Rapid Learning:

Methods to Examine and Improve Social Programs

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Rapid learning methods can be important tools to examine and improve social programs. Multiple rapid learning approaches have been developed and deployed in different settings and for different purposes. While these approaches share common traits, they have differences in terminology as well as methodology. These differences can result in confusion about which methods are best suited for what purposes.

In this context, the Office of Planning, Research, and Evaluation (OPRE) in the Administration for Children and Families, U.S. Department of Health and Human Services, convened *Rapid Learning Methods for Testing and Evaluating Change in Social Programs* in 2018. This meeting, part of OPRE's Innovative Methods meeting series, provided an overview and real-world examples of rapid learning methods intended to examine and improve social programs.

This brief is based on a presentation at the 2018 meeting. It provides an orientation to rapid learning methods, including (1) a definition of rapid learning methods, (2) a guiding framework of questions to design an optimal rapid learning approach, and (3) suggested steps that federal agencies can take to promote the effective use of rapid learning methods.

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WHAT ARE RAPID LEARNING METHODS?

Rapid learning methods intend to expedite program improvement and enhance program effectiveness. They use data to test implementation and improvement efforts in as close to real time as possible. Many rapid learning methods leverage iterative cycles of learning in which evaluators and implementers (and sometimes funders/ policymakers) discuss findings, interpret them, and make adaptations to practice and measurement together. These methods can support data-driven decision-making in practice, in the spirit of ongoing improvement.

Core Traits of Rapid Learning Methods

1. Start with program objectives.
2. Identify a strategic change to test.
3. Hypothesize potential improvements.
4. Determine the appropriate measurement.
5. Analyze the outcomes and make decisions.

An emphasis on data-driven service delivery gained traction in the 1980s. Initially, efforts enabled program staff to report administrative data to officials outside the organization to build transparency and accountability. Since then, several disciplines have developed methods to use data internally and across hierarchies so that teams of frontline providers, supervisors, program managers, and leaders interpret data and make informed choices to change practice and policy.[1] Rapid learning methods explicitly aim to facilitate learning in as short a timeframe as possible, often informing decisions at different levels of program operation; along a spectrum of research rigor (i.e., the extent to which evaluations elucidate causal relationships using validated, reliable measures); and with varying degrees of formality.

Rapid learning methods share common traits; they start with program objectives, identify a strategic change to test, hypothesize potential improvements, determine appropriate measurement, and analyze outcomes to make decisions. All use data; some employ methods to determine causality (randomized controlled trials, comparative interrupted time series, regression discontinuity, instrumental variables estimation); and some incorporate advanced statistical methods to make predictions (Bayesian analysis).

Often the most effective rapid learning methods rely on collaboration between program staff who are proactively engaged in the learning process and evaluators who are curious about implementation, respectful of program operations, and skilled at providing feedback. To be effective, these relationships must be characterized by trust, fluid communication, and a shared sense of purpose in improving the program.

Rapid Learning Myth 1

Rapid learning is an alternative to program evaluation.

Wrong. Rapid learning can complement evaluations that seek to measure the overall impact of a program or policy. Rapid learning can be embedded into an evaluation of overall program impacts in effective ways. These evaluations typically seek to measure the overall impact of a program or policy, often in a multisite study. Rapid learning can be embedded into these evaluations. In some cases rapid learning can help ensure the program being evaluated is adapted effectively within each site. In other cases the program itself includes a continuous improvement objective; rapid learning methods can support continuous improvement while helping the evaluation capture changing dynamics.

[1] See Wholey, J. (2001). Managing for results: Roles for evaluators in a new management era. *American Journal of Evaluation, 22*(3), 343–347; Goren, P. (2012). Data, data, and more data—what's an educator to do? *American Journal of Education, 118*(2), 233–237; and Blumenthal, D., & Kilo, C. M. (1998). A report card on continuous quality improvement. *Milbank Quarterly, 76*(4), 625–648.

DESIGNING A RAPID LEARNING APPROACH

The optimal design for rapid learning will depend on the context and objectives of the analysis. Figure 1 lists key questions that should be answered before developing a rapid learning design. Answers to these questions will help determine which design options to select. It is important to note that the best rapid learning approach cannot be derived by formula. Rather, each decision comes with tradeoffs; developing the optimal rapid learning approach requires balancing those tradeoffs.

Figure 1. Core Questions for Designing a Rapid Learning Approach

What am I trying to understand?	Having a clear, concise response will help answer subsequent questions, focus analysis, and communicate your needs and expectations to others.
What outcomes do I want to change?	While everyone can get on board with "improvement," it may mean different things to different people, especially in the context of programs with complex theories of change. An explicit statement of target outcomes helps focus and refine rapid learning methods.
How will I use the results? Who else will use them?	Rapid learning analyses need to be defined for decision-makers. A precise, rigorous estimate is useless if it is not pertinent to decisions the implementers, program designers, or funders need to make.
What are the organization's priorities, and where does this issue fit?	High-priority issues can benefit from higher levels of organizational support; they may carry shorter timelines and may carry limitations about what can actually be tested.
How confident do I need to be in the results?	Stated differently: what is the risk of being wrong? If a false positive/ false negative could lead to participant harm, higher costs, etc., more confidence may be required. However, not all analyses require the highest levels of confidence.
How hard is it to implement the innovation?	Complex, program- or system-wide innovations can be difficult to test incrementally or experimentally.
How much support and engagement of program delivery staff do I need?	If staff do not buy in to improvement efforts, the efforts are less likely to succeed. Additionally, some improvement strategies require staff to be engaged in the analysis.
What data are available?	The availability of data on target outcomes for the target population will have implications for design. If outcomes cannot be directly observed (at all or within the time allotted), proxy measures may be available.
How soon do I need to know the results?	Continuous improvement may be ongoing, but program decisions are made on discrete timelines.
What time is needed to observe an impact? Is there a near-term proxy for that impact?	Rapid is relative. For improvements in long-term outcomes, longer timeframes may be needed. However, these timeframes can be shortened if near-term proxies for improvement are available.

With answers to these questions, program administrators, researchers, and other stakeholders can design an optimal rapid learning approach. Core design decisions include the following:

Who will design the improvements to be tested? Some rapid learning methods test improvements developed by program developers, researchers, software engineers, etc. Others test improvements designed by the program's frontline staff. Still others test improvements developed by a combination of both. Improvements designed by staff benefit from their knowledge and experience. They can target the core challenges that may go unseen by staff at higher levels. Having staff develop the improvements can also build enthusiasm for rapid learning. On the other hand, improvements designed by program developers, researchers, and others can benefit from familiarity with the latest innovations in the field.

Rapid Learning Myth 2

Rigorous methods cannot be rapid.

Wrong. Under the right circumstances, randomized controlled trial (RCT) studies can happen within a day. Factors that affect RCT timelines include how long program changes take to affect outcomes, how many participants are included in the experiment, and what data are available. RCTs can be particularly valuable when decision-makers need a high degree of certainty in the findings (because the consequences of being wrong are significant).

What outputs or outcomes will be monitored? Central to the rapid learning design is deciding what specific information will be used to determine whether an improvement has occurred. What data are available? What is the best measure of the target outcome? How frequently can and should outcomes be observed? What are their limitations? In cases where building staff engagement is beneficial, having staff participate in measure development can be beneficial.

What comparisons will be used to identify improvements? In order to determine if a program change resulted in improvement, a comparison is needed: improvement compared to what? A variety of comparisons are possible. Outcomes can be compared with historic trends, performance targets, national benchmarks, "control group" participants, predicted outcomes, and program model expectations. Each comparison answers different questions, and the right question depends on the context and objectives.

Who will make the comparisons? The actual analysis needed to identify improvement can be made by independent researchers, program administrators, and/or program staff. Independent researchers may be required to make comparisons when methods are complex and/or when independence is required. However, having staff make comparisons can be valuable for generating a culture of continuous quality improvement in the program.

Rapid Learning Myth 3

Rapid methods cannot be rigorous.

Wrong. While not all applications of rapid methods are rigorous, some definitely are. For example, under the right circumstances, random assignment can be incorporated into Plan-Do-Study-Act (PDSA) cycles, enhancing confidence in the results. If the short-term measure for the outcome of interest is reliable, and it is possible to test on a single individual over time, the PDSA approach can be as rigorous as a single case design study. If workflow is high and cycle times are short, time series evaluations of a population's outcomes over time can use statistical process control charts and other methods to identify associations between ideas tested using PDSA cycles and improvements in outcomes.

In other situations, PDSA cycles will not meet the standards of rigor expected for research and evaluation of programs. This can happen when there are no short-term, validated, standardized measures for the outcome of interest, or when program implementation factors make it less feasible to select the population for testing in specific ways.

But even these less-rigorous PDSA cycles may be useful in situations where rigorous research evaluation is impractical, and data-driven decision-making is desired. PDSA cycles enable frontline staff to use the scientific method to ask and answer questions about how changes in practice might improve outcomes. In practice, program staff often experience PDSA testing as useful and empowering compared to a top-down approach. As a result, PDSA cycles can have an ancillary benefit of building a data-driven culture of improvement among staff, which can lead to enhanced program performance over time.

SUGGESTIONS FOR FEDERAL PROGRAMS

Federal agencies are becoming more cognizant of the advantages of continuous learning and improvement. However, for Federal agencies accustomed to summative impact evaluations of overall program performance, next steps may be unclear. Below are suggested steps agencies can take to promote the effective use of rapid learning methods.

- **Establish expectations around evaluation *and* learning.** Federal research agencies should incorporate questions about improvement in their learning agendas.
- **Combine rapid learning with program evaluation.** While most social programs have traditionally evolved over time, most program evaluations assume the program is a fixed thing. Designing program evaluations to include a rapid learning approach can both harness and explicitly capture the dynamic nature of social programs.
- **Write evaluation procurements that foster rapid learning.** Federal agencies should consider leveraging rapid learning methods prior to launching large-scale impact evaluations of programs or even as a component of a large-scale impact evaluation. Allow and encourage evaluators to feed back interim results

and engage program implementers in improvement and evaluation work. This may mean doing away with "firewalls" between evaluation and implementation teams and selecting and supporting evaluators with particular skills.

- **Facilitate trainings on rapid learning approaches.** Federal agencies should encourage and create opportunities for traditionally trained researchers to learn rapid learning methods. Trainings should demonstrate how such methods can be combined with other evaluation approaches to strengthen the evidence base for federal programs and policies.
- **Create venues to share results from rapid learning.** Federal agencies should showcase their work in learning and improvement activities to demonstrate the impact such approaches can have on federal programs and policies

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