

**New York City School of One**

**An Investing in Innovation (i3) Development Grant**

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## **New York City School of One - An Investing in Innovation (i3) Development Grant**

### **Proposal Narrative – Competitive Preference Priorities**

The New York City Department of Education (NYCDOE) is submitting a development grant proposal to refine and test its innovative School of One initiative. Using an adaptive, highly intelligent technology platform, School of One re-imagines the traditional classroom experience. Students receive a mix of live, online, and collaborative instruction that is tailored to their academic needs, interests, and learning preferences. Named by *Time* magazine as one of the top 50 inventions of 2009, School of One allows educators to address the individual learning requirements of high-needs students.

School of One will address three competitive priorities:

- By increasing middle school achievement in math and by engaging students with material targeted to their own learning needs and styles, School of One will support college access and success because School of One alumni will enter ninth grade prepared for the rigors of high school mathematics, increasing their likelihood of graduating prepared for college. **(Competitive Preference Priority 6)**
- This project will provide a unique opportunity to address the individual learning needs of students with disabilities and Limited English Proficient (LEP) students by customizing their math instruction to their own learning profiles and by leveraging a variety of learning modalities. **(Competitive Preference Priority 7)**
- Once developed, the School of One instructional model will be transferable to any district in the country. The model may be of particular service to rural school districts that do not have the internal capacity to collect, process, and use student data in this manner. **(Competitive Preference Priority 8)**

## Proposal Narrative – Selection Criteria

### A. *Need for the Project and Quality of Project Design*

1. *The extent to which the project represents an exceptional approach to the priorities the applicant is seeking to meet (i.e., addresses a largely unmet need, particularly for high-need students, and is a practice, strategy, or program that has not already been widely adopted)*

Ensuring that students graduate from high school ready for college, meeting the individual needs of students with disabilities and English language learners, and doing this in a way that is scalable across urban and rural communities requires a fundamental redesign of the way in which instruction is delivered to students and data are used in classrooms. In our current school model, instruction is largely provided through one *modality*—one teacher delivering instruction to 25-30 students at one time. In the NYCDOE’s School of One, students receive instruction through multiple modalities of instruction, all organized through an adaptive, highly intelligent learning platform so that students can learn in ways that are personalized to their academic needs, interests, and ways of learning.

Addressing **Absolute Priority 2**—innovations that improve the use of data—the School of One model aims to realize the potential of technology to convert student data into learning activities based on the needs of each student. To do so, School of One integrates five key components. First, School of One leverages a *learning progression* —the discrete set of skills students must master within and across grade levels— and all available research on the relationships among those skills. Second, the model integrates all of the available student data about each student, administers an additional diagnostic instrument, and based on that information, generates a unique set of skills from the learning progression that each student would focus on over a period of time—the *playlist*. Third, School of One sources *instructional*

*content* aligned to the learning progression from publishers, software providers, and other educational organizations across nine instructional modalities: live instruction, live reinforcement of prior lessons, live tutoring, small group collaboration, independent practice, virtual computerized instruction, virtual live instruction, virtual live tutoring and homework. For each lesson, School of One captures data about each lesson. Fourth, a state-of-the-art *learning algorithm* analyzes the data and recommends to teachers a unique daily schedule for each student that teachers can adjust as necessary. That schedule, which incorporates several instructional modalities, is then projected on monitors in the classroom as well as in each student's and teacher's individual Web-based portal. Fifth, at the end of each day, students take a unique assessment—the *Playlist Update*—to measure mastery of the skill they studied. Steps four and five are iterated each day and over time the algorithm learns more about each student and each lesson and continually optimizes each student's schedule. School of One teachers operate in a collaborative learning environment where their pedagogical talents can be complemented, enhanced, and supported.

For students with disabilities, scheduling learning activities can be provided in a manner consistent with the Individualized Education Plan and in a way that enables special needs students to learn alongside their general education peers. For students learning English as a second language, instructional content can be sourced and specifically scheduled for those students, including digital content that is translated into a number of different languages and collaborative content that requires students to interact with one another. Students in rural locations would be able to access instruction that complements the teachers in their school such as remote instructors, high quality digital content, and virtual collaboration with students from other communities.

School of One represents a cutting edge innovation in education. One year ago, the Parthenon Group conducted a survey of the current market and found no other products available for mass customization of instruction in schools. School of One has been operating as a middle school math program since the summer of 2009, when it was piloted with a group of 80 rising seventh graders. In spring 2010 School of One rolled out as an after-school math program for 240 students in three middle schools, and in May 2010 it transitioned to a program that operates during the regular school day. School of One will focus exclusively on middle school mathematics over the next two to three years. Once the model demonstrates effectiveness, we will begin to integrate other grade levels and content areas.

The following vignette, abridged from the School of One student handbook, describes an afternoon in the life of a student enrolled in the School of One after-school program:

*Homeroom.* Entering the School of One room, I find my laptop, notebook and folder in the laptop cart, and go to my Homeroom. I'm on the Orange Team, so our homeroom is at table one. I sit down, open my laptop, login to my student portal and check out my schedule. My homeroom teacher announces the points my team earned yesterday. Overall, we're in second place behind the Green Team. Fortunately, everyone on my team is prepared and on time today, so we'll earn extra points for that, and if we do well on our Playlist Updates, we can earn enough points to move into first place.

*Lesson 1.* At a table with 4 of my friends, we're using a lesson from the Gizmos™ website to learn about probability. We take turns throwing electronic darts at different sized squares and recording our predictions about how many darts will land in each square.

*Lesson 2.* I hear the transition music, and go to table three. I don't need my personal laptop because the laptops for virtual live instruction are already here, so I store my laptop in my

book bag. I put my headset on, log in and starting talking to my virtual teacher. She helps me review some of the probability concepts I was working on first period, and answers some questions I have.

*Playlist Update and Checkout.* After Lesson 2, I go back to my Homeroom. I sit down to log into my student portal. The Playlist Update isn't that hard, so I'm thinking I might have passed this skill on my playlist. When I'm done, I close my laptop, open my notebook and write my reflection for the day. I know I'll also have to do some homework tonight to help me practice what I've learned on probability and to practice other skills I learned earlier in the program.

**Addressing Areas of Unmet Need.** School of One was designed to address three critical problems faced by NYC schools with high needs students: the need for greater student achievement in middle school math, the challenges teachers face in meeting the diversity of student needs and strengths within a given class, and the need to facilitate students' successful transition into high school.

New York City has made considerable gains in middle school math achievement over the last decade. Notwithstanding this progress, in 2009, only 26% of eighth graders who took the National Assessment of Educational Progress (NAEP) math exam had scores that were at or above the level considered proficient, compared with 36% nationally. As shown in Table 1, in the city and the nation there is a particular need for greater math achievement among students with disabilities and English language learners.

**Table 1: NAEP Mathematics 2009 Average Scale Scores by Sub-group, Grade Eight**

|          | <b>All students</b> | <b>Students with disabilities</b> | <b>ELL</b> | <b>FRL</b> | <b>Black</b> | <b>Hispanic</b> |
|----------|---------------------|-----------------------------------|------------|------------|--------------|-----------------|
| National | 283                 | 220                               | 243        | 266        | 261          | 266             |

|     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| NYC | 273 | 218 | 230 | 270 | 261 | 261 |
|-----|-----|-----|-----|-----|-----|-----|

Source U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessments

One reason middle school achievement may lag is the diverse needs of individual students within each classroom. In June 2009, 74% (3,886) of single-grade NYC middle school classes<sup>1</sup> with 21-35 students had students who were not proficient in math according to the 2008-09 NYS standardized mathematics test. At the same time, most of these same classrooms have students who are highly proficient in math. Of the 3,886 classrooms with students who were not proficient in math, 76% had students who scored level 4—demonstrating a *thorough* understanding of the mathematics content expected at their grade level—on the state exam. On that exam, scale scores for sixth–eighth graders in these classes ranged from 480 to 800<sup>2</sup>; the average range of scores within a given class was 101 points. For context, 80 points can be the difference between a level 1 score—not demonstrating an understanding of the mathematics content expected at this grade level—and a level 4 score. Three quarters (75%) of classes had a range of at least 81 points and half of these classes had an inter-quartile range of at least 27 points. The average standard deviation was 22. Faced with this range of abilities, teachers will often teach to the middle, which leaves some students unengaged and others unable to comprehend the material (Tieso, 2002).

Research has shown that the transition from eighth grade to ninth grade is a critically important time in a student’s academic career. Data analyses conducted in the past decade uncovered a rising trend in the numbers of students who fail to advance to grade 10 and are

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<sup>1</sup> Classes are the groupings in which student attendance is taken daily.

<sup>2</sup> The variations in findings across the three grades were minimal.

therefore off-track for graduation (Haney et al., 2004; Hauser et al., 2007). In New York City we have found that freshman year credit accumulation is highly predictive of four-year and six-year graduation. For example, students with seven (out of an expected 11) credits accumulated in ninth grade in 2000 had a four year graduation rate of 20%, while students with all 11 credits had a four year graduation rate of 62% (NYCDOE, 2009). Research has also shown that a main reason for the bottle-neck in ninth grade is the poor academic preparation for high school course work (Neild, 2009). Therefore, although School of One is not a program that works with ninth graders to ease their transition into high school, by increasing their math achievement before they get to high school, it offers middle school students a greater foundation for success.

**2. *The extent to which the project has a clear set of goals and an explicit strategy, with the goals, objectives, and outcomes to be achieved by the project clearly specified and measurable and linked to the priorities the eligible applicant is seeking to meet***

The mission of School of One is to ensure that students receive personalized, effective, and dynamic instruction that is customized to their particular academic needs, interests, and ways of learning, thereby increasing student learning and preparation for high school, college, work and life. Funding from an i3 development grant will support development and implementation activities that are designed to address this mission.

**Development Activities.** School of One proposes to use i3 funding to support the development of a technology platform with seven inter-dependent components: a learning progression, a student profile, a lesson bank of instructional content, an assessment platform, a learning algorithm, a reporting engine, and a portal/user interface.

*Learning progression.* The properly sequenced set of skills that students must master at each grade level will be refined and expanded. The current progression has performance

indicators for fifth–seventh grade math. This will be expanded out to grades four–nine, and may be adapted to conform to the Common Core Standards developed for K-12 mathematics by the Council of Chief State School Officers (the learning progression is currently linked to NYS performance indicators).

*Student profile.* The current student profile contains data from multiple sources about student learning preferences. As it is developed it will become more finely tuned so that the program can continually incorporate knowledge about what lessons work best for each student.

*Lesson bank.* Development activities for this component will include sourcing, tagging and integrating instructional content from a variety of sources into the platform. Currently the model includes over 2,500 middle school math lessons from 24 content providers. By the end of the grant period, we expect to have over 5,000 middle grade math lessons and the ability to identify and replace the lowest performing 5%–10% of lessons each year with more effective content. We plan to tag all lessons in accordance with the Common Core Standards.

*Assessment platform.* We will identify diagnostic and formative assessment instruments that can identify the academic needs, achievements and preferred learning modalities of students. Assessments will be sourced, tagged and integrated into the platform. Their quality will be assessed based on their degree of correlation with high-stakes assessments. Building out the assessment platform will also allow test questions to be imported or typed directly into the platform; will allow for more varied assessment modalities (e.g., open response, authentic performance tasks); and will allow teachers the ability to manage the viewing, commenting and grading of tests.

*Learning algorithm.* The current algorithm has a relatively small set of variables it considers in matching students to lessons. Development of this component will allow for more

variables and be more sensitive to the relationships between them. Also, aspects of the schedule which are currently generated manually would be automated to run without human intervention.

*Reporting engine.* Currently all reporting is ad hoc. Reports in frequent use are saved as stored procedures, but there is no automated system to generate them. Future versions of School of One could include a robust reporting engine that allows for custom reports as needed, and will also allow non-technical users to generate sophisticated reports for their own use.

*Portal/userinterface.* Currently students use the portal for attendance, receiving schedules, launching online content, and taking Playlist Updates. Teachers and students can also view some reports of student progress. Through development, instructional content would be more seamlessly integrated into the portal, teachers would be able to manage upcoming lessons and student data, parents could gain access to information about their children's progress, and students could be able to login from home to work on their homework.

The development project will be broken down into multiple releases throughout the 2010-13 school years. Each release will consist of a manageable collection of related tasks with a clear set of goals, objectives and deliverables. Releases will be structured to align with NYCDOE school calendars, such that School of One hypotheses and processes can be tested in active classrooms and feedback can immediately inform subsequent rollouts. By fall 2011, every component of the platform will be sufficiently scalable to launch at four schools on which the implementation and evaluation (described below) will focus.

**Implementation Activities.** Concurrent with the development of technology, four schools will implement School of One during the second two years of the i3 grant. Given an average middle-school enrollment of 750 in New York City, this means the School of One will provide math instruction to roughly 3,000 students in grades six–eight. Implementation activities

will fall into five categories: school selection, professional development, space redesign, site support and product implementation.

*School selection.* The selection process will be driven by our selection criteria, which include requirements for technology, infrastructure, staff and students. Technology-wise, schools must have at least W3 wireless access and ATM or EVPL bandwidth pipe. Schools must also have the ability to adjust schedules and a willingness to consider space adjustments. Staff at participating schools must be willing to participate, be comfortable with instructional technology, and be available for professional development and feedback. Leaders must have a proven record of efficacy and be enthusiastic, responsive, and comfortable with the uncertainty that accompanies innovation. We will also endeavor to select schools with a strong need for the program, giving preference to schools serving greater percentages of students eligible for Title I, English as a Second Language (ESL), and special education services.

*Professional development (PD).* Because School of One represents a significant departure from traditional modes of instruction, PD is critical to the success of the project. Our PD plan, which has been refined over the course of two pilot phases, covers nine critical topics: the educational problem that School of One is trying to solve and our method for solving it; the basic components of the School of One model; staff roles and responsibilities; key teaching modalities; how to administer and use data from daily assessments; best practices for live instruction; the kinds of digital content that students will learn; the instructor's role outside of instruction planning/delivery; and planning for student behavior, motivation, and orientation. The objective is for all school staff involved in implementation of the model to complete forty hours of PD during the summers of 2012 and 2013. And PD will not end when the school year begins. Because large groups of students will gather for instruction in the math center at the same time,

teachers will have more common preparation time to collectively look at data on student performance and collaborate on strategies to maximize students' success.

*Space redesign.* Plans to repurpose school space to allow for more flexible instructional groupings and settings will be developed and implemented for all four schools by fall 2011. These plans may involve breaking down walls, mounting monitors, designing signs, and setting up furniture. The process will be overseen by field operations associates and the Director of Field Operations (see staffing plan in Section G) in consultation with school staff and with assistance from our construction partners. All construction costs will be covered by sources other than i3.

*Site support.* School of One's field operations team will be responsible for arranging the site space, stocking materials, implementing protocols, communicating with parents, supporting instructional staff and regularly gathering their feedback, and making adaptations to the operations plan. The field operations associates are also responsible for administering pre- and post-tests. Grading support will be provided by support staff to ensure rapid turnaround.

*Managing the technology platform.* Because the platform for School of One is not yet fully developed, a back-office staff is responsible for many activities to ensure that the product is responsive to student needs on a daily basis. Each day assessment data are downloaded, cleaned, and uploaded into the learning algorithm which updates each student's profile and playlist. Next, our data team runs the scheduling component of the algorithm. After it is run, staff manually adjust the schedules to better meet the needs of each student, based on feedback from teachers and operational constraints. The finalized schedules are sent to teachers so that they can prepare their lessons for the next day, and to vendors so that they can ensure that students scheduled to use their products are able to login. Finally, the previous day's assessment data are used to update the classroom management system by awarding points to students and teams and the data

base is backed up with that day's work. As the platform becomes more developed, these activities will become more automated, making the program more scalable.

**Outcomes.** The primary outcomes to be achieved by School of One are students' increased math achievement and the pace at which all students master skills (what we call the Annual Pace of Learning). In addition, we expect to see increases in students' feelings of scholastic efficacy, enjoyment of learning, curiosity, creativity, and persistence. Similarly, we expect to see positive changes in teachers' confidence in their ability to differentiate instruction, feelings of self-efficacy and job satisfaction.

### ***B. Strength of Research, Significance of Effect, and Magnitude of Effect***

#### ***1. The extent to which the applicant demonstrates that there are research-based findings or reasonable hypotheses that support the project, including related research in education***

The design and rationale of our project is based on research findings in education in three areas: research supporting the use of formative assessments; research supporting the efficacy of differentiated instruction; and research supporting the use of technology in the classroom.

There is a considerable amount of research showing that formative periodic assessments increase student achievement by promoting student engagement and allowing teachers to diagnose students' needs and correct them early in the learning process. Fuchs and Fuchs (1986) use meta-analysis to summarize the results of 21 studies of formative assessment, many of which focused on students with mild disabilities and all of which used rigorous experimental designs. They find a mean effect size of 0.73 standard deviations on students with disabilities and 0.63 standard deviations on students without disabilities. More recent reviews of this literature (Kluger & DeNisi, 1996; Black & William, 1998) present similar findings.

Another large body of research supports the idea that individualized instruction leads to

better outcomes for students. In 2008, Rock and colleagues cited three studies conducted in the last decade that linked differentiated instruction to positive student outcomes. One of these (Tieso, 2005) looked at math instruction in grades four and five and employed a pretest-posttest quasi-experimental design. This study showed significantly higher math achievement for students receiving differentiated instruction. Moreover, Rock and colleagues identified differentiated instruction as a particularly important tool for reaching students with learning disabilities and cited two studies that looked at classrooms with mixed cognitive abilities. Odgers, Symons, and Mitchell (2000) found positive outcomes for students in science classes and Noble (2004) found that teachers reported more efficacy in meeting students' needs. However, Rock and colleagues point out that differentiation is not widely practiced, in spite of all of the evidence supporting it because, "Although teachers express a desire to meet the needs of all of their students, often excessive workload responsibilities, demands for substantial content coverage, and negative classroom behavior make the challenge seem insurmountable" (p. 34).

There have been a number of studies of the impact on computers in schools and computer assisted learning techniques, which have generally found positive but mixed results (Kirkpatrick & Cuban, 1998; Wenglinsky, 1998; Goolsbee & Guryan, 2002; Angrist & Lavy, 2002; Rouse & Kreuger, 2004; Machin et al., 2006; Dynarski, 2007). The closest study to the proposed evaluation of School of One is Barrow et al. (2007), which uses an experimental methodology to evaluate the impact of computer assisted instruction on math achievement in middle school grades, and finds positive effects on the order of 0.15 standard deviations. However, we wish to be clear that School of One is a much more innovative intervention than the program studied by Barrow and colleagues. Rather than simply substitute computer-based instruction for a regular classroom with one teacher, School of One combines multiple modalities in an efficient mix to

meet students' learning needs in a dynamic manner.

Taken together this research leads us to the reasonable hypothesis that the use of a learning algorithm can bring differentiated instruction based on formative assessments to a wide group of children and improve their academic outcomes by making sure they receive the individualized instruction that will engage them and help them to master key skills.

***2. The extent to which the project has been attempted previously, albeit on a limited scale or in a limited setting, with promising results that suggest that more formal and systematic study is warranted***

The School of One model was first tested in a limited-scale pilot phase in the summer of 2009 in MS 131, a middle school in Manhattan's Chinatown. The pilot served 80 rising seventh graders for a total of 60 hours, over 20 days in five weeks, and yielded promising results that suggest that more formal and systematic study is warranted.

The results of the pilot were evaluated by two groups. First, the Center for Children and Technology of the Education Development Center (EDC/CCT) conducted an evaluation which addressed the effectiveness and feasibility of the model. Second, NYCDOE's Research and Policy Support Group (RPSG) conducted a quantitative analysis of the pre- and post-test data from the pilot to see whether School of One students showed greater gains than their sixth and seventh grade peers citywide.

The EDC/CCT evaluation was mainly formative and focused on five research questions: Is this a logistically feasible model? What are the experiences and logistics of the implementation for students and teachers? Is this a potentially effective learning model? How do students move through the content? Are there positive learning outcomes? The evaluators collected qualitative data through more than 30 hours of classroom observations, and interviews

with teachers, teaching residents, school administrators, members of the School of One project team, and experts in the field of math education who visited the program. They also used quantitative data provided by the program including diagnostic results, learning profiles, instructional resources used, pre- and post-test data, and educator surveys.

EDC/CCT found that the School of One model has potential. The algorithm generated schedules each day that teachers were able to execute with minimal confusion, indicating that the model is feasible. Students moved through lessons mostly by working individually and found the material engaging. The evaluation noted that the sequence created for each student was linear, with no review of prior concepts mastered and no opportunities to revisit a skill in greater depth. Finally, EDC/CCT found positive learning outcomes for both high and low achieving students. On average, the number of items answered correctly increased by 28 percentage points in the five weeks between the pre-test and post-test.

EDC/CCT also drilled down into the program data to gain insights into student and educator satisfaction. Seven out of eight teachers believed that the program has the potential to be particularly helpful for students who struggle in the traditional classroom and that School of One had a significant positive impact on math skills. Students were also satisfied with the program: 97% liked having a schedule that changed each day, 97% liked using a computer to learn math and 65% liked taking assessments.

The RPSG evaluation then compared the gains achieved by students in the pilot program with those achieved by students exposed to traditional instruction. School of One student gains from the pre- to post-test were compared with NYCDOE sixth and seventh graders who took the math periodic assessment during the previous school year (pre-test in the fall and post-test in the spring) and had similar starting score and demographic characteristics as School of One students.

On the scale score indicator, School of One students achieved seven times greater growth than the comparison group.

These findings strongly support the continued development and investigation of the School of One model. The strong test results and qualitative research performed by EDC/CCT indicate that the program was effective at teaching math and engaging students. The pilot was conducted in an urban environment in a school classified by New York State to be in need of improvement, suggesting that the results may generalize to other middle schools in the city. However, the number of students in the pilot was small and the students, who volunteered to participate in a math program during the summer, may not be representative of their peers. Also, the summer school setting is different from a normal school environment. These shortcomings will all be addressed in the evaluation plan described below.

School of One continued to build on its experience in the summer of 2009 by piloting School of One as an after-school program for 240 sixth grade students across three schools in the spring of 2010. Two of these schools are classified by New York State as in need of improvement. The percentages of students eligible for free/reduced lunch at the schools range from 63% to 88%, and each school's student population is comprised of at least 12% English language learners and at least 9% special education students. The math achievement of all sixth grade students in these schools is being assessed with a computer-adapted norm-referenced test, Measures of Academic Progress (MAP), three times during the semester. RPSG will analyze data from these tests to compare after-school program participants with non-participants at the same schools and use statistical controls for observable group differences. While the results of this analysis are expected to bolster earlier findings regarding program effectiveness, the evaluation still reflects two major shortcomings. First, students volunteered for the after-school

program, so that the analysis is observational, not quasi-experimental or experimental. Second, the after-school setting is not the same as an in-school implementation.

***3. The extent to which the applicant demonstrates that, if funded, the project likely will have a positive impact, as measured by the importance or magnitude of the effect, on improving student achievement or student growth, closing achievement gaps, decreasing dropout rates, or increasing college enrollment and completion rates***

As reviewed above, previous research on interventions in formative assessment, differentiated instruction, and technology in the classroom all support the notion that the proposed project will have a large positive impact on the level and growth of students' mathematics achievement. Based on the results of other studies, we anticipate an effect size of between 0.25 and 0.5 standard deviations, a magnitude supported by the early results of the summer and after-school pilots of the School of One program. The magnitude of this effect will go a long way towards closing the achievement gap between high-needs students and their peers. By addressing achievement in a critical subject (math) at a critical juncture (middle school), School of One will increase students' preparation for high school, decreasing dropout rates, and increasing college readiness.

Importantly, this project will provide a much more rigorous documentation of the positive impact of School of One. In comparison with the summer and after-school pilots, School of One will be evaluated during normal school hours, working with schools' entire student populations, using a more developed technology platform. In addition, the proposed evaluation, structured as a well-designed experiment, will provide unassailable evidence of the program's impact on student achievement as well as students' and teachers' attitudes and beliefs.

***C. Experience of the Eligible Applicant***

***1. The past performance of the applicant in implementing projects of the size and scope proposed project or a similar project***

The NYCDOE is a large urban school district with considerable experience implementing projects of vast size and scope. In the last decade the district has undertaken numerous initiatives including some that were incubated at just a handful of schools and others that were deployed system-wide. A project that demonstrates the NYCDOE's ability to develop and implement large scale, innovative projects like School of One is its work on the \$80M Achievement Reporting and Innovation System, or ARIS. ARIS is a data and knowledge management system that provides detailed information about student performance and progress to New York City educators and families. ARIS brings information from multiple data systems and paper files, as well as new information on student achievement, into a single user-friendly system.

With ARIS, teachers are able to see a comprehensive profile for students consisting of information on attendance, state tests, periodic assessments, ELL/SPED information, etc. ARIS allows educators the ability to create specific reports with different data elements and the ability to see trends among different sub-populations. ARIS also provides a comprehensive set of collaboration tools—including Web logs, virtual “team rooms,” and discussion threads—which will help teachers and principals share tips on tackling specific problems, as well as information on effective instructional practices. In addition, ARIS contains a searchable database of instructional resources, such as units of study and interventions, and organizational resources, such as strategies to improve attendance and school culture.

ARIS was developed and implemented by the NYCDOE over three years. Development and initial rollout to all principals and teams of teachers working on data-driven instruction occurred in fall 2007 to over 5,000 users. System-wide rollout occurred in 2008, and parents

received access to their children's achievement data in 2009 via ARIS Parent Link.

*2. The extent to which an eligible applicant provides information and data demonstrating that the LEA has (a) Significantly closed the achievement gaps between groups of NCLB subgroups of students, or significantly increased student achievement for all groups of students and (b) Made significant improvements in other areas, such as graduation rates or increased recruitment and placement of high-quality teachers and principals, as demonstrated with meaningful data*

Under the leadership of Mayor Michael R. Bloomberg and Chancellor Joel I. Klein, the NYCDOE has pursued a single goal: create a system of great schools capable of giving all children the skills and tools they need to graduate and become productive citizens. The NYCDOE's reform agenda, Children First, has led to dramatic results across New York City public schools at all school levels, including significantly closing the achievement gaps between White and Asian student, and their Black and Hispanic peers. Highlights of these accomplishments are described in the following paragraphs.

**Increasing Achievement for All Students.** The percent of NYC students in grades 3-8 meeting or exceeding state standards jumped from 51% in 2006 to 69% in English language arts (ELA) in 2009 and from 57% to 82% in Math. The gap between students in grades 3-8 meeting or exceeding state standards in NYC compared to the rest of New York State has decreased from 16% in 2006 to 13% in 2009 in ELA and from 14% in 2006 to 7% in 2009 in Math. The percent of students earning New York State Regents and Advanced Regents diplomas also increased. In 2009, 44.6% of the Class of 2009 (2005 Cohort), the largest percentage ever, earned these types of diplomas, up from 30% among the Class of 2005 (2001 Cohort).

NYC has also made considerable gains in Reading and Math over the last six years on the NAEP. The average scale scores for NYC students in fourth grade increased 11 points from 2003 to 2009. Eighth grade students' average scale scores on the NAEP math exam also increased by 7 points from 2003 to 2009. During this six-year period, the average scale score for fourth and eighth grade students increased by 5 points.

**Closing the Achievement Gap.** Elementary and middle school students have shown consistently declining achievement gaps in both Math and English Language Arts (ELA) between White/Asian and Black/Hispanic student groups from 2006 to 2009. Notably, the achievement gap between Black/Hispanic students and White/Asian students in Math was cut in half, declining from a gap of 32.2 percentage points (48.3% Black/Hispanic compared with 80.5% White/Asian meeting standards) in 2006 to 16.1 percentage points (77.4% compared with 93.5% meeting standards) in 2009.

**Increasing the Graduation Rate.** From 2002 to 2009, the overall four-year graduation rate increased by 33%, from 51% to 68%, after nearly 10 years in which no progress was made (see Table 2). Moreover, from 2005 to 2009, the graduation rate for Black students increased by 17.7 points and 18.5 points for Hispanic students. The gap in the four-year graduation rate, during this five-year period, between Hispanic and White students declined 22.1 percentage points while it declined 20 points between Black and White students. New York City has also begun to increase graduation rates of students with disabilities and English language learners. In 2009, the graduation rate for students with disabilities was 27%, which increased from 17% in 2005. English language learners made a more substantial increase from 27% in 2005 to 44% in 2009. Compared to the rest of New York State, New York City has begun to reduce the gap

between the graduation rate of our students and students in the rest of New York State. The gap declined from 31.6 percentage points in 2005 to 21.4 percentage points in 2009.

**Table 2: Increasing Graduation Rates**

|                                  | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Four-Year Graduation Rate</b> | 47%         | 49%         | 53%         | 56%         | 59%         |

**Reducing the Dropout Rate.** As graduation rates have risen, the dropout rate has fallen. The overall dropout rate has been cut nearly in half since 2005, falling to a new low of 11.8 percent, a decline of 10.2 points. Notably, during this time period, dropout rates among Hispanic and Black students declined 12 points and 10.8 points, respectively.

**Increasing College Enrollment Rate.** NYC public schools are sending significantly more students on to college. At the end of the last school year (2008-2009), 58% of high school graduates enrolled in some form of college. Of approximately 40,000 plus high school students who graduated, 40% entered our local public university system, the City University of New York (CUNY). Table 3 presents enrollment data for our graduates matriculating to CUNY two-year and four-year colleges, showing that the number of Hispanic students enrolling in CUNY two-year colleges doubled from 2002-2008, and the number of Black NYC graduates enrolling as first-time freshmen increased by 50%, with an overall increase of 70% for all groups of students. First-time freshman enrollment of NYC public school graduates in CUNY’s four-year colleges increased by more than a third over this time period overall, and by 53% among Hispanics.

**Table 3: NYC Public School Graduates Enrolled as First-Time Freshmen at CUNY**

|  | <b>Community Colleges</b> |                           | <b>Senior Colleges</b> |                           |
|--|---------------------------|---------------------------|------------------------|---------------------------|
|  | <b>Number 2008</b>        | <b>Increase from 2002</b> | <b>Number 2008</b>     | <b>Increase from 2002</b> |
|  |                           |                           |                        |                           |

|                 | Community Colleges |                    | Senior Colleges |                    |
|-----------------|--------------------|--------------------|-----------------|--------------------|
|                 | Number 2008        | Increase from 2002 | Number 2008     | Increase from 2002 |
| <b>Asian/PI</b> | 1,321              | 81.7%              | 3,200           | 62.3%              |
| <b>Black</b>    | 3,186              | 49.9%              | 3,754           | 31.7%              |
| <b>Hispanic</b> | 4,608              | 100.4%             | 4,169           | 53.0%              |
| <b>White</b>    | 1,260              | 32.2%              | 2,806           | 8.4%               |
| <b>Total</b>    | 10,386             | 70.3%              | 13,908          | 36.9%              |

***D. Quality of the Project Evaluation***

***1. The extent to which the methods of evaluation are appropriate to the size and scope of the proposed project.***

The proposed development project will implement the School of One program in four middle schools, focusing on math instruction. The evaluation will use a cluster randomized controlled trial (RCT) comprising eight schools (approximately 6,000 students) equally divided into treatment and control groups. The RCT has two distinct advantages that make it ideal for small-scale program evaluation. First, random assignment of the treatment to schools ensures no systematic correlation between student characteristics and program assignment, so that any difference in outcomes observed between the treatment and control schools is due to the causal effects of the program. Second, compared to other research designs, the RCT is the most powerful statistically—allowing us to infer the effects of the program with the smallest possible sample size.

Over the course of year one of the project, a sample of eight schools with the appropriate characteristics—e.g., technological infrastructure and buy-in from administrators and teachers—will be identified as eligible. Among these eight schools, four schools each (roughly 3,000

students) will be randomly assigned to a treatment and control group. The experiment will proceed as follows. First, in the eight schools identified for the sample, we will collect administrative data (including end of year test scores) for all students and conduct a baseline survey of students and math teachers to measure the non-test outcomes described above. The schools will then be randomly assigned to one of the two research groups, and the program will then be implemented in the four chosen schools. Over the subsequent two years, we will collect two types of outcome data. First, we will collect regular periodic test data from all of the schools, and we will conduct a follow-up survey on all students and math teachers at the end of the first year to reassess their academic behaviors and attitudes as well as, for the treatment children, their experiences with the program. We will also conduct focus groups with students and teachers in treatment schools to provide more detail on the functioning of the program.

The main challenge in using a formal research design to evaluate a program being implemented in only four schools is statistical power. While the sample will include roughly 6,000 children across the eight schools, the common experience of a single school will cause student outcomes to be correlated, significantly reducing the statistical power. This is the classic problem of cluster randomized design.

Three elements of the research design, however, make this strategy realistic. First, we propose reducing the error with which student performance is measured by using multiple follow-up exams as described above. Second, rather than randomly choosing schools from the entire population, the eligibility criteria ensure that the eight schools will be similar on some dimensions. More importantly, we will randomize them within a “matched-pair” stratification, which will help ensure the comparability of treatment and control groups even with a limited number of schools. Using actual data on student achievement in New York City middle schools

from school year 2008-09 and the proposed research design, we conducted power calculations that estimate the minimum detectable, normalized effect size to be 0.25 standard deviations.<sup>3</sup> This gives us great confidence that the matched-pair randomization will allow us to detect the relevant effect size predicted for the School of One, an ambitious project with extremely impressive early-stage results.

***2. The extent to which the methods of evaluation will provide high-quality implementation data and performance feedback, and permit periodic assessment of progress toward achieving intended outcomes***

The RCT is designed to estimate the causal effects of the program on its intended outcomes. The primary outcomes will be students' standardized achievement scores in math. These tests will be taken at several points during fall, winter, and spring of each school year using low-stakes benchmark assessments aligned to state standards and high stakes statewide

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<sup>3</sup> Specifically, we conducted a Monte Carlo estimation in which 8 schools were randomly chosen from the set of New York City middle schools with at least 300 students and prior math test score performance within the 10<sup>th</sup> and 90<sup>th</sup> percentile of the city-wide distribution. These eight schools were then paired based on prior math test score performance (i.e., the highest and second highest performing schools formed a pair, then the third and fourth highest performing, etc.) and one school in each pair was randomly assigned to the treatment group. These pairs were then used to calculate the detection probabilities for different effect sizes. Our estimates suggest that the minimum detectable effect size will be 0.25 standard deviation for a comparison with 90 percent power and a significance level of 5 percent using a simple OLS model at the student level (correcting for clustered outcomes at the school level) to test for differences between the two research groups while controlling for students' prior test scores.

math examinations. In addition, we will measure program effects on students' attitudes and behaviors using accepted scales including feelings of scholastic efficacy, enjoyment of learning, curiosity, creativity, and persistence. Similarly, we will examine a range of teachers' beliefs, such as confidence in their ability to differentiate instruction and feelings of self-efficacy and job satisfaction. These outcomes will complement the student achievement measures and provide high-quality feedback regarding more subtle but potentially long-lasting program effects.

**3. *The extent to which the evaluation will provide sufficient information about the key elements and approach of the project to facilitate further development, replication, or testing in other settings***

We will collect data on key elements of program implementation and investigate how these factors mediate the impact of School of One on student outcomes. For example, we will analyze implementation data such as the rate of skill acquisition (a key measure of program progression) and the number of lessons students complete prior to skill acquisition (a key measure of instructional efficiency). We will also test whether program impacts vary across students and teachers. For example, we will test the hypothesis that the tailored lessons and varied teaching and learning techniques made possible through School of One have larger impacts on high-needs students who were less well-served by existing classroom instruction. We will also test whether lowering the burden on teachers for lesson planning and allowing them to focus on content delivery is more helpful to teachers with less experience or less prior success in the classroom (as measured in New York City's Teacher Data Reports).

**4. *The extent to which the proposed project plan includes sufficient resources to carry out the project evaluation effectively***

All research related activities will be conducted independently by the principal

investigators, Leigh Linden and Jonah Rockoff of Columbia University, both of whom are highly experienced in program evaluation in education (see resumes in Appendix C). Intermediate results will be regularly communicated to the project team for the purposes of improving the intervention, and the project team will be invited to comment on the research results. However, the researchers will have full control over the evaluation to ensure its rigor and independence.

The budget includes funds to cover the time of the two principal investigators, a half-time project manager for 24 months, data entry of the surveys, and the time required to hire several short-term research assistants to assist with administering baseline and follow-up surveys to students and teachers in the eight schools. Both regular benchmark standardized tests and end-of-year tests in math will be conducted by the treatment and control schools as a requirement for participation in the program. However, it should be noted that nearly every middle school in New York City conducts regular benchmark testing aligned to state standards and all schools participate in statewide testing, so this requirement is unlikely to place a significant burden on participating schools or exclude many schools from participation eligibility.

#### ***E. Strategy and Capacity to Further Develop and Bring to Scale***

##### ***1. The number of students proposed to be reached by the project and the capacity of the applicant and other partners to reach the proposed number of students during the grant period***

In the second and third years of the grant we will implement the School of One in four new schools for students in all math classes in sixth through eighth grades. We estimate that 3,000 students will be served by the project each year, approximately 250 per school per grade.

Besides the considerable experience that the NYCDOE brings to implementing projects of this scale, the School of One team will internally have built a strong capacity to roll out the program by that time (see staffing plan in Section G). And our program will be supported by the

considerable capacity of NYCDOE's Division of Instructional and Information Technology (DIIT). With a staff of 500 staff and consultants, DIIT runs one of the largest school networks in the world, with the largest wireless network in the United States of any organization, public or private. DIIT maintains the district's Student Information System, which manages all the biographical, academic, attendance, and operational data about our students and schools. In addition, DIIT is developing new systems such as the NYC Virtual School learning platform to deliver virtual courses to students throughout the district, regardless of the school they attend. Lastly, DIIT continues to partner with other NYCDOE business units and outside vendors to develop, implement, and support new technology initiatives including ARIS.

***2. The applicant's capacity to further develop and bring to scale the proposed practice, strategy, or program, or to work with others to accomplish this, based on the findings of the proposed project***

A great strength of the School of One model is that once the technology platform is fully developed, the cost of expanding to new schools will be minimal. For the next three years, as the platform is developed, all funding is projected to come from private philanthropic sources, federal and state grants, and in-kind support from NYCDOE. When the platform is ready to scale School of One foresees making this an optional service that NYCDOE schools could purchase from their school budgets, and available for schools outside of NYC on a fee-for-service basis.

Recognizing that it is beyond the traditional role of an LEA to develop and scale up their programs into different geographic locations, and because the School of One model is applicable in varied geographical settings, including rural settings, School of One is currently exploring a number of options to support scale-up, including working directly with the State of New York and/or other school districts, creating a 501(c)(3) to provide services outside NYC, and working

with our existing partners. These plans would include ensuring we have the internal capacity to develop and maintain the platform and provide the necessary training for LEAs outside of NYC.

**Content Partners.** School of One has established partnerships with 24 content providers: Adaptive Curriculum, America's Choice, Apangea Learning, ComFit, Edison Learning, Educate Online, ETA Cuisenaire, Exemplars, Explore Learning, Guaranteach, HeyMath!, Houghton Mifflin Harcourt, I CAN Learn, IXL, Math Resources, MathScore, McGraw-Hill, Moving with Math, Pearson, Saxon, SmartMath, Study Island, Tabula Digita, and TutorVista. We have also worked with four assessment partners: CTB, eInstruction, Northrop Grumman and Renzulli Learning. These partnerships will continue to support the build out of School of One, and will be funded through private sources.

**Technology Partners.** In addition to our content partners, Microsoft and Wireless Generation have been involved in the development of technology, including the learning algorithm, the student profile, and the integration of the user portal with content providers. Other partners, such as Cisco and Google, have contributed funding and are available to provide expertise as necessary. For the i3 grant we plan to continue to work with technology partners to design, develop and program the technology platform, making adjustments based on feedback from the pilot phases of the model and feedback from participants during the program.

***3. The feasibility of the project to be replicated successfully, if positive results are obtained, in a variety of settings and with a variety of student populations***

Once the technology platform is complete, successful replication is dependent on a replication plan with a strong tool-kit of procedures. In the case of School of One, this includes a number of resources beyond the technology platform, including a set of school selection criteria (as described in Section A), a PD plan, and a student orientation handbook. Using these tools

will help to assure the quality and fidelity of the model as it expands to more students.

**4. *The cost estimate of the project, which includes the start-up and operating costs per student per year. This must include an estimate of the costs for the eligible applicant or others to reach 100,000, 250,000, and 500,000 students.***

The NYCDOE is requesting a five-year grant in the amount of \$4,999,560 from the i3 program to support a robust set of development, implementation, evaluation and dissemination activities over the course of the three-year project period. The majority of funds are earmarked for the project's staffing infrastructure and technology development (one year of planning plus two years of operational support), each of which accounts for approximately 39% of the funds requested. Other contractual services will support the rigorous evaluation to be carried out by Leigh Linden and Jonah Rockoff of Columbia University. With the private cost sharing match estimated at 20%, the total cost of the NYCDOE's development project is estimated to be \$5,999,025.

Given the total numbers of students to be served by this project (by the final year, this number is estimated to be 3,000), the return on the i3 investment is significant. In addition to these 3,000 students per year for two years, School of One plans to open other additional programs serving a total of 21,892 students by the 2012-13 school year. This i3 grant request will cover 10.9% of School of One's total costs from October 2010 through June 2013: \$4,999,560 out of \$45,804,191. During these three years, the average cost per student served will be \$3,337. Once the platform is scalable, we estimate that start-up costs associated with serving 100,000, 250,000, and 500,000 students to be \$46 per student each year, and operating costs to be \$297, \$233, and \$203 per student, respectively.

**5. *The mechanisms the applicant will use to broadly disseminate information on its***

***project so as to support further development or replication***

The NYCDOE will disseminate information about the project through the project's dedicated website, accessible at [schools.nyc.gov/schoolofone](http://schools.nyc.gov/schoolofone). To date this site has featured information about the program model, including videos that show the program in action, our partners and supporters, and examples of coverage of School of One in the press. This website would be expanded to include evidence about the success of the program.

We expect that voluminous press coverage will help to make others aware of our work. School of One has garnered this attention by opening our program up to visitors. Over 400 people have come to see School of One to date from over 100 organizations, including teachers, principals from NYC and beyond, funders, political leaders, business leaders, education policy makers and union representatives. We will continue to open up for tours as a means of disseminating information about our practices.

Another important tool for dissemination will be our active participation in communities of practice, such as those set up for i3 participants, the NYCDOE's own Children First networks, and the conferences of the NewSchools Venture Fund, Celebration of Teaching and Learning, the International Society for Technology in Education (ISTE) and the National Council of Teachers of Mathematics (NCTM).

***F. Sustainability***

***1. The extent to which the applicant demonstrates that it has the resources, as well as the support from stakeholders, to operate the project beyond the length of the Development grant***

**District and Philanthropic Resources.** School of One has received the strong support of NYCDOE from its inception. NYCDOE is committed to spending at least \$1.5 million dollars to support the project over the next three years and has already invested approximately \$1.4

million to incubate and develop the project. These funds have covered project management staff, operational staff, construction, project evaluation, and technical consultants.

Support from NYCDOE will be critical to the sustainability of School of One, but because public funds in support of innovation are limited, support from the philanthropic community will also be crucial. School of One has already had significant success in galvanizing this community around our project. We have received \$2.4 million in grants ranging in size from \$25,000 to \$700,000 from Cisco Global Education, the Michael & Susan Dell Foundation, the Robin Hood Foundation (a New-York-based anti-poverty foundation), Google Inc., the Charitable Giving Fund of Tides Foundation and the NewSchools Venture Fund. School of One will build on its philanthropic connections to identify funders for a private sector match of at least 20% of the total grant award. The funds secured through the match will be used for a variety of program-related expenses, including the development of our technological infrastructure, the sourcing and tagging of content, and site operations.

**Support from Stakeholders.** In addition to these important institutional and fiscal supporters, School of One has cultivated the support of the various stakeholders in this project including school leaders, teachers, math coaches, the teachers' union and students. The support of principals in the schools involved in the initiative is a given, because their support is a precondition for the program to exist in their schools. Teachers also must commit to the project before it launches, and our first pilot showed that seven of eight teachers wanted to continue with School of One after having direct experience with it (CCT, 2009). The EDC/CCT evaluation also found that when researchers asked students how they liked School of One throughout the course of the program they almost always responded positively, indicating that they were learning and they liked being able to go at their own pace.

Other stakeholders, ranging from philanthropies to large corporations to content partners, have indicated their support for the proposed project by providing letters of support (see Appendix D). These include our current funders, including the Michael & Susan Dell Foundation, the Robin Hood Foundation, Google Inc. Charitable Giving Fund of Tides Foundation and the NewSchools Venture Fund); our technology partners, Microsoft and Wireless Generation; a human capital partner, Teaching Matters; and content vendors, including McGraw-Hill, Pearson, PBS, and the NYU Games for Learning Institute.

***2. The potential planning for the incorporation of project purposes, activities, or benefits into the ongoing work of the eligible applicant and any partners at the end of the grant***

School of One represents an important piece of the DOE's strategy to further its mission of a quality education for all of its students. In the Chancellor's address in August of 2009 he spoke about the success of Children First Reforms to date and identified two objectives for the next four years of reforms: expanding student and family choice and innovation. The example he gave of the sort of innovations the Department would focus on was School of One.

NYCDOE has already set up a number of organizational structures to cultivate the growth of School of One. First, the NYCDOE recently announced the hiring of a Cabinet-level Deputy Chancellor who is responsible for incubating and spreading transformative innovations throughout the organization. Second, in April 2010, NYCDOE announced the creation of the Innovation Zone (iZone). As part of iZone, 80 principals and their schools will be working to develop and test a number of innovations that challenge underlying assumptions around the use of time, technology, and human capital. Third, all NYCDOE schools are organized around self-affiliated networks of schools that share a common philosophy or approach. This structure enables the rapid dissemination of ideas throughout the organization and has already resulted in a

several inquiries from principals whose peer schools are current School of One sites.

### ***G. Quality of the Management Plan***

#### ***1. The adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks***

Project management will be guided by our chief executive officer (CEO) with the assistance of a Project Director, who will be the primary contact for i3. The main responsibilities of the CEO will be to develop a long-term strategy for the School of One, consistent with the mission and vision of the program and to develop resources to support the program.

The Project Director will be responsible for integration and coordination across all work streams (e.g., instructional content, assessment, field operations, and technology). With the department heads, he will track progress of the overall project plan and identify and resolve risks to implementation throughout the project. The Project Director will also oversee all administrative and back-office operations.

Fiscal management is the responsibility of a financial consultant who will manage the project budget, refine the long-term budget model for the program, meet with staff to assist and develop assumptions which support cost/revenue needs, and monitor budget utilization to assure the project meets its financial targets.

School of One's technology development activities will be overseen primarily by a Chief Product Officer who will work with our experienced technology partners and report directly to the CEO. Non-technological development activities such as the sourcing of instructional content, the development of the assessment platform, and the design and implementation of high quality professional development will be overseen by the Directors of Content (DC), the Director of

Assessment (DA) with support from the Manager of Assessment Operations (MAO), and the Director of Professional Development, respectively.

Many of the implementation activities will be directly overseen by our field operations associates. Each field operations associate will be responsible for the coordination of implementation activities at a particular school. Field operations associates report to the Director of Field Operations, who reports to the CEO.

Table 4 summarizes the timeline for the project’s four general activities: development, implementation, evaluation and reporting, and dissemination. The successful completion of these tasks—which are aligned to the process objectives described in Section A2—within the timeline will be the responsibility of the Project Director. The project director will meet with the CEO and each member of the senior team on a weekly basis to monitor progress.

**Table 4: Project Timeline**

| <b>Major Activities by Component</b>                                      | <b>Owner</b>     | <b>Yr1</b> | <b>Yr2</b> | <b>Yr3</b> |
|---|------------------|------------|------------|------------|
| <b>Development</b>  |                  |            |            |            |
| Product design, development and programming                               | CPO              | x          | x          | x          |
| Source, tag and integrate content for lesson bank and assessment platform | DC, DA, MAO      | x          | x          | x          |
| <b>Implementation</b>   |                  |            |            |            |
| School selection  | DFO              | x          |            |            |
| Professional development  | Dir. of PD       | x          | x          |            |
| Space re-design   | DFO & Field Ops  | x          | x          |            |
| Site support  | Field Ops Assoc. |            | x          | x          |

| <b>Major Activities by Component</b>  | <b>Owner</b>       | <b>Yr1</b> | <b>Yr2</b> | <b>Yr3</b> |
|---|--------------------|------------|------------|------------|
| Product implementation  | CPO & Project Dir. |            | x          | x          |
| <b>Evaluation and Reporting</b>   |                    |            |            |            |
| Determine treatment and control groups;<br>Administer baseline surveys                              | Evaluator          | x          |            |            |
| Conduct focus groups; Collect and format achievement<br>outcomes data; Administer follow-up surveys | Evaluator          |            | x          |            |
| Complete data analysis and evaluation   | Evaluator          |            |            | x          |
| Submit quarterly reports  | Project Dir.       | x          | x          | x          |
| Submit annual report to the Secretary   | Project Dir.       | x          | x          | x          |
| Submit final performance report   | Project Dir.       |            |            | x          |
| <b>Dissemination</b>  |                    |            |            |            |
| Update website, issue press releases  | Project Dir.       | x          | x          | x          |
| Attend i3 grantee meetings; conferences   | Project Dir.       | x          | x          | x          |
| Organize tours for visitors   | Project Dir.       |            | x          | x          |

**2. The qualifications, including relevant training and experience, of the project director and key project personnel, especially in managing projects of the size and scope of the proposed project**

School of One's CEO, **Joel Rose**, has been involved in education for more than 14 years, first as a Teach For America corps member in Houston and later as a senior executive at Edison Schools where he served as the company's Associate General Counsel, Chief of Staff, Vice President for School Operations and as a general manager responsible for overseeing the

development, operations, product design, and overall performance of the after-school division. Prior to School of One, Rose served as Chief Executive for Human Capital and as Chief of Staff to the Deputy Chancellor at NYCDOE, where he oversaw the restructuring of NYCDOE's Human Resources Division.

School of One's Project Director, **Edward Hui**, has been working in the education field since 2001, when he taught fourth grade in Los Angeles as a Teach for America Corps member. From 2003 to 2006 he took on a number of administrative roles in the Corps including Program Director of the New York Regional Office, School Director at the Philadelphia Summer Institute (PSI), and Director of Data Management at PSI. Since 2007 Hui has worked at NYCDOE. Before joining the School of One program, he supported the NYCDOE in design and implementation of two other citywide initiatives. As Associate Director of Strategic Planning and Projects in the Office of Accountability, he managed the implementation and ongoing support of the \$80M ARIS project to over 1,400 principals, 5,000 teachers, and 500 citywide support staff. Finally, as the Director of Strategic Planning and Analytics in the Office of Student Enrollment, he managed the RFP, discovery, development, and rollout of the Department's \$10M SEMS (Student Enrollment Management System) application, used to manage the enrollment of a quarter-million children annually from Pre-K to high school.

Resumes for both Joel Rose and Edward Hui are provided in Appendix C.