Across the great divide
Collaborative explorations by high school and college math teachers

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Overview

Collaborative professional development between high school and college mathematics teachers.

- Describe a project that took place last spring.
- Discuss motivation and inspiration for this project.
- Provide practical hints for others interested in doing this work.
- Focus on methods and philosophy – what we learned was important, but how we did it has more potential for lasting change.

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NYC College of Technology (CityTech) Fact Sheet

One Year Retention Rates
Fall 2006 Cohort (Associate): 2390 students
Still Enrolled Fall 2007: 1522 students (64%)

Six Year Graduation Rates
Fall 2001 Cohort (Associate): 2156 students
Earned Degree by 2007: 556 students (26%)

Mathematics Pass Rates (Fall 2007)

<table>
<thead>
<tr>
<th>Category</th>
<th>Enrolled</th>
<th>Passing</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remedial courses</td>
<td>1364</td>
<td>353</td>
<td>(26%)</td>
</tr>
<tr>
<td>Main sequence (through PreCalculus)</td>
<td>3291</td>
<td>1786</td>
<td>(54%)</td>
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</tbody>
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Many students who set out to go to college never make it through, and mathematics requirements are a tremendous challenge.

What is the root of this problem? What do we do about it?
Imagine for the moment a junior faculty member approaching you with these statistics, and asking these questions. What would you reply?

Some common expressions of the problem:
“High school teachers don’t teach mathematics – they just teach to the standardized tests.”
“College teachers don’t know how to teach – it’s all chalk and talk.”
“It’s the students’ fault.”

If we refuse to accept these, what’s next?

Looking Both Ways (1998–2004) is a professional development project bringing together high school and college teachers to focus on literacy.

Guiding principles
- High school and college teachers possess knowledge of great value to each other.
- Professional development as inquiry.
- An open conversation is essential.
- Equity of voice, co-leadership by CUNY and DOE teachers.

High School / College Mathematics Collaborative Seminars
Adapt the Looking Both Ways model to address mathematical literacy.

- Three consecutive Saturday meetings in April and May, 2007
- 10 NYC high school math teachers, 4 CUNY math teachers
- Purpose: Engage in a conversation about teaching and assessing mathematics, with a special eye towards the experience of students making the high school/college transition.
- Co-facilitated by CUNY (myself) and DOE (Kaia Mashariki, Regional Instructional Specialist)

What questions did we start with?
- What assumptions do we make about the culture and practices in ‘the other institution’?
- What is the reality?
- What changes are suggested for ourselves, for our students, for our institutions?
How did we structure the meetings/What did we do?

- Reflective writing. Ex: write about your own experiences learning mathematics, high school teachers write about college, and vice versa.
- Intervisitations. College teachers visited high school classrooms and vice versa, observing and reporting back to the group.
- Structured discussions. Protocols such as ‘Think/Pair/Square/Share’ or ‘The Final Word’ to provide framework for group discussions.

What did we learn about the process?

- The ‘seminar culture’ is of utmost importance, developing a safe space in which these investigations can occur.
  - Co-facilitation by high school/college teachers.
  - Invest seminar time in building community.
- Intervisitations were a highlight for our participants.
- Three meetings was too few! We felt “as if we were just getting started.”

Some recommendations

- Take a serious look at alignment.
  - Regents allows calculator, but CUNY placement exam (COMPASS ACT) does not.
- Allow more high school students to experience a college classroom setting (e.g. through College Now or other programs)
- Encourage high school students to continue taking mathematics through senior year.
- Help new college students become independent learners (bridge programs, resources such as learning centers, etc.)
- Continue the conversation!

Funding

- Funded by New York State Compact for Higher Education.
- This kind of work seems to be popular with funders right now – talk to your grants office!

Participants

- Provided stipend to participants.
- How do you find interested high school teachers?
  - Leverage existing relationships with high schools.
  - Within CUNY, contact Collaborative Programs.
  - Contact your biggest feeder schools.
- How do you find interested college teachers?
  - Who has demonstrated interest in this kind of work in the past?
  - Involve the chair, dean, provost, president.
What's next?

Current Project: Math Both Ways Steering Committee

- Bring together department chairs from partner high schools, DOE representative, CUNY representative.
- Addressing high school/college mathematics transition.
- Produce set of specific recommendations for high schools and CityTech.
- Concurrent grant application to obtain funding for 5 year pilot program implementing these recommendations at CityTech and a local high school (2008 high school cohort).
- Driving philosophy: collaborative professional development.

Resources

The Looking Both Ways website has a great description of their program together with lots of specific materials for doing collaborative professional development, including protocols, activities, handouts and more.

http://www.lbw.cuny.edu

My personal web page has a summary report on our Spring 2007 seminar series along with the slides for this talk.

http://websupport1.citytech.cuny.edu/faculty/jreitz

CUNY Collaborative Programs is a great resource describing many current partnerships between CUNY and public schools. John Garvey, head of Collaborative Programs, is very supportive of this work.

http://www1.cuny.edu/academics/CUNYPublicSchoolPrograms.html