The Use of New York State Regents Exams to Guide MSPinNYC Decision-Making to Build an Effective Model of the Urban STEM Classrooms

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Student Success – Regents Exams

The MSPinNYC has routinely used a mixture of qualitative and quantitative data to steer the project. However, we will focus on our use of end-of-course, high stakes exams, namely the New York State Regents exams. These exams are:

- required for graduation
- used by policy makers to make dramatic changes in schools (changing Principals, closing schools)
- are indicative of a persistent Achievement Gap in high school graduation
- a very low standard for student achievement

This latter statement is critical because student failure on required Regents exams can be (and should be) interpreted as a crisis in American education. Why is it that only 50% of 9th graders in high poverty, high minority districts can pass the Integrated Algebra exam, which requires fewer than 40% of the questions answered correctly? Can the classroom be changed substantially to enhance student learning and, as a consequence, increase performance on the Regents exams?

MSPinNYC Changes Course

Students in the MSPinNYC summer schools reported that the "tutor," the undergraduate or advanced high school student who worked directly with them daily, was what help them succeed. The students reported that they needed their questions answered sooner and that they needed more immediate attention than is available in a typical classroom. However, it seemed financially and logistically impossible to use undergraduates as tutors on an ongoing basis within the academic year – the tutors would have to be drawn from the pool of students within the high school.

In Year 4, the MSPinNYC embarked upon a new idea – to build a new model for the urban classroom that harnessed our summer success, making collaborative learning strategies the foundation of the classroom. We facilitated the collaborative learning groups with trained peer leaders (dubbed Teaching Assistant Scholars or TA Scholars) – students recruited from the middle to even just barely passing cohort of students. Then we restructured the academic year classroom to use the TA Scholars on a daily basis in what we call the Peer Enabled Restructured Classroom (PERC). Could PERC radically change urban science and mathematics education? We believed PERC could do so by building young leaders, supporting teachers, and improving student learning.

Please visit our website at www.mspinnyc.org for more information

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What is PERC?

Peer Enabled Restructured Classroom

PERC is a new research-based model of a high school classroom designed to improve student learning. A typical urban classroom consists of one teacher and 30+ students. The restructured classroom has:
one teacher, seven Teaching Assistant Scholars (peer tutors) and 30+ students.
Teachers are expected to meet the learning needs of all students, making instruction student-centered. In the model, teachers enable the TA Scholars to lead activities, assist in classroom management, provide feedback to the teacher, and help the teacher tailor instruction for individual students.

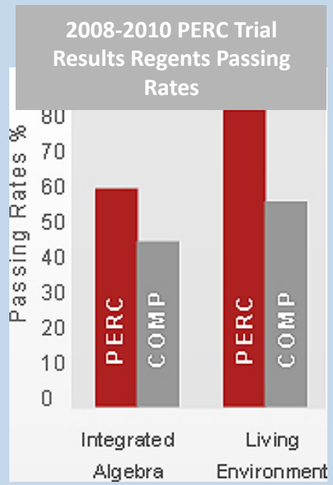
Components of the Model

PERC Class: Either Integrated Algebra or Living Environment class with a 4:1 ratio of student to TA Scholar
- Features activity-based exercises led by Teaching Assistant Scholars
- Teacher focuses on planning and assessment of student learning rather than delivery of lectures
- Real-time, daily feedback leading to differentiated instruction

TA Scholar Class: Year-long class taken by TA Scholars
- Daily prepping for the subject-area PERC class
- Advanced study of subject-area content and pedagogy
- College readiness

Outcomes

During the past two years, the PERC model was systematically studied in five schools with 16 teachers in two subject areas: Integrated Algebra (IA—a one year, 9th grade mathematics course required for graduation) and Living Environment (LE—a one year, 9th grade biology course required for graduation). Whenever possible, comparison classes were created that were taught by the same teacher or another teacher during the same academic year and students were placed into the PERC or comparison classes randomly. PERC and non-PERC classes used the same curriculum during the year. The state-wide Regents exam was administered in June of each of the two academic years. Regents scores of students in each class, including the comparison class, were reported.



Challenges (during 2008 – 2010 trials)

- Data Collection
- Comparison Groups
- General Implementation in the Schools
- Fidelity of Implementation in the Schools



Fidelity – TAS Class

One variable in the implementation of PERC was the timing of the TA Scholar class. Some schools integrated the TA Scholar class into the curriculum, offered credit for the course, and had it taught by the PERC teacher. This required the schools to make substantial programming changes: the teachers taught, for example, four Integrated Algebra classes and one TA Scholar class instead of five Integrated Algebra courses; student schedules had to be adjusted so all TA Scholars could attend both the PERC class and the TA Scholar class; and a curriculum for the TA Scholar class had to be developed. Some schools, unwilling to make such a substantial commitment to the model, trained TA Scholars after school (a "club" model) or during first period (a typically non-academic period).

In the after school and first period implementations it was found that:
- TA Scholars often did not or could not attend the class
- Teacher satisfaction with the TA Scholars was low
- Regents performance was variable, often successful, but not as successful as other implementations. (At one school, non-PERC Regents passing rates were 20%, a first period TAS class implementation was 30%, and a school day implementation was 45%.)

In addition, the "club model" produced a sustainability issue. If schools were unwilling to alter their programming day to accommodate the model, then they were unwilling to truly integrate the model into their school culture – despite improvements in Regents scores.

In the current implementation (adapted by four schools this year) the TA Scholar class has been integrated into the curriculum

Going Forward

Students passing but scoring below 75 on the IA and LE Regents exams generally fail to complete subsequent Regents exams in more advanced topics (Algebra 2, Geometry, Chemistry). As the model matures, the TA Scholars have become a primary focus with the intention to adapt the model to more advanced STEM courses and examine the impact of being a TA Scholar on subsequent performance. We plan to use Regents scores, in part, to address the following questions:

- Do TA Scholars succeed in Chemistry and Geometry at rates comparable to non-TA Scholars with similar Regents profiles?
- Do TA Scholars earn Regents Diplomas with Advanced Designation at rates higher than non-TA Scholars?
- Do TA Scholars require less mathematics remediation than comparable graduates?

Roles Related to Student Success

STEM and Education: Curriculum Alignment and Setting Expectations
Education: Design of Professional Development
K-12 Districts: Data Collection and Restructuring Classrooms