



# A “Blueprint in Action” Memo:

*Investing in Research & Innovation*

Innovating with Implementation to Solve  
Education's “Last Mile” Problem

Erin Higgins and Emily Doolittle



**Alliance For  
Learning  
Innovation**

## About the “Blueprint in Action” Series

This memo is a part of a series diving deeper into the recommendations outlined in the [Blueprint for the Future of the Federal Role in K-12 Education Research and Development \(R&D\)](#). Developed in collaboration with InnovateEDU, the LSLN Network, and a [task force](#) of over 150 stakeholders in the field, the blueprint and corresponding [report](#) respond to federal changes impacting education R&D. The task force asserts that the federal government should play a significant role in supporting education R&D by:

→ **Investing in research & innovation:** Funding high-potential, high-impact R&D, and supporting the development and scaling of educational tools and approaches.

→ **Empowering state and local innovation and improvement:** Partnering with state and local leaders to implement evidence-based solutions that improve student outcomes.

→ **Collecting and measuring what matters:** Gathering and publishing high-quality data on the state of education and effective improvement strategies.

## Introduction

The education research and development (R&D) ecosystem was built on the hopeful but ultimately flawed premise that if high-quality research demonstrates an intervention’s efficacy, widespread adoption will follow. This assumption has been proven incorrect, creating a significant “last mile” problem in which evidence-based products, practices, curricula, and policies (referred to collectively as “interventions”) fail to scale widely. Addressing this critical challenge is essential for ensuring the federal government’s investments in education R&D create meaningful change.

## The Challenge and Opportunity

The Alliance for Learning Innovation’s (ALI) [Blueprint for the Future of the Federal Role in K-12 Education R&D](#) notes that “research results should be shared based on what’s ‘likely to work’ given the context, allowing local education leaders and families to make informed choices and scale bright spots to new environments.” The current model guiding R&D investments by research agencies in the federal government does not produce the information needed to support decisions in the way the Blueprint envisions. This R&D model is described in the National Science Foundation’s (NSF) and Institute of Education Sciences’ (IES) [Common Guidelines for Education Research and Development](#) as a “pipeline” of evidence (i.e., basic and exploratory research leads to the development of interventions, which leads to testing promising interventions), though the authors of the guidelines acknowledge that “[education research is] more complicated, less orderly, and less linear than such a ‘pipeline’ suggests.”

These guidelines have been instrumental for identifying factors associated with student learning, developing and piloting interventions, and building a robust body of knowledge

about what works (see the [What Works Clearinghouse](#)); however, they do not go far enough in attending to how an intervention would be implemented in real-world contexts. Instead, the guidelines unproductively focus on the optimal way an intervention should be implemented and only promote the collection of information about whether the intervention was implemented with complete fidelity (i.e., exactly as intended). With this hyperfocus on perfect implementation, there is very little information about the key factors that guide and support implementation in real-world settings. With so much variability within and across classrooms, schools, districts, and states, it is no wonder that local leaders often question whether findings from one context are relevant to their own.

The problem is compounded by researchers' and developers' persistent emphasis on high versus low "fidelity of implementation" as a problem to be solved rather than a variable to be studied in the context of a research study. Low fidelity of implementation is too often to blame as the reason that high-quality studies fail to find the predicted improvements in education outcomes. The unfortunate takeaway is that fidelity of implementation needs to be perfect in order to achieve the intended education outcomes. Additionally, it implies that the responsibility to achieve high fidelity of implementation is on practitioners rather than intervention developers. Many educators and school leaders are rightfully concerned about adopting and sustaining evidence-based interventions, as this would stretch already thin resources and overburdened teachers.

In other fields, there is clear evidence that when implementation is studied systematically alongside the development and evaluation of an intervention, an evidence-based intervention can successfully scale in real-world environments. For example, in the health sciences, three randomized controlled trials demonstrated that the Nurse-Family Partnership (NFP) program improved pregnancy and child health outcomes, but it took an [intentional focus](#) on organizational and community resources, training for implementers, and continuous improvement activities focused on implementation to see NFP scale up to 40 U.S. states and the District of Columbia. As the education R&D field reinvents itself to be more relevant and useful for practitioners and policymakers, it needs a more intentional focus on implementation science.



Implementation science is the study of the factors that affect and strategies that support the adoption, sustainability, and implementation quality of evidence-based interventions. Over the past 10 years, implementation science has made meaningful inroads in the education sciences. Examples include IES-funded projects that address implementation barriers and facilitators directly (e.g., [Development and Evaluation of the Beliefs and Attitudes for Successful Implementation in Schools for Teachers \(BASIS-T\)](#)), IES methods training investments ([A Research Institute for Implementation Science in Education \(RIISE\) to Address the "Last Mile" in Education](#)), and NSF-funded programs (e.g., [Translation and Diffusion](#)). While these are important first steps, these efforts still address implementation mainly as a consideration after an intervention has been developed and tested. Waiting until the last stage in the R&D pipeline to think about implementation creates this unfortunate “last mile” problem.

Recent IES guidance ([Education Research Grants Program—84.305A](#)) has encouraged researchers to consider implementation in new ways. For example, IES asserted that efforts to develop and pilot test new interventions would only be successful if the core components and implementation support for the new intervention were clearly specified, along with the resources and organizational structures necessary for implementation at scale. The new guidance did not go far enough, as IES continued to emphasize implementation fidelity as a factor affecting an intervention’s impact and did not make a major shift towards systematically considering barriers to and facilitators for high-quality implementation throughout all stages of the R&D pipeline.

### **Plan of Action**

Federal government research agencies can take three specific actions to center implementation in the research that is produced, with the goal of solving education’s “last mile” problem.

#### **1) Update education R&D guidelines and standards to place equal emphasis on an intervention’s implementation and impact.**

Instead of focusing on practitioners implementing an education intervention with high fidelity under ideal conditions, federal research agencies should embrace implementation variability as a feature, not a bug, of the education system. Research agencies (e.g., IES, NSF) should update the guidelines and standards for investments and the field’s approach to education R&D. They should build on [recent updates to the What Works Clearinghouse \(WWC\)](#), newer efforts at IES such as the [Standards for Excellence in Education Research \(SEER\)](#), the [Common Guidelines for Education Research and Development](#), and the [Companion Guidelines on Replication and Reproducibility in Education](#) to take up a more

systematic approach to understanding all facets of implementation when scaling up evidence-based interventions. It is not enough to know that something can work; it is important to understand how it works across contexts to ensure schools can successfully implement it and achieve the desired impact on education outcomes.

These updates should:

- **Emphasize implementation at each stage of R&D.** Instead of positioning implementation questions at the end of the R&D process (e.g., during or after an efficacy study has been conducted), researchers should be asking these questions at each stage and reconsider the linearity of the pipeline itself. For example, when defining the problem the R&D seeks to solve, researchers should identify the factors that will facilitate or impede implementation.
- **Promote investigations that determine how robust an intervention's impact is by defining the range of implementation conditions under which it can be effective.** Efficacy studies should capture information about implementation variability, contextual factors, and the strategies that support implementation (e.g., the amount of coaching provided) to build a comprehensive understanding of the factors that impact adoption, implementation quality, and sustainability. This could be done by capturing naturally occurring variations across participating sites (e.g., teachers receive different amounts of coaching due to site differences in resource allocations) or through intentionally varying aspects of implementation as part of the research design (e.g., teachers are randomly assigned to receive different amounts of coaching). Encourage researchers to ask questions such as: How much variability in implementation is acceptable? Are there particular features of the intervention that can vary in how they are implemented? What are the limits to the variety of ways that any given intervention can be implemented and still be effective?
- **Encourage and fund research that develops a deeper and more systematic understanding of conditions on the ground in schools.** This will help identify barriers and facilitators when implementing evidence-based interventions.

## 2) Allocate more funding to implementation research.

Research agencies should develop new funding opportunities to support the establishment of an education R&D subfield that uses a common language and focuses on understanding implementation across different interventions and contexts. In doing so, this subfield will support researchers from multiple disciplines who need to work together in support of relevant and rigorous education R&D. Additionally, research agencies should use funding to incentivize all education researchers to adopt new measures and approaches to better understand implementation in the context of their work.

Research agencies should:

- **Build new requirements into funding solicitations to investigate implementation barriers and strategies.** This should be done alongside determining the potential efficacy of an intervention. For example, when evaluating a new intervention, researchers should be required to explicitly identify the features of the implementation context that facilitate or impede high quality implementation.
- **Fund projects to establish new research approaches and measures that address implementation at different R&D stages.** The field's traditional focus on blunt fidelity of implementation scores is inadequate to understand the robustness of education interventions under variable implementation conditions.
- **Fund teams to rethink approaches to efficacy testing and offer guidance for the field.** Efficacy studies need to be designed to avoid the frustration of discovering after the fact that the treatment group failed to achieve high fidelity of implementation or that the treatment-control contrast was insufficient to detect potential intervention impact (e.g., [What's Happening in the Comparison Group? How to Improve Precision in the Treatment-control Contrast through the Use of an Active Control](#)). Fund teams to explore novel efficacy study designs that can address causal questions about implementation. For instance, further exploration of the use of [hybrid effectiveness-implementation trials](#) is needed to move away from the typical approach of blaming failure to find a main effect on low fidelity of implementation.
- **Fund research teams to leverage existing studies' data to conduct research syntheses, meta-analyses, and [integrative data analyses](#) to extract information about implementation.** Existing data from the comparison group can be used to illuminate what "business as usual" or routine practice looks like for schools. This type of investigation can also reveal what schools would need to stop doing (i.e., [de-implement](#)) in order to adopt a new program or practice.
- **Design and administer "school pulse surveys" (e.g., IES' [School Pulse Panel](#)).** This will increase understanding of the local context by systematically capturing information about personnel, funding, and other key variables that affect implementation in different contexts.
- **Update criteria for peer review.** Reviewers of R&D project proposals should consider whether the proposed research has a high quality plan to study implementation. Review panels should involve reviewers who have expertise in implementation science.

### 3) Increase funding for implementation science training and capacity building.

None of this work will be possible without an education R&D community that has the knowledge and skills to carry out this work. [A survey of education researchers](#) found that

while most respondents showed high interest in learning more about implementation constructs, the majority had very little knowledge or skills about how to incorporate a focus on implementation into their research.

Research agencies should:

- ***Invest in new graduate programs to train education-focused implementation scientists.*** There are several implementation-focused graduate programs in the health sciences (e.g., [Concentration in Implementation Science | Johns Hopkins | Bloomberg School of Public Health](#) and [Home | Dissemination & Implementation Research | Washington University in St. Louis](#)) that could serve as models for developing graduate programs to train education-focused implementation scientists.
- ***Provide funding to incentivize all graduate programs within the education sciences to include a strong emphasis on implementation*** and the approaches and measures to systematically study it. This could be accomplished by adding new requirements for federally funded training programs for education scientists to include training in implementation methods and measures.
- ***Invest in upskilling opportunities for all education researchers,*** from those early in their careers to senior leaders. The [Research Institute for Implementation Science in Education \(RIISE\)](#) was recently funded to conduct this type of training, with 24 education researchers participating in the training to date. Since the training happened so recently, it is not yet clear what impacts it will have on the field. Additional funding should go toward learning from this recent training and potentially expanding on it in terms of both scale and content. These opportunities should also encourage researchers to learn new methods that move the field beyond its traditional focus on randomized controlled trials. New methods should include approaches such as [integrative data analysis](#), [hybrid effectiveness-implementation trials](#), and [robust quasi-experimental designs](#), which move beyond interpreting implementation effects as a problem and instead embrace the “messiness” of intervention impact.

## Closing

The “last mile” problem reflects a fundamental flaw—a failure to prioritize the study of implementation—in the current education R&D pipeline. Without a deeper understanding of implementation, the federal government’s education R&D investments will never achieve their full potential. By more intentionally centering the systematic study of implementation at all stages of the R&D process, education R&D will generate actionable guidance for local education leaders around both implementation and impact. This shift will ensure that investments in education R&D lead to meaningful positive changes within our nation’s education system.

---

**Erin Higgins** is the co-founder of Align R&D and former Program Officer and Lead of the Accelerate, Transform, Scale Initiative at the Institute of Education Sciences, U.S. Department of Education.

**Emily Doolittle** is a Grant Strategist for the University of South Florida's College of Education and former Program Officer and Team Lead for Social Behavioral Research at the Institute of Education Sciences, U.S. Department of Education.

