LeadEd503x
Improvement Science in Education

Course Overview

The goals of *Improvement Science in Education* are:

- To develop conceptual understanding of the principles and practices of improvement science.
- To develop the agency and capabilities to enact principles and practices of improvement science to address persistent problems of practice in educational contexts.
- To develop leadership capabilities to frame the work of improvement, develop technical capabilities among colleagues, and cultivate a social/relational infrastructure supporting continuous, collaborative learning and improvement.

Course Context and Rationale

Pursuing new visions for classroom and schools requires designing and leading novel types of learning systems to support collaborative, continuous improvement among diverse teams of educational professionals. Improvement science is an essential resource that supports leaders in doing exactly that.

With roots in industry and health care, improvement science is a rigorous approach to educational innovation and improvement that supports teachers, leaders, and researchers in collaborating to solve specific problems of practice. Improvement science brings discipline and methods to:

- Analyzing problems and systems
- Designing solutions
- Measuring processes and outcomes
- Rapidly refining solutions through iterative cycles
- Spreading and adapting change ideas to new contexts

For teachers, school leaders, and system leaders, improvement science moves educational innovation out of the realm of "fad" and into the realm of research-based, evidence-driven continuous improvement, with the goal of improving practice and outcomes.

Course Structure and Faculty

The course is led by:

- Anthony Bryk, President, Carnegie Foundation for the Advancement of Teaching.
- Alicia Grunow, Senior Fellow, Improvement Science, Carnegie Foundation for the Advancement of Teaching
- Amanda Meyer, Associate, Improvement Science, Carnegie Foundation for the Advancement of Teaching.
- Donald J. Peurach, Associate Professor, School of Education, University of Michigan.

The course is structured as follows:

- Course Kick Off: Introduces the MicroMasters program and this course, and details "Self Directed/Community Supported Learning" as the lesson structure/pedagogical design underlying the course.

- Lesson 1 – Introduction to Improvement Science: Introduces the intellectual history of the Six Core Principles of Improvement, and examines their use in constructing an improvement narrative that frames shared work, motivates participation, and inspires hopefulness

- Lesson 2 – Understanding the Problem and the System that Produces It: Introduces the importance of starting with the problem to solve, and explores the use of various improvement tools to analyze problems and their causes.

- Lesson 3 -- Focusing Collective Efforts Around a Shared Theory of Improvement: Examines the development of improvement aims and the use of shared theories that articulate how those aims may be reached.

- Lesson 4 -- Testing Changes and Building Evidence: Introduces iterative plan-do-study-act cycles and measurement for improvement to support the rapid enactment, evaluation, and revisions of change ideas.

- Lesson 5 – Achieving Quality at Scale: Frames the journey to achieving measurable results at scale as a sequence of carefully orchestrated collective learning activities, and motivates the importance of attending to the human side of change.

- Lesson 6 – Putting It All Together: Integrates the major principles and practices covered in this course and invites learners to charter improvement initiatives in their own professional contexts.

- Closing Thoughts: Looks back on LeadEd503x (*Improvement Science in Education*) and forward to LeadEd504x (*Case Studies in Continuous Educational Improvement*).

Course Outcomes

After finishing this course, learners will be able to:

- Advance an improvement narrative anchored in principles and practices of improvement science.
- Use this course (and artifacts generated in this course) as resources for introducing colleagues to the principles and practices of improvement science.
- Charter an improvement project in their own professional contexts.

Expectations for Learners

Learners are expected (a) to review each component of every lesson and (b) to complete the Study Guides and Team Practice exercises. This course requires the learner's active reflection on the materials presented and engagement in the assigned tasks within each module. Some of the activities will take only a few minutes; others will require more extended engagement.

Grading Policy

The grading policy for this course is designed to capture key learning. Completion of all the assignments and tasks in all lessons will result in a passing grade. Viewing of all components of the lessons will be tracked through the learning platform to ensure that not only were required tasks completed but that all materials were reviewed by learners.