
Contents

<i>List of tables</i>	x
<i>List of figures</i>	xi
<i>Preface</i>	xiii
<i>Acknowledgments</i>	xviii
<i>List of contributors</i>	xx

PART I

Theory and practice

1 What is design research in education?	3
2 History of design research in education	23
Intermezzo 1: a fictive dialogue between two research approaches	39
3 Design principles, conjecture mapping, and hypothetical learning trajectories	46
Intermezzo 2: design principles or learning trajectories?	68
4 Research questions in design research	73
5 Research quality in design research	87
6 Argumentative grammars used in design research	96
7 Writing an empirical design research paper	113
8 Supervising design research in education	130

PART II

Examples

151

- 9 Teaching design research as a case of cultivating a community of professional practice** 153

DOR ABRAHAMSON

- 10 “Harvesting” ecosystem dynamics through a computational model of a garden** 172

REBECCA SHAREFF

- 11 Giant Steps for Algebra** 176

KIERA CHASE

- 12 Explicit oral and written reasoning during science argumentation** 179

M. LISETTE LOPEZ

- 13 An embodied approach to derivatives** 182

LEAH ROSENBAUM

- 14 Building bridges: uniting students, researchers, and teachers to improve a course** 186

ANNA WELTMAN

- 15 Easy equilibrium: discovery in an introductory chemistry course** 189

NADIR BILICI

- 16 Rearview mirrors for the “expert blind spot”: using design to access surgeons’ tacit knowledge and create shared referents for teaching** 193

EMILY HUANG

- 17 Children’s reasoning about animal lifecycles: tradeoffs across four different designs** 207

KATHRYN LANOUILLE

- 18 Linking design and theory: using conjecture maps to focus the design research process in art education** 224

NATHALIE WERNER AND ARTHUR BAKKER

19 Literary education with narrative digital games: from formulating research questions to capturing the design rationale	231
KATHARINA DÜERKOP AND ARTHUR BAKKER	
20 From implementer to co-designer: a teacher's changing role in a design research project	246
UTE KONRAD AND ARTHUR BAKKER	
21 Using hypothetical learning trajectories in design research	255
ARTHUR BAKKER AND JANTJEN SMIT	
22 Reflection and wish list	272
ARTHUR BAKKER	
<i>Appendix: Further resources</i>	286
<i>Index</i>	288