
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
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 JANTIEN SMIT	
22	Reflection and wish list	272
	ARTHUR BAKKER	
	<i>Appendix: Further resources</i>	286
	<i>Index</i>	288