The Power of Improvement Networks to Transform Educational Inquiry: A Preliminary Exploration

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Abstract: Educational Improvement Research is offered as an alternative to translational research and action research. Translational research often takes the world’s natural variation as noise to be controlled so that the efficacy of an intervention is accurately judged. Translational research, while rigorous, often loses contact with local contexts. Action research takes as its raison d'être creating the conditions for and the assessment of effectiveness within local contexts, but often is criticized for failing to produce generalizable knowledge. We propose educational improvement research as a middle course. Undergirded by principles from quality improvement and networked improvement communities (NIC), educational improvement research aims to remain connected to settings of practice while producing reliable knowledge.

Introduction
The flow of educational knowledge between research and practice tends to move in one of two directions. In translational research, knowledge typically flows “downstream,” taking social science theories from fields like cognitive and behavioral science and applying them to the design of certain educational technologies, or interventions. This approach has had some notable successes. For example, writing interventions based on decades of social psychological research have been shown to have substantial effects on student achievement that persist for years (Yeager & Walton, 2011). A strength of this research is its explanatory power: when interventions spur progress on key problems, success can be explained by well-evidenced theories. At the same time, to “work” at scale, these interventions typically are propagated with a belief that a high degree of fidelity of implementation is required for success. Consequently, these interventions typically operate on small evidence-based kernels, “fundamental units of behavioral influence that underlie effective prevention and treatment” (Embry & Biglan, 2008, p. 75).

In contrast, many forms of action research flow “upstream.” Rich investigation of one or more local practices or interventions are studied and analyzed to make sense of what’s working and what’s not. Action research focuses on specific local problems, exploring the understanding of different local actors within an organization or system. In education, it is most commonly associated with teachers working individually or in small groups on the felt needs in classrooms and schools. Action research has great value in that it organizes on-the-ground practitioners around problems of practice. Its methods are non-linear, characterized by cycles of planning, acting, observing, and reflecting on the changes in the social situations. Action research has many demonstrated successes addressing particular problems, but it tends to place much lower priority on understanding the causes, in terms of basic theory, that are at work in particular improvements. Consequently, successful action research projects tend to remain as locally-bound cases of innovation with little access to other contexts.

Despite the strengths of each, neither approach is well suited to addressing complex problems educational practice at scale. These kinds of problems tend to be more causally diverse than those addressed by translational research, and they require coordinated action and organizational learning at greater scales than most action research. Of course, not all efforts to use educational inquiry to improve schooling fall in one of two camps. Many forms of program evaluation and design research (e.g. Phillips & Dolle, 2006) could be situated somewhere between these approaches. With few exceptions, these approaches have also fallen short of addressing many of the systemic problems of practice facing educational systems. To tackle this problem space, we introduce a collaborative learning structure known as a networked improvement community (NIC) (Engelbart, 2003). NICs combine the methods of quality improvement that have grown in popularity over the last five decades--but not significantly penetrated educational institutions--with a distributed network structure organized around a shared aim or purpose.

The improvement orientation of NICs is not unlike the design-based implementation research recently described by Penuel et al (2011). Both focus on problems of practice, make use of iterative collaborative structures, develop useful theory through disciplined inquiry, and are concerned with building capacity for sustaining systemic change. What distinguishes NICs is its intentional formation organized to improve learning at scale.
**Improvement Networks: A Third Way**

Recently we have explored a new model of educational research and development that we call *educational improvement research* (Bryk & Gomez, 2008; Bryk, Gomez, & Grunow 2011). This model has two important dimensions that distinguish it from most educational inquiry. First, it builds on the practical intellectual heritage of Deming (2000), and others who pioneered principles of *continuous quality improvement*. This improvement science (Langley, Moen, Nolan, Nolan, Norman, & Provost 2009) seeks to bring the practice of disciplined inquiry to bear in the continuous improvement of products, services, or processes. As we are indebted to the current work in the Learning Sciences, we are also indebted to the efforts of Don Berwick and colleagues at the Institute for Healthcare Improvement (IHI) who pioneered a set of inquiry practices and conceptual frameworks that are now broadly applied to improving health services world-wide. Health services bears a family resemblance to education for many reasons not the least of which is that it is peopled by professionals who have a strong sense of individual agency when lives of users--students or patients--could be improved by relentless attention improvement.

The second cornerstone consists of a model of social infrastructure for continuous improvement across organizations. Engelbart defines a NIC as a distinct organizational form that arranges human and technical resources so that the community is capable of “getting better at getting better” (Engelbart, 2003). The power of NICs can be understood by considering three domains of organizational activity. A-level activities are the day-to-day work of carrying out the organization’s primary business. In the case of schools this is the work of classroom teaching. B-level activities are those designed to improve the on-the-ground work, typically taking place within a single organization. This work in school districts, for example, might include the professional development of instructors or the provision of data that improves school management.

C-level activity is much less common and typically involves cross-organizational co-ordination and learning aimed at *getting better at getting better*. Here institutions engage in concurrent development, working on problems and proposed solutions that have a strong family resemblance. Concurrent activity across organizations places relevant aspects of the context in focus and can help each local setting see its efforts from new vantage points. In principle this functions as an asset to local problem-solving and cross-organizational generalization. Engelbart (2003) observes that C-level activity affords mechanisms for testing the validity of local knowledge, adjusting local understanding of the true nature of a problem, and advancing local support structures for improvement.

NICs engaged in improvement research combine elements of both translational and action research in a way that facilitates cross-network learning and improvement of practice. Like translational research, NICs try to use and build upon existing theories in ways that improve practice. Like action research, NICs draw insights and innovations from practitioners’ experiences whose practice is transformed by network participation. The basic conjecture is that improvements at scale may best emerge from fleets of small, ongoing studies, coordinated across many contexts, rather than within a large field trial or through discrete local efforts carried out in isolated settings. This is a requirement for achieving effective and reliable outcomes at scale: diverse participants working in varied organizational contexts, but working within a common infrastructure that coordinates their inquiries.

**References**


