

Theories and Research Methodologies for Design-Based Implementation Research: Examples
from Four Cases

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Chapter description:

This chapter reviews four projects that reflect the principles of design-based implementation research (DBIR) in an effort to highlight a range of relevant theoretical and methodological perspectives and tools that can inform future work associated with DBIR.

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Executive Summary

This chapter highlights a range of relevant theoretical and methodological perspectives and tools that can inform future work associated with design-based implementation research (DBIR). We ground our discussion by examining the theories and methods central to four projects that reflect the principles of DBIR: the Carnegie Foundation for the Advancement of Teaching's Community College Pathways, the John W. Gardner Center's Youth Data Archive, the Middle School Mathematics and the Institutional Setting of Teaching project, and the Strategic Education Research Partnership. Each project, or case, illustrates different, productive approaches to identifying, adapting, and developing theories and methods. By examining these case we aim to support the development of common language, knowledge, practices, and tools that future researchers can use to engage in DBIR.

The Carnegie Foundation's Community College Pathways program provides an example of a project that has utilized a range of strategies to ensure that participating practitioners, designers and researchers jointly negotiate and articulate the problem of practice that provides a focus for collaborative improvement work. The Pathways program exemplifies the iterative dialogue between theory, design, implementation and research that is inherent in good DBIR. Learning theories of productive struggle and psychological theories of motivation and engagement inspired design of classroom interventions and also motivated the development of a measurement system to track community progress toward a shared aim. Theories of organizational routines are put into practice in designs for scaling up change efforts, the ongoing study of implementation, and notably, in the way that focal problems of practice get selected and understood.

The John W. Gardner Center's Youth Data Archive aims to create an integrated longitudinal data system that combines administrative records from a variety of public and non-profit institutions serving youth in the San Francisco Bay Area. In doing so, it supports practitioners and local policy makers to work across institutional boundaries and address complex social issues, such as youth development, that implicate multiple departments and organizations. The work of YDA highlights theoretical approaches and methodologies that aim to support productive work across sectors. Conceptualizing youth development and learning as stretched across a range of settings and institutions enables YDA to engage community partners in iterative, collaborative design that breaks down boundaries between typically disconnected settings and services. Theories of effective data use, coupled with novel methodologies for making sense of data across sectors, enable diverse stakeholders to collaborate in order to improve a region's capacity for youth development.

The Middle School Mathematics and the Institutional Setting of Teaching project is centrally concerned with developing, testing, and refining theory regarding the improvement of middle-grades mathematics instruction in large U.S. school districts. MIST illustrates the value in organizing empirical research to develop, test, refine, and elaborate a theory of action. It also illustrates the value of bridging and adapting literatures, for example teacher learning and implementation, that have traditionally remained somewhat siloed. Furthermore, it illustrates the value of adapting classroom design-research methodologies to studying and contributing to instructional improvement at scale.

The Strategic Education Research Partnership is centrally concerned with developing infrastructure to support practitioners, researchers, and designers to collaboratively address significant problems of practice. SERP's short-term goal is to address problems of practice, and

positively impact student achievement; however, SERP's long-term goal is to support a fundamentally different working relationship between researchers, practitioners and designers aimed at supporting the development of knowledge, work practices, and tools that support sustained educational improvement. SERP illustrates the value in grounding the design of interventions in both theories of learning and implementation, particularly if the goal is to improve student learning, teacher learning and school capacity. In addition, SERP illustrates productive ways in which to target the development of capacity for researchers and practitioners to collaboratively address problems of practice with high salience for local practitioners.

In looking across the four cases, we highlight the importance of attending to theories of learning, implementation, and organizational context in DBIR. We also highlight the importance of blending and/or adapting those theories given the specific problem of practice being addressed. Furthermore, we illustrate how guiding conceptualizations of learning, implementation, and organizational context have implications for the design of interventions and the methodologies used to study and refine particular interventions. Looking across the four projects also reveals the value of a breadth of methodologies within DBIR. The work of DBIR encompasses many different kinds of tasks, from negotiating a problem space with diverse stakeholders to the iterative design and testing of learning-focused interventions and plans for implementation. Accomplishing these different functions requires a range of methods and sometimes requires the creation of novel methods.