

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

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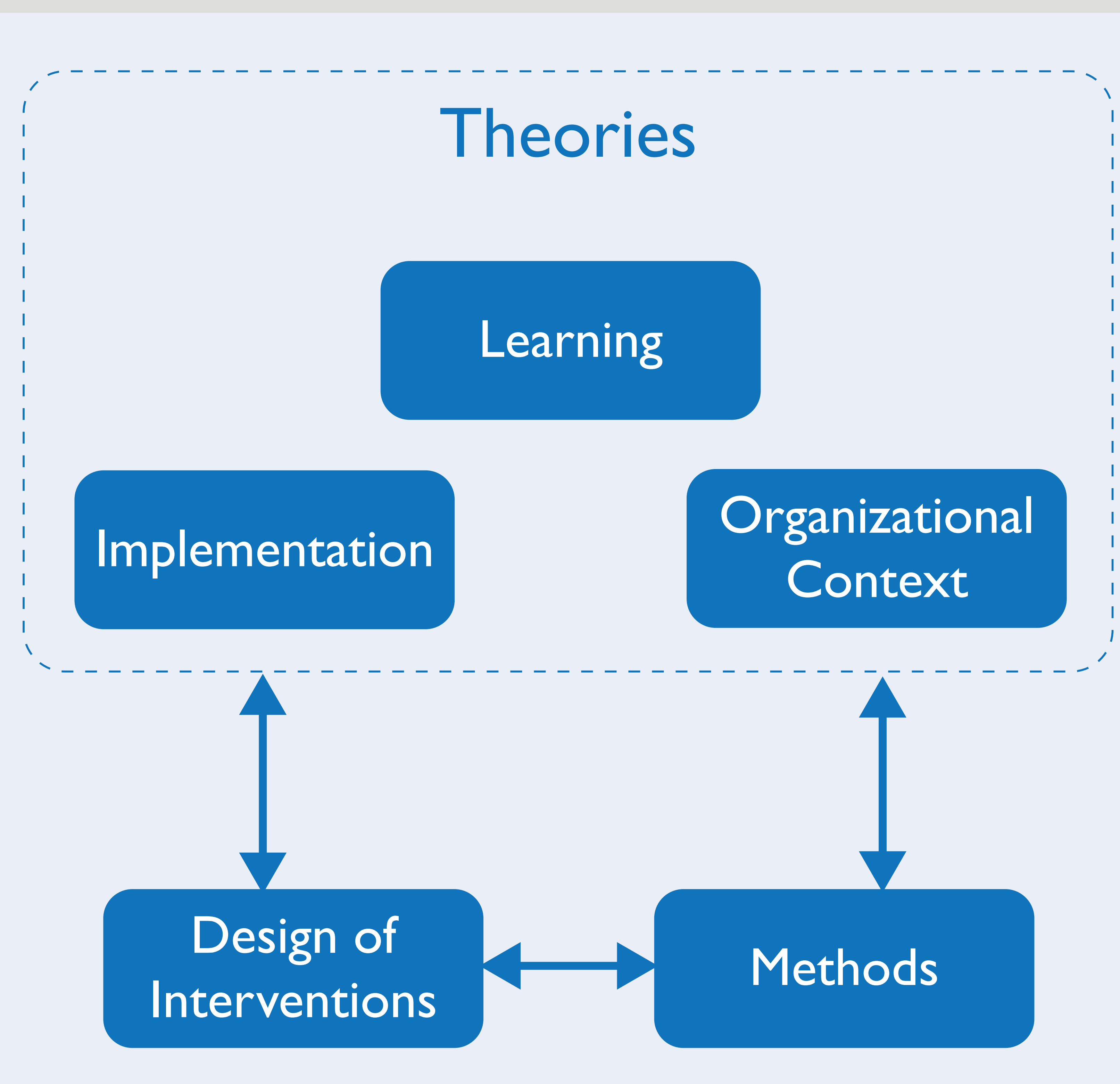
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This chapter highlights a range of relevant theoretical and methodological perspectives that can inform design-based implementation research (DBIR). We examine the theories and methods central to four projects that reflect the principles of DBIR: the 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. We illustrate how these projects attend to theories of learning, implementation, and organizational context, and blend and/or adapt 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.

For each project, we examine how theories and methods are central to conceptualizing and carrying out projects that reflect the principles of DBIR, and pose the following questions:

- How does the project conceptualize and/or attend to the learning of various actors? What role do theories of learning play in the project's design of interventions and plans for implementation?
- How does the project conceptualize and/or attend to implementation and the role of organizational contexts? What role do theories of implementation and organizational contexts play in the project's design of interventions and plans for implementation?
- What approaches have projects taken, methodologically, to answer their driving questions? How are methodological decisions connected to particular theories of learning, implementation, and/or organizational contexts?



Bryk, A. S., & Schneider, B. L. (2002). *Trust in schools: A core resource for improvement*. New York, NY: Russell Sage Foundation.

Catrechini, S. & Ardoin, N. M. (2011). Youth resource mapping: Partnering with service providers to understand the supply and demand for youth services context. *Perspectives on Urban Education, Spring 2011*, 3-12.

Cobb, P., Confrey, J., diSessa, A., Lehrer, R., & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher*, 32(1), 9-13.

Coburn, C. E., & Stein, M. K. (Eds.). (2010). *Research and practice in education: Building alliances, bridging the divide*. New York: Rowman & Littlefield Publishing Group.

Coburn, C. E., & Stein, M. K. (2006). Communities of practice theory and the role of teacher professional community in policy implementation. In M. I. Honig (Ed.), *Confronting complexity: Defining the field of education policy implementation*. Albany: SUNY Press.

Collins, A. (2006). Cognitive apprenticeship. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 47-60). New York: Cambridge University Press.

Elmore, R. F. (2004). *School reform from the inside out*. Cambridge, MA: Harvard Education Press.

Feldman, M. & B. Pentland (2003). Reconceptualizing Organizational Routines as a Source of Flexibility and Change. *Administrative Science Quarterly*, 48(1): 94-121.

Jackson, K. (2011). Approaching participation in school-based mathematics as a cross-setting phenomenon. *Journal of the Learning Sciences*, 20 (1), 111-150.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. London: Cambridge University Press.

McLaughlin, M., & M. O'Brien-Strain. (2008). The Youth Data Archive: Integrating Data to Assess Social Settings in a Societal Sector Framework. In *Toward Positive Youth Development: Transforming Schools and Community Programs*, edited by M. Shinn and H. Yoshikawa, pp. 313-332. New York: Oxford University Press.

Sherer, J. Z. and J. P. Spillane (forthcoming). "Constancy and change in work practice in schools: The role of organizational routines." *Teachers College Record*.

Snow, C. E. & Lawrence, J. F. (2011). Word generation in Boston Public Schools: Natural history of a literacy intervention. *The Council of the Great City Schools, Volume III*.

Snow, C., Lawrence, J., & White, C. (2009). Generating knowledge of academic language among urban middle school students. *Journal of Research on Educational Effectiveness*, 2(4), 325-344.

Spillane, J. P. (2000). Cognition and policy implementation: District policymakers and the reform of mathematics education. *Cognition and Instruction*, 18(2), 141-179.

Yeager, D. (2012, March). *Productive persistence: Tenacity + good strategies*. Presentation at the Achieving the Dream Annual Meeting on Student Success, Dallas, TX.

Case	DBIR Principle	Theories	Methods
Carnegie Foundation for the Advancement of Teaching's Community College Pathways	1	Productive persistence (e.g., Yeager, 2012) Organizational routines (e.g., Feldman & Pentland, 2003)	Improvement Science methodologies, such as Driver Diagrams (e.g., Dolle, Gomez, Russell & Bryk, 2013)
John W. Gardner Center's Youth Data Archive	2	Learning as a cross setting phenomenon (e.g., Jackson, 2011) Societal sector perspective (e.g., McLaughlin & O'Brien-Strain, 2008) Data use / data as a boundary object (e.g., Moss, 2012)	Community-based participatory research (e.g., Titterton & Smart, 2008). Youth resource mapping (e.g., Castrechini & Ardoin, 2011) Event-histories & data integration (e.g., McLaughlin & O'Brien-Strain, 2008)
Middle School Mathematics and the Institutional Setting of Teaching Project	3	Ambitious teaching as development of complex practices (e.g., Collins, 2006; Lave & Wenger, 1991) Implementation & policy/ leadership (e.g., Elmore, 2004; Spillane, 2000)	Design-based research at the scale of a district (e.g., Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003)
Strategic Education Research Partnership	4	Bridging research and practitioner communities (e.g., Coburn & Stein, 2010) Communities of practice and boundary spanning (Coburn & Stein, 2006) Relational trust, norms of interaction (e.g., Bryk & Schneider, 2002)	Methods for studying implementation (e.g., Snow & Lawrence 2011) Methods for evaluating Word Generation's initial effectiveness in Boston using quasi-experimental methods (e.g., Snow, Lawrence & White, 2009)