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**Designing Innovative Fieldwork:  
Beyond the Theory-in-Practice Focus**

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## **Designing Innovative Fieldwork: Beyond the Theory-in-Practice Focus**

Preparing teachers for public schools in Queens, New York, the most diverse community in the world (Hartocollis, 2005), requires carefully designed fieldwork to provide candidates with the realities of today's multiethnic classrooms while supporting reform efforts that lead to high-quality instruction for all learners. Although fieldwork has historically been part of formal teacher preparation programs, finding suitable sites and helping candidates interpret what they see in the schools remains a challenge (Curcio, Artzt, & Porter, 2005). In the past decade, psychological literature has emphasized the importance of teachers' cognitions in teaching (Artzt & Armour-Thomas, 1999; Borko & Putnam, 1996). Since candidates lack opportunities to get into the mind of a teacher so as to link teacher thoughts and behaviors to what occurs in the classroom and what is written in their college textbooks, candidates experience a disconnect between theory and practice and ultimately graduate unprepared for the demands of the profession.

School-college collaborations, recognized for their many benefits (Trubowitz, 1986; Trubowitz & Longo, 1997), can maximize opportunities for preservice teachers to experience theory in practice while ensuring that best practice at the school corresponds to instructional strategies espoused by the college instructors. However, in addition to just *observing* best practice and helping preservice teachers appreciate the value of such approaches, candidates need to have the opportunity to learn about the teachers' underlying cognitions that account for such exemplary practice.

Faculty at the Louis Armstrong Middle School (LAMS) and Queens College of the City University of New York, have been collaborating since 1979, when LAMS was established. This long-term collaboration has enabled the trusting relationship that is necessary for middle school mathematics faculty to open their classroom doors as well as share their cognitions with college mathematics educators and the future teachers who are enrolled in an innovative freshmen course, the Psychology of Learning Mathematics, that is part of a comprehensive four-year

teacher preparation program<sup>1</sup>. What follows is a brief description of the freshmen course, the Psychology of Learning Mathematics, and its accompanying, aligned fieldwork.

### *A Brief Description of the Course*

We believe that to maximize our influence in preparing reform-minded secondary mathematics teachers, we must begin by identifying them and working with them as early as their first semester in college. To support this belief, the Psychology of Learning Mathematics course was designed and instituted to build on college freshmen's past and present learning experiences in mathematics. To enable this process, each week students are given a series of questions, which we call a "launch," that helps them to tap into their past experiences that they use to make conjectures about the psychological learning issues under consideration.<sup>2</sup> For example, to prepare for a unit on motivation, the freshmen are given the following "launch" questions, first to work on alone, and then to discuss in small groups:

1. In high school what motivated you to do your work in your mathematics class?
2. In high school what motivated you to do your work in your social studies class?
3. In college what motivates you to do your work?
4. Some people are not motivated to do their work. Why?
5. So, what do you mean by *motivation*?

Through the discussion of the "launch," the definition of motivation as a "driving force" emerges as well as patterns that suggest the distinction between intrinsic and extrinsic motivation. Using this student-centered approach to learning about motivation serves as a model for reform-based instruction and the value of building on students' prior knowledge as a viable method of learning. As well, it sets the stage for the fieldwork visit in which the middle school teacher addresses how she considers motivation as she creates lessons that are designed to meet the needs of her diverse students. To focus their attention on the psychological concept under study, in this case, motivation, preservice candidates are asked to respond to specific questions as they observe the middle school class. For example, in the case of motivation, the preservice candidates are asked to notice instances of intrinsic or extrinsic motivation and to react to the effectiveness of the implemented motivational strategies.

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<sup>1</sup> For more information about the TIME 2000 Program (i.e., Teaching Improvements through Mathematics Education) at Queens College, visit [www.qc.edu/time2000](http://www.qc.edu/time2000).

<sup>2</sup> For the complete set of launches see <http://qcpages.qc.cuny.edu/SEYS/faculty/artzt/launches.htm>.

### ***Fieldwork for College Freshmen***

One day a week for ten weeks, a school bus transports the twenty-seven freshmen from Queens College to the Louis Armstrong Middle School. The fieldwork consists of three components: (1) pre-observation discussion with the classroom teacher and the college supervisor; (2) observation of the lesson; and (3) post-observation discussion with the classroom teacher and the college supervisor.

#### ***Pre-observation Discussion with the Classroom Teacher and the College Supervisor***

When they arrive at the school, the freshmen report to Mrs. Porter's classroom for a 45-minute discussion of the psychological concepts and constructs that are the focus of their observation<sup>3</sup>. The discussion is moderated by one of the college instructors. The freshmen describe what they are learning on campus and the key ideas they are assigned to observe. Mrs. Porter listens to them attentively even though she is aware of the syllabus and keeps up with the required readings in Ormrod (2006). For example, for one of the observations Diallo, a college freshman, described his understanding of the role of motivation in learning. He asked Mrs. Porter whether her students are intrinsically motivated or extrinsically motivated. Mrs. Porter then elicited from Raluca, another college freshman, some characteristics of learners who are intrinsically and extrinsically motivated.

To understand how Mrs. Porter intended to motivate her eighth graders for the day's lesson on evaluating expressions containing integers, she asked the freshmen to work on the motivational mathematical problem that she had posted on the chalkboard:

If your friend borrows \$15 from you this week and owes you \$6 from last week, how much does your friend owe you altogether? Translate the situation into a number sentence and explain your answer.

After reviewing the problem and eliciting the multiple ways that the eighth graders might respond, Mrs. Porter describes the content of her carefully planned lesson, highlighting her thinking about the content, her knowledge of and her expectations for her students, and her anticipated student responses to the planned activities. She also includes comments regarding how she includes extrinsic motivation in the form of stickers, for those students who appear to

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<sup>3</sup> For the ten observation topics and field assignments see Curcio, Artzt, & Porter, 2005, p. 609.

need more than just an interesting mathematical problem to get them motivated. Since, for the most part, the college freshmen believe that teaching is simply showing learners how to apply rules, they are amazed at what Mrs. Porter reveals about her planning. This sets the stage for later courses in the program that highlight how teachers' knowledge, beliefs, and goals influence their instructional practice (Artzt & Armour-Thomas, 2002).



**Photo 1: Mrs. Porter explaining her plans for the lesson**

### ***Observing the Lesson***

Before the eighth graders arrive, the 27 college freshmen arrange their seats in the back and along the sides of the classroom. So as not to distract or disrupt instruction, they do not communicate with each other at all. During the lesson they record specific examples that support the guidelines for the observation. Sometimes the college freshmen are permitted to walk around the room to observe the eighth graders working. Other times the freshmen are invited to work with the eighth graders in their small groups. The freshmen observe the classroom dynamics— student-student interactions, teacher-student interactions, and how the theory discussed in the college course plays out in the classroom. For this lesson, they were attentive to intrinsic and extrinsic motivation, motivational strategies employed when they worked with a small group of students, and the effectiveness of the motivational strategies they observed and that they employed.



**Photo 2: Mrs. Porter examining her student's answers as she works with TIME 2000 freshman, Georgia**



**Photo 3: TIME 2000 freshman, Jared and Sara, working with LAMS eighth graders.**

### ***Post-observation Discussion with the Classroom Teacher and the College Supervisor***

After the lesson, the eighth graders travel to their next class, leaving Mrs. Porter and the freshmen to debrief about the lesson. The teacher and the observers collect their thoughts for about five minutes, after which Mrs. Porter begins by sharing her reactions to the lesson and her students' behaviors. As Mrs. Porter reflects aloud, the freshmen have the opportunity again to "get into the mind of the teacher." She shares her insight into her thinking about her students' learning and what she plans to do for her next lesson. During this post-lesson discussion, the

freshmen have the opportunity to ask Mrs. Porter specific questions related to the psychological principles they observed in action during her lesson (i.e., the role of motivation in learning).



**Photo 4: TIME 2000 freshman, Mary, asking Mrs. Porter a question at the briefing.**

The freshmen are required to prepare a written report for discussion back at the College. At the end of the semester, Samantha wrote the following in her journal:

One of the qualities of being a great teacher is to be able to predict and anticipate students' misunderstandings and trouble areas before a lesson even begins. When I observed Mrs. Porter, this amazing element of teaching is what stood out, and surprised me in the classroom. My fellow classmates and I would discuss the lesson of the day with Mrs. Porter before her class began. She would directly point out which exact questions her students would ask and which exact areas she would have to spend more time on. And Mrs. Porter was always right! She told us that before her lessons she would look over all of the mathematics problems that she would introduce to the class and figure out which examples would be more challenging to the students. By doing so, she isn't just teaching material because it is in a syllabus. She does this because it focuses on the needs of the students which will in turn broaden and advance their knowledge of mathematics, instead of just memorizing and not understanding material.

The impact that this experience has on candidates is long-lasting. Reflecting on planning in her senior journal, Rebecca wrote:

Mrs. Porter once said to us that each day's lesson plan had to be adjusted based on her perception of the level of understanding of the students of the previous day's lesson. I had previously thought that a lesson plan could be a fixed thing, used over and over year after year, exactly the same way. But as a freshman, for the first time, I was hearing from a teacher that teaching is all about

changing and manipulating and re-formatting to match the current level of comprehension of these particular students. I was starting to feel that teaching was not as easy a job as I thought it was, and this feeling has grown during my years in TIME 2000.

### *Closing Comments*

The success of this collaborative project is dependent upon the support of school administrators who provide Mrs. Porter with a teaching schedule that allows her to meet with the college freshmen and the college supervisor. Such support reflects the value placed on this collaboration. For this, we are grateful.

The fieldwork described in this article supports the psychological literature related to teacher cognitions, exemplifies best practice, and goes beyond linking theory and practice by getting into the mind of the teacher as she thinks about the content, her students, her high expectations for them, and instructional strategies suitable for her diverse student population. We have found that this has a powerful impact on the development of future secondary mathematics teachers whose students will reap the benefits of their high-quality instruction.

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