Designed to Improve: Improvement Science for Evaluators

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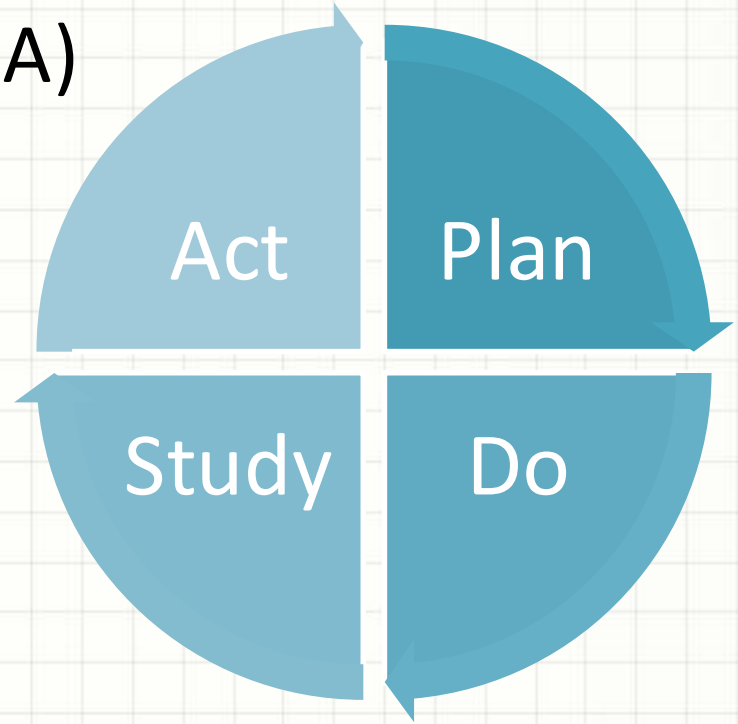
Why Improvement Science?

- Bridge gap between research/evaluation and problems of practice
- Approach inquiry as contextually bound, tied to needs of practitioners

Two Approaches

1. Design-based implementation research (DBIR)
2. Carnegie approach with plan-do-study-act (PDSA)



DBIR

- Research approach grounded in engineering principles
- Focused on persistent problems of practice
- Knowledge and theory co-created with practitioners in real-world contexts
- Iterative, collaborative design
- May or may not develop systemic capacity

Carnegie approach

1. Problem-specific and user-centered work
2. Work focuses on variation in performance
3. Understand the system that provides the current outcomes, actively try to improve system
4. Practical ways to measure outcomes and processes to track if changes are improvements
5. Disciplined inquiry based on cycles of PDSAs
6. Accelerate improvements through networked communities

How do evaluation approaches converge and diverge with improvement science?

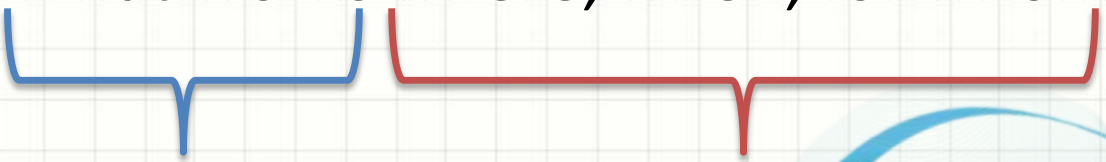
	DBIR	Carnegie	Participatory or Empowerment Evaluation
Stance of researcher/ evaluator	Engaged in design decisions, studying processes and outcomes	Engaged in design decisions, studying processes and outcomes	Engaged in studying processes and outcomes, not in design decisions
Stance of practitioners	Active in inquiry	Active in inquiry	Can be active in inquiry
Data collected by	Researchers and practitioners	Researchers and practitioners	Depends
Researcher/ practitioner relationship	Reciprocal relationship, blurred lines	Reciprocal relationship, blurred lines	Evaluator often still distinct
Intended outcomes	Build theory and capacity	Change the system	Build capacity, make claims about processes or impacts, maybe change system
Nature of findings	Normative and prescriptive	Normative and prescriptive	Normative or descriptive

Role of Experimental and QE Designs in Improvement Science?

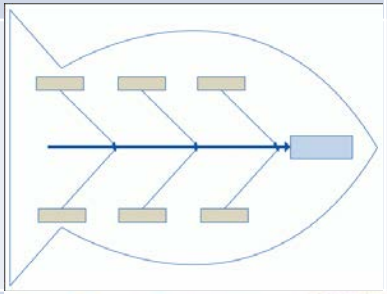
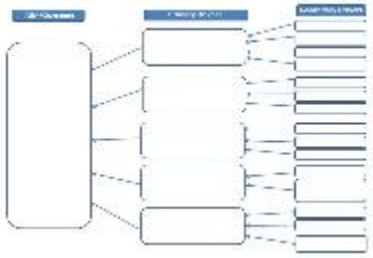
- Many funders interested in rigorous designs, where rigor = experimental and quasi-experimental designs
- Tend to be expensive, time-consuming
- Knowing “what works” is not enough to drive change

Role of Experimental and QE Designs in Improvement Science?

- Perhaps rigorous designs can exist within improvement science
  - Enable practitioners to form warranted judgments about their practice
  - Focus on intersection of policy/program and context
  - What works where, when, for whom



Carnegie Example: Students' Early Reading Levels

Overall plan	Identify specific problem, define a set of indicators, and select a set of strategies to be tested using plan-do-study-act (PDSA) cycles
Problem identification	Collaborative discussion of problem and malleable factors (subgroups, trends, school experiences, differences between and within schools) 
Problem prioritization	Prioritize identified problems into driver diagram 
Measure identification	Outcome, primary driver, 3-4 process, balancing (money or time)
Intervention testing	PDSA cycles focused on a single step or small change of short duration, applied initially to a small sample size
Networked info sharing	Groups engaged in PDSA network together to share results of PDSAs in networked improvement communities

DBIR Example: Community College Remediation

Overall plan	Focus on persistent problems of practice from multiple stakeholders' perspectives, conduct collaborative improvement work (two mathematics pathways)
Problem identification	Root-cause analysis to map problem, analyze system that causes high failure in developmental math; driver diagram
Organizing for improvement	Relied on theories of math learning and engagement, role of noncognitive factors ("productive persistence")
Intervention development	Theoretically grounded instructional system, accessed expertise through networks of practitioners, researchers, and designers. Inquiry toward implementation and improvement of intervention; core design principles with local adaptation.
Intervention testing	Common tools to measure implementation, reporting from developmental evaluators
Networked info sharing	Coordinated through organizational routines

Russell, J. L., Jackson, K., Krumm, A. E., & Frank, K. A. (2013). Theories and research methodologies for design-based implementation research: Examples from four cases. *Yearbook of the National Society for the Study of Education, 112*(2), 157-191.

How Can Improvement Science Intersect with Evaluation Practice?

1. What connections do you see between evaluation approaches and improvement science?
2. How would improvement science change your practice as an evaluator?
    a) Would your engagement with clients look different? If so, how?
    b) How would you use different approaches (experimental and quasi-experimental, for instance)?
    c) How might dissemination change?