

# Elementary School, Augmented Math/Reading Intervention, Spring 2017

## Overview

Foundry10 and an elementary school in the greater Seattle area teamed up together to augment the district funded math and reading spring after school intervention program. We were interested in providing additional funding so that 5th and 6th graders could receive support in the target subject areas, with smaller class sizes, under the guidance of certified classroom teachers. The intervention program ran for 7 sessions concurrently with the district funded program for grades K-4. The goal was to see improvements in both students' academic performance in the targeted subject areas as well as in their attitudes towards the subject areas.

Students were selected for the program based on the following eligibility requirements:

Math -- 5th and 6th grade students who score below benchmark on multiple math measures

Reading -- 5th and 6th grade students who score below benchmark on multiple literacy measures

Students eligible for the program were identified by their instructors and invited to attend. Bus service was provided for students who attended the intervention.

Pre/post subject specific tests were given to the 16 students as well as pre/post qualitative surveys. In reading, the focus of the academic intervention was: identifying explicit and implicit questions, reading test questions out loud and reviewing questions prior to answering, using context clues to identify word meaning, using subheaders to quickly locate information and slowing down and rereading parts of text. All reading goals were based on Common Core Literacy Strategies. In math, the focus of the intervention was: adding, subtracting and ordering fractions as well as a preview of volume. *Math Expressions* texts were used as the primary resource for the material.

Qualitative questions, in both pre/post measures, included: a forced choice self-assessment of subject specific skills, an open-ended response about how students self-assessed, a Likert-type subject specific attitude scale and an open-ended response regarding their attitude towards the subject. We are particularly interested in positive attitude shifts towards subject areas. There is an emerging body of research on attribution theory and social-psychological interventions in learning which strongly suggest that impacting students' attitudes about particular subject areas can lead to significant, long-term gains, in their academic performance (Yeager D.S. & Walton, G.M., 2011).

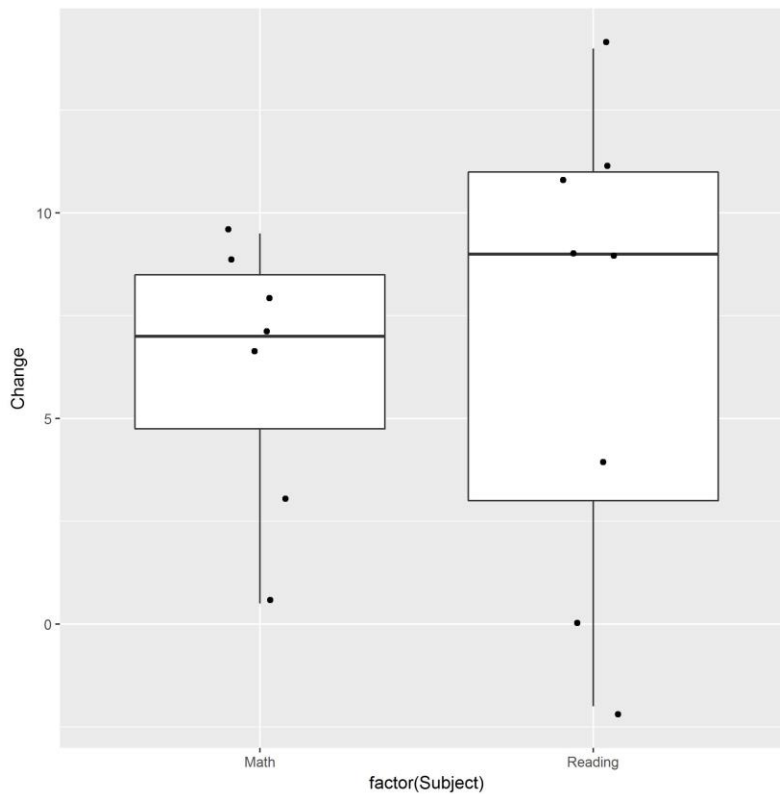
The overall cost of the 5th and 6th grade program came to approximately \$1650. When divided by the number of students participating, the cost was about \$100 per student. The program ran for 7 sessions, so the cost per student is really quite reasonable for an intervention of this nature.

## Academic Improvement

We have test score data for 15 of the 16 participants. We did not run tests for statistical significance because test score data improvements may have value without being statistically significant (and vice versa, there may be a statistical significance but not a practical significance).

Of the 15 participants with scores, 13 showed improvement from their pre/post test scores, 1 showed no change (but scored 30/31 on both assessments) and 1 showed a slight decline (score of 23 pre score of 21 post). 87% of students in the intervention showed improvement.

Not only did they show improvement, as can be seen below, the median improvement was close to 7 points in math and 8 points in reading, with a few students showing even greater gains.



### Student Assessment of Skill Improvement

Students were asked to rate their personal feelings about their skills in the target subject area. Interestingly, the vast majority of the students (11 out of 16) felt their skill level stayed the same. In retrospect, we feel this may have had to do with the scale we provided students and their overall general reflection of their entire subject-area skill level. For instance, if we had asked how they felt about the specific topics in the intervention, they may have answered differently than if we asked them about their skill level overall. Three students felt their skills improved and two felt they declined. This is also

interesting given the fact that nearly all students showed some level of improvement during the intervention.

When asked how they know their skill levels are at a particular level, there were a number of positive comments students shared about their own skill levels (and the program itself) including:

*“They did an excellent job explaining even the things I knew...I know better now.”*

*“I am reading harder and faster”*

*“I am reading this book called The Card Turner... in around a month I got to more than 200 pages which I have never done.”*

*Pre: “On like my reading quiz’s I feel like I’m good at it because I get 3 sometimes 2.”*

*Post: “Throughout these few weeks I feel more strong about reading.”*

*“I’ve been practicing and getting better.”*

*Pre: “I’m not so good at explaining the story.” Post: “I’ve been improving a bit.”*

A few students had strongly worded negative responses about their own skills, particularly in math and commented that they “sucked at math” or “hate math”. Both of the students that made those particular comments had an 8 point and a 9 point skill improvement. Those improvements are still not at standard, but represent a large shift throughout the intervention.

### **Feelings Towards the Subject Area**

Of the 16 participants, 10 showed positive shifts in their attitudes towards the subject area over the course of the intervention (63%). Four students showed no change, and of those, three of the four had positive attitudes towards the subject area to begin with, the other was neutral. Only two students showed decreases in their attitudes towards the subject area. We were pleased to see the positive attitudinal shifts (or maintenance of previously positive attitudes) for the majority of the students.

The explanations students gave for their positive feelings varied. Some focused on the teachers themselves or the impact the teachers had:

*“Mr. \* and Mrs. \* make it fun.”*

*“The teachers have helped me understand and be able to participate in math!”*

Others focused on their continued desire to improve:

*“So I can learn more and read better.”*

*“I’m on a good page at a good rate.”*

*“I enjoy reading and learning new things.”*

*“I’m getting better and want to improve.”*

*“This after school has been really great and I think that I want to improve.”*

And still others focused in on their enjoyment of the particular subject area:

*“I love to read books. I enjoy reading books that I choose.”*

*“I love reading the books are all also interesting (Most cases).”*

*“It is fun and reading is fun and enjoyable.”*

Students who had negative comments were clustered in math. The general theme of their responses was that they do not like the subject area. Those students were also among those who showed the lowest initial performance in mathematics, even though they did make improvement. It is worth noting this and perhaps in future iterations of the program there could be a stronger emphasis on the lowest performing students and their attitudes towards the subject area.

### **Future Recommendations**

Foundry10 was very pleased with the findings from this program. Students showed both academic and attitudinal improvements as a result of their time in the intervention program. We would be interested in running a similar program in the future and wonder if it might behoove us to focus on ways to improve overall student attitudes/motivation within the subject area, particularly math class, for the lowest performing students. It is clear that upper elementary students do benefit from additional time with their instructors in a highly-focused intervention setting. One of the things we most appreciate about the model utilized here is that it was able to augment an existing program. Teachers were also given paid planning time as part of the funding which is also crucial for the success of any program.

We would be very interested in running a similar intervention model next year and wonder if there might be interest in expanding the model so that students get additional time or opportunity to have focused work with their instructors.