

Case Study

PS 316 Brooklyn

Reading Scores Increase and Hidden Talents Unveiled in the City

Difficult Circumstances

Brooklyn's Elijah Stroud Elementary School, PS 316 is a neighborhood school serving a student body that is high-poverty (95% participate in the Free/Reduced Price Lunch Program) and diverse (88% African American, 7% Hispanic). In 2011, just 26% of grade 3 students scored proficient in Language Arts, and just 42% in math.

"I was really searching for a program that could help my students cognitively, and I've been looking for a long time," said principal Olga Maluf, "and I was so happy when I found C8 Sciences. It was like they designed the exact program I'd been dreaming about."

PS 316 began implementing the program in March of 2012, with all students in grades K-2. As a demonstration of the school's commitment to their students' cognitive development, every K-2 teacher agreed to assist the program's flexible implementation after school each Monday and Friday, and during the school day on Wednesdays. The program ran through the end of the year – about three and a half months.

A Year's Growth in Reading in Just a Few Months

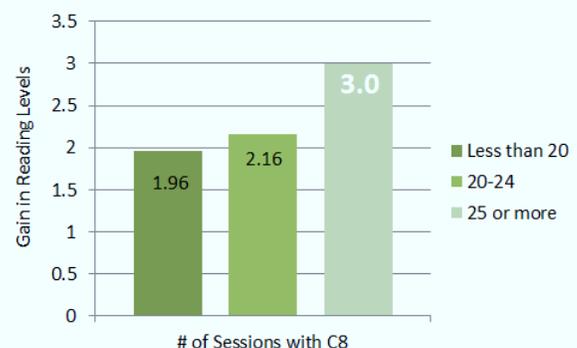
PS 316 uses *Fountas and Pinnell Guided Reading Levels* to track reading comprehension – a system that assigns students letter grades from A to Z, which correspond to different degrees of grade level equivalency. While nearly all students improved in reading, those who attended more C8 sessions, improved more. Students who completed 25 or more C8 computer training sessions (a minimum of

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36 sessions is recommended for general benefit) averaged a growth of 3 reading levels – the equivalency of about a full year of growth, in just a few months.

The teachers noticed the difference in classroom behavior and academic achievement. Donna McKie, a first grade teacher, remarked "I have fifteen total children, and eight of them are in that highest category of L or M level reading score [equivalent to reading at a grade 2 or 3 level]. I've *never* seen that, and I've been here for quite some time. I see a big difference. They absolutely loved it, they were very proud. And I was like... wow."

Students gained more reading levels the more they engaged with C8Kids.



An Audible Gasp

On completing the third phase of the program, the school received individualized cognitive profiles on all of the students, detailing each student's cognitive strengths, and showing the top (and bottom) performers in each class. This data is particularly useful for identifying young gifted students whose cognitive strengths may not have become apparent in the day-to-day bustle of the classroom – or may have been masked by an inability to resist distractions and stay focused in the classroom.

This was the case at PS 316, as the staff was in for a couple of surprises when they saw the student data. Dr. Bruce Wexler, C8 Sciences' Chief Scientist, met with the staff and briefed them on the results. "The top student had an overall score on the computerized brain exercises of 8,900 points – the next highest student scored less than 6,000. We asked the teachers to guess who that top scorer was. They threw out three or four names, but when I showed them his name, there was an audible gasp. They didn't realize the student had these very strong cognitive skills, so we looked at the data together, and were able to see he was actually underperforming on our measures of cognitive flexibility and response inhibition. The teachers agreed with that assessment – that he visibly had trouble switching gears and settling in to begin working on new assignments – but once he's locked in, he had amazing focus and processing skill. This kind of data is absolutely vital to help teachers understand the real potential of young kids."

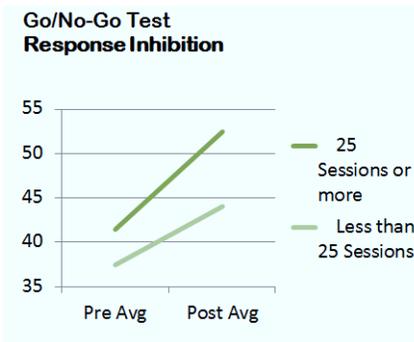
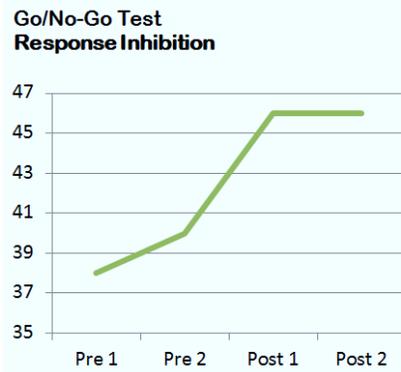
Another student – the third highest performer – was also struggling academically, particularly in reading. "We had actually been considering referring the student for special education services," remarked Principal Maluf, "not realizing what was happening, because this is an ESL student." It turned out that the student's struggles in the classroom were being largely caused by the language barrier – which was masking significant cognitive skills and abilities. His teacher stated, "I bet he'd have been considered a gifted student all along in his home country".



Demonstrated Growth in Self Control and Attention

Because C8 Sciences incorporates 3rd party cognitive assessments designed by the National Institutes of Health, it's possible to compare pre-and-post data on cognitive skills like response inhibition (self-control, or the ability to ignore distractors) and the ability to sustain attention over time.

The students at PS 316 showed significant growth on the test of response inhibition – with those students who completed more training posting higher growth than their peers. Similarly, students showed growth on NIH measures of sustained attention.



A Cognitive Culture

A visitor to PS 316 is likely to see students in the hallway playfully engaging in games from the C8 physical exercise program. The program has become ingrained in the culture of the school, and parents have reported seeing improvements in self-control and focus at home. As part of their commitment to improving these foundational cognitive skills, PS 316 has begun planning to implement C8 entirely during school hours in fall 2012.