Pilot Intervention Outcomes
2013-14

Prepared by Division of Accountability & Research

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Overview

Aurora Public Schools implemented an extended school year program called 'Fifth Block' in the summer of 2008. The program consisted of 23 days of additional instruction for students who had demonstrated academic growth during the previous school year but needed more time to become proficient. Yearly evaluations of the program have shown Fifth Block participants, in general, tend to have higher growth in reading, writing, and math than non-participants. However, some principals have indicated that a portion of the students initially recommended for Fifth Block each year do not enroll due to conflicting summer obligations. These principals believed that offering school-year interventions would provide the academic supports students needed in a more accessible and equitable format.

Based on this information during the 2013-14 school year some schools principals were given the opportunity to reallocate Fifth Block funds to support year-long academic interventions in an attempt to reach more students who were struggling. This report provides an analysis of the outcomes associated with these year-long pilot interventions. The outcomes include performance on multiple assessments including DRA2, NWEA MAP data, and TCAP proficiency levels and growth rates.

Methods

The overarching question this study seeks to answer is: are pilot interventions effective in accelerating student learning? Seven APS schools who implemented the year-long interventions were selected to address this question. These schools included three elementary schools, two middle schools, one 6-12 school, and one high school. Interviews with principals were conducted at the end of the year to understand what types of year-long programs had been implemented. Principals provided lists of intervention participants and an analysis of assessment such as NWEA MAP Fall 2013 and Spring 2014 results, DRA2 baseline and spring scores, and TCAP median growth rates was conducted.

Data

Table 1 shows the overall number of students included in each intervention program. The following tables list each program by school along with available assessment results. The majority of students were enrolled in either Math or Literacy intervention classes, however, interviews with principals indicated that while the stated focus was literacy the primary focus was on reading skills so writing scores were not analyzed.

Table 1. Total number of students who participated in school-based interventions

Intervention	Total # Students in Intervention
Literacy Intervention Class	198
Math Intervention Class	424
Interventionist – Pull out	92
Saturday Academy	55
Tutoring	51
Misc.[1]	286
Total	**1,106**

The following section provides a breakdown of the number of students in each type of intervention an assessment data that was examined to determine possible impacts of the intervention on student learning.

While each school provided various school-year interventions, the structure of those interventions varied. For example, some schools had students identified with specific academic needs, often identified through Response to Intervention (RtI), referred to participate in one-on-one instruction with an interventionist. Additionally, some schools offered before/after school tutoring to help students meet academic goals. Another option was for schools to offer Saturday classes that consisted of specific tutoring or instruction activities for enrolled.

It is important to note at the elementary level, many students who are involved in school-based interventions are too young to take the TCAP assessment. Instead, the DRA2 results are used to show whether or not students are reading at grade level benchmarks or to help determine if they showed growth in reading. However, because the DRA2 scores are ordinal we cannot compute an average score gain so the number of levels below grade level benchmarks were examined as well as the number of levels moved over the course of the year. There are varying levels in each grade level band: Kindergarten has four levels, 1st grade has seven levels, 2nd grade has 4 levels, 3rd grade has two levels and 4th and 5th grade have only one level. Therefore, the average number of levels below each benchmark at the beginning of the intervention was compared with average number of levels below benchmarks at the end of the intervention to determine if students had demonstrated growth.

APS contracts with Northwest Evaluation Assessment (NWEA) to administer the Measures of Academic Progress (MAP) assessment. The MAP is a computer-adapted assessment that allows schools (especially classroom teachers) to identify specific academic needs for individual students. NWEA recommends schools assess students at least three times during the school year: fall, winter, and spring. The results from the NWEA MAP are useful for predicting which

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[1] Unable to obtain list of participating students – assessment data not analyzed

students are likely to achieve proficiency on state assessments. The MAP is also an assessment tool that enables the district to conduct pre- and post-assessments to determine the extent that a specific program or intervention is effective. The MAP data were analyzed for this study for two of the middle schools – Aurora Hills and Columbia – that administered both the fall and spring NWEA MAP for their math interventions.

School: Crawford Elementary School

Table 2. Crawford

Intervention	Content	Number of students
Interventionist – pull out program	Literacy	24
Fifth Block enrollment June 2013	Math & Literacy	31

The students in the literacy pull-out program were in grades 1-3. Of the 24 students, 23 had valid DRA2 baseline and end of year scores. At the baseline assessment students were an average of 10 levels below grade level benchmarks. At the end of the year they were an average of five levels below grade level benchmarks. Table 2a provides the breakdown of levels by grade level. Of the 23 students with valid scores, four were at grade level at the end of the year. For grades 3-5 the range of DRA2 levels is more limited since there is assumed to be less rapid growth in reading skills as compared to grades K-2. (Kindergarten has 6 levels, 1st grade has 7 levels, 2nd grade has 4 levels, 3rd grade has 2 levels, 4th and 5th grades have only one level)

Table 2a. DRA2 levels

Grade	Avg. levels below – Baseline	Avg. levels below – EOY	% Met Grade level Benchmark
1st	10	6	0%
2nd	11.9	6.5	0%
3rd	5.2	0.8	57%

TCAP assessment median growth percentiles are not available for 3rd grade students.

School: Elkhart Elementary School

Table 3. Elkhart

Intervention	Content	Number of students
Small Group Instruction and iPAD mini's; Fountas & Pinnell Leveled Literacy Intervention System (LLI)[2]	Literacy	107
Independent Practice – 2nd Grade[3]	Literacy	179
Saturday Academy (Average number of days attended = 4.17)	Math & Literacy	55
After school tutoring - reading	Literacy	32
Fifth Block enrollment June 2013	Math & Literacy	44

Saturday Academy focused on both Literacy and Math. Students in the Saturday Academy were in grades 3-5. Three students were in both Saturday Academy and after school tutoring in reading.

Saturday Academy: Literacy results

Baseline DRA2 scores were available for 20 of the 23 3rd grade students attending the academy. End of year DRA2 scores were available for all 55 students. Eight of the 55 students were at grade level benchmarks for the DRA2 score at the end of the year.

On average the 3rd grade students were 8.5 levels below grade level at the baseline measure. On the end of year measure students were an average of 3.7 levels below grade level.

For grades 3-5 the range of DRA2 levels is more limited since there is assumed to be less rapid growth in reading skills as compared to grades K-2. (Kindergarten has 6 levels, 1st grade has 7 levels, 2nd grade has 4 levels, 3rd grade has 2 levels, 4th and 5th grades have only one level) Students in grades 4-5 were an average of 2 levels below grade level, which in this case indicates approximately two grade levels below expected.

Table 3a. DRA2 levels

Grade	Avg. levels below – Baseline	Avg. levels below – EOY	% Met Grade level Benchmark
3rd	8.6	3.7	13%
4th	n/a	2.4	7%
5th	n/a	1.7	24%

As indicated in Table 3b the 5th grade students in the Saturday Academy had a higher median growth in the 13-14 school year that they did in the 2012-13 school year. Elkhart's overall median growth percentile for all 5th grade students in reading for 2014 was 64.

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[2] Unable to obtain list of participating students – assessment data not analyzed
[3] Unable to obtain list of participating students – assessment data not analyzed

Table 3b. Saturday Academy 5th grade student median growth

Reading Median growth 2012-13 (4th grade)	Reading Median Growth 2013-14 (5th grade)
42 N=17	**67** N=17

Saturday Academy: Math results

Table 3b indicates that the students in the Saturday Academy had a higher median growth percentile in Math their 5th grade year than they did in their 4th grade year. Elkhart's overall median growth percentile for 5th grade students in math for 2014 was 58.

Table 3c. Saturday Academy 5th grade student median growth-Math

Math Median growth 2012-13 (4th grade)	Math Median Growth 2013-14 (5th grade)
48 N=17	**60** N=17

After school tutoring: Literacy results
Baseline DRA2 scores were available for 26 of the 32 students (grades 1-4) in the after school tutoring program. None of those students were at grade level benchmarks by the end of the year. Students were an average of 11 levels below grade level benchmark at baseline and were an average of 6 levels below grade level benchmark at the end of year measure.

Table 3d. DRA2 levels

Grade	Avg. levels below – Baseline	Avg. levels below – EOY	% Met Grade level Benchmark
1st	10	5	0%
2nd	12	7.8	0%
3rd	9.6	4.8	0%

No TCAP growth data are reportable for the students in the after school tutoring program.

School: Fletcher Community School

Table 4. Fletcher

Intervention	Content	Number of students
Interventionist – pull out program	Literacy	68
After-school tutoring	Math	19
Fifth Block enrollment June 2013	Math & Literacy	59

Baseline DRA2 scores were available for 52 of the 71 students (grades K-3) in the interventionist – pull out program. Only 4 students were at the grade level benchmark by the end of the year.

Students were an average of 8 levels below benchmark grade level at the baseline assessment and were an average of 4 levels below benchmark grade level at the end of year assessment.

Table 4a. DRA2 levels

Grade	Avg. levels below – Baseline	Avg. levels below – EOY	% Met Grade level Benchmark
K	5	1.7	0%
1st	8.7	2.6	13%
2nd	9	5	4.5%
3rd	8	5	5%

After school tutoring – Math results
Of the 19 students who were in the after school tutoring program, 18 completed the TCAP math assessment: six were in 3rd grade and 12 students in 4th grade. The median growth percentile for math for the 4th grade students was 23.5 which was similar to the overall school's median growth percentile in 5th grade math (23).

School: Aurora Hills Middle School

Table 5. Aurora Hills

Intervention	Content	Number of students
Intervention Classes	Math	153
Intervention Classes	Literacy	76
Fifth Block enrollment June 2013	Math & Literacy	100

Intervention Class: Math results

Students in the math intervention classes completed the NWEA MAP assessment in the fall and spring (see Table 5a). The RIT score means represent the average of all students' RIT scores (which is the overall score for the assessment). The norms columns represent the average RIT score that NWEA has indicated is typical for that grade level. The growth projection is also based on the NWEA's norms. The average RIT score in all grades for both fall and spring were below those norms set by NWEA. Growth projections were only met by 61% of the students in 6th grade, 53% of the students in 7th grade and 46% of the students in 8th grade.

Table 5a. NWEA MAP Fall 2013 and Spring 2014 Math Results

Grade	#	**Fall RIT Score Mean**	Fall RIT values (Norms)	**Spring RIT Score Mean**	Spring RIT values (Norms)	**% with Growth Projection Met**
6th	28	199	219.6	206	225.6	61%
7th	32	207	225.6	213	230.5	53%
8th	41	207	230.2	210	234.5	46%

Table 5b shows math intervention students' median growth percentile from the previous year (31) and the year they were in the math intervention class (64) indicated higher growth in the 2013-14 school year.

Table 5b. Median growth-Math

Median growth 2012-13	Median Growth 2013-14
31 N= 139	**64** N= 142

Intervention Class: Reading results

Table 5c shows reading intervention students' median growth percentile from the previous year (33) and the year they were in the reading intervention class (51) indicated higher growth in the 2013-14 school year.

Table 5c. Median growth-Reading

Median growth 2012-13	Median Growth 2013-14
33 N= 65	**51** N= 68

School: Columbia Middle School

Table 6. Columbia

Intervention	Content	Number of students
Intervention Classes	Math	137
Intervention Classes	Literacy	78
Fifth Block enrollment June 2013	Math & Literacy	95

Students in the Math intervention classes completed the NWEA MAP fall and spring assessments. The results are presented in Table 6a. In general the 6th grade students had the most students who met their growth projection on their spring test (62%) but the results were much lower for 7th and 8th grade students.

Table 6a. NWEA MAP Fall 2013 and Spring 2014 Math Results

Grade	#	Fall RIT Score Mean	Fall RIT values (Norms)	Spring RIT Score Mean	Spring RIT values (Norms)	% with Growth Projection Met
6th	29	199	219.6	203	225.6	62%
7th	20	207	225.6	209	230.5	55%
8th	32	209	230.2	206	234.5	41%

There was not much change in the median growth percentile for students in the math intervention class (see Table 6b).

Table 6b. Median growth-Math

Median growth 2012-13	Median Growth 2013-14
58 N= 121	59 N= 125

Intervention Class: Reading results

Table 6c shows reading intervention students' median growth percentile from the previous year (39.5) and the year they were in the reading intervention class (43.5) indicated higher growth in the 2013-14 school year.

Table 6c. Median growth-Reading

Median growth 2012-13	Median Growth 2013-14
39.5 N= 74	43.5 N= 72

School: Aurora West College Preparatory Academy (6-12)

Table 7. Aurora West College Preparatory Academy

Intervention	Content	Number of students
Intervention Classes	Math	84
Fifth Block enrollment June 2013	Math & Literacy	95

Table 7a shows math intervention students' median growth percentile from the previous year (35) and the year they were in the math intervention class (58) indicated higher growth in the 2013-14 school year.

Table 7a. Median growth-Math

Median growth 2012-13	Median Growth 2013-14
35	**58**
N= 75	N= 125

School: Gateway High School

Table 8. Gateway

Intervention	Content	Number of students
Intervention Classes	Math	50
Intervention Classes	Literacy	44
Fifth Block enrollment June 2013	Math & Literacy	80

Table 8a. Median growth-Math

Median growth 2012-13	Median Growth 2013-14
35	**43**
N= 38	N= 44

The median growth percentile did increase in 2013-14 (from 35 to 43 in Table 8a) however, it was not as much as would have been expected given that students were taking intervention classes, usually in addition to their regular math classes.

Intervention Class: Reading results

Table 8b shows reading intervention students' median growth percentile from the previous year (385) and the year they were in the reading intervention class (47) indicated higher growth in the 2013-14 school year.

Table 8b. Median growth-Reading

Median growth 2012-13	Median Growth 2013-14
38	**47**
N= 23	N= 25

Overall program comparisons

Table 9 shows the median growth percentiles for students who received a math intervention either in June 2013 Fifth Block, during the 2013-14 school year, students who received both, and students who received no intervention. The group who received both the June 2013 Fifth Block session plus the year-long intervention in the 2013-14 school showed the highest median growth percentile (76) of all four groups.

Table 9. 2014 Math growth percentiles

Group	N	2014 Math median growth percentile
2013 Fifth Block plus 2013-14 year long intervention	63	76
2013-14 year long intervention only	365	54
Fifth Block only	1310	51
No intervention	15858	47

Table 10 shows the median growth percentiles for students who received a reading intervention either in June 2013 Fifth Block, during the 2013-14 school year, students who received both or students who received no intervention. The group who received both the June 2013 Fifth Block session plus the year-long intervention in the 2013-14 school showed the higher median growth percentile (60) compared to the other three groups (49)

Table 10. 2014 Reading growth percentiles

Group	N	2014 Reading median growth percentile
2013 Fifth Block plus 2013-14 year long intervention	36	60
2013-14 year long intervention only	160	49
Fifth Block only	1257	49
No intervention	15791	49

Overall, it appears that those students who had both types of intervention (Fifth Block and a year-long intervention) showed greater growth on the 2014 TCAP assessments in both math and reading compared to students who only had one type of intervention or no intervention. Additionally, students who were in both types of math interventions had a much higher median growth percentile than those students with only one type of intervention or no intervention. However, it is important to note that there was a much smaller number of students enrolled in both programs than in the year-long only or Fifth Block only interventions.

Results were not disaggregated by school level (ES, MS, and HS) due to the resulting small number of students in each group.

Overall Conclusions

Overall results were mixed. While it does appear some students in the intervention programs were showing academic growth, it was difficult to determine if they were doing better with the intervention than they would have done with "business as usual" practices or another type of intervention. Additionally, it would appear that for math, having both Fifth Block instruction and a year-long intervention were the most promising for helping students demonstrate growth in that subject. Further analysis in the upcoming year could be directed at determining what factors contribute to increases in reading and math achievement across all schools. Then, district leadership could re-create those positive factors throughout the district.

1. **The school year interventions show promise in providing academic supports for more students.**

For many of the schools there were larger numbers of students served by year-long interventions compared to Fifth Block enrollments. This is encouraging since many principals indicated they had difficulty recruiting and retaining students during the summer Fifth Block program.

2. **Students in intervention programs showed evidence of making academic growth.**

Some intervention programs showed larger growth median percentiles for those students in the 2013-14 year as compared with what those students had gotten in the 2012-13 school year. However, we would expect lower performing students to demonstrate significant growth after participating in a year-long intervention and the growth shown in some school programs did not demonstrate significant growth for the students overall. Students who received both Fifth Block instruction and a year-long intervention showed the largest growth median percentiles, although the number of students enrolled in both interventions was somewhat small.

3. **Interventions differ across schools and teachers making it challenging to determine which interventions are the most effective for increasing student achievement.**

The schools included in this analysis offered numerous interventions. In elementary it was primarily in the form of pull-out instruction and in middle and high schools it was in the form of intervention classes. Implementation fidelity was not measured so it is difficult to know exactly what curriculum was used and how well it was delivered. Some schools indicated they were using technology to supplement their programs but it was not clear how often the students engaged with the software programs.

Limitations

One of the limitations of this analysis pertains to data quality. The pre-post assessments (such as school-based assessments or Measures of Academic Progress – MAP) were not always administered consistently. Frequently, intervention students did not have scores for both fall and spring. One possible explanation for this is that students may have changed schools during the school year.

A second limitation is that, in some cases, students assigned to specific interventions are not consistently tracked. The ENRICH software is currently used by APS teachers and administrators to provide information about interventions for individual students. However, the reports ENRICH provides do not provide the information needed to identify and measure the effects of specific interventions. Currently, there are district personnel working with the ENRICH company to create more useful reports.

As stated previously, the intervention implementation plans were not always fully articulated. For example, the READ Act applications that schools provided contained a plan for how READ Act dollars would be used to implement interventions for students. However, the plans did not include expectations for benchmarks, progress monitoring/reporting, or participation in evaluating the effectiveness of the pilot interventions. The budgets included in the READ Act applications did not include a means to measure actual expenditures on the specific interventions. When a specific curriculum was purchased for the interventions, the money was fairly simple to track through the historic transactions ledgers. However, when additional teachers (e.g., interventionists) were hired, the payroll was lumped into one sum (e.g., all school staff) for the pay period thus making it difficult to determine the actual funds spent on interventionists or other associated staff.

Finally, other contributors to achievement levels were not measured in this analysis. For example, one principal described the mental health needs of students who experienced severe emotional and physical trauma prior to entry into the US. These traumas often make it difficult for students to be prepared to learn.

Recommendations

The following recommendations were developed in response to the conclusions and limitations encountered during this study.

1. **Create an expectation that the progress of intervention plans will be monitored and evaluated throughout the year.**

While summative program evaluation is useful when programs end, it does not lend itself to identifying the processes that occur throughout the school year and the impact of those processes on the final outcomes. Program evaluation operates within the context of complex social systems (i.e., education). Frequent feedback cycles can facilitate learning especially when implementing new interventions for accelerating student learning. Furthermore, the evaluation team can work with the school administrators to create and refine a systematic data collection and use a plan that will help them act quickly to make necessary changes throughout the school year. However, it will be important to help administrators understand that evaluation is not strictly confined to serving an accountability function. Evaluation can also be learning focused (e.g., the information collected and described is useful for facilitating changes or improvements in real time). This will also provide a safeguard for ensuring that quality data is available throughout the year and providing a "real-time" justification for why it may not be present.

2. **Provide guidance on selecting research-based intervention curriculum.**

If schools have a resource bank for choosing appropriate intervention curriculum to use with their students it could eliminate the "black box" of understanding what is happening with those students and how it contributes to their learning.

3. **Initiate more systematic data collection for intervention programs at the beginning of the year.**

If we can create a data collection plan at the beginning of the year to include type of intervention, frequency of exposure, and other student level variables we can have more certainty around outcomes at the end of the year.