle School expanded its implementation to all sixth graders.

Materials

The Fast ForWord products are computer-based and combine an optimal learning environment with a focus on building reading and cognitive skills. Each product includes several exercises designed to develop 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. The students at Langston Chapel Middle School used Fast ForWord Literacy, Fast ForWord Literacy Advanced, Fast ForWord Reading Prep, and Fast ForWord Reading Levels 1 – 5. Students started on either the Fast ForWord Literacy product (low-achieving students) or a Fast ForWord Reading product (average- and high-achieving students) and progressed through the series in order.

Assessments

Students were assessed in Spring, 2009, and again in Spring, 2010, with the Northwest Evaluation Association's Measures of Academic Progress (MAP).

Measures of Academic Progress (MAP): Developed by the Northwest Evaluation Association (NWEA), the MAP are state-

aligned computerized adaptive tests that accurately reflect the instructional level of each student and measure growth over time. The MAP are appropriate for students in grades 2 through 10 and are available to evaluate student achievement in a variety of subject areas including Reading, Language Arts, Math, and Science.

Analysis

MAP scores were reported in terms of RIT scores, a Growth Index, and a Growth National Percentile Rank. RIT scores are developmental scale scores that are equal-interval such that they can be compared across grades. Based on a student's grade and RIT score, NWEA also provides a Growth Index and a corresponding Growth National Percentile Rank (GNPR). The GNPR compares the growth in a student's achievement to his or her "academic peers" – students in the same grade and at the same beginning achievement level. If a sixth grader makes typical improvements in his or her RIT scores, relative to other sixth graders with comparable initial RIT scores, the student's Growth Index would correspond to the 50th percentile. If the student makes greater gains than his or her "academic peers", the GNPR would be above the 50th percentile.

The analyses in this study focus on the Growth Index – how much the RIT score changed, and how that change compared to other sixth graders of comparable initial achievement levels.

The analyses were done in three parts:

- 1) Impact of the products on students who were low achievers versus students who were on grade level or high achievers.
- 2) Impact of Fast ForWord use on students who completed different products.
- 3) Impact of products on students who completed them different rates.

RESULTS

Analysis by Achievement Level:

READING: Of the 173 students who had MAP scores from Spring, 2009 and 2010, 111 (64%) increased their percentile rank on the Reading component of the MAP. For the students who made gains, the gains were very large, corresponding to the 98th percentile (GNPR). This growth occurred overall, regardless of the highest Fast ForWord product completed, number of days it took to complete the product(s), or the prior achievement levels of students.

Additional insight is gained by dividing reading results into two achievement levels based on the students' initial scores (below grade-level and on/above grade-level), with two groups within each level: (1) all students and (2) only those who made MAP gains.

Below grade level readers:

- 1) Of the 173 students in this study, 83 (48%) entered 6th grade with a below grade-level Reading MAP score. Their average score was 202 (beginning 4th grade level). After using the products during 2009-2010, their average MAP gain was 4.7 points with a final RIT score of 207 (end of 4th grade level). This gain of 4.7 was slightly less than the 5 RIT points expected (target), giving them an average Growth Index of -0.3 corresponding to the 42nd percentile (GNPR). Their average CRCT in Reading at the end of 6th grade was 818. Of the 83, 10 failed the reading CRCT.

Gains were not made by all below grade level readers.

- 2) However, of the 83 struggling readers, 58 (70% of the 83) did make gains on Reading MAP. In examining just those struggling readers who did make MAP gains, the picture is quite different than when looking at all 83 together. Their average gain was 9.4 RIT points relative to an expected (target) score of 5. This gave the group a Growth Index of 4.4 corresponding to the 99th percentile (GNPR). The students' average MAP level advanced from beginning of 4th grade to mid-5th grade or 1.5 years in one year's time. If they had achieved this kind of growth throughout their schooling, they would not have started 6th grade reading below their grade level. Of these students, seven failed the CRCT. The average MAP growth of those seven was one year -- from 2nd grade level to 3rd grade level.

On or above grade level readers:

- 1) Of the 173 students in the study, 90 (52%) entered 6th grade with an on or above grade-level MAP Reading score – the average of which was 220, placing the group at the early 8th grade level on MAP achievement. After using the products during 2009-2010, their average MAP gain was 1.5 RIT points, placing them at the beginning of 9th grade level. This gain did not reach the 4 RIT points expected (target), giving them an average Growth Index of -2.5 or the 11th percentile (GNPR). Their average CRCT in Reading at the

and of 6th grade was 847, or 3 points away from “exceeds.”

- 2) However, of the 90 sixth graders who were on grade level or advanced, 53 (59% of the 90) did make gains on the Reading MAP during Spring, 2010. Among these achieving students, the average gain from their beginning score of 221, which placed them at early 8th grade MAP level, was 5.9 RIT points, relative to an expected growth of 3 points. This gave them a positive Growth Index of 2.9 or the 95th percentile (GNPR). The average ending CRCT score on reading for this group was 853, and their Spring 2010 MAP scores placed them above the end of 11th grade (beyond the NWEA chart). On average, these 53 students gained more than 3.5 years in one school year.

In addition, these 53 high level readers also made substantial gains on their MAP ELA scores with the average growth scores corresponding to the 99th percentile (GNPR). Their average ELA RIT increased from 221 to 228, a gain of 7.1 with an expected target of 3. This growth shows an advance from mid-9th grade level to “off the NWEA norm chart” – beyond the end of 11th grade level on MAP in English/Language Arts.

These 53 students' Science Concept/Processes MAP growth was also highly positive (growth of 4.2 with a target of 2, resulting in a Growth Index of +2.2). Although NWEA does not yet provide Growth Index norms for science to document how this compares to typical populations, the students' average RIT scores show an advance from mid-7th grade level to beginning 9th grade.

The figure below shows growth only for the 111 students of the 173 total (64%) who made MAP gains in reading. The blue line represents those students who began below grade level, the red line represents those who began on or above grade level in reading; the green lines show the expected MAP target score of each group based on the 50th percentile (GNPR) corresponding to the students' initial grade and achievement level. Note that 202 is beginning 4th grade level, while 226.9 is beyond the NWEA chart of end of 11th grade.

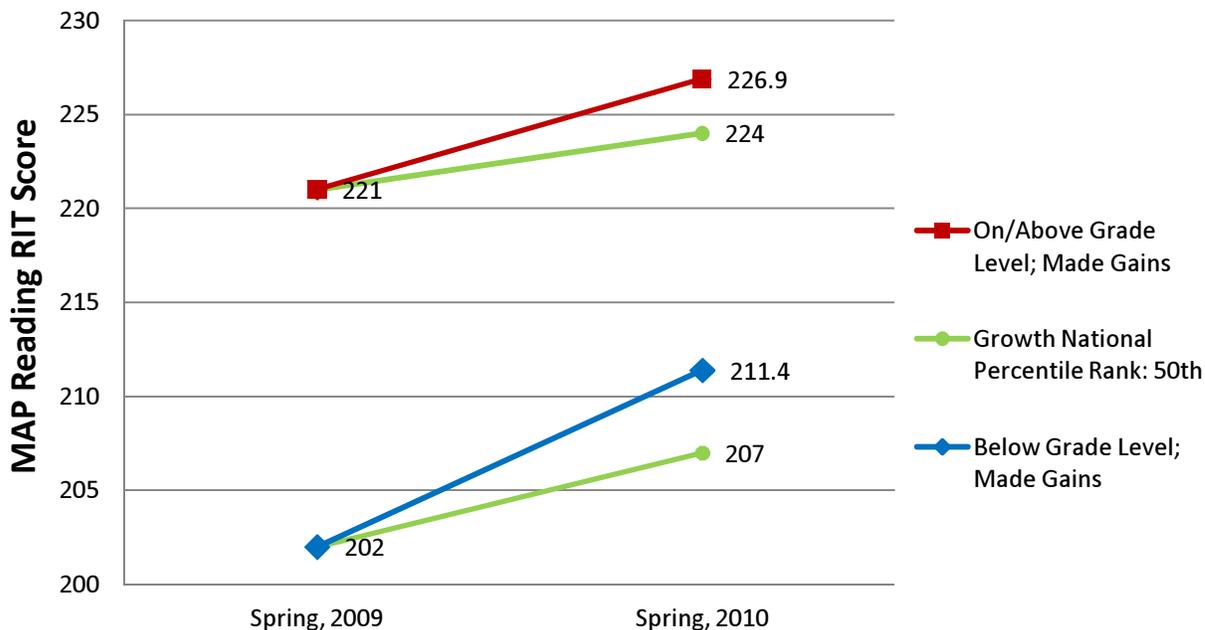


Figure 1: This figure shows the Spring 2009 and Spring 2010 scores for 6th graders who made improvements on their MAP Reading performance and who were initially at, or above, grade-level (red line) or below grade-level (blue line). The green line indicates typical improvement (50th percentile) based on the norms for students of comparable grade levels and starting scores.

ENGLISH/LANGUAGE ARTS: Of the 173 students in this study, 135 (77%) made ELA gains on MAP. The gains that were achieved were substantial – at the 99th percentile (GNPR). This occurred overall, regardless of the highest Fast ForWord product completed, number of days it took students to complete the products, or prior achievement levels of students.

Additional insight is gained by dividing the ELA results into two levels (below grade level and on/above grade level), with two groups within each: (1) all students within that level and (2) only those who made MAP gains.

Note: English Language Arts gains are important to students because increased understanding of processing and language allows them to better benefit from daily instruction in all classes. For example, improved understanding of complex sentences and the sequencing of words aids students in understanding class discussions, teacher directions, and reading assignments. In addition, in Georgia, ELA gains are imperative to school success with meeting AYP since the percentage of students passing ELA on CRCT counts as 50% of the school’s “Reading CRCT” score. The more students who pass ELA CRCT, the higher the school’s AYP “Reading” percentages.

Below grade level ELA:

- 1) Of the 173 students, 79 (46%) entered 6th grade with a below-grade level MAP ELA score, the average of which was 203, placing the group at the early 4th grade language level. After using the products during 2009-2010, the students’ average MAP gain was 8.3 RIT points, placing them at mid-5th grade level at the end of the study. The group gained 1.5 years in one year’s time when their previous gain throughout their years of school had been approximately half of this amount annually. The group’s gain exceeded the 4 RIT points expected (target), giving them an average Growth Index of 4.3 corresponding to the 99th percentile (GNPR). Their average CRCT in ELA at the end of 6th grade was 822. Only 3 of the 79 students failed ELA CRCT.
- 2) Of these 79 struggling 6th graders, 65 (82% of the 79) did make gains on ELA MAP in Spring, 2010. Among these achieving students, the average gain was 11 RIT points while their expected target was 4. This gave them a Growth Index of 7.0 corresponding to the 99th percentile (GNPR). The average ending CRCT score on ELA for this group was 825, and their Spring, 2010 MAP placed them at the mid-point of 6th grade or

approximately one-half year still behind grade level. These 65 students gained, on average, slightly more than 2.0 years in one school year.

On or Above Grade Level ELA:

- 1) Of the original 173 students, 94 (54%) entered 6th grade with an on or above grade level MAP ELA average score of 221, placing them at early 8th grade language level. After using the products during 2009-2010, their average MAP gain was 3.7 RIT points, placing them at end of 10th grade level. They gained 2.0 years in one year's time. This gain exceeded the 3 RIT points expected (target), giving them an average Growth Index of 0.7 for the 65th percentile (GNPR). Their average CRCT in ELA at the end of 6th grade was 847.

Not all of these students made progress on MAP ELA.

- 2) However, of these 94 on grade level or advanced 6th graders, 70 (74% of the 94) did make gains on ELA MAP during Spring, 2010. Among these

achieving students, the average gain was 6.2 RIT points while their expected target was 3 points. This gave them a Growth Index of 3.2 and placed them at the 97th percentile (GNPR). The average ending CRCT score on ELA for this group was 852, and their Spring, 2010 MAP placed them above the end of 11th grade (beyond the NWEA chart). These 70 students gained, on average, more than 3.0 years in one school year.

The chart below shows growth only for the 135 students of the 173 total (78%) who made MAP gains in ELA. The blue line represents those students who began below grade level, the red line represents those who began on or above grade level in ELA, and the green lines show the expected MAP target score of each group based on growth corresponding to the 50th percentile (GNPR) for students with a similar initial grade and achievement level. Note that 203 is beginning 4th grade level, 227.2 is beyond the NWEA chart of end of 11th grade.

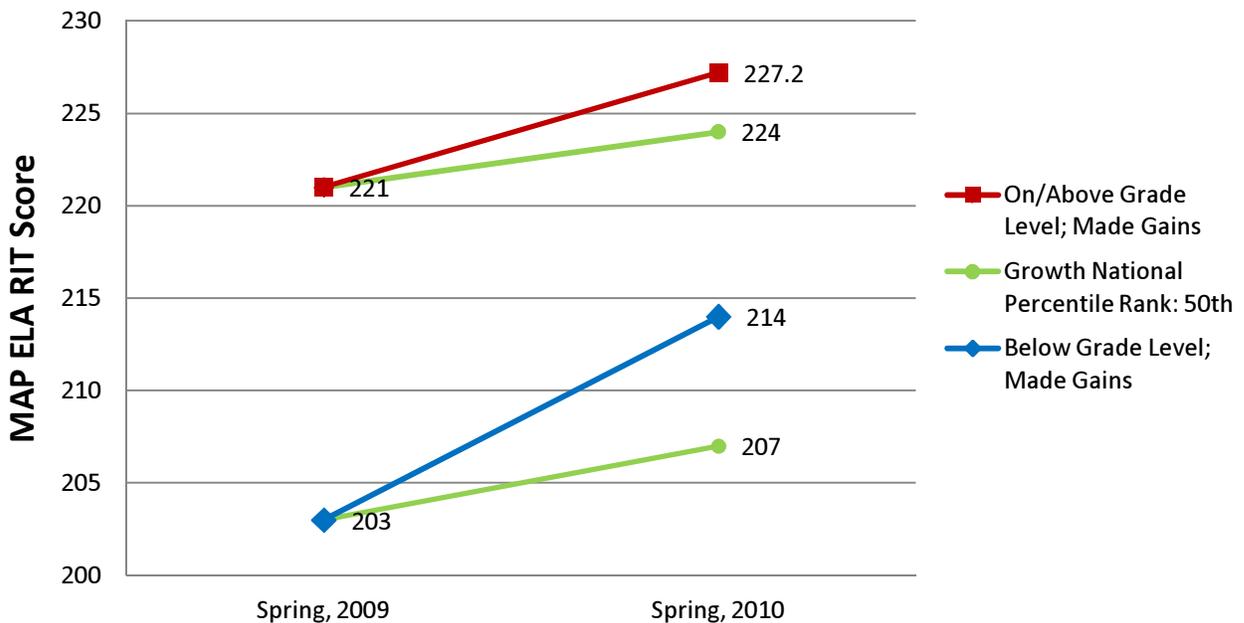


Figure 2: This figure shows the Spring 2009 and Spring 2010 scores for 6th graders who made improvements on their MAP ELA performance and who were initially at or above grade-level (red line) or below grade-level (blue line). The green line indicates the typical improvement (50th percentile) based on the norms for students of comparable grade levels and starting scores.

Analysis by Product(s) Used:

Some students completed one product, while others completed as many as three or four during their 2009-2010 use of the Fast ForWord products. Some only completed Literacy (6 students), while others completed multiple products through Reading Level 4

(48 students) or Reading Level 5 (1 student). Regardless of which products were completed and the number of products completed, on average, the 173 Fast ForWord students in the study attained substantial growth on the ELA MAP:

Highest Product Completed	MAP ELA Growth Index National Percentile Rank
Literacy	94 th
Reading 1	93 rd
Reading 2	83 rd
Reading 3	81 st
Reading 4	99 th

Table 1: Students had very high levels of growth on the MAP ELA, regardless of the highest product completed. Note that, while 24 students completed Literacy Advanced, it was not the “highest product completed” for anyone. Each student’s data are included with the highest product completed by the individual.

Of the 173 study participants, 38 students (22%) did not make ELA gains. For those that did (78%), the average growth of 8.5 RIT points greatly exceeded target expectations of 4 points. The resulting Growth Index of 4.5 placed students who made ELA MAP gains “off the NWEA chart” and at the 99th percentile (GNPR) for growth regardless of product completed. (Information on the 38 unsuccessful students is below.)

Analysis by Completion Rate:

One important aspect of Fast ForWord use is Completion Rate (percentage of product completed divided by the number of days of product use). According to Scientific Learning research, students show the most gains and have the greatest

improvement in skills when they receive adequate teacher intervention and complete products in 23 days or less. Therefore, in this analysis, scores were examined in three clusters based on the days needed to complete the highest level product: 1 to 23 days, 24 to 46 days (double the recommended number) and 47 days or higher. According to data examined in this study of 173 students, the Growth Index National Percentile Rank in MAP Reading, ELA, and Math tended to be higher when a student completed products in 23 days or less, regardless of his or her beginning achievement level. However, in order to impact ELA scores, taking up to 46 days for completion was almost as effective as faster completion.

Highest Level Product(s) Used	Reading			ELA			Math		
	1 to 23 Days	24 to 46 Days	47 or More Days	1 to 23 Days	24 to 46 Days	47 or More Days	1 to 23 Days	24 to 46 Days	47 or More Days
Reading Level 1 or Level 2	9 th	3 rd	none	98 th	90 th	none	35 th	17 th	none
Reading Level 3	40 th	14 th	18 th	99 th	74 th	49 th	99 th	58 th	48 th
Reading Level 4	93 rd	42 nd	none	99 th	98 th	none	79 th	45 th	none
Reading Level 3, AND Level 4, AND Level 5	88 th	22 nd	38 th	99 th	89 th	49 th	92 nd	52 nd	33 rd
Any Product Literacy through Reading 4	56 th	20 th	54 th	99 th	77 th	62 nd	83 rd	43 rd	29 th

Table 2: Growth National Percentile Ranks above the 70th percentile are shaded. In general, for the MAP Reading and MAP Math performance, there was a higher Growth Index for students who completed products more quickly (1 to 23 days). For MAP ELA, students who completed products in 24-46 days performed nearly as well as students who completed in 1 to 23 days.

Across the different subject areas, students for whom the most advanced product completed was either Reading Level 3, Level 4, or Level 5 and who finished his/her most advanced product in 23 or fewer days had the largest Growth Index NPR’s noted throughout the entire study. There were 26 students who began Fast ForWord having already attained MAP scores in all subjects higher than is typical for students at the end

of 6th grade. During the sixth grade, while these students used the Fast ForWord products, they made additional gains on the MAP, averaging improvements of 2 years or more in Reading, 3 years or more in ELA (beyond the NWEA chart), more than 3 years in Math, and 1.5 years in both General Science and Science Concepts/Processes.

Highest Product Completed: Combined Fast ForWord Reading 3, 4, or 5

0 to 23 days	MAP			MAP Actual	MAP Growth			CRCT
	Spring 2009	Spring 2010	Grade Level	RIT Growth	Target	Index	Index NPR	
26 Students								
Read	223	228	216	5.0	3	2.0	88 th	855
ELA	221	230	217	8.5	3	5.5	99 th	858
Math	230	239	225	9.3	6	3.3	92 nd	851
General Science	212	215	208	2.7	2	0.7	Not Available	NA
Science C/P	211	213	206	2.1	1	1.1	Not Available	NA

Table 3: This table shows the results for 26 students for whom the highest product completed was Fast ForWord Reading Level 3, Fast ForWord Reading Level 4, or Fast ForWord Reading Level 5, and who completed the highest product in 23 or fewer days. The increase in RIT scores exceeded the target in all five subjects and the Growth Index NPR was the 88th percentile or above in the three subjects for which Growth Index NPR's are available. As illustrated by the average CRCT scores, these were high-performing students.

Conversely, students who took more than 46 days to complete a product (greater than twice the recommended/researched number of days) averaged Growth Index figures below 50th percentile on MAP in Reading, ELA, and Math.

Some products had growth percentiles greater than the 50th for completion days ranging from 24 to 46, but no discernible pattern was found beyond the fact that ELA growth was always greater for the students who completed products more quickly than for other participants who took a longer amount of time. For example, the 48 students who completed Fast ForWord Reading Level 3 in 24 to 46 days were at the 74th percentile (GNPR) in ELA, but only the 14th percentile (GNPR) in Reading and the 58th percentile (GNPR) in Math. Fast ForWord Reading Level 2 and Level 4 produced a similar pattern. In other words ELA gains seemed to be less negatively affected by more days to reach completion (and the implied corresponding reduction or lack of success in staff interventions that those students received) than were gains for Reading or Math.

DISCUSSION

This study showed that the Fast ForWord products impact a variety of students under varied conditions, and that the effects are apparent across subject areas.

ELA gains appear to be pervasive without regard to which product students completed, with student growth ranging from the 81st to 99th percentile (GNPR). These percentiles decreased only slightly as students needed more days to complete products. It is unclear whether each product is just as likely to

produce results or if it is a cumulative effect of completing several products, but on average, participants who completed any product showed substantial ELA gains. For example, students completing the product called Fast ForWord Literacy were at the 94th percentile (GNPR) with an average CRCT of 810, while those who completed Fast ForWord Reading Level 1 or 2 were at the 93rd percentile (GNPR) with 820 on CRCT and those who completed Fast ForWord Reading Level 3, 4, or 5 achieved 91st percentile growth with 841 on ELA CRCT.

With regard to ELA MAP, 78% of all students in the study, regardless of whether they were below, on, or above grade level, made gains. These gains were large (Growth at the 97th to 99th percentile (GNPR) depending upon the beginning level of the students.) Of the 38 students who did not make ELA MAP gains, all but three passed both Reading and ELA on the CRCT (some exceeding both). In fact, an examination of the CRCT data across all 173 students found that only these same three failed either Reading or ELA, with another nine failing math.

Reading gains do not appear to be as prevalent or predictable, with students who completed no higher product than Fast ForWord Literacy achieving 99th percentile growth while those completing Fast ForWord Reading Level 4 achieved the 79th percentile (GNPR). Gains appear to be related to the needs of an individual student being matched to appropriate products, rather than attributable to any particular product among the suite of products offered.

However, some generalizations with Reading appear to hold true for these 173 students:

- If individual students demonstrated any MAP Reading growth, it was substantial growth: 95th percentile (GNPR) for on or above grade level readers and 99th percentile (GNPR) for below grade level readers, resulting in the 98th percentile (GNPR) overall.
- If students completed Fast ForWord Reading Level 3, 4, or 5 within 23 days due to appropriate and timely staff intervention, their Reading MAP gains were large (88th percentile (GNPR)). This was even more likely to occur after completing Fast ForWord Reading Level 4 or 5 than Fast ForWord Reading Level 3.
- It appears that many students, whether struggling or higher achieving, may have unseen gaps in language or reading skills that Fast ForWord products can help lessen.

Further study:

A future goal would be to determine patterns among the 38 unsuccessful ELA students since MAP gains seemed to be so pervasive among others from all achievement levels and across all products. The 38 students' beginning (Spring, 2009) MAP scores were on or slightly below grade level in every subject, yet they completed a variety of products, even up to Fast ForWord Reading Level 4. However, only four of them completed the most basic product (Fast ForWord Literacy) and three completed Fast ForWord Literacy Advanced; most completed the elementary level Fast ForWord Reading products (Level 1, 2, or 3). Since 85% of those among the 173 who did complete Fast ForWord Literacy and 90% of those completing Fast ForWord Literacy Advanced made gains in ELA, skipping these two early language products may be part of the difficulty experienced by the 38 students.

Future consideration may need to be given to be sure any students using Fast ForWord products begin at the entry level of Fast ForWord Literacy. Across the 38 unsuccessful ELA students, on average, they took 35 days to complete products (12 more days than optimal). They failed to reach their growth target as a group in all of the five subjects assessed with MAP. Perhaps with more time using the products, they could have first completed the Language suite of Fast ForWord Literacy and Fast ForWord Literacy Advanced (which only four of them did), then finished the early reading products (just as they did during this endeavor), and then advanced through at least Fast ForWord Reading Level 4 to further challenge and

extend their language and reading instruction. As it is, most of these 38 students only received the middle of the three levels of products. Perhaps the chosen products were not the ones that would have benefitted these individual students as much as possible.

Finally, note that this study focused on a relatively small group of students. Obviously, future examination of results with different students, larger numbers, and a variety of settings is necessary to determine a pattern of ELA and Reading success that can be attributed to use of Fast ForWord products. Follow-up with these students is also needed to determine longevity of gains.

CONCLUSION

The implementation of the Fast ForWord products across all 6th graders at Langston Chapel Middle School was an excellent opportunity to evaluate the impact of the products on a cross-section of students. The results showed that the products impact students of a variety of ability levels. They also showed that prompt teacher intervention is critical since students who rapidly moved through content achieved greater gains.

Notes:

NWEA MAP Target Growth

- Target Growth takes into account both a student's grade and his or her achievement level (initial RIT score).
- Typical growth is determined by measuring a group of "academic peers" - students in the same grade who had the same initial RIT score.
- Growth National Percentile Rank (GNPR) is the percentile rank of the student's improvement and is based on other students of the same grade and ability as measured during the NWEA norming study.
- School Growth Study, Part 1, NWEA 2009
 - Table 13 = Reading (from end of year to end of next year)
 - Table 16 = Language (from end of year to end of next year)
 - Table 19 = Math (from end of year to end of next year)

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