

# **Information Infrastructures to Support Ambitious Instruction in Urban Schools: Bringing Diverse Perspectives to Bear on a Tough Problem**

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Urban schools are notoriously “loosely coupled,” that is, school practitioners generally operate in isolation from each other, with only tenuous and impersonal connections with school, local, or state administrations. The causes of this range from the social to the structural. The results are obstructive to the possibility of ambitious instruction. One constructive wedge into transforming schools toward ambitious instruction is the development of an enriched information infrastructure that can support teaching and learning in classrooms. Through design research in developing this infrastructure, we stand to learn a great deal about school transformation, and about the design of technologies and social practices to support effective use of information about students.

In order to engage this endeavor, we have assembled a group of researchers, designers, and practitioners whose combined expertise can serve to address the variety of causes behind the current state of affairs, and the variety of needs in developing new tools. The diversity of voices in this work is critical to our progress. At the same time, diversity brings with it pragmatic and theoretical challenges to communication – how are we to find time to talk to each other? How are we to build the common language needed to speak to each other?

In this poster, we describe three key elements of our work: our conceptual framework, our design work, including our collaborations across schools, commercial entities and universities; and our tools for managing and capitalizing on the diversity of our collegueship.

## **Conceptual Framework**

Our conceptual framework combines a variety of perspectives, centering on activity theory as a human-computer interface design tool (Nardi, 1996) and design-based research (Design-based Research Collective, 2003). Five categories of considerations provide us with lenses on our design work as well as our research: Developing the professional community needed to support ambitious intellectual work in schools, supports for school change, principles for the design of tools and practices, problem-centered research and development, and a theory of travel as we move from sites with a strong basis for engaging technology-based reforms into more ordinary, less-equipped schools. Our poster describes how our diverse research perspective supports the ongoing use, development, and coordination of these lenses.

## **Design Tasks**

We are simultaneously designing a suite of software tools and social practices intended to facilitate evidence-based information analysis, communication, professional learning, and coordination across school tasks. Furthermore, we are collaborating with software developers to produce some of our designs. In addition to describing these designs, we highlight how our team collaborates across these varied perspectives to produce effective, coordinated systems.

## **Managing and Making Use of Diversity**

These complex theoretical and design tasks taking place across our geographically and institutionally distributed team require us to create systems for coordinating our work. We describe a set of software tools and social practices we have created to manage our own work as design researchers. How can we create systems that counteract that tendency and instead support and reward intense collaboration? Our goal, ultimately, is to cause the development of a common frame of reference across school actors. The target of this poster is the development of a common frame of reference across actors responsible for this project – an information infrastructure to support design research at this scale.

## **References**

- Design-Based Research Collective (2003). Design-Based Research: An Emerging Paradigm for Educational Inquiry. *Educational Researcher*, 32(1), 5-8.
- Nardi, B. (Ed.). (1996). Context and Consciousness: Activity Theory and Human-Computer Interaction. Cambridge, Massachusetts: The MIT Press.