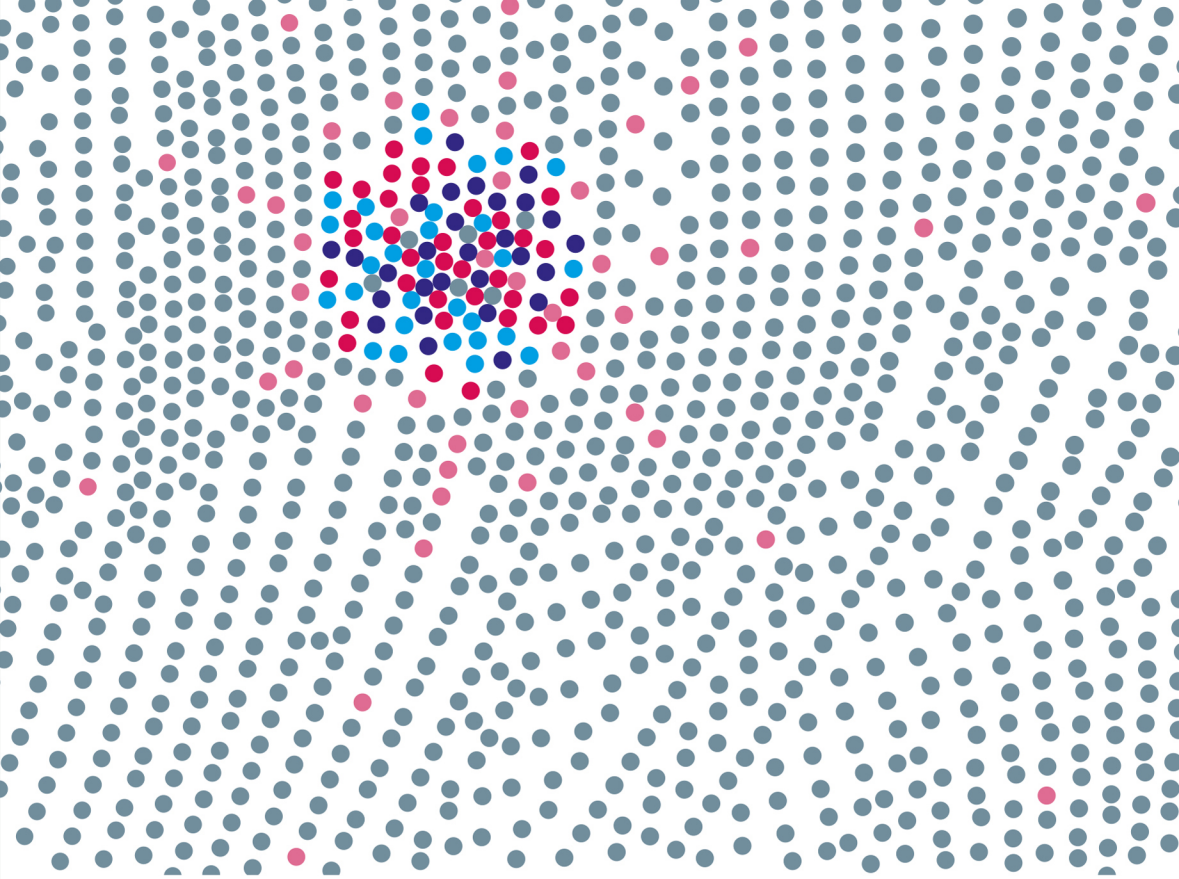

DESIGN FOR SOCIAL RESPONSIBILITY

DESIGN FOR TRANSFORMATIVE LEARNING

A PRACTICAL APPROACH TO MEMORY-MAKING AND PERSPECTIVE-SHIFTING

LISA GROCOTT

ROUTLEDGE

DESIGN FOR TRANSFORMATIVE LEARNING

The creative strategies in *Design for Transformative Learning* offer a playful and practical approach to learning from and adapting to a rapidly changing world. Seeing continuous learning as more than the periodic acquisition of new skills this book presents a design-led approach to revising the stories we tell ourselves, unlearning old habits and embracing new practices.

This book maps learning opportunities across the contemporary landscape, narrating global case studies from K12, higher education, design consultancies and researchers. It offers narrative context, best practices and emergent strategies for how designers can partner in the important work of advancing a lifetime of learning. Committed to driving sustained transformation this is a playbook of practical moves for designing memory-making, perspective-shifting, hands-on learning encounters. The book braids stories from design practice with theories of change, transformative learning literature, cognitive and social psychology research, affect theory and Indigenous knowing. Positioning the COVID-19 pandemic as a moment to question what was previously normalised, the book proposes playful strategies for seeding transformational change.

The relational practice at the core of *Design for Transformative Learning* argues that if learning is to be transformative the experience must be embodied, cognitive and social. This book is an essential read for design and social innovation researchers, facilitators of community engagement and co-design workshops, design and arts educators and professional learning designers. It is a useful primer for K12 teachers, organisational change practitioners and professional development facilitators curious to explore the intersection of design and learning.

Lisa Grocott is currently a Professor of Design and the Director of WonderLab at Monash University, Australia where she leads the Future of Work and Learning research program in the Emergent Technologies Research Lab. A mother of two children raised in multiple countries, Lisa grew up in Aotearoa New Zealand with a whakapapa to Ngāti Kahungunu on her mother's side and Pākehā from Waikato on her father's side.

Design for Social Responsibility

Series Editor: Rachel Cooper

Social responsibility, in various disguises, has been a recurring theme in design for many years. Since the 1960s, several more or less commercial approaches have evolved. In the 1970s, designers were encouraged to abandon 'design for profit' in favour of a more compassionate approach inspired by Papanek. In the 1980s and 1990s, profit and ethical issues were no longer considered mutually exclusive and more market-oriented concepts emerged, such as the 'green consumer' and ethical investment. The purchase of socially responsible, 'ethical' products and services has been stimulated by the dissemination of research into sustainability issues in consumer publications. Accessibility and inclusivity have also attracted a great deal of design interest and recently designers have turned to solving social and crime-related problems. Organisations supporting and funding such projects have recently included the NHS (research into design for patient safety); the Home Office (design against crime); Engineering and Physical Sciences Research Council (design decision-making for urban sustainability).

Businesses are encouraged (and increasingly forced by legislation) to set their own socially responsible agendas that depend on design to be realised. Design decisions all have environmental, social and ethical impacts, so there is a pressing need to provide guidelines for designers and design students within an overarching framework that takes a holistic approach to socially responsible design. This edited series of guides is aimed at students of design, product development, architecture and marketing and design and management professionals working in the sectors covered by each title. Each volume includes the background and history of the topic, its significance in social and commercial contexts and trends in the field. Exemplar design case studies, guidelines for the designer and advice on tools, techniques and resources are available.

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DESIGN FOR TRANSFORMATIVE LEARNING

A Practical Approach to Memory-Making and Perspective-Shifting

Lisa Grocott

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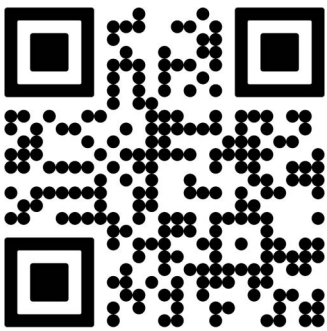
WEBSITE

The companion website for the book is a practical resource that connects you to many of the projects, activities, methods, designers and stories introduced here. The site includes links to downloadable activities, templates for digital learning encounters, additional reflective narratives on transformative experiences and the book bibliography.



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Dedication

To my Māori elder, Jonathon Mane-Wheoki, who changed how I show up in the world without me even noticing. To the young man in my Māori language class who in one sentence unsettled my understanding of learning. To Sonali Ohja, who shifted the trajectory of who I would become in the first twenty minutes of meeting her.

Poipoia te kākamo kia puāwai

Nurture the seed and it will grow

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PREFACE

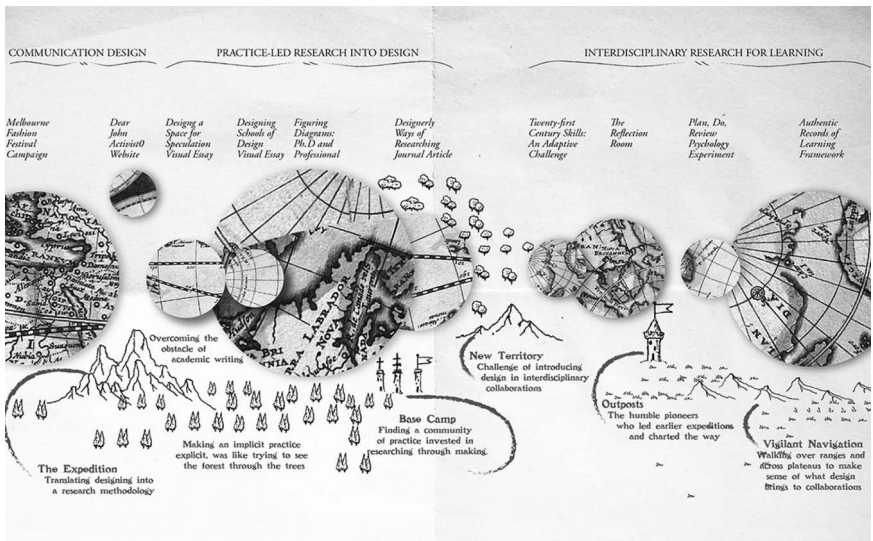

FIGURE 0.1 **Mapping Curiosity:** a visual map used for sense-making my own transformation journey.

I write this preface in 2020, in lockdown during a global pandemic. The economic, social, political and cultural disruption to billions of lives shows up in a multitude of ways. Black Lives Matter protests call attention to centuries of racism, inequity and oppression; businesses question what places of work might look like when people can return to offices; teachers pivot to online learning within a week's notice; people talk openly about grief, gratitude and loneliness, while governments finally find funding for mental health; primary school

students experience school with no recess and play; students wonder the worth of a university education if there is no on-campus experience. The seismic nature of the disruption that occurred in 2020 might be unique, yet we can be certain that the future will repeatedly ask students and workers to unlearn, dismantle, adapt and imagine anew the ways we might live, work and learn. If we recognise that knowledge can be searched for in seconds or analysed faster by machine, we see how our mental models of learning as a process of knowledge acquisition are outdated. Many of our current practices around academic credentials, professional development or standardised testing are shaped by a different era in time. The focus of this book is on how we might design learning encounters that do not just fill us up, but that transform us. The work of this book is to interrogate what design might bring to and learn from the practices of transformative learning.

Let me start with a recent story of my own learning. A few years back, I was trying to work on a keynote address at a conference about Elastic Systems. There was little to show for the hours I was spending in front of a screen trying to make my case for considering the felt human experience of individuals within the scaled networks of systems dynamics. Instead, I was experiencing the cognitive overload that comes with trying to get my thoughts down while simultaneously engaging in a dialogue with my procrastinating self. On the surface, my easy excuse was to blame the timing of the event, I was about to leave New York after 12 years and move back to Australia and had more important things to do. Yet, below the surface-level excuse, my self-doubt had me questioning whether an audience interested in abstract systems would engage with a talk about the intra-personal realm of mindsets. Eventually, the internal chattering of procrastination was superseded by the well-worn narrative that this talk was stressful because I was a terrible public speaker. Given my presentation was about how we transform mindsets, I felt compelled to question whether this belief was fact or fiction. I decided to get curious about this story I tell myself and turn my research on myself.

To interrogate when I fixated on this idea of being a poor public speaker, I picked up a clear drinking glass and a Playmobil character. Improvising on an activity I had developed for a growth mindset workshop, I placed the avatar of myself inside the metaphoric glass prison. I then somewhat sheepishly explored (because somehow doing this alone in my apartment seemed more embarrassing than in a crowded workshop) the invisible yet forceful mindset that had me narrating this speaking engagement as a chore to push through as opposed to an opportunity to learn from. Given many of us find public speaking anxiety-inducing, I was looking to not just name the emotion but forage for the narrative that had seeded this limiting belief. The whole line of inquiry took only two minutes. As I began to play with the glass, I viscerally recalled a humiliating memory of my 11-year-old self standing on a stage. I used an unintentional pun in the opening lines of my impromptu speech. As a tween in an auditorium full of people laughing at a pun that was not only unintentional but unnoticed by me, I was next-level embarrassed. This was not a scenario where I could simply

imagine the audience naked. Instead, I was the one exposed with nowhere to hide from the perplexing laughter that filled the remaining 55 seconds of my one-minute talk. Still, I somehow never made the connection between that old experience and my present belief that I hated public speaking. It took only another 30 seconds to dismantle the faulty story I had fixed on four decades earlier. Seeking disconfirming evidence from the past and the present, I recalled I was one of the first 11-year-olds to make the school's speech finals and I respected that my regular invitations to speak disprove the story that I am not good at this. This whole process took less than 5 minutes. I easily integrated my newfound perception that I actually might be quite good at public speaking and got back to writing my keynote address without the distracting backtalk. I walked away with new confidence, not just in my public speaking skills, but in the profound efficacy of my research.

Where is the learning in this tale? Is this really a story of transformation? What has this got to do with design? It is true that this story does is not represent learning as we typically think of it, there was no clear moment of instruction, no new information conveyed, or a new skill developed. However, I am aware of the ways my public speaking was elevated as a consequence of that 150 seconds of inquiry. I also know that in 40 years, I had not yet made the connection between my fixed mindset and the 1977 speech competition. I am not convinced that reflective rumination alone would have got me there. More than a thought experiment, the experiential encounter was designed to draw upon the material, haptic, affective engagement with the story I had been telling myself and the story the Playmobil and empty glass played back to me. The scaffolded interaction with the playful props helped me retrieve old memories and reclaim not just the humiliation of the fated 60-seconds but also the scripted speech I confidently gave on the stage an hour before. In stepping outside my head as a researcher, I was able to not think like an expert with answers but to instead feel like a learner with questions. In this way, the fleeting activity asked me to tackle a disorienting dilemma, to chase my own curiosity, to imagine how things could be different in the future. The experience was designed to shift my perspective so that I might be transformed by the encounter. Today, I think, feel and act differently than I did before that moment and that might be the simplest definition of transformational learning.

If the preface is where I make the case for why I should be the author of this book, then this is where I would document my credentials and win your trust. But again, this is not that kind of book. I could talk about how co-directing an interdisciplinary curriculum in small town New Zealand in my 20s led me to become a Dean at Parsons playing a leading role in shepherding the institution through an innovative reimagining of what design education might be. And yet, although my bias towards the interdisciplinary runs through the pages of this book and a commitment to envisioning new modes of curriculum and credentials has led me to interrogate every aspect of formal education, this book is not about the strategic moves or the structural shifts any more than it is about new technologies. The grand changes of this book are oftentimes granular, invisible

and intangible. The transformative shifts operate in the margins – they are experienced at an intrapersonal level and can take their time to bloom.

The story of this book's evolution is a small example of one of those shifts. Just as I resist asserting my expertise, I also find the tone of declarative academic writing – the asserting of a fixed position – undesignerly. I spent years bucking against my perception that this type of writing would constrain me from writing a book that would align with the relational values I saw as core to the creative, fluid practice I was advocating for. To some extent, this was a mindset question like the public speaking tale. I see myself as a designer, not a writer, and my narrow preconceptions of what academic writing can be and my fixed narrative of my writing ability held me back. I was left to wonder: how could I be declarative if I understood a virtue of designing as being speculative? How might I fuel the readers' engagement if I were distractedly referencing the literature of others to assert the research's legitimacy? Why should I write a book because university cultures value publishing over designing? Slowly, I stopped deferring to conventions of academic authorship and began to creatively think about writing through the practice of designing engaging experiences. Might practice narratives draw the viewer in, in a similar way that experiential workshops engage the whole person? Could vulnerable stories where I humbly question my past practice assert the importance of interrogating assumptions? Could hosting a book workshop with international design and learning experts remind me of my intrinsic motivation to share our expertise with our community?

Once again, my way out was to put my own research into practice. I set out to design a manuscript that models the principles of an engaging, resonant, reflective, unsettling and creative experience. However, I struggled with the limiting assumption that the single-authored book could not model the social and reciprocal values the learning practices called for. Then, I thought to co-create a way to make it clear that this work sits within a rich community of PhD candidates, fellow academics and design practitioners. The professional case studies and the Design Rounds workshop offer alternative models and position the research practice in new ways. Making the participatory orientation of the practice visible, the WonderLab community gathered in the footnotes, offering plural perspectives and further reading. The diagrams and first-person narratives interleaved throughout the book invite you, the reader, to get curious about your perspectives and lived experiences. If you choose to surface your assumptions and question the practice implications of the ideas presented, you too can actively configure and reconfigure the material shared here. In this way, the book content, design and collaborative process resist declaring one way forward or a blueprint to follow. If the public speaking encounter represents the role of materials, motivation and reflection in learning new ways of being in the world, the design of the book illuminates the role of discussion, emergence and plurality. The book you are holding embraces multiple disciplinary, cultural and practice perspectives that make the designed workshop a social exercise in people contesting, affirming and wondering as they come together to learn.

My professional titles, degrees earned or the number of publications does not seem relevant for sparking your curiosity to read past this preface. Any quantification of my expertise is simply a shorthand for the wisdom gained from collaborating with colleagues and the mastery that comes from years of experience in research and practice. Alternatively, I would posit that for this book a reader should be looking for evidence of a life changed by a commitment to continuous learning. The insights surfaced from flawed collaborations with learning scientists, in turn, changed how I see the cognitive and emotional interplay of designing. Collaborating with ethnographers has taught me to see an alignment between their first-person narratives and my experiential sense-making. Partnering with experts in performance and play has granted me a sensorial understanding of the similarities between rehearsing and prototyping, between being vulnerable and being creative. These are a fraction of the life lessons that come from collaborating with other disciplines. Yet, decades of intentionally learning from not just the project but from the collaborations have helped me account for the value of the situated, experiential nature of design practice. The stories within this book illustrate what can be learned from geographic and disciplinary encounters and by reflexively examining our own failures, assumptions and interactions.

This positioning of myself as a learner came from a series of interviews I did with design practitioners. I was curious to understand how they had reinvented themselves from the focused field of graphic design to the diffused practice of transdisciplinary research. From these conversations, the primary insight was that each designer had found their own way to see research not as an output to be accounted for but as a process for re/search/ing. The inquisitive impulse to continuously search, to always be learning, helped explain the trajectory of their careers. Un/learning and re/learning what it meant to be a designer was a core part of the commitment to an inquiry-led practice, founded in principles of learning (13.1).

I recognise the attributes of this practice because I see them in my own journey from a graphic designer of fashion campaigns to a researcher working on transdisciplinary challenges exploring the future of work and learning. My quest has been to sense-make the contribution of design to interdisciplinary projects. My meaning-making practice explores through figuring, story-making, playing, co-creating and translating how design might amplify what it does well and address where it falls down. My practice shows up as interventions in the world of learning. For me, this world-making has traditionally taken the form of alternative learning transcripts, digital credentials or play-based curriculum. In this book, the focus is on designing engaged learning that leads to transformed selves.

What I have come to know is that if you, the reader, want this book to lead to real change, then you cannot just sit there and read passively. If you approach reading as information to acquire, precedents to glean, literature to cite, you are not really engaging and you will not build strong memory traces. This will diminish any hope of retrieving the content weeks or years from now. You will

not walk away changed by your time reading this book. What you need to do is actively engage with the material. Lean into the areas when the content presents a disorienting dilemma. Go beyond the surface answer to deeply question how your assumptions or mental models are being affirmed or threatened. Create your own figuring diagrams to interrogate the intersections between ideas shared here and your own practice. Experiment with writing a story of a memorable learning moment in your life to recall the affective, sensorial feeling of that encounter. Yet, even with this research making the case for why you should take this approach, the chances are you will not embrace my suggestions. It is hard, very hard, for us to change what we do and how we do them. Our habits around how we read and consume books will not change simply because research tells us to. We know that already. The way we move through the everyday (our use of single plastic, our disuse of gym memberships) offer evidence that we do not shift our ways of acting in the world simply because our ways of thinking have been inspired.

May I make this more realistic suggestion instead? Before you turn to the pages ahead, pause to ask yourself why you are here. To adopt the stance of the book, you must find a way to prioritise chasing your own curiosity. Consider what it would take to let go of the extrinsic reasons for why you might have picked this book up and channel instead a personal motivation for engaging with this content. Are you here because disruptive technologies are changing what you teach? Are you curious about what practice mental models you are holding on to that might be redundant in a post-COVID world? Are you drawn to explore what you bring as a designer to research collaborations with learning scientists? Do you question how learning encounters might create sustainable change over time instead of elevating end of semester grades? Or are you wondering how design insights might improve your teaching by deepening your students' learning?

My personal motivation to write this was to make evident the value of design as a practice-informed mode of inquiry. I was intellectually motivated to spend weekends writing about how to better understand the contribution of designing with respect to transformative learning. In seeing this book as a conversation between you and me, I could shed the extrinsic motivations that had me feeling more obligated than motivated. A social contract and sense of purpose emerge from declaring my own motivations. I find hope that in sharing my insights with you here that together we can do the world-making needed to collectively nudge the role designers play in transforming how we learn.

Now, put the book down and return when you find whatever intrinsic motivation will keep you reading. I will wait for you.

ACKNOWLEDGEMENTS

When you write a book about the relational orientation of transformative learning, it is a rewarding, reflective moment to pause and express gratitude for the many humans (and non-humans) who have shaped this book. There are the people who seeded the very ideas behind the book, the people who were integral to bringing it into being and the people without whom there would be no book.

I want to begin with the first group. Dominic Randolph, the Head of School at Riverdale Country School, is the person who introduced me to the overlapping Venn diagram that is design and learning. Dominic granted me not just the financial freedom to creatively and critically explore the potential of this space, but he also unlocked a community of teachers, students and interdisciplinary researchers with whom I could explore through the designing of encounters in the real world. As Dominic was introducing me to designing learning, Professor Meredith Davis of NCSU was generously sharing her decades of work in this space with me from a design perspective. Tim Marshall, then Executive Dean and my close collaborator at Parsons, and I were experimenting with what it meant to be designing the design school. My years working with Tim on considering the affordances of (re)designing design education are foundational to how I came to position the transformative role of designing in organisational change. Tim then introduced me to Rachel Cooper, the series editor of Design for Social Responsibility and President of the Design Research Society. The gracious invitation by Rachel to write a book on design for education is how this book literally came into being. I would like to especially acknowledge Rachel's patience as I went on to take years to deliver the actual book.

To the many collaborators, co-conspirators and colleagues whose work inspires me and challenges me, I am grateful to the chance to have learned from you and alongside you. To Roger Manix, Helen Chen, Kelly Schmutte, Annette Diefenthaler, Jamer Hunt, Mai Kobori, Maggie Ollove and Christopher Patten,

I can think of a concrete time each of you has shifted my thinking and changed my practice. To interdisciplinary colleagues Wesley Imms, Marian Mahat, Chris Bradbeer, Angela Duckworth, Todd Rogers, Greg Walton, Mia Perry and Lizzie Coles-Kemp, your adjacent, opposite and complementary disciplinary orientations have bought into sharp relief my perspective on the limitations and potential of design in this space. To my mentors Jonathon Mane-Wheoki, Desna Jury and David Thomas without your nurturing support in the early days of my career, I would never have found myself here.

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When I look back to the transformative magic of the week of collaborative learning that we called the Design Rounds I believe the book would not be what it is without the deep wondering space that time opened up for all of us. To the busy people who gave us so much of their time I am forever grateful. To Penny Hagen, for modelling the professional practice I admire more than any in the world. To Tuuli Mattelmäki, for your quiet grace, inquiring mind and kindred spirit. To Elliott Montgomery, for your generosity and commitment to trouble my own assumptions. To Kevin Mattingly who, over the course of hundreds of hours of conversation, changed the very way I see the world. Your enthusiastic capacity to translate science, nudge design and challenge education is why this book has two scientific chapters. To Sonali Ojha, for showing us all how a contemplative design practice can embody ideas that we might otherwise only know intellectually. You are missed every day and yet you are also with us every day.

Without the WonderLab community, there might have been a book, but the practices and ideas within it would have been less engaging, less critical. WonderLab is the heart and soul of the book and I am grateful to my Monash colleagues Gene Bawden and Jess Berry for supporting this experiment in developing a community of practice orientation to Ph.D. education. To Dion Tuckwell, for the rewarding partnership as we navigated the Innovative Learning Environments and Teacher Change project. To Hannah Korsmeyer, your reflexive capacity to observe your own transformation has made it easier for me to observe my own. To Alli Edwards, for reminding me of the capacity of design materials as alibis for play. I am indebted to Myriam Diatta for all that I came to know through the journey of your Ph.D. and our collaborations, a rewarding, humbling experience in the teacher becoming the learner. To Sean Donahue, for always foregrounding the ethics of design practice and asking more of me in return. To Kate McEntee, for the critical acumen you bring to questioning our

own positionality in ways that trouble my own thinking in profoundly useful ways. Ricardo Dutra Gonçalves, I love that I have gone from wanting to run away from your embodied work to deeply respecting this whole new way of being and knowing. To Yi Zhang, for your insightful critiques of academia and showing us how much there is to learn from the professional application of this work. To Kelly Anderson, for the most memorable of mid-workshop epiphanies. To Myfanwy Doughty and Alison Colwell-Matsuura, for reminding me there will always be new Ph.D. candidates opening up worlds I have never before spent time in. Lastly, to Wendy Ellerton, for engaging in the oftentimes unfocussed, yet always rewarding, wondering process of figuring the diagrams for the book. And Kate, Dion and Hannah, I have not forgotten that this book would never have been imagined into existence if it were not for the hours the four of us sat around conceptualising its orientation.

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I might be the director of WonderLab and yet we all know that Stacy Holman Jones is our leader. Stacy's scholarship, grace and generosity have come to define all that we do. If I could give a badge a decade for the person who had most transformed my knowing and doing, Stacy would be this decade's recipient. For sure. Stacy has shown me there is a different way to be an academic, to write, to reflect. To be. Thank you for your passion, commitment and love for this community. Above all, thank you for your friendship in the hardest of times.

Going back in time, there are others who have been in my life for so long I am forever shaped by their friendship. To Roger Manix for reminding me how to play and to Douglas Diaz for showing me how to be vulnerable. To Naomi Stead, Fiona Donald and Vicky Lam, for shepherding me through transitions, loss and pandemics. To Anne Burdick, my dear critical friend who has been there from the beginning,

Lastly, to my whānau, my family. My mother and father would have loved this book. Mum would have put it on her coffee table and Dad would have wanted to sit long into the night talking about the ideas. To my brothers, I thank you for standing by my side. You have both shown me different ways to own being Māori and different ways to be strong. Mark for your grounded counsel and small acts of care. Steve for the deep affection, brutal honesty and the hilarious memories I will forever cherish. To my sons, if I had not heard of intrinsic motivation,

I might have believed you got in the way of this book ever leaving my computer. Yet, Harper and Moss, what I know now is that without you, this work would have had no sense of purpose. Envisaging the worlds I want you to be custodians of, the professional opportunities I wish for you and the futures I want you to dream for yourselves, is all the motivation I needed to keep writing.

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PART I

Designing Learning Encounters

An Introduction and an Invitation

FIGURE 1.0 **The Play Gym**: Embodied learning and affective engagement.

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An Introduction

With a goal to design learning encounters that lead to substantive, sustained change over time, this book makes the case for why a practice of transformative learning must be an embodied, affective, cognitive and social experience. The theory, scientific studies, ethnographic narratives and practice case studies referenced in the following pages speak to the potential roles designing can play in elevating and amplifying learner engagement that leads to transformational outcomes.

This book is not a philosophical theoretical text about learning or quantitative longitudinal case studies about learning interventions. This is a book grounded in a practice-evidence exploration of design research and transformative learning. The promise here is a generative text that shares practice stories, interdisciplinary insights, propositional frameworks, small moves and methods. You are invited to apply them to your practice. Whether you are a researcher, educator, designer or learner, the potential here is to read across and between the book's layered offerings in ways that align with questions you might be asking of your own practice.

There are no literal worksheets or step-by-step methodologies. I resist calling this book a 'toolkit'. Rather, I aim to provide an articulated set of paths for inquiry. You might question these ways of seeing, believing, making and framing. You might become unsettled when you consider your current practice. You might even be led towards new methods to consider in your own practice. The potential here is not to follow some predetermined route but to find your own off ramp by letting the research reveal a detour you would otherwise have driven past.

The focus here is on designing learning encounters that lead to transformed selves. This integrative work requires the learner to make over our interior worlds – to interrogate our mindsets, unsettle outdated mental models and craft future imaginaries that spark new habits of mind. I argue that this make-over is required of the designer too. To learn in parallel with the people whose transformation we are facilitating, we must position ourselves as learners too. We must always be wondering.

1

THE DESIGN OF TRANSFORMATIVE LEARNING ENCOUNTERS

FIGURE 1.1 **Haptic Hands-on Learning**: This workshop from WonderLab's first public playdate has Alli Edwards and Kelly Anderson designing a metaphoric and haptic encounter that has participants considering their place and purpose within a local solar system, before moving on to declare their motivation to travel to adjacent systems within the shared universe.

1.1 Transformational Learning and Design Practice

You could say the 'why' of this book is straightforward. As we find ourselves transitioning into the fourth industrial revolution, the call for continuous learning over a lifetime becomes louder. As more tasks become automated, the stocks

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of expertise – like being creative, adaptive and collaborative – overtake old skills more expeditiously done by algorithms. If we want to explore how humans learn, then this cannot be disentangled from the trend towards more automated decision-making. If we want to reimagine the learning futures of tomorrow, we must be cognizant of the industrial-historical context, the cultural institutional biases and the powerful technological forces that shape how we got here. This book does not attempt to forecast the future of education technologies but instead to zoom in on how transformative learning happens within the interior world of a learner as we find ourselves navigating increasingly uncertain futures. Artificial intelligence and machine learning are not the subject of this book, they simply set up the urgency by which we must ask different questions of what we learn, how we learn and why we are learning.

The focus on transformative learning does not presuppose that the transformation is in itself grand or disruptive. Yet, there is recognition that most learning is not transformative. In fact, most learning is assimilative to the extent that new experiences and information is internalised in ways that do not challenge our existing knowledge structures.[1] Jack Mezirow's Transformational Learning theory emphasises that the structures that anchor meaning for us are central to the work of shifting perspectives. Whereas Mezirow's emphasis is on transforming meaning schemes and meaning perspectives, the question I wish to explore is if the transformation leads to new ways of being and acting in the world. This might be a change in behaviour, but may also be less observable, like the change in mindset that allowed me to reframe my position on public speaking (see Preface). In this way, the stories in this book are often about small shifts that come from snapshots in time. Transformational Learning Theory recognises that a 'disorienting dilemma' in life or an assumption-busting activity can prompt re-examination of meaning structures: "the constellation of concept, belief, judgment, and feelings which shapes a particular interpretation" (2, p. 223). Disinterested in designing curriculum or learning technologies, the more pedagogical focus of this book explores design mindsets, moves and methods that engage people in experiential learning encounters.[2]

1 **Lisa**: Piaget made the distinction between assimilative and accommodative processes of knowledge acquisition. He notes assimilative processes have new experiences being made sense of by already confirmed, previously established knowledge structures. Think of an accumulative model where the knowledge keeps swelling yet never contesting what came before. In contrast, the more radical and rare accommodative process is when new experiences challenge existing knowledge. Think of an experience that requires renovations to make room for the new perspective surfaced by the disconfirming experience. (1)

2 **Dion**: It's interesting to situate this in relation to notions of transformative design; that is, how we might turn away from designing products or services and look towards a society-centred approach. Transformative Design focuses on the social dimensions and conditions of designing and how this engages with processes of creative inquiry into new potentialities – and how this might be designed and realised in new forms. (3, p. 9) What are design's potentials, instruments and contributions to shaping social change? (3, p. 9) And crucially, how might this be different when the transformation works at the level of the individual learner, the peer community, the social structure or the systemic infrastructure?

This book will elaborate in detail what these learning encounters might look like or feel like. The shorthand for now is that these are learning experiences charged with wonder. Like Sara Ahmed, I believe "wonder implies learning" (4, p. 183), and see that wondrous encounters need to be designed to fuel inquiry, invite introspection, spark better questions, illuminate relationships and forge connections. This act of 'wondering' will be a critical, embodied act – a space for doubt, amazement and curiosity. When we bring designing to the social and haptic experience of wondering, you have the animating force for creative, affective and cognitive exploration. These wondering moments might be fleeting, iterative, episodic, or they might be serendipitous, intentional or rhizomatic. This book does not define the form encounters take but instead shares design moves, methods and mindsets for planting seeds for wonder that will nurture personal and collective quests for meaning-making. To wonder new worlds into existence we must also make new scripts. It is in re-storying, narrating anew, that we can imagine, rehearse and adopt new ways of knowing, doing and being in the world.

If we are to resist the pull to return to normal in a post-COVID-19 world, we need to critique what was previously normalised. We need effective strategies for perspective shifting.[3] Here, we recognise the work of radically reimagining just, sustainable and equitable futures. It is a job that will be transdisciplinary, transnational and decades in the making. I humbly acknowledge the small part design might play in doing this difficult work. With consideration for how co-designing primes people to reflect, share and make, we explore design's contribution to engaging learners and citizens in projects that lead to transformation. The research frameworks come from questioning how the cognitive, constructed, relational, personal, experiential and imaginative nature of design might amplify our engagement in the unsettling of long-held meaning structures and the remaking of new constellations of knowing and being.

The verb 'designing' is central to the *doing* of inquiry called for in this research. The goal is not a designed artefact but designing as an inquisitive practice that shares the same experiential valence as the learning experiences being examined. The work is not always co-design, but there is an orientation to the social and a commitment to reciprocity that runs through the practices referenced. Furthermore, the invitation is to design encounters not just for the participants but to see our own learning as part of the co-design process of transforming "how we design our world, and ourselves, with others" (6, p. 31). The accounts

3 **Lisa**: There are many calls from climate crisis scientists, well-being experts, education academics. Yet perhaps poet Sonya Renee Taylor's call went viral because it is grounded in her social justice critique: "We will not go back to normal. Normal never was. Our pre-corona existence was not normal other than we normalized greed, inequity, exhaustion, depletion, extraction, disconnection, confusion, rage, hoarding, hate and lack. We should not long to return, my friends. We are being given the opportunity to stitch a new garment. One that fits all of humanity and nature" (5).

of my teaching, learning and designing practice, and those of my peers', are grounded in the pragmatism of research informed by a situational practice and a close engagement with the professional context of design. The design case studies in Part II include school-based, public sector, professional learning, PhD dissertations and academic research projects. Design research and creative arts literature examine the distinctions between practice-based, practice-led and project-grounded research. Some lines of inquiry are defined by a program grounded by real-world conditions and constraints. Alain Findeli would see this research engagement as thinking 'in project' (7). The PhD case studies offer examples of research led by questions of practice. These practice-led examples have the practitioner-researchers learning about themselves through the act of designing learning for others. (8; 9) The learning design projects explore the implications of evidence-based research, critical theories or Indigenous knowing as translated through the practice of design. (10)

The projects and practices included span from small scale, local explorations from within a research community, to longitudinal case studies scaled across Europe's education systems. There are projects that evidence the impact of the initiatives, and others that simply question what they would do differently next time. There are tactics familiar to many designers, and novel moves being shared here for the community to iterate on and improve. A prototypical ethos runs through the chapters, positioning the shared prompts, theories, frameworks and practices as a work-in-progress. There is an invitation to the broader community to continue to rethink, critique and co-create the role design can play in amplifying learner engagement and transformation.

1.2 Who Should Read This?

With the designing of transformational learning understood as a transdisciplinary challenge, this book has an entry point for many audiences: designers, researchers and educators. If you are interested in the potential of research through design, then this book exemplifies innovative approaches to a practice orientation to doing inquiry. If you are a researcher interested in how to motivate and mobilise people, or if you are working on research projects that implicitly ask people to shift their ways of being and acting in the world (and you probably are), then this book usefully distils socio-cultural and psychological change research from multiple disciplines into an extra-rational sequence conceived to drive sustained, individual transformation. If you are a design educator, the literature on the cognitive and social psychology of learning will be instructive in designing learning experiences for your students. It will also be provocative in asking you to reflect on your own beliefs around how learning happens. For the teacher somewhat familiar with design thinking or creative practices, you will find new imaginative strategies and conceptual frames for deepening experiential learning. That said, education or psychology researchers will recognise the introductory level of the learning sciences material. Hopefully seeing the literature through the novel

application of the affective, design practice narratives will provide a perspective shift. To research methodologists, the translational value of material, visual, performative and narrative research methods is surfaced throughout. And if you are starting out your career in design research or if you are a design researcher interested in learning, then this book introduces many core tenets of a practice orientation to research.

First-person narratives, practice precedents, theoretical frameworks and interdisciplinary literature are interleaved throughout this book to make the reading experience more engaging and more transformative. With no linear sequence to how to read the book, many educators and non-design researchers may find what they are looking for in specific sections or chapters. I outline the content in more detail below. You can dip in and out of the book or read cover to cover, there is no prescriptive blueprint here.

A book on a topic as broad as design and learning could have had many orientations: the focus could have been on pulling out to critique educational structures and cultures of learning or examining the explicit and implicit systems that learning happens within (11) or zeroing in on the community interested in design thinking and education. (12; 13) The capacity for technological learning innovations to create more participatory and equitable learning experiences, systems and services is covered comprehensively in other books. (14; 15; 16) Similarly, the design of curriculum or designing learning spaces (17; 18; 19) are not the focus, although the principles introduced would resonate with these practices. While there are books that recognise the transformative potential of design in the social innovation sector, (7; 20; 21) this book centres the locus of transformation around pedagogy and the learner's experience. The scope of the research extends beyond the archetypal student sitting in a K12 classroom to the learner being a teacher, a graduate, a professional. The holistic focus on the learner is understood as personal and social, yet the unit of change, to be clear, is on the individual engaging, changing and learning.[4]

The following section of the introduction explicitly introduces the research paradigm, theoretical perspective and discusses the methodological approach. Later in the introduction, I will position myself as an author through stories of my lived experiences that surface some of my biases and values. However, before we go into more depth, the following table declares its territory by naming assumptions core to the positioning of the book (Table 1.1).

4 **Myf**: I like how slippery the term change is. Mortensen and Zalta (22) call out change morphs when observed from different angles. Temporal change can mean a bodily change; change in state. Change can be active – to change your outfit or change trains. It can also be affective, felt, experienced – moved to tears, or the sudden exhilaration of the 'light bulb' moment. To complicate things further, it is also tied up with notions of reciprocity and exchange – knowledge exchange, barter, the difference between the price of a thing and the amount paid. I sense that even when the focus here is on shifts in perspective; consciousness raising; an awakening or discovery of agency, there is something to be learned from also remembering change is temporal, felt and happens in relation to others.

TABLE 1.1 Intersecting Assumptions: Positioning Transformative Learning, Collaborative Designing and Design-based Research

	Learning	**Designing**	**Researching**
Expansive Framing	Learning is not limited to what happens in a classroom but can happen anywhere, anytime over a lifetime.	Designing is not defined by the artefacts produced but by the participatory process of creative engagement.	Design research is not limited to theoretical and historical scholarship but extends to practice-informed inquiry.
Relational Practice	A socially, co-constructed learning experience draws on the discussions, artefacts and activities of the group.	The participatory orientation of co-design scaffolds the conversation between people, place, prototypes and politics.	Design research is grounded by the situation-specific context and co-creative potential of a social applied practice.
Lived Experience	The learner always brings their inner world of beliefs and mindsets and their own world of experiences, people and place.	Designing for diverse lived experiences by resisting universal solutions and respecting pluriversal perspectives.	An ethnographic orientation to iteratively exploring the field potential of designs from proof of concept to pilot programs.
Integrative Orientation	Whole-self learning works with the integration of cognitive and embodied dimensions to transform future action.	A design practice that enmeshes past knowing and present-moment awareness with an always emerging future.	Future-focused, creative methodologies in support of the facilitation, translation and application of interdisciplinary research.
Nature of Change	Transformative, situated learning happens incrementally, suddenly and recursively by moving from the periphery to the centre.	Designing is a discursive, embodied, material practice propelled by generative moves of reflection and speculation.	An iterative, customised approach to design research interventions that embraces shifts in temporal dimensions.
Ethical Call for Action	Learning to be proactive not prescriptive, continuous instead of credentialed, transformative more than transactional.	To be critical of the social impact of design by interrogating and imagining how design can shape more equitable and just futures.	Disciplinary humility and reciprocity guiding research collaborations that cannot be solved by one discipline alone.

1.3 How to Engage with the Book

Or should I say onto-epistemic? Karen Barad's feminist scholarship argues that a theory of knowing and theory of being cannot be separated, using the term onto-epistemological to account for how our constructions of the world are entangled with our experiences of the world. For Barad "Practices of knowing and being are not isolable; they are mutually implicated. We don't obtain knowledge by standing outside the world; we know because we are of the world. We are part of the world in its differential becoming" (23, p. 185). The explorations of my experiences as a teacher, designer and learner through auto-ethnographic narratives place value on subjective theorisations that are sourced from my lived-in ways of knowing, doing and being. They position me as a researcher of and in the world, where knowing/being are always in a state of becoming. As I stand by the value of wonder in learning, just as I adopt wondering, as described here by Fabiane Ramos and Laura Roberts, in my practice as way of "knowing-being-doing that fundamentally challenges binary and dichotomous colonial logics of knower and known" (24, p. 35). I contest any claim of scientific objectivity and own my privileging of storytelling, practice-evidence and situated knowledges. (25)

At the same time, I recognise there is a danger in a reflexive turn that operates as an echo-chamber with one's own thoughts. The book counters its affection for the integrity of subjective positions by valuing the cognitive diversity that comes with also integrating positivist research that lays claim to a truth by way of quantitative data and reproducible evidence.

To make sense of how the manuscript itself adopts a holistic, whole-self approach to learning, I propose a simple body metaphor. Think of the learning sciences research and critical theories included as the mind, the auto-ethnographic learning narratives as the subjective heart, and the practice-led design case studies as the action-oriented gut. If that is not helpful, intellectually grasp that transformative learning is not a discrete cognitive exercise. Integration between what we feel and what we think underscores how we act. The evidence-based scientific research illustrates the central role of embodiment and emotions. The auto-ethnographic narratives underscore the science of memory retrieval. The design of learning encounters is about more than the observable interactions. These intra- and inter-personal exchanges cannot be understood through quantitative data alone. Given we cannot easily access affective experiences, we need multi-modal approaches to make sense of what these encounters might afford. When we story our lived experiences, the narrative inquiry scaffolds the analysis of the experience itself. (26) The intentional decision to hold space in this conversation for stories *and* statistics is about more than the edict that stories need data and data needs stories. When designing for transformation, it is true, stories offer a pathway to understanding and integration. When designing for learning, it is also evident that psychology research upends assumptions about how we learn or verifies hunches that allow us to push what we instinctively believe to be true harder. Design inquiry here is explored through practice narratives and

evidence-based research, with the understanding that learning and designing as integrative acts of the heart, mind and body. The learner's cognitive, emotive and performative engagement in learning is reflected in research methodologies that embrace plurality, affect and embodiment, respectively. In writing through and across design, it becomes possible to translate, integrate and ground education and psychology research into encounters conceived to engage the whole learner.

The learning scientist principles of retrieval practice, interleaving, spaced practice and encoding are introduced in Chapter 10 to offer concrete strategies for amplifying the stickiness of learning new ideas. The book design works with the scientific value of interleaving content, representing material in multi-modal ways and returning to ideas over time so the reader is primed to retrieve the book's insights when the situation arises. The threaded stories, interconnected theoretical positions, echoed refrains woven throughout and visual encoding of frameworks are not lazy repetition but an intentional implementation of what cognitive science teaches us about how we learn. The social psychology studies of Chapter 9 come from the research into our desire for belonging, the payoff of deliberate practice, the call for learner agency and the value of intrinsic motivation can also be applied by readers. See yourself in the vulnerable narratives that acknowledge failure and hubris as a move to minimise imposter syndrome, consider engaging with the footnotes as a reward that comes with extra effort, recognise that the countering perspectives made visible in the footnotes are an invitation to question your own position. Most importantly, consider what motivates you as you look for purpose between the lines of the practice case studies. These moves are an example of ways we can strategically design for intentional integration into future practices.

There are four parts to the book, each framing ideas from a different perspective that can help us design learning encounters that stick. The two following chapters in Part I frame the book with respect to authorship, methodology and literature. The next chapter zeros in on the book you are holding and why I am talking to you. Chapter 2 introduces the education and psychology literature on transformative learning so that the latter design sections are grounded by what has come before. The interstitial auto-ethnographic narratives sit between the chapters to make visible my own positionality but also a felt account of what it feels like to be in the middle of a transformative experience. I share these stories throughout the book but have foregrounded in this chapter the three encounters that most strikingly upended my core beliefs in ways that have stayed with me and forever shaped my teaching and designing practice.

The four chapters of Part II are grounded by case studies and practice vignettes that reveal the potential for design to change behaviour, mindsets and mental models. Starting with an expanded field of how we situate design, the chapters are not defined by the type of design. Design is not determined by project output – service design, interaction design, game design, experience design – but more by the dispositional orientation to inquiry. Is the design inquiry creating speculative spaces for imagining new futures, or is it more about offering solutions to real

challenges on the ground? Does the learning experience amplify the conversation with the materials of the situation, or with the people living in that situation? By framing design through the meta objective of asking what the act of designing is seeking to create, expansive ways of thinking about making are opened. The case studies in Part II play with this to explore what it looks like to make sense by making never-before-seen ideas possible, to make unknowable futures visible so we can make people believe, to make fun so that new ideas might be made tangible and to make with others so we might make change.

Chapter 4 takes introduces early school-based case studies to offer a historical perspective on how the human-centred design process and design thinking initially entered the education sector. The PhD case studies in Chapter 5 explore design provocations that make the potential for discursive design to promote speculative inquiry and self-determination visible. The two game design case studies in Chapter 6 highlight the ways design experiences work with social, material and performative dimensions to translate complex ideas into playful learning encounters. The co-creative moves and participatory orientation of the case studies in Chapter 7 knits together projects that range in scale from a years-long, nation-wide professional learning project with teachers to a one-day water security challenge for hundreds of teenagers. Brief practice vignettes from design doctoral students and leading international practitioners working in the space of transformational change are woven between the case studies. The geographic and professional diversity of the projects allows highly visible professional projects in the United States, or system-wide initiatives in Finland, to sit alongside humble, profound, contemplative research stories from India, Uganda and Mexico. The epistemic and ontological shifts have practices that engage with Māori, Mayan and Aboriginal Indigenous perspectives to connect with feminist and queer principles that draw on play, embodiment and affect.

Part III pulls out from the grounded stories of practice to note the component parts that can support a drive for transformational learning. The first two chapters, focused on the science of learning, introduce research from social and cognitive psychology, respectively. The last two chapters speak to principles of abductive reasoning and learning through doing to highlight the contribution of designing in this space. Chapter 9 is concerned with learning mindsets, introducing research into belonging, effort, agency and motivation. Chapter 10 supplements this social orientation with a focus on building memories, through sections on retrieval practice, interleaving, spaced practice and encoding. Chapter 11 situates design as a creative practice through an exploration of reflective practice, allegorical imagining, kaleidoscopic thinking, emotions and affect. The final chapter, anchored by a call for embodied, multi-sensorial learning, highlights participatory prototyping, the importance of creating resonance and building relevance, the need to unsettle scripts and the value of novelty.

The concluding section of the book revisits threads introduced in the previous sections to reveal frameworks for translating the research into practice. In the first chapter, one framework speaks to how you can transform your own practice;

another revisits and revises the expanded field of making framework introduced in Part II; the third introduces worlds we live in as a way to navigate the liminal learning spaces between our interior and exterior, lived and imagined worlds. The chapter ends with a table that summarises transformational objectives and creative methods for designing engaging learning experiences. Chapter 14 distils the lessons from the research into SEED, an acronym for a design-led model for transformative learning. Situating SEED in relation to other disciplinary theories of change, the model draws on design practice's dual orientation to be creative and cognitive, while also being speculative and reflective. The concluding chapter reflects on how the book asks me to reclaim old practices and reimagine new ways forward. I am left at the end curious to better understand the relational complexity of a learning practice that is always in conversation with others and the self, with the body and materials, with the land and ethics, with the past and the future.

If this book were a large dinner party, many of the guests would be wanting to rearrange the seating plan behind my back. Of course, it would be possible to have different tables for different communities, to put the social and cultural psychologists together and make sure no neurobiologists ended up at their table. I could have the designers seated far from the Indigenous researchers and intersectional feminists. But this isn't a wedding and people are not here just to have a good time. This is a place for learning. This is a place to trouble our own positions, practices and beliefs. This is a place to get clearer about what designers might have to offer and a chance to be humble about what we might need to unlearn. It will be a loud dinner party; some people will shout over others. But we can also pay attention to whose voice is being heard. There is no one right way to learn. Just be sure that in this learning space, you chase your own curiosity.

Yet even though you are invited to follow the stories that engage you, it is important to note that you will not learn if you stay with the stories you are already familiar with. The challenge I put to you is that on your way to the bathroom, you stop by the table to introduce yourself to the people you do not normally hang out with. Cognitive diversity is useful when addressing complex problems. The more mental models we can hold in our mind, the more diverse perspectives we can acknowledge. Just as a designer uses sketches or prototypes to activate a feedback loop, the notion of cognitive diversity helps to evaluate a situation from plural perspectives. If we can get curious about how our own values sit in relation to those who make sense of the world differently, we can also see situations more holistically.

I say read the chapter that least interests you. Question why some ideas truly confound you. Just as designers resist recycling ideas, embrace experimenting with new materials, choose to apply the thinking you most disagree with as a creative constraint. Ask better questions of yourself, of your practice, of other disciplines. At the very least, you will walk away with greater clarity of your mental models for how the world works, how learning happens and why design matters. At best, you'll walk away with a shift in perspective that activates your practice in new ways and changes how you act in the world. That would be evidence of transformational learning.

Narrative 1.1 Relational Learning: Belonging and Play

1992 – With my Te Atarangi Peers

I am in Aotearoa, New Zealand, sitting in a group circle with more than 30 Māori peers. This is our first chance to speak English since our total immersion Māori language course began a week ago. It is also the one time we can share why we are here and how the week has gone. Since I am the only person who passes as white in the room I am excited, yet apprehensive, to introduce my Māori heritage so I might shed the Pākehā (non-Indigenous) label I have worn all week. This feeling won't last. The phrase check-your-privilege did not exist decades ago but within the hour I will get a life-changing lesson on privilege that will turn everything as I know it upside down.

My smug, educated self is excited to share with my peers how I want to improve my Māori pronunciation for interviews in a book I am working on. But as the conversation moves closer to me, I tune in to what my peers are saying. They are here because their children are coming home from Kōhanga Reo (Māori Kindergarten) assuming they can korero (talk) with their parents in the te reo, the language, of their ancestors. They are here because the elders who speak Māori in their communities deserve the assurance that the language won't die with them. Suddenly, my book sounds so...academic. When it's my turn to share I resist sharing the reasons I enrolled, aware of the ego-centredness of my motivations compared to the grounded-in-place and cultural reasons this community have come together to learn.

We move around the circle. The last person to speak is a guy in my learning team. He is the slowest learner I have ever spent time with. Shamefully, this is a challenge for me because the pedagogical approach of the course is committed to moving at the speed of the slowest learner. I am young, naive and a product of a meritocratic university system that has led me to believe that I am wasting hours of my day waiting for this guy to get his head around a concept in two hours that I can grasp in 20 minutes. As I wait for him to speak, I am bored, impatient and disengaged.

Yet, this story is not a pitch for ability groups or self-paced learning. It is the opposite, in fact.

Let's stop and listen to what the guy, let's call him Tama, has to say first. He is self-conscious as he stammers through the reasons he found himself in this class. He has returned to Aotearoa after being away for more than a decade. When he left, the fact he couldn't speak Māori was okay, normal even. But things are different now. Tama is telling us that before he returns to his turangawaewae (the place where he belongs) on the East Cape he wants to learn how to respectfully greet his iwi (his tribe) in Māori. Everyone nods — because, on some level, Tama's reason for being here is why we are all here.

Tama moves on to talk about his experience in my group. I listen to him describe how he dropped out of school the day he turned 15. He shares what it feels

like, for the first time in his life, to be in a learning environment that is not leaving him behind. His voice cracks as he acknowledges that some people in his group are frustrated by having to wait for him. Then tears of gratitude come as he shares what it means to him that we are not running ahead without him.

This all happened 30 years ago, yet I can still feel the intensity of the shame I experienced in that very moment.

Of course, there was the personal shame I felt for the self-absorbed, competitive narrative that had run through my head while Tama was simply striving to do his best. But there was also my institutional shame at an education system that accepts failing the Tamas of this world while serving the likes of me, a system that privileges not just personal success over collective thriving but also certain types of intelligence over other ways of knowing. If, as Edward Deming said, "every system is perfectly designed to produce the results it gets", then the education I had been a part of was designed to sacrifice one individual at the expense of the other.

I recognise that my retelling of this well-worn story might now bear little resemblance to what actually happened. Perhaps, when Tama was choking up, I defensively thought, "you've got to be kidding me?" Perhaps Tama spoke with less gratitude and more burning resentment. Yet, this is how I have come to remember it. Him benevolent, me forever changed. I have told this story to students, teachers, in pubs, at conferences, to white people, to Indigenous folks. I have told it lightly as a self-deprecating confessional and I have let myself feel and let others hear my shame and Tama's pain. Over the decades, the subject of critique has shifted in ways that ensure I have been changed by the retelling. Once I wondered how I had not seen other's potential, now I wonder how I had not seen my privilege. Whereas once I saw the Indigenous pedagogies as everything, I now see the transgressive data points that translate the wisdom of this whole-person, purpose-led approach. (27)[5]

I have retold this story countless times, and yet, it feels more embarrassing to publish these words. For when I 'perform' this story in person, it is easy to trick you, the listener, in being complicit. It is not hard to get people schooled in a meritocratic education system to nod in agreement at the foolishness of learning being set at the pace of the slowest learner. However, in this telling, I let you off the hook by taking on the role of the fall guy from the start. You are relieved of the burden of seeing yourself in me. With words on a page, perhaps it is easier to remember what it feels like to be on the periphery, to remember

5 **Lisa**: Elizabeth St. Pierre talks about "transgressive data" as the pieces of data that afford a new kind of sense-making. By being in reflexive conversation with emotions, dreams and other sensory experiences, we can begin to confound any belief in the "evidentiary warrant" that legitimises the production of knowledge. (28, pp. 177–79)

the anxiety that comes with simply not getting something, of holding others back, of being left behind, of being othered. We know education systems can promote inclusion while still leaving people feeling very much alone.

With gratitude, humility and vulnerability, Tama managed in one moment to remind us that we were in this together. My faulty memory has me instinctively, with certainty, apprehend that Tama's story exposes the very foundations on which my ideas about learning had been built. Lucky, this story doesn't end with his declaration and my ignorance, for this was just week one of a four-week program.

I left that day ready to dismantle what I had internalised from 15 years of institutionalised education. Today, my claim is that, over the weekend, I surrendered to the purpose-driven intrinsic motivations of the Indigenous-led, cooperative learning culture of the community. I committed to advancing the learning of my peers. In reality, I am sure I did not reinvent myself overnight. No doubt, I just reframed my definition of personal success. Probably with some white saviour hubris thrown in. Yet, in turning my reflexivity on myself (I resist any attempt to use this narrative to pretend to better understand Tama even if, of course, I would rather de-centre myself), for years I failed to attune to what else was going on at our table. My epiphany did not come from Tama's courage alone. We were taught Māori without a word of English through a material-based learning system that had us making pictures with blocks and rods.[6] The fact you didn't have to be physically confident, articulate, creative or a good writer, meant the prerequisite for learning was simply being curious and open. This play-based, community-grounded pedagogy supported taking risks and performed the importance of meeting people where they are at.

Come Monday our small group was back. We dived in together. As we came to individually grasp the concept being taught, we switched to become partners with our learning coach in supporting the whole group. Tama now had a team of peers dedicated to his personal and our collective success. Once the anxiety that he was holding us up was vanquished Tama only needed half-an-hour to grasp new concepts.

Predictably, my language acquisition was improved greatly by teaching others instead of passively waiting for my peers. Yet what stays with me is that it took this experience, a month after I graduated university, to glimpse the

6 **Lisa**: The *Te Ataarangi* methodology has the learning coach teaching with colourful rods, as we would sit like language detectives trying to guess if she was saying "For you…" or "Take this…" She would make a building with a few rods and we'd stumble over each other trying to guess if it is a library, a museum or the town hall. This hands-on way of learning together privileged the peer-learning environment and community resilience. The principle of not moving on until everyone had worked it out, gave Tama the confidence for his whole self to show up that Friday afternoon. (28)

promise of deep learning. I went on to grad school, got a PhD and have been an educator in higher education most of my life. And yet, I choose to never forget that my humble transformative epiphany happened in a small town continuing ed class. The disruption here did not come about from EdTech, smart classrooms or charismatic teaching. The perspective-shifting insight came from a deeply relational, social, embodied, reciprocal encounter.[7]

The integrity and candour of Tama's share that afternoon was a direct consequence of the sense of belonging he felt in that carefully curated learning environment. In hearing his truth, in seeing my complicit role in his story, I could use the weeks ahead to dismantle the narratives of my educated, white and economic privilege and rehearse a new way forward.

7 **Lisa**: For all the theorising, research evidence and transformative frameworks discussed in this book I acknowledge this 5-minute micro-intervention by Tama as the moment that most profoundly rattled my institutionalised beliefs. This is not an intervention I know how to scale. Nor do I imply that from that day my actions aligned with some vigilant critique of colonial, modernist education agendas. Yet I choose not to forget that an honest, humble young man, whose name I do not remember, spoke his truth and changed my life.

Bibliography

1 Piaget, Jean. *The Construction of Reality in the Child*. Basic Books, 1954.
2 Mezirow, Jack. "Understanding Transformation Theory." *Adult Education Quarterly (American Association for Adult and Continuing Education)*, vol. 44, no. 4, 1994, pp. 222–32, doi:10.1177/074171369404400403.
3 Jonas, Wolfgang et al., editors. *Transformation Design: Perspectives on a New Design Attitude*. Birkhäuser, 2016.
4 Ahmed, Sara. *The Cultural Politics of Emotion*. NED – New edition, 2nd ed., Edinburgh University Press, 2004.
5 Brown, Brené. "Brené with Sonya Renee Taylor on "the Body Is Not an Apology"." *Unlocking Us Podcast*, September 16, 2020, https://brenebrown.com/podcast/brene-with-sonya-renee-taylor-on-the-body-is-not-an-apology/
6 Akama, Yoko and Alison Prendiville. "Embodying, Enacting and Entangling Design: A Phenomenological View to Co-Designing Services." *Swedish Design Research Journal*, vol. 9, no. 1, 2016, pp. 29–40, doi:10.3384/svid.2000-964X.13129.
7 Findeli, Alain. "The Research Project in Design, and the Question of the Research Question: An Attempt at Conceptual Clarification." *Sciences du Design*, vol. 1, no. 1, 2015, pp. 45–57, doi:10.3917/sdd.001.0045.
8 Smith, Hazel and Roger T. Dean, editors. *Practice-Led Research, Research-Led Practice in the Creative Arts*. Edinburgh University Press, 2009.
9 Grocott, Lisa. "Make Happen: Sense-Making the Affordances of a Practice-Based PhD in Design." *Practice-Based Design Research*, edited by Laurene Vaughan, Bloomsbury Publishing, 2017, pp. 165–74.
10 Vaughan, Laurene, editor. *Practice-Based Design Research*. Bloomsbury Publishing, 2017.
11 Charset, Brian and Kate Sjostrom, editors. *Unsettling Education: Searching for Ethical Footing in a Time of Reform*. Peter Lang, 2019.

12 Melles, Gavin, editor. *Design Thinking in Higher Education : Interdisciplinary Encounters*. Springer Singapore, 2020.
13 Gallagher, Alyssa and Kami Thordarson. *Design Thinking for School Leaders: Five Roles and Mindsets That Ignite Positive Change*. ASCD, 2018.
14 Bonsignore, Elizabeth et al., editors. *Participatory Design for Learning: Perspectives from Practice and Research*, Kindle ed. Routledge, 2017.
15 Tettegah, Sharon Y and Martin Gartmeier. *Emotions, Technology, Design, and Learning*. Academic Press, 2016.
16 Benson, Angela D et al. *Culture, Learning, and Technology: Research and Practice*. Routledge, 2017.
17 Camuffo, Giorgio et al. *About Learning and Design*. Bozen-Bolzano University Press, 2014.
18 Harrison, Andrew and Les Hutton. *Design for the Changing Educational Landscape: Space, Place and the Future of Learning*. Routledge, 2014.
19 Wiggins, Grant P and Jay. McTighe. *Understanding by Design*. Association for Supervision and Curriculum Development, 2008.
20 Manzini, Ezio. *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. Translated by Rachel Coad, The MIT Press, 2020.
21 Azer, Daisy et al. *Design Thinking for the Greater Good: Innovation in the Social Sector*. Columbia University Press, 2017.
22 Mortensen, Chris and Edward N Zalta. "Change and Inconsistency." *The Stanford Encyclopedia of Philosophy*, 2020, https://plato.stanford.edu/archives/spr2020/entries/change/.
23 Barad, Karen Michelle and Duke University Press. *Meeting the Universe Halfway Quantum Physics and the Entanglement of Matter and Meaning*. Duke University Press, 2007. https://ezproxy.lib.monash.edu.au/login?url=http://dx.doi.org/10.1215/9780822388128.
24 Ramos, Fabiane and Laura Roberts. "Wonder as Feminist Pedagogy: Disrupting Feminist Complicity with Coloniality." *Feminist Review*, vol. 128, no. 1, 2021, pp. 28–43, doi:10.1177/01417789211013702.
25 Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, vol. 14, no. 3, 1988, pp. 575–99.
26 Riessman, Catherine Kohler. *Narrative Analysis*. Sage Publications, 1993.
27 St Pierre, Elizabeth Adams. "Methodology in the Fold and the Irruption of Transgressive Data." *International Journal of Qualitative Studies in Education*, vol. 10, no. 2, 1997, pp. 175–89, doi:10.1080/095183997237278.
28 "Methodology." *Te Ataarangi*, 2011, www.teataarangi.org.nz/?q=about-te-ataarangi/methodology.

The Design of Transformative Learning Encounters

Piaget, Jean . The Construction of Reality in the Child. Basic Books, 1954.

Mezirow, Jack . “Understanding Transformation Theory.” Adult Education Quarterly (American Association for Adult and Continuing Education), vol. 44, no. 4, 1994, pp. 222–232, doi:10.1177/074171369404400403.

Jonas, Wolfgang et al., editors. Transformation Design: Perspectives on a New Design Attitude. Birkhäuser, 2016.

Ahmed, Sara . The Cultural Politics of Emotion. NED – New edition, 2nd ed., Edinburgh University Press, 2004.

Brown, Brené. “Brené with Sonya Renee Taylor on “the Body Is Not an Apology”.” Unlocking Us Podcast, September 16, 2020, https://brenebrown.com/podcast/brene-with-sonya-renee-taylor-on-the-body-is-not-an-apology/

Akama, Yoko and Alison Prendiville . “Embodying, Enacting and Entangling Design: A Phenomenological View to Co-Designing Services.” Swedish Design Research Journal, vol. 9, no. 1, 2016, pp. 29–40, doi:10.3384/svid.2000-964X.13129.

Findeli, Alain . “The Research Project in Design, and the Question of the Research Question: An Attempt at Conceptual Clarification.” Sciences du Design, vol. 1, no. 1, 2015, pp. 45–57, doi:10.3917/sdd.001.0045.

Smith, Hazel and Roger T. Dean , editors. Practice-Led Research, Research-Led Practice in the Creative Arts. Edinburgh University Press, 2009.

Grocott, Lisa . “Make Happen: Sense-Making the Affordances of a Practice-Based PhD in Design.” Practice-Based Design Research, edited by Laurene Vaughan, Bloomsbury Publishing, 2017, pp. 165–174.

Vaughan, Laurene , editor. Practice-Based Design Research. Bloomsbury Publishing, 2017.

Charset, Brian and Kate Sjostrom , editors. Unsettling Education: Searching for Ethical Footing in a Time of Reform. Peter Lang, 2019.

Melles, Gavin , editor. Design Thinking in Higher Education : Interdisciplinary Encounters. Springer Singapore, 2020.

Gallagher, Alyssa and Kami Thordarson . Design Thinking for School Leaders: Five Roles and Mindsets That Ignite Positive Change. ASCD, 2018.

Bonsignore, Elizabeth et al., editors. Participatory Design for Learning: Perspectives from Practice and Research, Kindle ed. Routledge, 2017.

Tettegah, Sharon Y and Martin Gartmeier . Emotions, Technology, Design, and Learning. Academic Press, 2016.

Benson, Angela D et al. Culture, Learning, and Technology: Research and Practice. Routledge, 2017.

Camuffo, Giorgio et al. About Learning and Design. Bozen-Bolzano University Press, 2014.

Harrison, Andrew and Les Hutton . Design for the Changing Educational Landscape: Space, Place and the Future of Learning. Routledge, 2014.

Wiggins, Grant P and Jay. McTighe . Understanding by Design. Association for Supervision and Curriculum Development, 2008.

Manzini, Ezio . Design, When Everybody Designs: An Introduction to Design for Social Innovation. Translated by Rachel Coad , The MIT Press, 2020.

Azer, Daisy et al. Design Thinking for the Greater Good: Innovation in the Social Sector. Columbia University Press, 2017.

Mortensen, Chris and Edward N Zalta . “Change and Inconsistency.” The Stanford Encyclopedia of Philosophy, 2020, https://plato.stanford.edu/archives/spr2020/entries/change/.

Barad, Karen Michelle and Duke University Press . Meeting the Universe Halfway Quantum Physics and the Entanglement of Matter and Meaning. Duke University Press, 2007. https://ezproxy.lib.monash.edu.au/login?url=http://dx.doi.org/10.1215/9780822388128.

Ramos, Fabiane and Laura Roberts . “Wonder as Feminist Pedagogy: Disrupting Feminist Complicity with Coloniality.” Feminist Review, vol. 128, no. 1, 2021, pp. 28–43, doi:10.1177/01417789211013702.

Haraway, Donna . “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” Feminist Studies, vol. 14, no. 3, 1988, pp. 575–599.

Riessman, Catherine Kohler . Narrative Analysis. Sage Publications, 1993.

St Pierre , Elizabeth Adams . “Methodology in the Fold and the Irruption of Transgressive Data.” International Journal of Qualitative Studies in Education, vol. 10, no. 2, 1997, pp. 175–189, doi:10.1080/095183997237278.
“Methodology.” Te Ataarangi, 2011, www.teataarangi.org.nz/?q=about-te-ataarangi/methodology.

Automated Futures, Social Change and Forever Learning Framing the Research

“The New Work Smarts: Thriving in the New Work Order.” Foundation for Young Australians, Report, July 2017, www.fya.org.au/wp-content/uploads/2017/07/FYA_TheNewWorkSmarts_July2017.pdf.
“Reskilling Revolution.” World Economic Forum, 2020, www.reskillingrevolution2030.org.
Malone, Thomas et al. “Artificial Intelligence and the Future of Work.” Research Brief, 17 December 2020 , workofthefuture.mit.edu/research-post/artificial-intelligence-and-the-future-of-work.
“Schools of the Future: Defining New Models of Education for the Fourth Industrial Revolution.” World Economic Forum, Report, 14 January 2020 , www3.weforum.org/docs/WEF_Schools_of_the_Future_Report_2019.pdf.
“The Future of Lifelong Learning: Designing for a Learning-Integrated Life.” D2L Corporation, White Paper, 20 January 2020 , www.d2l.com/wp-content/uploads/2020/02/Future-of-Lifelong-Learning-D2L-2020-Digital-Edition.pdf.
Bellanca, James A. and Ronald S. Brandt . 21st Century Skills: Rethinking How Students Learn. Solution Tree Press, 2010.
Fidler, Devin . “Future Skills: Update and Literature Review.” Institute for the Future for ACT Foundation and The Joyce Foundation, July 2016.
Christensen, Lisa et al. “The Most Fundamental Skill: Intentional Learning and the Career Advantage.” McKinsey Quarterly, 7 August 2020 .
“Step Outside.” Character Lab, 2021, characterlab.org/tips-of-the-week/step-outside.
Friedman, Thomas L. “How to Get a Job at Google.” New York Times, 22 February 2014 .
Zhuo, Julie . “How to Impress an Interviewer: The Two Traits That Speak Most to Future Potential.” Medium, 23 April 2015 .
“Systems Thinking Resources.” The Donella Meadows Project, a project of the Academy for Systems Change, 2021.
Ibinarriaga, Desiree . Critical Co-Design Methodology: Privileging Indigenous Knowledges and Biocultural Diversity. Deakin, 2020. http://hdl.handle.net/10536/DRO/DU:30136596
Simpson, Leanne Betasamosake . As We Have Always Done: Indigenous Freedom through Radical Resistance. Kindle ed., University of Minnesota Press, 2017.
“Country Centered Design.” Old Ways, New, n.d., www.oldwaysnew.com.
Scharmer, C. Otto . Theory U, Leading from the Future as It Emerges: The Social Technology of Presencing. Berrett-Koehler, 2009.
Richardson, Virginia , editor. Constructivist Teacher Education: Building a World of New Understandings. The Falmer Press, 1997.
Svensson, Oskar H. et al. Transformative, Transactional and Transmissive Modes of Teaching in Action-Based Entrepreneurial Education, ECSB Entrepreneurship Education (3E), May 2017.
Dodson, Constance T. Negotiating Disorienting Dilemmas and the Transformative Learning Process in a Complex Society. Umi Dissertation Publishing, 2009.
Bjork, Elizabeth L. and Robert A. Bjork . “Making Things Hard on Yourself, but in a Good Way: Creating Desirable Difficulties to Enhance Learning.” Psychology and the Real World: Essays Illustrating Fundamental Contributions to Society, edited by Morton A. Gersbacher et al., Worth Publishers, 2011, pp. 56–64.
Heath, Chip and Dan Heath . Made to Stick: Why Some Ideas Survive and Others Die. Random House, 2007.
Schatzki, Theodore R. et al. The Practice Turn in Contemporary Theory. Routledge, 2001.

St Pierre , Elizabeth Adams . “Methodology in the Fold and the Irruption of Transgressive Data.” International Journal of Qualitative Studies in Education, vol. 10, no. 2, 1997, pp. 175–189, doi:10.1080/095183997237278.
Lieblich, Amia . Narrative Research: Reading, Analysis, and Interpretation. Sage Publications, 1998.
Kwaymullina, Ambelin . “Seeing the Light: Aboriginal Law, Learning and Sustainable Living in Country.” Indigenous Law Bulletin, vol. 6, no. 11, 2005, pp. 12–15.
Grocott, Lisa . “Make Happen: Sense-Making the Affordances of a Practice-Based PhD in Design.” Practice-Based Design Research, edited by Laurene Vaughan, Bloomsbury Publishing, 2017, pp. 165–174.
Agid, Shana . Making Anyway: Education, Designing, Abolition. Cultural Studies Association, 2014.
Grocott, Lisa and Ricardo Sosa . “The Contribution of Design in Interdisciplinary Collaborations: A Framework for Amplifying Project-Grounded Research Grocott.” Associations: Creative Practice and Research, edited by James Oliver , Melbourne University Publishing, 2018, pp. 35–52.
Bakhtin, Mikhail . The Dialogic Imagination: Four Essays. University of Texas Press, 1981.
Clarke, Charlotte L et al. “A Seat around the Table: Participatory Data Analysis with People Living with Dementia.” Qualitative Health Research, vol. 28, no. 9, 2018, pp. 1421–1433, doi:10.1177/1049732318774768.
Akama, Yoko et al. “Problematizing Replicable Design to Practice Respectful, Reciprocal, and Relational Co-Designing with Indigenous People.” Design and Culture, vol. 11, no. 1, 2019, pp. 59–84, doi:10.1080/17547075.2019.1571306.
Ahmed, Sara . On Being Included Racism and Diversity in Institutional Life. Duke University Press, 2012.
Haraway, Donna J. Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press, 2016.
Holman Jones , Stacy. “Living Bodies of Thought: The “Critical” in Critical Autoethnography.” Qualitative Inquiry, vol. 22, no. 4, 2016, pp. 228–237, doi:10.1177/1077800415622509.
Marshall, Tim and Lisa Grocott . Figuring Design: Mappings of the Design Process {a Visual Essay}, Design Perspectives: Envisioning Design for the XXI Century, 2005.
Ahmed, Sara . The Cultural Politics of Emotion. NED – New edition, 2nd ed., Edinburgh University Press, 2004.
Ramos, Fabiane and Laura Roberts . “Wonder as Feminist Pedagogy: Disrupting Feminist Complicity with Coloniality.” Feminist Review, vol. 128, no. 1, 2021, pp. 28–43, doi:10.1177/01417789211013702.

Perspective Shifts and New Ways of Being

Provenzo, Eugene F. “Friedrich Froebel’s Gifts: Connecting the Spiritual and Aesthetic to the Real World of Play and Learning.” American Journal of Play, vol. 2, no. 1, 2009, pp. 85–99.
Montessori, Maria . The Secret of Childhood. Translated by Barbara Barclay Carter, Orient Longman, 1978.
Dewey, John . Democracy and Education: An Introduction to the Philosophy of Education. WLC Books, 2009.
Cross-Durrant, Angela . “Lifelong Education in the Writings of John Dewey.” International Journal of Lifelong Education, vol. 3, no. 2, 1984, pp. 115–125, doi:10.1080/0260137840030205.
Schön, Donald . “The Theory of Inquiry: Dewey’s Legacy to Education.” Curriculum Inquiry, vol. 22, no. 2, 1992, pp. 119–139.
Bain, Ken . What the Best College Students Do. Harvard University Press, 2012.
Halloun, Ibrahim Abou and David Hestenes . “The Initial Knowledge State of College Physics Students.” American Journal of Physics, vol. 53, no. 11, 1985, pp. 1043–1055.
Mezirow, Jack . Transformative Dimensions of Adult Learning. Jossey-Bass, 1991.

Kitchenham, Andrew . “The Evolution of John Mezirow’s Transformative Learning Theory.” Journal of Transformative Education, vol. 6, no. 2, 2008, pp. 104–123, doi:10.1177/1541344608322678.
Grabove, Valerie . “The Many Facets of Transformative Learning Theory and Practice.” Transformative Learning in Action: Insights from Practice. New Directions for Adult and Continuing Education, edited by Patricia Cranton , Jossey-Bass, 1997, pp. 89–96.
Clark, Carolyn M. The Restructuring of Meaning: An Analysis of the Impact of Context on Transformational Learning, 1991. University of Georgia, Unpublished Doctoral Dissertation.
Boehnert, Joanna . “Transformative Learning in Sustainable Design Education.” EKSIG 2011: SkinDeep – Experiential Knowledge and Multi Sensory Communication – Proceedings of the International Conference 2011 of the DRS Special Interest Group on Experiential Knowledge, University for the Creative Arts, 2011.
Boyd, Robert D. and J. Gordon Myers . “Transformative Education.” International Journal of Lifelong Education, vol. 7, no. 4, 1988, pp. 261–284, doi:10.1080/0260137880070403.
Welton, Michael Robert . “Transformation Theory of Adult Learning.” In Defense of the Lifeworld: Critical Perspectives on Adult Learning, edited by Michael R. Welton , State University of New York Press, 1995, pp. 39–70.
Nottingham, James . “James Nottingham’s Learning Challenge (Learning Pit) animation.” YouTube, uploaded by Challenging Learning, 23 November 2015 , www.youtube.com/watch?v=3IMUAOhuO78.
Tuckwell, Dion . “Joining Practice Research.” PhD Thesis, Monash University, 2020.
Mezirow, Jack . Learning as Transformation: Critical Perspectives on a Theory in Progress. Jossey-Bass, 2000.
Bennett, John L. and Francine Campone . “Coaching and Theories of Learning.” The Sage Handbook of Coaching, edited by T. Bachkirova et al., Sage Publications, 2017, pp. 102–120.
Taylor, Edward W. and Career ERIC Clearinghouse on Adult, and Vocational Education . The Theory and Practice of Transformative Learning: A Critical Review. ERIC Clearinghouse on Adult, Career, and Vocational Education, 1998.
Dirkx, John M. et al. “Musings and Reflections on the Meaning, Context, and Process of Transformative Learning: A Dialogue between John M. Dirkx and Jack Mezirow.” Journal of Transformative Education, vol. 4, no. 2, 2006, pp. 123–139, doi:10.1177/1541344606287503.
Cranton, Patricia . Understanding and Promoting Transformative Learning: A Guide to Theory and Practice. 3rd ed., Stylus Publishing, 2016.
Mezirow, Jack . “Learning to Think Like an Adult: Core Concepts of Transformation Theory”. Learning as Transformation. Jossey-Bass, 2000.
Marsick, Victoria and Jack Mezirow . Education for Perspective Transformation: Women’s Re-Entry Programs in Community Colleges. Columbia University, 1978.
Pink, Sarah . Doing Sensory Ethnography. Sage Publications, 2009.
Mezirow, Jack . “Transformative Learning Theory.” Transformative Learning in Practice: Insights from Community, Workplace, and Higher Education, edited by Jack Mezirow and Edward Taylor , Jossey-Bass, 2009, pp. 18–32.
Taylor, Edward W. “Transformative Learning Theory: A Neurobiological Perspective of the Role of Emotions and Unconscious Ways of Knowing.” International Journal of Lifelong Education, vol. 20, no. 3, 2001, pp. 218–236, doi:10.1080/02601370110036064.
Medina, John . Brain Rules: 12 Principles for Surviving and Thriving at Work, Home and School. Pear Press, 2014.
Bjork, Elizabeth L. and Robert A. Bjork . “Making Things Hard on Yourself, but in a Good Way: Creating Desirable Difficulties to Enhance Learning.” Psychology and the Real World: Essays Illustrating Fundamental Contributions to Society, edited by Morton A. Gersbacher et al., Worth Publishers, 2011, pp. 56–64.
Barrett, Lisa Feldman . How Emotions Are Made: The Secret Life of the Brain. Kindle ed., Mariner Books, 2018.
David, Susan A. Emotional Agility: Get Unstuck, Embrace Change, and Thrive in Work and Life. Penguin Books, 2016.
Brackett, Marc A. Permission to Feel: The Power of Emotional Intelligence to Achieve Well-Being and Success. Celadon Books, 2020.
Sveinunggaard, Karen L. “Transformative Learning in Adulthood: A Socio-Contextual Perspective.” Adult Education Research Conference, New Prairie Press, 1993.

Yorks, Lyle and Elizabeth Kasl . “Toward a Theory and Practice for Whole-Person Learning: Reconceptualizing Experience and the Role of Affect.” Adult Education Quarterly, vol. 52, no. 3, 2002, pp. 176–192, doi:10.1177/07417136020523002.
Freire, Paulo . Pedagogy of the Oppressed. Continuum, 1989.
Nouri, Ali and Seyed Mehdi Sajjadi . “Emancipatory Pedagogy in Practice: Aims, Principles and Curriculum Orientation.” The International Journal of Critical Pedagogy, vol. 5, no. 2, 2014, pp. 76–87.
Smith, Linda Tuhiwai . Decolonizing Methodologies: Research and Indigenous Peoples. 2nd ed., Zed Books, 2012.
Yee, Joyce et al. “Transformative Learning as Impact in Social Innovation.” Design and Culture, vol. 11, no. 1, 2019, pp. 109–132, doi:10.1080/17547075.2019.1567984.
Prochaska, Janice M et al. “A Transtheoretical Approach to Changing Organizations.” Administration and Policy in Mental Health and Mental Health Services Research, vol. 28, no. 4, 2001, pp. 247–261, doi:10.1023/A:1011155212811.
Kegan, Robert . How the Way We Talk Can Change the Way We Work: Seven Languages for Transformation. Wiley, 2001.
Kahneman, Daniel . Thinking, Fast and Slow. Kindle ed., Penguin, 2011.
Parrish, Shane . “Daniel Kahneman: Putting Your Intuition on Ice.” The Knowledge Project, Podcast, www.fs.blog/knowledge-project/daniel-kahneman.
Lewin, Kurt . “Defining the ‘Field at a Given Time’.” Psychological Review, vol. 50, no. 3, 1943, pp. 292–310, doi:10.1037/h0062738.
Lewin, Kurt . “Frontiers in Group Dynamics: Concept, Method and Reality in Social Science; Social Equilibria and Social Change.” Human Relations, vol. 1, no. 1, 1947, pp. 5–41, doi:10.1177/001872674700100103.
Hussain, Syed Talib et al. “Kurt Lewin’s Change Model: A Critical Review of the Role of Leadership and Employee Involvement in Organizational Change.” Journal of Innovation & Knowledge, vol. 3, no. 3, 2018, pp. 123–127, doi:10.1016/j.jik.2016.07.002.
Ahmed, Sara . “Feminist Wonder.” Feminist Killjoys, vol. 2014. https://feministkilljoys.com/2014/07/28/feminist-wonder/
Kligyte, Giedre . “Transformation Narratives in Academic Practice.” International Journal for Academic Development, vol. 16, no. 3, 2011, pp. 201–213, doi:10.1080/1360144X.2011.596703.
Haraway, Donna J. Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press, 2016.
Loveless, Natalie . How to Make Art at the End of the World: A Manifesto for Research-Creation. Duke University Press, 2019.
St Pierre , Elizabeth Adams . “Methodology in the Fold and the Irruption of Transgressive Data.” International Journal of Qualitative Studies in Education, vol. 10, no. 2, 1997, pp. 175–189, doi:10.1080/095183997237278.
“Methodology.” Te Ataarangi, 2011, www.teataarangi.org.nz/?q=about-te-ataarangi/methodology.
Martin, Karen and Booran Mirraboopa . “Ways of Knowing, Being and Doing: A Theoretical Framework and Methods for Indigenous and Indigenist Re-Search.” Journal of Australian Studies, vol. 27, no. 76, 2003, pp. 203–214, doi:10.1080/14443050309387838.
Barad, Karen Michelle and Duke University Press . Meeting the Universe Halfway Quantum Physics and the Entanglement of Matter and Meaning. Duke University Press, 2007. https://ezproxy.lib.monash.edu.au/login?url=http://dx.doi.org/10.1215/9780822388128.
Nohl, Arnd-Michael . “Typical Phases of Transformative Learning: A Practice-Based Model.” Adult Education Quarterly, vol. 65, no. 1, 2014, pp. 35–49, doi:10.1177/0741713614558582.

Designing Making

Grocott, Lisa and Ricardo Sosa . “The Contribution of Design in Interdisciplinary Collaborations: A Framework for Amplifying Project-Grounded Research Grocott.” Associations: Creative Practice and Research, edited by James Oliver , Melbourne University Publishing, 2018, pp. 35–52.

Rosenberg, Terry . ““The Reservoir”: Towards a Poetic Model of Research in Design.” Working Papers in Art and Design, vol. 1, 2000.

Anderson, Ross C. “Creative Engagement: Embodied Metaphor, the Affective Brain, and Meaningful Learning.” Mind, Brain, and Education, vol. 12, no. 2, 2018, pp. 72–81.

Krippendorff, Klaus . The Semantic Turn: A New Foundation for Design. CRC/Taylor and Francis, 2006.

Grocott, Lisa . “Make Happen: Sense-Making the Affordances of a Practice-Based Phd in Design.” Practice-Based Design Research, edited by Laurene Vaughan , Bloomsbury Publishing, 2017, pp. 165–174.

Grocott, Lisa . “Making It Up: What Do You Design?” NiTRO, 24 August 2018 .

Rantatalo, Oscar and Ola Lindberg . “Liminal Practice and Reflection in Professional Education: Police Education and Medical Education.” Studies in Continuing Education, vol. 40, no. 3, 2018, pp. 351–366, doi:10.1080/0158037X.2018.1447918.

Grocott, Lisa . “The Discursive Practice of Figuring Diagrams.” TRACEY Journal: Drawing Knowledge, 2012, pp. 1–15, www.lboro.ac.uk/microsites/sota/tracey/journal/edu/2012/PDF/Lisa_Grocott-TRACEY-Journal-DK-2012.pdf.

Grocott, Lisa . Design Research & Reflective Practice: The Facility of Design-Oriented Research to Translate Practitioner Insights into New Understandings of Design, 2010. RMIT University, PhD Thesis.

Kitchenham, Andrew . “The Evolution of Jack Mezirow’s Transformative Learning Theory.” Journal of Transformative Education, vol. 6, no. 2, 2008, pp. 104–123, doi:10.1177/1541344608322678.

Design Process

“Design Thinking for Educators.” IDEO, January 2013, www.ideo.com/post/design-thinking-for-educators.

Diefenthaler, Annette et al. “Thinking & Acting Like a Designer: How Design Thinking Supports Innovation in K-12 Education.” Qatar Foundation and IDEO, Commissioned Research Report, 23 September 2017 .

Plattner, Hasso et al., editors. Design Thinking Research. Springer, 2016.

Buchanan, Richard . “Wicked Problems in Design Thinking.” Design Issues, vol. 8, no. 2, 1992, pp. 5–21, doi:10.2307/1511637.

Lawson, Bryan . How Designers Think: The Design Process Demystified. 4th ed., Elsevier/Architectural, 2006.

Kimbell, Lucy . “Rethinking Design Thinking: Part I.” Design and Culture, vol. 3, no. 3, 2011, pp. 285–306, doi:10.2752/175470811X13071166525216.

“About.” Henry Ford Learning Institute, 2021, www.hfli.org/about-hfli/.

Parizek, Deborah . “Book Interview, Online.” Interview by Kate McEntee , 22 January 2018 .

“Susie Wise Says Traditional Education Deserves a Design Revolution.” Core77 Design Awards, 2018, www.core77.com/posts/73421/Susie-Wise-Says-Traditional-Education-Deserves-a-Design-Revolution.

Wise, Susie . “Book Interview, Face-to-Face.” Interview by Kate McEntee , 25 August 2017 .

Wilson, Daniel . “Book Interview, Online.” Interview by Kate McEntee , 15 November 2017 .

Patten, Christopher . “Book Interview, Online.” Interview by Kate McEntee , 21 November 2017 .

Rosner, Daniela . Critical Fabulations: Reworking the Methods and Margins of Design. The MIT Press, 2018.

K12.Lab . “K12 Lab Overview.” 2021, https://dschool.stanford.edu/programs/k12-lab-network.

Anaissie, T. et al. Liberatory Design, 2021, www.liberatorydesign.com/.
Wise, Susie . Design for Belonging. Ten Speed Press, 2022.
Nussbaum, Bruce . “Design Thinking Is a Failed Experiment. So What’s Next?” Fast Company, vol. 2021, 2011. https://www.fastcompany.com/1663558/design-thinking-is-a-failed-experiment-so-whats-next.
Iskander, Natasha . “Design Thinking If Fundamentally Conservative and Preserves the Status Quo.” Harvard Business Review, 2018, https://hbr.org/2018/09/design-thinking-is-fundamentally-conservative-and-preserves-the-status-quo.
“Practice Development.” The Auckland Co-Design Lab, nd, www.aucklandco-lab.nz/practice.

Design Provocations

Tharp, Bruce M. and Stephanie M. Tharp . Discursive Design: Critical, Speculative, and Alternative Things. The MIT Press, 2018.
Costello, Amy . “Southern Africa: Troubled Water.” Online Documentary Episode, PBS Frontline, 2016, www.pbs.org/frontlineworld/stories/southernafrica904/.
Simon, Herbert Alexander . The Science of the Artificial. The MIT Press, 1969.
Garcia, Claudio Garduño . Design as Freedom. Aalto ARTS Books, 2017.
Keinonen, Turkka . “Design Method – Instrument, Competence or Agenda.” Multiple Ways to Design Research: Research Cases That Reshape the Design Discipline, Swiss Design Network, 2009, pp. 280–293.
Berg, Theresa et al. Benefits of Design Practice in Fieldwork: How ‘Artesanía Para El Bienestar’ Emerged in the Field as a Concept to Improve Access to Healthcare in a Mayan Community in Campeche, Mexico, 2014, OCAD University, 15 Oct 2014 .
Paniagua, Alejandro and David Istance . “Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies.” Organisation for Economic Co-operation and Development, 9 April 2018 .
Kemmis, Stephen and Robin McTaggart . “Participatory Action Research: Communicative Action and the Public Sphere.” The Sage Handbook of Qualitative Research, edited by Norman K Denzin and Yvonna S Lincoln , 3rd ed., Sage Publications, 2005, pp. 559–603.
Cohen, Louis et al., editors. Research Methods in Education, 6th ed. Taylor and Francis, 2007.
Elden, Max and Morten Levin . “Cogenerative Learning: Bringing Participation into Action Research.” Participatory Action Research, edited by William F. Whyte , Sage Publications, 1991, pp. 127–142.
Tuckwell, Dion . Joining Practice Research, 2021. Monash University, PhD Thesis, doi:10.26180/14533521.v1.
Wilkie, Alex et al., editors. Speculative Research: The Lure of Possible Futures. Taylor and Francis, 2017.
Darling-Hammond, Linda et al. “Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad.” National Staff Development Council, 2009, edpolicy.stanford.edu/sites/default/files/publications/professional-learning-learning-profession-status-report-teacher-development-us-and-abroad_0.pdf.
Candy, Stuart and Jeff Watson . “The Thing from the Future.” Situation Lab, 2017, www.situationlab.org/project/the-thing-from-the-future/.

Design Methods

Sutton-Smith, Brian . The Ambiguity of Play. Harvard University Press, 2001.
Macklin, Colleen . “Book Interview, Online.” Interview by Kate McEntee , 21 February 2018 .
“James Gee’s Principles for Game Based Learning.” Legends of Learning, 16 November 2016 , www.legendsoflearning.com/blog/james-paul-gee-game-based-learning.
Krijtenburg-Lewerissa, Kim et al. “Insights into Teaching Quantum Mechanics in Secondary and Lower Undergraduate Education.” Physical Review Physics Education Research, vol. 13, no. 1,

2017, p. 010109, doi:10.1103/PhysRevPhysEducRes.13.010109.
Anupam, Aditya et al. “ *Particle in a Box*: An Experiential Environment for Learning Introductory Quantum Mechanics.” IEEE Transactions on Education, vol. 61, no. 1, 2018, pp. 29–37, doi:10.1109/TE.2017.2727442.
Anupam, Aditya et al. “Design Challenges for Science Games: The Case of a Quantum Mechanics Game.” International Journal of Designs for Learning, vol. 11, no. 1, 2019, pp. 1–20, doi:10.14434/ijdl.v11i1.24264.
Anupam, Aditya et al. “Book Interview, Online.” Interview by Kate McEntee , 18 January 2018 .
Dorst, Kees and Nigel Cross . “Creativity in the Design Process: Co-Evolution of Problem–Solution.” Design Studies, vol. 22, no. 5, 2001, pp. 425–437, doi:10.1016/S0142-694X(01)00009-6.
Lab, Service Design . Atlas Game, 2012, www.servicedesignlab.net/service-co-creation-game.
Lee, Jung-Joo et al. “Design Choices Framework for Co-Creation Projects.” International Journal of Design, vol. 12, no. 2, 2018, pp. 15–31.
Carse, James . Finite and Infinite Games. Free Press, 1986.
Vaajakallio, Kirsikka and Tuuli Mattelmäki . “Design Games in Codesign: As a Tool, a Mindset and a Structure.” CoDesign, vol. 10, no. 1, 2014, pp. 63–77, doi:10.1080/15710882.2014.881886.
“Review of TSI 2020: Strengths & Opportunities.” Yunus Centre, Griffith University, Review Report, 2020.
Macklin, Colleen and John Sharp . Games, Design and Play: A Detailed Approach to Iterative Game Design. Pearson Education, 2016.

Design Moves

Akama, Yoko and Ann Light . “Readiness for Contingency: Punctuation, Poise, and Co-Design.” CoDesign, vol. 16, no. 1, 2020, pp. 17–28, doi:10.1080/15710882.2020.1722177.
Light, Ann and Yoko Akama . The Human Touch: Participatory Practice and the Role of Facilitation in Designing with Communities, 12th Participatory Design Conference, August 2012.
Bonsignore, Elizabeth et al., editors. Participatory Design for Learning: Perspectives from Practice and Research, Kindle ed. Routledge, 2017.
Keune, Anna et al. Edukata Facilitator Guide Book. Aalto University School of Arts, Design and Architecture, 2014.
Toikkanen, Tarmo et al. “Designing Edukata, a Participatory Design Model for Creating Learning Activities.” Re-Engineering the Uptake of Ict in Schools, edited by Frans Van Assche et al., Springer, 2015, pp. 41–58.
Leinonen, Teemu . “Interview.” 26 June 2017 .
Schultz, Tristan . “Interview.” 18 October 2018 .
“Design Lab.” Relative Creative, 2018, relativecreative.com.au/design-lab.
Barnett, Bec and Tristan Schultz . “Decolonising Approaches to Designing with Children: Futurebne Water Security Challenge.” Relative Creative, Case Study, January 2018.
Ahmed, Sara . What’s the Use?: On the Uses of Use. Duke University Press, 2019.
Diatta, Myriam et al. “A Family of Sensibilities: Toward a Relational Design Practice Grounded in Materiality and Embodiment“ Design and Culture, Forthcoming.
Grocott, Lisa . “Chasing Curiosity: Inquiry-Led Practice in Communication Design.” One and Many Mirrors: Perspectives on Graphic Design Education, edited by Luke Wood and Brad Haylock , Occasional Papers, 2020, pp. 136–147.
Halse, Joachim et al., editors. Rehearsing the Future. The Danish Design School Press, 2010.

Social Psychology

Ferguson, Ronald et al. “The Influence of Teaching beyond Standardized Test Scores: Engagement, Mindsets, and Agency: A Study of 16,000 Sixth through Ninth Grade Classrooms.” Achievement Gap Initiative at Harvard University, Report, 2015.

Deakin Crick , Ruth and Chris Goldspink . “Learner Dispositions, Self-Theories and Student Engagement.” British Journal of Educational Studies, vol. 62, no. 1, 2014, pp. 19–35, doi:10.1080/00071005.2014.904038.

Elliot, Andrew J. et al. Handbook of Competence and Motivation: Theory and Application. 2nd ed., Guilford Publications, 2018.

Brady, Laura M et al. “The Importance of Cultural Context: Expanding Interpretive Power in Psychological Science.” Association for Psychological Science, 27 February 2019 .

Markus, Hazel R. and Alana Conner . Clash!: How to Thrive in a Multicultural World. Plume, 2014.

Yeager, David S. and Gregory M. Walton . “Social-Psychological Interventions in Education: They’re Not Magic.” Review of Educational Research, vol. 81, no. 2, 2011, pp. 267–301, doi:10.3102/0034654311405999.

Walton, Gregory M. and Priyanka B. Carr . “Social Belonging and the Motivation and Intellectual Achievement of Negatively Stereotyped Students.” Stereotype Threat: Theory, Process, and Application, edited by Michael Inzlicht and Toni Schmader , Oxford University Press, 2012, pp. 89–106.

Farrington, Camille A. “Academic Mindsets as a Critical Component of Deeper Learning.” William and Flora Hewlett Foundation, White Paper, April 2013, www.hewlett.org/wp-content/uploads/2016/08/Academic_Mindsets_as_a_Critical_Component_of_Deeper_Learning_CAMILLE_FARRINGTON_April_20_2013.pdf.

Walton, Gregory M. and Geoffrey L Cohen . “A Brief Social-Belonging Intervention Improves Academic and Health Outcomes of Minority Students.” Science, vol. 331, no. 6023, 2011, pp. 1447–1451, doi:10.1126/science.1198364.

Kahneman, Daniel . Thinking, Fast and Slow. Kindle ed., Penguin, 2011.

McKercher, Kelly Ann . Beyond Sticky Notes – Co-Design for Real: Mindsets, Methods and Movements. Beyond Sticky Notes, 2020.

Grant, Adam . “Building a Culture of Learning at Work: How Leaders Can Create the Psychological Safety for People to Constantly Rethink What’s Possible.” strategy+business, 3 February 2021 , www.strategy-business.com/article/Building-a-culture-of-learning-at-work.

Klare, Jean and Louise van Swaaij . The Atlas of Experience. translated by David Winner , Bloomsbury Publishing, 2000.

Raz, Ariel et al. “Design for Belonging.” Stanford D.School, 2021, www.dschool.stanford.edu/resources/design-for-belonging.

Wise, Susie . “Home.” #DesignForBelonging, nd, www.designforbelonging.com.

Sanders, Elizabeth B-N and Pieter Jan Stappers . “Co-Creation and the New Landscapes of Design.” CoDesign, vol. 4, no. 1, 2008, pp. 5–18, doi:10.1080/15710880701875068.

Georgakopoulou, Alexandra . “Small Stories Research: Methods-Analysis-Outreach.” The Handbook of Narrative Analysis, edited by Anna De Fina and Alexandra Georgakopoulou , Somerset: John Wiley & Sons, Inc., 2015, pp. 255–271. /z-wcorg/.

Dweck, Carol . Mindset: The New Psychology of Success. Ballantine Books, 2006.

Garvey Berger, Jennifer . “Changing on the Job Developing Leaders for a Complex World.” 2012.

Duckworth, Angela . Grit: The Power of Passion and Perseverance. Scribner, 2016.

Diatta, Doremy . “Material Communications.” JAWS: Journal of Arts Writing by Students, vol. 1, no. 1, 2015, pp. 63–75, doi:10.1386/jaws.1.1.63_1.

Freire, Paulo . Pedagogy of the Oppressed. Continuum, 1989.

Freire, Paulo . Pedagogy of Hope: Reliving Pedagogy of the Oppressed. Bloomsbury Academic, 2014.

Ehn, Pelle . “Learning in Participatory Design as I Found It (1970 to 2015).” Participatory Design for Learning: Perspectives from Practice and Research, edited by Betsy DiSalvo et al., Routledge, 2017, pp. 7–21.

Martin, Brian . “Methodology Is Content: Indigenous Approaches to Research and Knowledge.” Educational Philosophy and Theory, vol. 49, no. 14, 2017, pp. 1392–1400,

doi:10.1080/00131857.2017.1298034.
Simpson, Leanne Betasamosake . As We Have Always Done: Indigenous Freedom through Radical Resistance. Kindle ed., University of Minnesota Press, 2017.
Barad, Karen Michelle and Duke University Press . Meeting the Universe Halfway Quantum Physics and the Entanglement of Matter and Meaning. Duke University Press, 2007. https://ezproxy.lib.monash.edu.au/login?url=http://dx.doi.org/10.1215/9780822388128.
Jones, Natasha N. “Narrative Inquiry in Human-Centered Design: Examining Silence and Voice to Promote Social Justice in Design Scenarios.” Journal of Technical Writing and Communication, vol. 46, no. 4, 2016, pp. 471–492, doi:10.1177/0047281616653489.
Bonsignore, Elizabeth et al., editors. Participatory Design for Learning: Perspectives from Practice and Research, Kindle ed. Routledge, 2017.
Grossman, Michele , editor. Blacklines: Contemporary Critical Writing by Indigenous Australians/Michele Grossman, Coordinating Editor. Melbourne University Press, 2003.
Smith, Linda Tuhiwai . Decolonizing Methodologies: Research and Indigenous Peoples. 2nd ed., Zed Books, 2012.
Ahmed, Sara . “Feminist Wonder.” Feminist Killjoys, vol. 2021, 2014. https://feministkilljoys.com/2014/07/28/feminist-wonder/.
Bennett, Jane . Vibrant Matter a Political Ecology of Things. Duke University Press, 2010.
Deci, Edward L. Intrinsic Motivation and Self-Determination in Human Behavior. Plenum, 1985.
Damon, William . The Path to Purpose: How Young People Find Their Calling in Life. Free Press, 2009.
Malin, Heather . Teaching for Purpose: Preparing Students for Lives of Meaning. Harvard Education Press, 2018.
Ryan, Richard M. “Psychological Needs and the Facilitation of Integrative Processes.” Journal of Personality, vol. 63, no. 3, 1995, pp. 397–427, doi:10.1111/j.1467–6494.1995.tb00501.x.
de Charms, Richard . Personal Causation: The Internal Affective Determinants of Behavior. Academic Press, 1968.
Bhabha, Homi K. The Location of Culture. Routledge, 2004.
Rollnick, Stephen and William R. Miller . “What Is Motivational Interviewing?” Behavioural and Cognitive Psychotherapy, vol. 23, no. 4, 1995, pp. 325–334, doi:10.1017/S135246580001643X.
Deci, Edward L. and Maarten Vansteenkiste . “Self-Determination Theory and Basic Need Satisfaction: Understanding Human Development in Positive Psychology.” Ricerche di Psicologia, vol. 27, no. 1, 2004, pp. 23–40.
Ertel, Chris and Lisa K. Solomon . Moments of Impact: How to Design Strategic Conversations That Accelerate Change. Simon & Schuster, 2014.

Cognitive Psychology

“The Science of Learning – What Every Teacher Should Know.” edX. 2021. www.edx.org/course/the-science-of-learning-what-every-teacher-should.
“About Us.” The Learning Scientists. nd. www.learningscientists.org.
Weinstein, Yana and Megan Sumeracki . Understanding How We Learn: A Visual Guide. Routledge, 2019.
Latimer, Joanna . “Introduction: Body, Knowledge, Worlds.” The Sociological Review, vol. 56, no. 2_suppl, 2008, pp. 1–22, doi:10.1111/j.1467–954X.2009.00813.x.
Medina, John . Brain Rules: 12 Principles for Surviving and Thriving at Work, Home and School. Pear Press, 2014.
Brown, Peter C. Make It Stick: The Science of Successful Learning. Kindle ed., Belknap Press, 2014.
Bjork Learning and Forgetting Lab . “Applying Cognitive Psychology to Enhance Educational Practice.” UCLA. nd. www.bjorklab.psych.ucla.edu/research/#itemI.
Coats, Cala . “Stickiness as Methodological Condition.” Journal of Social Theory in Art Education, vol. 40, 2020, pp. 17–28.
Carey, Benedict . How We Learn: The Surprising Truth About When, Where, and Why It Happens. Kindle ed., Random House, 2014.

Grocott, Lisa et al. “The Becoming of a Designer: An Affective Pedagogical Approach to Modelling and Scaffolding Risk-Taking.” Art, Design & Communication in Higher Education, vol. 18, no. 1, 2019, pp. 99–112, doi:10.1386/adch.18.1.99_1.
Grocott, Lisa and Kate McEntee . “Teaching Intrapersonal Development, Improving Interpersonal and Intercultural Skill Sets: The Transforming Mindsets Studio.” Public Interest Design Education Guidebook: Curricula, Strategies, and Seed Academic Case Studies, edited by Lisa M. Abendroth and Bryan Bell , Routledge, 2019, pp. 141–146.
Melton, Arthur W. “Implications of Short-Term Memory for a General Theory of Memory.” Journal of verbal learning and verbal behavior, vol. 2, no. 1, 1963, pp. 1–21, doi:10.1016/S0022-5371(63)80063-8.
Roesler, R. and J.L. McGaugh . “Memory Consolidation.” Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier, 2019.
Posner, Jonathan et al. “The Circumplex Model of Affect: An Integrative Approach to Affective Neuroscience, Cognitive Development, and Psychopathology.” Development and Psychopathology, vol. 17, no. 3, 2005, pp. 715–734, doi:10.1017/S0954579405050340.
Bradley, Margaret M. et al. “Remembering Pictures: Pleasure and Arousal in Memory.” Journal of Experimental Psychology, vol. 18, no. 2, 1992, pp. 379–390, doi:10.1037/0278–7393.18.2.379.
Conway, Martin A. et al. “The Formation of Flashbulb Memories.” Memory & Cognition, vol. 22, no. 3, 1994, pp. 326–343, doi:10.3758/BF03200860.
Kensinger, Elizabeth A. “Remembering Emotional Experiences: The Contribution of Valence and Arousal.” Reviews in the Neurosciences, vol. 15, no. 4, 2004, pp. 241–252, doi:10.1515/REVNEURO.2004.15.4.241.
Kensinger, Elizabeth A. and Suzanne Corkin . “Memory Enhancement for Emotional Words: Are Emotional Words More Vividly Remembered Than Neutral Words?” Memory & Cognition, vol. 31, no. 8, 2003, pp. 1169–1180, doi:10.3758/BF03195800.
Mather, Mara . “Emotional Arousal and Memory Binding: An Object-Based Framework.” Perspectives on Psychological Science, vol. 2, no. 1, 2007, pp. 33–52, doi:10.1111/j.1745–6916.2007.00028.x.
Craik, Fergus I.M. and Robert S. Lockhart . “Levels of Processing: A Framework for Memory Research.” Journal of Verbal Learning and Verbal Behavior, vol. 11, no. 6, 1972, pp. 671–684, doi:10.1016/S0022–5371(72)80001-X.
Bower, Gordon H. and Judith S. Reitman . “Mnemonic Elaboration in Multilist Learning.” Journal of Verbal Learning and Verbal Behavior, vol. 11, no. 4, 1972, pp. 478–485, doi:10.1016/S0022-5371(72)80030-6.
Clark, James M. and Allan Paivio . “Dual Coding Theory and Education.” Educational Psychology Review, vol. 3, no. 3, 1991, pp. 149–210, doi:10.1007/BF01320076.
Dunlosky, John et al. “Improving Students’ Learning with Effective Learning Techniques: Promising Directions from Cognitive and Educational Psychology.” Psychological Science in the Public Interest, vol. 14, no. 1, 2013, pp. 4–58, doi:10.1177/1529100612453266.
Sriram, Rishi . “The Neuroscience behind Productive Struggle.” Edutopia. 13 April 2020 , www.edutopia.org/article/neuroscience-behind-productive-struggle.
Haraway, Donna J. Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press, 2016.

Creative Imagining

Martin, Brian . “Methodology Is Content: Indigenous Approaches to Research and Knowledge.” Educational philosophy and theory, vol. 49, no. 14, 2017, pp. 1392–1400, doi:10.1080/00131857.2017.1298034.
“The Future of Jobs Report 2020.” World Economic Forum, Report, 20 October 2020 , www.weforum.org/reports/the-future-of-jobs-report-2020.
Gaver, William et al. “Cultural Probes and the Value of Uncertainty.” Interactions, vol. XI, no. 5, 2004, pp. 53–56.
Haseman, Brad . “A Manifesto for Performative Research.” Media International Australia, vol. 118, no. 1, 2006, pp. 98–106, doi:10.1177/1329878X0611800113.

Dorst, Kees and Nigel Cross . “Creativity in the Design Process: Co-Evolution of Problem–Solution.” Design Studies, vol. 22, no. 5, 2001, pp. 425–437, doi:10.1016/S0142–694X(01)00009-6.
Cross, Nigel . Designerly Ways of Knowing. Birkhäuser, 2007.
Schön, Donald . The Reflective Practitioner: How Professionals Think in Action. Basic Books, 1983.
Schön, Donald A. “Designing as Reflective Conversation with the Materials of a Design Situation.” Knowledge-Based Systems, vol. 5, no. 1, 1992, pp. 3–14.
Grocott, Lisa . Design Research & Reflective Practice: The Facility of Design-Oriented Research to Translate Practitioner Insights into New Understandings of Design, 2010. RMIT University, PhD Thesis.
Roozenburg, Norbert F. M. and Kees Dorst . Eckart Frankenberger et al., editors. Describing Design as a Reflective Practice: Observations on Schön’s Theory of Practice, Designers, 1998, London, Springer.
Mason, John . Researching Your Own Practice: The Discipline of Noticing. Routledge/Falmer, 2006.
Korsmeyer, Hannah et al. “Understanding Feminist Anticipation through ‘Back-talk’: 3 Narratives of Willful, Deviant, and Care-full Co-Design Practices.” Futures, 2021, In Press, https://doi.org/10.1016/j.futures.2021.102874.
Gottschall, Jonathan . Storytelling Animal: How Stories Make Us Human. Houghton Mifflin Harcourt, 2012.
Dunne, Anthony and Fiona Raby . Speculative Everything: Design, Fiction, and Social Dreaming. The MIT Press, 2013.
Sanders, Elizabeth B-N and Pieter Jan Stappers . “Co-Creation and the New Landscapes of Design.” CoDesign, vol. 4, no. 1, 2008, pp. 5–18, doi:10.1080/15710880701875068.
Boeijen, Annemiek van . et al. Delft Design Guide: Perspectives, Models, Approaches, Methods. BIS, 2020.
Fry, Tony et al. Design and the Question of History. Bloomsbury Academic, 2015.
Akama, Yoko and Shana Agid . Dance of Designing: Rethinking Position, Relation and Movement in Service Design, ServDes2018 – Service Design Proof of Concept Conference, 2018, Linköping University Electronic Press, 2018.
Grocott, Lisa and Mai Kobori . The Affordances of Designing for the Learning Sciences, LearnxDesign, 2015, Aalto University, Finland.
Sargent, Philip . “Design Science or Nonscience.” Design Studies, vol. 15, no. 4, 1994, pp. 389–402, doi:10.1016/0142–694X(94)90003-5.
Grocott, Lisa . “The Discursive Practice of Figuring Diagrams.” TRACEY Journal: Drawing Knowledge, 2012, pp. 1–15, www.lboro.ac.uk/microsites/sota/tracey/journal/edu/2012/PDF/Lisa_Grocott-TRACEY-Journal-DK-2012.pdf.
Mattelmäki, Tuuli et al. “What Happened to Empathic Design?” Design Issues, vol. 30, no. 1, 2014, pp. 67–77.
Chapman, Jonathan . Emotionally Durable Design: Objects, Experiences and Empathy. 2nd ed., Routledge, 2015.
Chase, Caitlin . “Beyond Empathy in Design.” UX Collective, Blog Post, August 2020, 2020, www.uxdesign.cc/beyond-empathy-in-design-f0f294c977b6.
Damasio, Antonio . Descartes’ Error: Emotion, Reason and the Human Brain. Random House, 2008.
Siegel, Daniel . Mindsight: Transform Your Brain with the New Science of Kindness. Oneworld Publications, 2010.
Brown, Brené. “Sonya Renee Taylor on ‘the Body Is Not an Apology’.” Unlocking Us, Podcast, 16 September 2020 , www.brenebrown.com/podcast/brene-with-sonya-renee-taylor-on-the-body-is-not-an-apology.
Solnit, Rebecca . Hope in the Dark: Untold Histories, Wild Possibilities. 3rd ed., Haymarket Books, 2016.
Ahmed, Sara . What’s the Use?: On the Uses of Use. Duke University Press, 2019.
Picard, Rosalind W. et al. “Affective Learning – A Manifesto.” BT Technology Journal, vol. 22, no. 4, 2004, pp. 253–269, doi:10.1023/B:BTTJ.0000047603.37042.33.

Shephard, Kerry . “Higher Education for Sustainability: Seeking Affective Learning Outcomes.” International Journal of Sustainability in Higher Education, vol. 9, no. 1, 2008, pp. 87–98.
Massumi, Brian . Politics of Affect. Polity Press, 2015.
Stanford 2025. “Learning and Living at Stanford.” 2016, http://www.stanford2025.com/.
Akama, Yoko and Ann Light . “Readiness for Contingency: Punctuation, Poise, and Co-Design.” CoDesign, vol. 16, no. 1, 2020, pp. 17–28, doi:10.1080/15710882.2020.1722177.

Designing Experiences

“The Future of Jobs Report 2020.” World Economic Forum, Report, 20 October 2020 , www.weforum.org/reports/the-future-of-jobs-report-2020.
Halloun, Ibrahim Abou and David Hestenes . “The Initial Knowledge State of College Physics Students.” American Journal of Physics, vol. 53, no. 11, 1985, pp. 1043–1055.
Schneps, Matthew . “A Private Universe.” 1987, p. 20 minutes. general editor, Harvard-Smithsonian Center for Astrophysics, https://www.learner.org/series/a-private-universe/1-a-private-universe/.
Grocott, Lisa and Ilya Fridman . The Playdate: Exploring How to Host a Learning Exchange, ServDes 2020: Tensions Paradoxes Plurality Conference, Linköping University Electronic Press, 2020.
Akama, Yoko and Ann Light . “Readiness for Contingency: Punctuation, Poise, and Co-Design.” CoDesign, vol. 16, no. 1, 2020, pp. 17–28, doi:10.1080/15710882.2020.1722177.
Botero, Andrea et al. “Getting Participatory Design Done: From Methods and Choices to Translation Work across Constituent Domains.” International Journal of Design, vol. 14, no. 2, 2020, pp. 17–34.
Hyysalo, S. and J. Lehenkari . Contextualizing Power in a Collaborative Design, PDC Conference Proceedings, 2002.
Avram, Gabriela et al. “Repositioning Codesign in the Age of Platform Capitalism: From Sharing to Caring.” CoDesign, vol. 15, no. 3, 2019, pp. 185–191, doi:10.1080/15710882.2019.1638063.
Sanders, Elizabeth B-N and Pieter Jan Stappers . “Co-Creation and the New Landscapes of Design.” CoDesign, vol. 4, no. 1, 2008, pp. 5–18, doi:10.1080/15710880701875068.
Ehn, Pelle . “Learning in Participatory Design as I Found It (1970 to 2015).” Participatory Design for Learning: Perspectives from Practice and Research, edited by Betsy DiSalvo et al., Routledge, 2017, pp. 7–21.
“Student-Centered Learning: Building Agency and Engagement.” Edutopia, Video, 3 May 2017 , www.edutopia.org/video/student-centered-learning-building-agency-and-engagement.
Bratteteig, Tone et al. “Methods: Organising Principles and General Guidelines for Participatory Design Projects.” Routledge International Handbook of Participatory Design, edited by Toni Robertson and Jesper Simonsen , 2012, pp. 117–144.
Fani, Tayebeh and Farid Ghaemi . “Implications of Vygotsky’s Zone of Proximal Development (Zpd) in Teacher Education: ZPTD and Self-Scaffolding.” The 2nd International Conference on Education and Educational Psychology, Istanbul, Turkey, vol. 29, 2011, pp. 1549–1554. doi:10.1016/j.sbspro.2011.11.396.
Stuyf, Rachel R. Van Der . “Scaffolding as a Teaching Strategy.” Unpublished Work, Academia, 2002, pileidou.files.wordpress.com/2013/11/scaffolding-as-a-teaching-strategy.pdf.
Rogoff, Barbara . Apprenticeship in Thinking: Cognitive Development in Social Context. Oxford University Press, 1992.
Halse, Joachim et al., editors. Rehearsing the Future. The Danish Design School Press, 2010.
Brandt, Eva and Thomas Binder . “Tools and Techniques: Ways to Engage Telling, Making and Enacting.” Routledge International Handbook of Participatory Design, edited by Toni Robertson and Jesper Simonsen , Kindle ed., Taylor and Francis, 2013, pp. 145–172.
Korsmeyer, Hannah . Feminist Tendencies, Tensions, and ‘Co-Design’ Practice, 2022. Monash.
Grocott, Lisa and Mai Kobori . The Affordances of Designing for the Learning Sciences, LearnxDesign, 2015, Aalto University, Finland.
Nold, Christian . “Turning Controversies into Questions of Design: Prototyping Alternative Metrics for Heathrow Airport.” Inventing the Social, edited by Noortje Marres et al., Mattering

Press, 2018, pp. 94–124.
Grocott, Lisa . “The Discursive Practice of Figuring Diagrams.” TRACEY Journal: Drawing Knowledge, 2012, pp. 1–15, www.lboro.ac.uk/microsites/sota/tracey/journal/edu/2012/PDF/Lisa_Grocott-TRACEY-Journal-DK-2012.pdf.
Blomkamp, Emma . “The Promise of Co-Design for Public Policy.” Australian Journal of Public Administration, vol. 77, no. 4, 2018, pp. 729–743, doi:10.1111/1467-8500.12310.
Boehner, Kirsten . “Reflections on Representation as Response.” Interactions, vol. 16, no. 6, 2009, pp. 28–32, doi:10.1145/1620693.1620700.
Rose, Todd . The End of Average: How We Succeed in a World That Values Sameness. HarperCollins, 2015.
“What We Do.” National Equity Project, nd, www.nationalequityproject.org.
Abendroth, Lisa M. and Bryan Bell , editors. Public Interest Design Practice Guidebook: Seed Methodology, Case Studies, and Critical Issues. Routledge, 2015.
Chivukula, Sai Shruthi . “Feminisms through Design: A Practical Guide to Implement and Extend Feminism.” Interactions, vol. 27, no. 6, 2020, pp. 36–39, doi:10.1145/3427338.
Winchester, Woodrow W. “Afrofuturism, Inclusion, and the Design Imagination.” Interactions, vol. 25, no. 2, 2018, pp. 41–45, doi:10.1145/3182655.
“International Indigenous Design Charter.” International Council of Design, 2015, www.ico-d.org/resources/indigo.
“A Designer’s Critical Alphabet.” Etsy, 2021, www.etsy.com/listing/725094845/a-designers-critical-alphabet.
“Bulk Order the Model of Care Practice Cards.” Beyond Sticky Notes, 2021, www.etsy.com/listing/725094845/a-designers-critical-alphabet.
Perry, M. “Pluriversal Literacies: Affect and Relationality in Vulnerable Times.” Reading Research Quarterly, vol. 56, no. 2, 2021, pp. 293–309, doi:10.1002/rrq.312.
Escobar, Arturo . Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds. Duke University Press, 2018.
Noel, Lesley-Ann. R Leitão et al., editors. Envisioning a Pluriversal Design Education, DRS Pluriversal Design SIG Conference, 4 June 2020 .
Oliver, Michael . Social Work with Disabled People. 4th ed., Palgrave Macmillan, 2012. Bob Sapey and Pam Thomas.
Mignolo, Walter D. “Delinking.” Cultural Studies, vol. 21, no. 2–3, 2007, pp. 449–514, doi:10.1080/09502380601162647.
Goodley, Dan . “‘Learning Difficulties’, the Social Model of Disability and Impairment: Challenging Epistemologies.” Disability & Society, vol. 16, no. 2, 2001, pp. 207–231, doi:10.1080/09687590120035816.
Rosner, Daniela . Critical Fabulations: Reworking the Methods and Margins of Design. The MIT Press, 2018.
Charset, Brian and Kate Sjostrom , editors. Unsettling Education: Searching for Ethical Footing in a Time of Reform. Peter Lang, 2019.
Deleuze, Gilles and Claire Parnet . Dialogues Ii. Columbia University Press, 2002.
Coleman, Kathryn et al. “Activating Teacher Education through a/R/Tographic Practice in Space.” Visual Methods, a/R/Tography and Walking, edited by J Roldan et al., Tirant Lo Blanch, in press.
Ahmed, Sara . “Feminist Wonder.” Feminist Killjoys, vol. 2021, 2014. https://feministkilljoys.com/2014/07/28/feminist-wonder/.
Korsmeyer, Hannah et al. “Understanding Feminist Anticipation through ‘Back-talk’: 3 Narratives of Willful, Deviant, and Care-full Co-Design Practices.” Futures, 2021, In Press, https://doi.org/10.1016/j.futures.2021.102874.
Petry, Arlete dos sAntos . “The Concept of Magic Circle: A Critical Reading.” Interactividad y Videojuegos, vol. 5, 2013, doi:10.25029/OD.2013.30.5.
“What Is Design Based Learning?” Design Based Learning, nd, www.dblresources.org.
Dean, Douglas et al. “Identifying Quality, Novel, and Creative Ideas: Constructs and Scales for Idea Evaluation.” Journal of the Association for Information Systems, vol. 7, no. 10, 2006, pp. 646–699, doi:10.17705/1jais.00106.
Ramos, Fabiane and Laura Roberts . “Wonder as Feminist Pedagogy: Disrupting Feminist Complicity with Coloniality.” Feminist Review, vol. 128, no. 1, 2021, pp. 28–43,

doi:10.1177/01417789211013702.
Nagasundaram, Murli and Robert P. Bostrom . “The Structuring of Creative Processes Using GSS: A Framework for Research.” Journal of Management Information Systems, vol. 11, no. 3, 1994, pp. 87–114, doi:10.1080/07421222.1994.11518051.
Besemer, Susan P. and Donald J. Treffinger . “Analysis of Creative Products: Review and Synthesis.” The Journal of Creative Behavior, vol. 15, no. 3, 1981, pp. 158–178, doi:10.1002/j.2162-6057.1981.tb00287.x.
Dunne, Anthony . “A Larger Reality,” Fitness for What Purpose?, edited by Mary V Mullin and Christopher Frayling , Eyewear Publishing, 2018, pp. 116–117. www.readingdesign.org/a-larger-reality.
Auger, James and Julian Hanna . “How the Future Happens.” Journal of Future Studies, vol. 23, no. 3, 2019, pp. 93–98, doi:10.6531/JFS.201903_23(3).0007.
Kolb, David . Experiential Learning: Experience as a Source of Learning and Development. Prentice Hall, 1984.
Haraway, Donna . “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” Feminist Studies, vol. 14, no. 3, 1988, pp. 575–599.
Woodward, Sophie . Material Methods Researching and Thinking with Things. Sage, 2020.
Hayashi, Arawana and Ricardo Dutra . “Social Presencing Theater the Art of Making a True Move.” 2021, http://public.eblib.com/choice/PublicFullRecord.aspx?p=6514862.
Skulmowski, Alexander and Günter Daniel Rey . “Embodied Learning: Introducing a Taxonomy Based on Bodily Engagement and Task Integration.” Cognitive Research: Principles and Implications, vol. 3, no. 1, 2018, p. 6, doi:10.1186/s41235-018-0092-9.
Michlewski, Kamil . Design Attitude. Kindle ed., Farnham Ashgate, 2015.
Mattelmäki, Tuuli et al. “What Happened to Empathic Design?” Design Issues, vol. 30, no. 1, 2014, pp. 67–77.
Lockton, Dan and Stuart Candy . “A Vocabulary for Visions in Designing for Transitions.” Design Research Society (DRS) 2018, 2018.
Grocott, Lisa et al. “The Becoming of a Designer: An Affective Pedagogical Approach to Modelling and Scaffolding Risk-Taking.” Art, Design & Communication in Higher Education, vol. 18, no. 1, 2019, pp. 99–112, doi:10.1386/adch.18.1.99_1.
Davies, Sally . “Women’s Minds Matter.” Aeon, 30 May 2019 , aeon.co/essays/feminists-never-bought-the-idea-of-a-mind-set-free-from-its-body.
Perkins, David . Making Learning Whole: How Seven Principles of Teaching Can Transform Education. Kindle ed., Jossey-Bass, 2013.
Grocott, Lisa and Kate McEntee . “Teaching Intrapersonal Development, Improving Interpersonal and Intercultural Skill Sets: The Transforming Mindsets Studio.” Public Interest Design Education Guidebook: Curricula, Strategies, and Seed Academic Case Studies, edited by Lisa M. Abendroth and Bryan Bell , Routledge, 2019, pp. 141–146.

Transformative Engagement

Grocott, Lisa . “Chasing Curiosity: Inquiry-Led Practice in Communication Design.” One and Many Mirrors: Perspectives on Graphic Design Education, edited by Luke Wood and Brad Haylock , Occasional Papers, 2020, pp. 136–147.
Feuerstein, Reuven . “The Theory of Structural Cognitive Modifiability.” Learning and Thinking Styles: Classroom Interaction, National Education Association of the United States/Better Schools, 1990, pp. 68–134.
Agid, Shana . “Worldmaking: Working through Theory/Practice in Design.” Design and Culture, vol. 4, no. 1, 2012, pp. 27–54, doi:10.2752/175470812X13176523285110.
Zaidi, Leah . “Worldbuilding in Science Fiction, Foresight, and Design.” Journal of Futures Studies, vol. 2, 2019, p. 12, doi:10.6531/JFS.201906_23(4).0003.
Snow, Shane . Dream Teams: Working Together without Falling Apart. Little, Brown Book Group, 2018.
Escobar, Arturo . Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds. Duke University Press, 2018.

Danko, Sheila et al. “Humanizing Design through Narrative Inquiry.” Journal of Interior Design, vol. 31, no. 2, 2006, pp. 10–28, doi:10.1111/j.1939-1668.2005.tb00408.
Mehrtens, Sue . “Jung on Paradox.” Jungian Center for the Spiritual Sciences: Whole Person Learning in a Jungian Context, nd.
Rantatalo, Oscar and Ola Lindberg . “Liminal Practice and Reflection in Professional Education: Police Education and Medical Education.” Studies in Continuing Education, vol. 40, no. 3, 2018, pp. 351–366, doi:10.1080/0158037X.2018.1447918.
Ramos, Fabiane and Laura Roberts . “Wonder as Feminist Pedagogy: Disrupting Feminist Complicity with Coloniality.” Feminist Review, vol. 128, no. 1, 2021, pp. 28–43, doi:10.1177/01417789211013702.

Seeding Transformation through Design

Chen, Helen et al. “Changing Records of Learning through Innovations in Pedagogy and Technology.” Educause Review, March, 2016.
Grocott, Lisa . “We Get the Behaviour We Reward: The Design of Alternate Records of Learning.” Medium, 2020.
Ramos, Fabiane and Laura Roberts . “Wonder as Feminist Pedagogy: Disrupting Feminist Complicity with Coloniality.” Feminist Review, vol. 128, no. 1, 2021, pp. 28–43, doi:10.1177/01417789211013702.
Mignolo, Walter D. “Delinking.” Cultural Studies, vol. 21, no. 2–3, 2007, pp. 449–514, doi:10.1080/09502380601162647.
Lockton, Dan and Stuart Candy . A Vocabulary for Visions in Designing for Transitions, Proceedings of Design Research Society (DRS2018), University of Limerick, Ireland, 1 June 2018 .
Burdick, Anne . “Designing Futures from the Inside.” Journal of Futures Studies, vol. 23, no. 3, 2019, pp. 75–92, doi:10.6531/JFS.201903_23(3).0006.
Inayatullah, Sohail . “Can Education Transform?: Contradictions between the Emerging Future and the Walled Past.” Futures and Foresight Science, vol. 2, no. 1, 2020, p. e27, doi:10.1002/ffo2.27.
Korsmeyer, Hannah et al. “Understanding Feminist Anticipation through ‘Back-talk’: 3 Narratives of Willful, Deviant, and Care-full Co-Design Practices.” Futures, 2021.
Scarry, Elaine . The Body in Pain. Oxford University Press, 1987.
Dator, Jim . “The Futures of Cultures and Cultures of the Future.” Perspectives on Cross-Cultural Psychology, edited by Anthony J Marsella et al., Academic Press, 1979, pp. 369–388.
Inayatullah, Sohail . “Six Pillars: Futures Thinking for Transforming.” Foresight, vol. 10, no. 1, 2008, pp. 4–21, doi:10.1108/14636680810855991.
Dunne, Anthony and Fiona Raby . Speculative Everything: Design, Fiction, and Social Dreaming. The MIT Press, 2013.
Kozulin, Alex . Vygotsky’s Educational Theory in Cultural Context. Cambridge University Press, 2007.
Zaidi, Leah . “Worldbuilding in Science Fiction, Foresight, and Design.” Journal of Futures Studies, vol. 2, 2019, p. 12, doi:10.6531/JFS.201906_23(4).0003.
Grocott, Lisa et al. “The Becoming of a Designer: An Affective Pedagogical Approach to Modelling and Scaffolding Risk-Taking.” Art, Design & Communication in Higher Education, vol. 18, no. 1, 2019, pp. 99–112, doi:10.1386/adch.18.1.99_1.
Ahmed, Sara . On Being Included Racism and Diversity in Institutional Life. Duke University Press, 2012.
Kolb, David . Experiential Learning: Experience as a Source of Learning and Development. Prentice Hall, 1984.
Candy, Stuart and Kelly Kornet . “Turning Foresight inside Out: An Introduction to Ethnographic Experiential Futures.” Journal of Futures Studies, vol. 23, no. 3, 2019, pp. 3–22.
Manning, Erin . The Minor Gesture. Duke University Press, 2013.
Sumartojo, Shanti and Matthew Graves . “Rust and Dust: Materiality and the Feel of Memory at Camp Des Milles.” Journal of Material Culture, vol. 23, no. 3, 2018, pp. 328–343,

doi:10.1177/1359183518769110.
Markus, Hazel R. and Paula Nurius . “Possible Selves: The Interface between Motivation and the Self-Concept.” Self and Identity: Psychosocial Perspectives, edited by Krysia Yardley and Terry Honess , Routledge and Kegan Paul, 1987, pp. 157–172.
Oettingen, Gabriele et al. “Mental Contrasting and Goal Commitment: The Mediating Role of Energization.” Personality and Social Psychology Bulletin, vol. 35, no. 5, 2009, pp. 608–622, doi:10.1177/0146167208330856.
“Home.” WOOP, nd, www.woopmylife.org/en/home.
Conway, Martin A. et al. “The Formation of Flashbulb Memories.” Memory & Cognition, vol. 22, no. 3, 1994, pp. 326–343, doi:10.3758/BF03200860.
Schacter, Daniel L. et al. “The Future of Memory: Remembering, Imagining, and the Brain.” Neuron, vol. 76, no. 4, 2012, pp. 677–694, doi:10.1016/j.neuron.2012.11.001.
“Write a Letter to the Future.” FutureMe, 2021, www.futureme.org.
McEntee, Kate . “Archipelago of Possibilities: Priming Teachers to Reflect on Intrinsic Motivations for Change.” Report, 2016, pp. 1–11, www.iletc.com.au/wp-content/uploads/2016/03/archipelago-report-for-ILETC-project.pdf.
Tuckwell, Dion . Joining Practice Research, 2021. Monash University, PhD Thesis, doi:10.26180/14533521.v1.
Newland, Stephen . “The Power of Accountability.” Association for Financial Counselling & Planning Education, 2018.

Shift Work Elaborated

Norgaard, Kari Marie . Living in Denial Climate Change, Emotions, and Everyday Life. The MIT Press, 2011.
David, Susan A. Emotional Agility: Get Unstuck, Embrace Change, and Thrive in Work and Life. Penguin Books, 2016.
Kitchenham, Andrew . “The Evolution of Jack Mezirow’s Transformative Learning Theory.” Journal of Transformative Education, vol. 6, no. 2, 2008, pp. 104–123, doi:10.1177/1541344608322678.
Grabove, Valerie . “The Many Facets of Transformative Learning Theory and Practice.” Transformative Learning in Action: Insights from Practice. New Directions for Adult and Continuing Education, edited by Patricia Cranton , Jossey-Bass, 1997, pp. 89–96.
Taylor, Edward W. “Building Upon the Theoretical Debate: A Critical Review of the Empirical Studies of Mezirow’s Transformative Learning Theory.” Adult Education Quarterly, vol. 48, no. 1, 1997, pp. 34–59, doi:10.1177/074171369704800104.
Adams, T.E. and Stacy Holman Jones . “Autoethnography Is Queer.” Handbook of Critical and Indigenous Methodologies, edited by Norman K Denzin et al., Sage, 2008, pp. 373–390.
Braidotti, Rosi . “A Theoretical Framework for the Critical Posthumanities.” Theory, Culture & Society, vol. 36, no. 6, 2019, pp. 31–61.
Mignolo, Walter D. “Delinking.” Cultural Studies, vol. 21, no. 2–3, 2007, pp. 449–514, doi:10.1080/09502380601162647.
“Design.” Lexico, nd, www.lexico.com/definition/design.
“Whakaahua.” Maori Dictionary, 2021, www.maoridictionary.co.nz/search?keywords=whakaahua.
Hurston, Zora Neale . Their Eyes Were Watching God. Virago Press, 2018.
Korsmeyer, Hannah et al. “Understanding Feminist Anticipation through ‘Back-talk’: 3 Narratives of Willful, Deviant, and Care-full Co-Design Practices.” Futures, 2021, In Press, https://doi.org/10.1016/j.futures.2021.102874.
Sidorkin, Alexander M. Learning Relations: Impure Education, Deschooled Schools, and Dialogue with Evil. Peter Lang, 2002.
Haraway, Donna . “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.” Feminist Studies, vol. 14, no. 3, 1988, pp. 575–599.
Gordon, Avery . Ghostly Matters: Haunting and the Sociological Imagination. University of Minnesota Press, 1997.

Bacchi, Carol and Joan Eveline . Mainstreaming Politics Gendering Practices and Feminist Theory. University of Adelaide Press, 2010.
Tejeda, Carlos and Manuel Espinoza . “Towards a Decolonizing Pedagogy: Social Justice Reconsidered.” Pedagogies of Difference : Rethinking Education for Social Change, edited by Peter Pericles Trifonas , RoutledgeFalmer, 2003, pp. 1–12. /z-wcorg/, https://openlibrary.org/books/OL15531265M.
Vaughan, Laurene . Designing Cultures of Care. Bloomsbury, 2019.
Wechsler, Jax . “Trauma Informed Design Masterclasses.” Social Design Sydney, socialdesignsydney.com/masterclasses/.
Noel, Lesley-Ann and Marcelo Paiva . “Learning to Recognize Exclusion.” Journal of Usability Studies, vol. 16, no. 2, 2021, pp. 63–72.
“Servdes 2020: Tensions, Paradoxes and Plurality.” ServDes2020, Online Conference, RMIT University, 2020, www.servdes2020.org.
Donahue, Sean et al. Defining Practices, 2017, www.definingpractices.com.
Sadie Red Wing, nd, www.sadieredwing.com.
“Indigenous Student Centre.” OCAD University, nd, www.ocadu.ca/services/indigenous-students.
“Wominjeka Djeembana Research Lab.” Monash University, nd, www.monash.edu/mada/research/wominjeka-djeembana.
“International Indigenous Design Charter.” International Council of Design, 2015, www.ico-d.org/resources/indigo.
Harris, Anne M and Stacy Holman Jones . The Queer Life of Things: Performance, Affect, and the More-Than-Human. Lexington Books, 2019.
Ahmed, Sara . “Queer Use, Lgbtq+@Cam.” YouTube, uploaded by LGBTQ Cam, 8 January 2019 , youtu.be/upkkoFVYfUE.
Forlano, Laura et al., editors. Bauhaus Futures. The MIT Press, 2019.
Mazé, Ramia and Josefin Wangel . “Future (Im)Perfect: Exploring Time, Becoming and Difference in Design and Futures Studies.” Feminist Futures of Spatial Practice, edited by Meike Schalk and Thérèse Kristiansson Ramia Mazé , AADR and Spurbuchverlag, 2017, pp. 273–286.
Cooper, Brittney C. et al., editors. Crunk Feminist Collection. Feminist Press, 2017.
Smith, Rachel Charlotte et al., editors. Design Anthropological Futures. Routledge, 2020.
Pink, Sarah et al. Uncertainty and Possibility: New Approaches to Future Making in Design Anthropology. Routledge, 2018.
Sumartojo, Shanti and Matthew Graves . “Feeling through the Screen: Memory Sites, Affective Entanglements, and Digital Materialities.” Social & Cultural Geography, vol. 22, no. 2, 2021, pp. 231–249, doi:10.1080/14649365.2018.1563711.
Simpson, Leanne Betasamosake . As We Have Always Done: Indigenous Freedom through Radical Resistance. Kindle ed., University of Minnesota Press, 2017.
Agid, Shana and Elizabeth Chin . “Making and Negotiating Value: Design and Collaboration with Community Led Groups.” CoDesign, vol. 15, no. 1, 2019, pp. 75–89, doi:10.1080/15710882.2018.1563191.
Avram, Gabriela et al. “Repositioning Codesign in the Age of Platform Capitalism: From Sharing to Caring.” CoDesign, vol. 15, no. 3, 2019, pp. 185–191, doi:10.1080/15710882.2019.1638063.
Bonsignore, Elizabeth et al., editors. Participatory Design for Learning: Perspectives from Practice and Research, Kindle ed. Routledge, 2017.
Agid, Shana et al. “Super Idiotic Creatures (Sic). Keywords in Participatory Design.” Zenodo, Computer Software, 2021, https://doi.org/10.5281/zenodo.4695510.
Akama, Yoko and Shana Agid . Dance of Designing: Rethinking Position, Relation and Movement in Service Design, ServDes2018 – Service Design Proof of Concept Conference, 2018, Linköping University Electronic Press, 2018.
“Codesign: International Journal of Cocreation in Design and the Arts.” Taylor and Francis Online, nd, www.tandfonline.com/toc/ncdn20/current.