

School of One Evaluation – 2009 Summer Pilot Program

The School of One (So1) is an educational model that leverages technology to individualize learning. The mission of So1 is to provide students with personalized, effective, and dynamic classroom instruction so that teachers have more time to focus on the quality of their instruction. To achieve this mission, So1 re-imagines the traditional classroom model. Instead of one teacher and 25-30 students in a classroom, each student participates in multiple instructional modalities, including a combination of teacher-led instruction, one-on-one tutoring, independent learning, and work with virtual tutors.

To organize this type of learning, each student receives a unique daily schedule based on his or her academic strengths and needs. As a result, students within the same school or even the same classroom can receive profoundly different instruction as each student's schedule is tailored to the skills they need and the ways they best learn. Teachers acquire data about student achievement each day and then adapt their live instructional lessons accordingly.

By leveraging technology to play a more essential role in planning instruction, teachers have more time to focus on doing what they do best - delivering quality instruction and insuring that all students learn.

To realize its vision for individualized student learning, the New York City Department of Education (NYC DOE) first tested the So1 model in a low-stakes learning environment – one that allowed for maximum experimentation with little risk to participating teachers and students. The summer school environment was the ideal environment to test the feasibility of the So1 model – offering a unique laboratory to observe, assess and refine the So1 operating model.

So1 was launched in a single middle school in downtown Manhattan, MS 131, as a pilot program in the summer of 2009 serving approximately 80 6th and 7th grade students over four weeks of summer school. There were 15 days of instruction – for four hours per day, totaling 60 hours – of observable information to draw from. The 2009 Summer Pilot Program also utilized a unique human capital model – one that used experienced teachers to teach live instruction, student teachers to support small group instruction and high school interns to provide one-on-one tutoring.

The Center for Children and Technology (CCT) of the Education Development Center (EDC) conducted an evaluation of the 2009 Summer Pilot Program and collected pre- and post-test data for So1 students. Subsequently, the So1 team engaged the NYC DOE's Research and Policy Support Group to conduct an analysis of whether So1 students showed greater gains than their 6th and 7th grade peers citywide.

Evaluation Methodology

The So1 model generates extensive data on the academic progress of individual students. While these data show gains in student performance over time, we are not able to determine the relative size of these gains without a comparison group. For example, is mastery of 5 skills over four weeks better than average? The primary research question for the 2009 Summer Pilot Program was:

- Do So1 students show greater math gains than their 6th and 7th grade peers?

While the 2009 Summer Pilot Program did not have a comparison group built into its design, we were able to compare So1 student pre- and post-test results to the results of students who took similar assessments during the previous school year. Questions on the So1 pre- and post-tests were from the same Acuity item bank as the math periodic assessments given to 6th and 7th graders in New York City. The “percent of tested questions correct” was used as a metric for student performance.

School of One student gains (from the pre- to post-test) were compared to student gains of the following groups:

- NYCDOE 6th and 7th graders who took the math periodic assessment during the previous school year
- NYCDOE 6th and 7th graders who took the math periodic assessment during the previous school year and had the same starting score (percent of questions correct)
- NYCDOE 6th and 7th graders who took the math periodic assessment during the previous school year and had the same demographic characteristics (by ethnicity) as So1 students
- NYCDOE 6th and 7th graders who took the math periodic assessment during the previous school year and had the same starting score and demographic characteristics as School of One students

The Fall Acuity assessment administered to the comparison group was used as the pre-test indicator, while the Spring Acuity assessment was used as the post-test indicator. Recognizing that Spring and Fall periodic assessments (taken by the comparison group) are different tests with potentially different difficulty levels, the assessment vendor (CTB) adjusted for these differences by putting scores on a common scale and creating a scale score. The scale score was then converted into a percent of tested questions correct metric to facilitate comparison with So1 data. As a result, So1 student gains were also compared to the scale scores (converted into the percent of tested questions correct metric) of:

- NYCDOE 6th and 7th graders who took the math periodic assessment during the previous school year and had the same starting score and demographic characteristics as So1 students

Using these comparison groups and the percent of tested questions correct for both raw and scale scores, we were able to test whether the 75 So1 students we had pre- and post-test data for showed greater gains than their 6th and 7th grade peers.

Although we were able to develop a comparison group, there were some limitations to this study. For example, So1 students and the comparison group were not given the same exact pre- and post-test and therefore, there is some variation in the student performance measure. The So1 student pre-tests were based on skills that students were weakest in (as determined by a prior diagnostic). The program curriculum focused on these skills, which should be taken into consideration while interpreting results.

In addition, the tests were administered during different time periods for So1 students and the comparison group (four weeks in the Summer for So1 students and in Fall and Spring for the comparison group) which allows for various outside effects that potentially affect student performance. Another consideration when interpreting results should be the small So1 sample size (75 students).

Despite these limitations, this type of analysis is appropriate for an early stage innovation. Results provide some insight into how So1 students perform relative to their peers, but future evaluations should appropriately control for these limits.

Results

Based on our analysis, So1 students showed notably greater gains than their peers in each respective comparison group. School of One students went from an average of 42 percent of tested questions correct to 70 percent – an increase of 28

So1 STUDENT SNAPSHOT – 2009 SUMMER PILOT			
Pre-Test (% tested questions correct)	Post-Test (% tested questions correct)	Ethnicity	
42	70	Asian	72
		Black	4
		Hispanic	3
		Other	0
		Total	79

All students were entering 7th grade in Fall 2009

percentage points. Student gains in the comparison groups ranged from zero to 8 percentage points. EDC confirmed the validity of So1 students’ pre- and post-test gains.

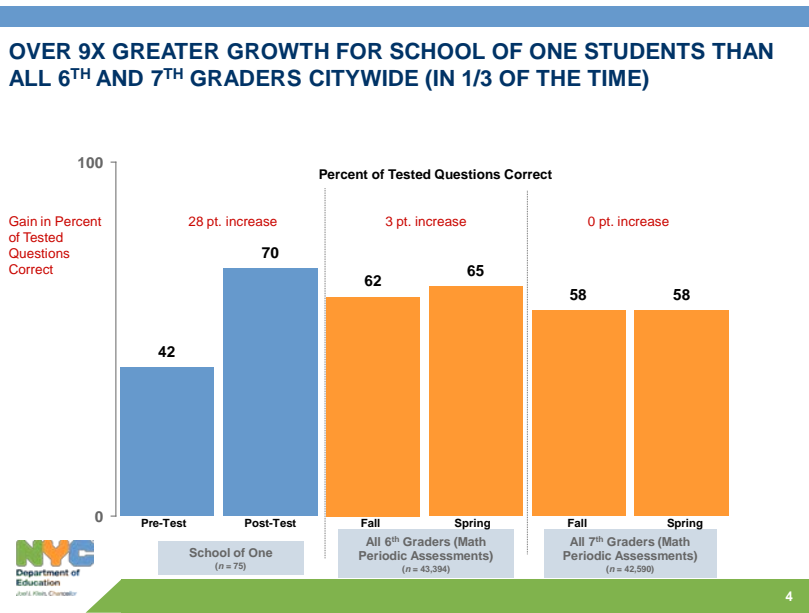
Not only were the So1 student gains greater, but So1 students were able to achieve these gains in one third of the time. The So1 student pre- and post- tests were based on approximately 60 hours of instruction, while achievement results of the comparison group were based on approximately 180 hours.

Raw Score Results

Overall, So1 students achieved **over 9 times greater growth** than their 6th and 7th grade peers. They showed a 28 point increase between the pre- and post- tests compared to a 3 point increase for 6th grade peers and no increase for 7th grade peers.

Similarly, So1 students achieved **over 9 times greater growth** than their 6th and 7th grade peers with similar demographic characteristics. The scores of 6th and 7th grade students in the comparison group were based on a weighted average to match the racial/ethnic composition of So1 students. For example, Asian students comprised approximately 90 percent of the So1 student population and therefore, the average assessment score of Asian students in the comparison group was multiplied by 90 percent. This process was repeated for each ethnic group. The sum of weighted values produced the weighted average.

So1 students also achieved **over 4 times greater growth** than 6th and 7th grade peers with comparable starting points (students receiving the same score on the pre-test).



Scale Score Results

On the scale score indicator, So1 students showed significantly greater gains than their peers with comparable starting points and similar demographics achieving **7 times greater growth**. Of all comparison groups in the analysis, this is the most inclusive measure – it takes differences in the pre- and post- tests into account (using the scale score measure), as well as the starting point and demographic variables.

Other notable gains include **5 times greater growth** than 6th and 7th grader peers citywide and **10 times greater growth** than 6th and 7th grade peers with comparable starting points.

Looking Ahead

After such positive results with 2009 Summer Pilot Program, Solis conducting phase two of the pilot this Spring. Three NYC schools are running So1 after-school programs for 8 weeks, and one of the schools will run So1 during regular school hours for 6 weeks.

In order to address the limitations of the 2009 Summer Pilot analysis, a comparison group has been built into the design. The evaluation consists of a norm-referenced computer adaptive assessment that all 6th grade students at the three participating schools, and student and teacher surveys. Pre- and post-surveys are being conducted to capture changes and beliefs and attitudes as a result of So1 that are not typically captured through standardized assessments.

- Student surveys will address changes in attitudes toward school, learning and math
- Teacher surveys will address changes in attitudes toward their role in the classroom, effective math teaching and using technology in the classroom

In addition to taking surveys, all 6th grade students will take the assessment three times as a pre- and post-test for the after-school and in-school programs. Administering the test to all students during the same time period and at the same school will help isolate So1’s impact on student gains. The assessment also uses scale score as a rigorous measurement of student achievement, as it measures all students on a common scale.

These additional controls combined with an increase in the So1 student sample size (75 during the 2009 Summer Pilot and approximately 240 in the Spring) will more effectively show whether So1 students achieve greater gains than their peers.

OVER 7X GREATER GROWTH FOR SCHOOL OF ONE STUDENTS THAN ALL 6TH & 7TH GRADERS CITYWIDE WITH SAME STARTING POINT & SIMILAR DEMOGRAPHICS* (IN 1/3 OF THE TIME)

