Session Title:
The Effects of Modifications to a Teacher-Leadership Project Based on Feedback from an Initial Cohort

MSP Project Name:
Mathematics Teacher Transformation Institutes

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Project Session

Strand 1

Summary:
Lehman College's Mathematics Teacher Transformation Institutes (MTTI) aims to build leadership skills in Bronx middle and high school math teachers. MTTI supports two cohorts of teachers. We outline the ways in which MTTI was modified for the second cohort based on the experiences of working with the first cohort, and the effects of those modifications. We found that more careful recruitment of Cohort 2 has resulted in a more cohesive group, and a substantially lower dropout rate. Threading leadership seminars throughout other coursework has helped to provide an overview of the purpose of the program and encouraged the sharing of resources. The addition of written reflections makes participants more reflective practitioners and informs the running of the program.

Section 1: Questions framing the session:
What disturbances did we find from our first cohort of participants?
How did we try to deal with those disturbances for our second cohort?
How successful have we been so far in correcting those disturbances?

Section 2: Conceptual framework:
Lehman College's Mathematics Teacher Transformation Institutes (MTTI) is a MSP program in which second-stage Bronx middle and high school teachers (4-10 years' experience) build their leadership skills by enhancing their knowledge of, appreciation for, and sophistication in mathematics, articulating and pursuing classroom-inquiry

projects, and engaging in direct leadership development. MTTI is also a collaborative effort that is based at Lehman College, CUNY, and directed by a Partnership Leadership Team (PLT). The PLT consists of faculty in mathematics and mathematics education, Institute for Literacy Studies (ILS) leadership, including the Director of its professional-development program, the New York City Mathematics Project, and New York City Department of Education (NYCDOE) officials. It also has input from the research and evaluation teams. MTTI's implementation plan is grounded in a theoretical logic model that presumes an interrelated causal chain. The model may be characterized as follows:

Learn advanced mathematics ↔ Improve pedagogy ↔ Acquire leadership skills ↔ Lead

MTTI is funded to support two cohorts of teachers (40 in each) over six years. Cohort 1ended in June 2011 and Cohort 2 began the following month. This presentation outlines in what ways and with what effects the MTTI project was modified for Cohort 2 based on the experiences of working with Cohort 1.

Section 3: Explanatory framework:

Recruitment. We found that from Cohort 1 that several participants had limited teacher-leadership experience prior to entering the MTTI project, and that some had limited opportunities in their schools to develop their leadership skills. This was despite indications of support from their school principals. We also discovered that there was confusion on the part of some participants about the workload that was expected on the various courses, for example, whether they were expected to do homework or not. Therefore we enhanced our recruitment process for Cohort 2 by spelling out the expectations of the program (including the necessity of homework) and conducting face-to-face interviews with applicants. We also examined their teacher-leadership experience, and required a more detailed letter of support from their school principal.

Participants' and math faculty's expectations. A major revelation from Cohort 1 was the fundamental disconnect between the expectations of the participants and those of the college math faculty. Despite our descriptions of the math content courses as challenging and not necessarily directly related to classroom teaching, participants expected to be working on topics related to the material they were teaching in their own classes. Their disappointment was matched, and in some cases exceeded, by that of the math professors who were teaching them. The professors were accustomed to working with graduate math majors, and found the MTTI participants ill-prepared for graduate level work. Consequently, for Cohort 2, we worked with math faculty to better design the math content courses, both to meet the professional needs of our participants and to match their academic backgrounds, while at the same time respecting the mathematical rigor and integrity of graduate-level courses. In addition, we introduced a new course in Discrete Mathematics. The goal of the discrete math course was to show the participants some real world applications of mathematics and also to see some fun topics in mathematics. The only real prerequisites were a good background in high school algebra and some mathematical sophistication. The course was similar to one taught to college freshmen who were not math majors.

Classroom Inquiry. Classroom inquiry was addressed by an Action Research component which ran for two semesters. Participants were asked to conduct their own action research projects based on one of their classrooms. They could choose their own topics and were expected to write a report on their topic at the end of the second semester. Several Cohort 1 teachers found the workload very demanding, and were not clear how to focus their topic. As a result, for Cohort 2 there was increased emphasis on specific pedagogical issues and techniques, such as concept attainment and the use of exit cards, and presentations on data collection through the Acuity assessments and the ARIS databases, two systems on which NYC public schools depend.

Teacher Leadership. For Cohort 1, the leadership component of MTTI was run in one block at the conclusion of the project. This meant that the leadership aspect of MTTI was de-emphasized during the crucial initial and middle parts of the project, yet the main aim of MTTI was to develop teacher-leaders. Our research findings indicated that there was a somewhat limited increase in teacher-leadership for Cohort 1, and this tended to be restricted to leadership of self, and other math teachers in the school. Consequently, for Cohort 2 we restructured the program so that leadership seminars ran throughout the whole project. The Leadership Seminar 1 for Cohort 2 began in July 2011. To maintain a direct connection with Cohort 2 participants, the leadership seminar spanned three semesters, unlike those for Cohort 1. In July 2011, the sessions focused on the NYS Common Core Learning Standards, the NYC Department of Education Instructional Expectations for the implementation of the Common Core. Other sessions focused on levels of cognitive demand for mathematical tasks, and exploring websites for performance based tasks. During summer 2011, the seminar enabled Cohort 2 participants to begin thinking about their roles as teacher leaders in their schools. The 2012 seminars focused on the role of the teacher leader. Every session modeled innovative pedagogy in areas such as motivation, group work, questioning techniques, and formative assessment.

Reflective Practice. For Cohort 2, in both the Action Research and Leadership Seminars we encouraged participants to reflect on their practices by using writing, e-logs and journals. None of these activities were formally in operation for Cohort 1.

Findings/Lessons Learned. Now that Cohort 2's first year has ended, we can see the effect of the changes we have instituted with this new group:

- More careful recruitment, in spelling out the expectations of the program and particularly the face-to-face interviews of applicants by project leadership and selected Cohort 1 participants has resulted in a more cohesive group, more ready to work together and especially in a substantially lower dropout rate: only 3 out of 44 thus far, compared with 12 at a similar point with Cohort 1.
- Threading the Leadership Seminars throughout the other coursework has helped to provide an overview of what the purpose of the program is and to build more team spirit through the sharing of resources, both among participants themselves and from the program, in the form of PowerPoint presentations, performance tasks and problems, books and other materials, websites and pedagogical strategies. Teacher-

consultant reports indicate that, in general, Cohort 2 participants are engaging in a greater number and a greater range of leadership activities than did Cohort 1.

- Classroom observations indicate that Cohort 2 participants are gradually introducing some of the pedagogical techniques outlined in the Action Research and Leadership components of the project.
- Participants being asked to submit written reflections, e-logs and journals in the Action Research and Leadership components, makes them more reflective practitioners, informs our running of the program and generates data for our research team.

Section 4: Discussion:

The results for Cohort 2 are still preliminary at this stage. Indeed, five more participants have dropped out recently. Despite the efforts to reconcile the participants' and math faculty's views of and approaches to the math content courses, some of the problems that occurred in Cohort 1, still cropped up in Cohort 2. However, in general, it appears that the changes we made to both the recruiting process and the structure and content of the core courses have been effective.

If we were to run such a project again, we would build on the advances we feel we have made for Cohort 2 of this project. In particular, we would try to get even greater buy-in from the math faculty possibly by having them experience at first-hand what goes on in math classrooms in the Bronx.

The changes we made for Cohort 1 were based on a collaborative effort centered on the project leadership team, with input from the research team, the independent evaluator, project participants and members of our Advisory Board. We would recommend such a wide-ranging collaboration to other MSPs.

Section 5: How will you structure this session? What is your plan for participant interaction?

We will allow twenty minutes for presentation, and then encourage questions and discussion.