


Chapter 5

Embracing the Inherent Messiness in Urban Education: Learning From a STEM and Leadership Program

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ABSTRACT

This chapter discusses the philosophies and practices that drive the MSUrbanSTEM Leadership & Teaching Fellowship Program. This multi-year project offered a professional development program to three cohorts of K-12 STEM educators from Chicago Public Schools, one of the largest urban districts in the U.S. This chapter provides a holistic view of the program, focuses on the strategically developed curriculum and the theoretical bases for the chosen pedagogy. In addition, because the sustainability was an integral part of the program, the chapter describes the role of sustainability fellows. Finally, the authors provide some findings about the teachers' growth and development.

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‘UNDERSTANDING’ THE PROGRAM

He is in a new confusion of his understanding;

I am in a new understanding of my confusion

- Robert Graves, “In Broken Images”

How one frames a complex issue or problem has a significant influence on how one seeks to understand or resolve it. Framing helps people interpret the world around them and helps them communicate these interpretations and understandings to others. It helps individuals to organize complex phenomena in somewhat coherent, understandable categories, helping persons to separate relevant aspects of a given phenomenon from irrelevant. Framing helps provide meaning.

The importance of framing becomes even more significant when looking at teacher education and teacher professional development. One approach to teacher professional development (PD) emphasizes the value of clarity and order; seeking to organize activities and plans. This approach emphasizes that teachers in training should know what teacher educators value. This approach is clear in idea, driven by theory, which becomes a lens for interpreting facts, and is ready for application. For instance, in the case of PD for science educators, this approach may offer a singular focus on removing student misconceptions, or on modeling as being critical component of learning science.

A contrasting frame towards teacher PD assumes messiness, focuses on multiple theoretical perspectives, is tentative in application, comes with a belief in deconstructing and questioning what one thinks is fact, and is driven more by bottom-up notions of the richness of practice and the world within which it functions. This chapter is an attempt to describe a program that utilizes such a frame.

These contrasting frames can lead to different forms of PD with different goals and expectations, and hence different outcomes. The authors attempt to capture these contrasts with the quote that starts this chapter an excerpt from Robert Graves’ poem “*In Broken Images*.” The authors deliberately selected this poem to start the chapter, since this poem became representative of what the researchers were engaged in as a part of a year-long professional development program designed to help teachers grow their pedagogical and leadership skills to facilitate innovative STEM (Science, Technology, Engineering & Mathematics) instruction. To be clear, this idea (of getting a better understanding of our confusion) was not something that was imposed on the teachers who were part of the program, but, rather, was an emergent idea that grew organically as the participating teachers and program instructors worked together over a year.

Emphasizing the inherent messiness in teaching and professional development is not to suggest that the designers of the program were not deliberate or thoughtful in their approach, but, rather that in their planning, they were sensitive to the disturbances and disruptions that could open up spaces for conversation and learning. In some ways, the poem argues that the ultimate goal that educators can aspire to, over time, when engaged with the wicked problems of teaching and learning, is “a new understanding of our confusion.” This is not a pessimistic goal but rather a realistic one, respecting both the complexity of the task that this program is facing, and respectful of the ongoing effort to understand the complexity.

The program, described in great detail below, aimed to embrace an attitude of questioning and wonder; where failure and confusion were not only accepted, but expected; and where technology was not perceived as a solution but rather as a context and tool for inquiry. In brief, the goal of this PD program

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