CHAPTER 1
Re-evolution: Disrupting Education

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CHAPTER OVERVIEW

The world has changed at a rapid pace—all around us we see the influences of major shifts in the political, social, ecological, geological and cultural landscape. We are now living in the epoch of the **Anthropocene**, a new geological era in which humans have become the single most significant global force impacting on ecological change (Crutzen 2002). Beyond the debates about whether climate change is happening, the causes or even who is to blame, the reality is that the world is going through a significant moment in history that has consequences for all entities on the planet. In recognition of the impact of this new epoch, the potential challenges ahead and the way children's futures will play out there has been a call for educators to consider new ways of thinking, knowing and acting that respond to the implications of these geological changes, which include an ecological crisis. The question many are asking is how educators will engage with learners in order to respond to the growing global concern over our shared future.

    This chapter explores the impacts of some of these changes on the ways we define education, how we come to make sense of our role as educators, the visible and invisible bodies of children as learners in the Anthropocene (Malone 2018), and how we might respond to an uncertain future for humans and nonhumans alike. The chapter describes the relevance of these changes for you, as preservice teachers, and how you might adapt to the larger uncertainties you uncover as you learn, and how this may influence your view of being in the world and your emergence as an educator. Through a variety of lenses, you will be asked to consider what changes teachers and schools as social institutions are making in order to respond to the shifting lifeworld of children and young people. You will also be challenged to consider the ways children and young people inhabit new spaces outside schools as sites for different types of learning, with approaches that may not have been viewed as learning at all in mainstream traditional views of education. You will be invited to continually re-turn and turn-over as a murmuration (being in the act of murmuring) of big ideas as you engage with the book. So you, as a learner and educator, like a flock of starlings responding to a subtle change in direction, can be constantly gliding, reaching and shaping the world in which you are being and knowing.

Anthropocene
the age of humans—the proposed name for the new geological epoch currently taking over from the Holocene, starting from when human impacts moved beyond the point of restoration of the Earth's geology and ecosystems.

Introducing precarious times

> I will not mince my words. We live at a precarious moment in history. Relations of subjection, suffering, dispossession and contempt for human dignity and the sanctity of life are at the center of social existence. Emotional dislocation, moral sickness and individual helplessness remain ubiquitous features of our time. (McLaren 1995, p. 1)

The sense of hopelessness Peter McLaren (1995) was reporting in his *Critique of Contemporary Culture and Educational Practice* two decades ago was, he said, the result of late modernity's 'dehydrated imagination that has lost its capacity to dream otherwise' (p. 2). His sense of urgency for education and educators to be present in debates about the precarity of the modern world seems to be a forewarning of dangerous times ahead, and one we as educators need to take heed of, now more than ever. As a call to action, he explicitly asks us: will we as educators seek opportunities to engage with alternative discourses, to explore creative pedagogical approaches, to re-imagine the development of, and experimentation with, education that is messy, disorderly, undisciplined, or unconventional? Will we/you redefine education, reframe schools as more than sites of primarily limiting institutional learning, and even reconsider what it means to be both educator and learner in these precarious times? Rapidly changing social, cultural and technological conditions insist that we rethink ourselves not as teachers and as learners, but as knowing beings. Knowledge becomes expanded, more complex, as an array of possible imaginaries that exist in a variety of forms, affects and relationalities.

Children and young people are becoming 'knowing beings' that have new needs and new capacities that demand newly reconceptualised pedagogies and curricula. Research reiterates that young people want new possibilities for reforming schools. They want to be autonomous, make decisions about their learning, and know that learning is connected to their everyday lives. They want to feel respected and valued by teachers and other young people; and be given more responsibility to have input into shaping their world (Rudduck 2007). Stephen Lamb's article, *Australian Education Fails One in Four Young People—but Not the Wealthy Ones* (2018) and John Smith's article, *Why Is School Not Working for So Many Young People?* (2015) both published in the *Conversation*, point to research revealing that the current Australian education system is in crisis; that it is failing one in four children, and in some cases as many as one-half of all children. What is even more illuminating is that over the past twenty years this figure has not budged, even with all the political rhetoric, policy reviews, curriculum changes and funding. Most explanations for this failure focus on children and young people within a 'deficit' model which assumes that there is something fundamentally wrong with learners themselves. This is attributed primarily to a national (and global) phenomenon of young people being disaffected or alienated from schooling (and society more in general), and it is assumed that to respond, there needs to be an increase in programs

and interventions that can change young people so they can fit better into 'schooling' systems. The fundamental structure of schooling as a delivery point for filling up child bodies with 'knowledge and information' is centuries old and seemingly has changed very little over this time.

Most of the research to find adequate 'interventions' is based on external assessments made without input from young people themselves, their families or thoughtful teachers. Mostly, when young people are asked, they say schools are antiquated dinosaurs, irrelevant to their everyday lives (Smith 2015). These findings are not new. In fact it was predicted that with the majority of teachers in schools now reaching an average age of 50, most would have limited experience or understanding of the lifeworld of children as they struggle to keep up with them on advances in technology, social media and the changing political, social, ecological, geological and cultural landscape. So the gap widens between young people as learners in a state of rapid change, the ability of teachers to keep up with those changes, and the role of schools in addressing those changes and the challenges of our future.

What do schools look like? What did your classroom feel like when you were in primary school? In small groups, discuss your experiences of being in primary school as a young child. Consider the buildings and the classroom. Can you remember them? Draw a bird's eye view of your school and its layout. Now think about the classroom layout. Google some images of schools over time. Questions you can consider in your discussions: What was the dominant layout of schools from your childhood? How were classrooms organised? How did you feel in those spaces as a learner? Can you remember any classrooms that looked different? How does this compare with your experiences of classrooms now? If you drew a classroom today, in what ways would it look different from these past manifestations? Have schools changed over time? What are the similarities and the differences? Why do you think this is?	**PAUSE, REFLECT, RECORD**

As an educator, you are embarking on a journey into this world of education that needs to be viewed as still in the making. Whether educators and education can respond to challenges by considering new and innovative ways forward will largely depend on how open and responsive they (you) are to the challenges that living in a precarious, uncertain world will bring. For some, educating in this messy, disorderly world could mean new openings, new possibilities, innovation. Some might find it unravelling, frightening, scary; for many it may be a combination of these things. What is clear, though—and what seems essential on this journey of discovery—is to know that being open to, and engaged in, the world around you is critical to being able to shift with the ebbs and flows of these times. There will be no certainty; fluidity and uncertainty are givens. You will need to be knowledgeable about children and young people and the world they live in. Take time to listen to what they have to say, watch what they do, and

engage with the tools of knowing they value (discussed in more detail in Chapter 2). To be open is also to acknowledge the politicised nature of teachers' work, and to be clear that not naming our beliefs does not mean we are not taking a political stance; it just means we are part of the silent, compliant and invisible mainstream. Think about what will make you a better teacher, a better-equipped teacher, an open teacher, and a fluid teacher ready to adapt and be instrumental in these changing times. It will prepare you for the uncertainty and help you establish the role you will play in revolutionary schooling for a changing world. This book is focused on preparing you for that revolution.

Revolutionising schooling and what it means to be human

> Every education system in the world is being reformed at the moment. And it's not enough. Reform is no use anymore, because that's simply improving a broken model. What we need … is not evolution, but a revolution in education. This has to be transformed into something else. (Robinson 2010)

Before we embark on the discussion that is begging to happen in response to what Ken Robinson says above, let's start by asking: What is this new world to which teachers and schooling will be expected to respond if education is to take us into the future? If children who are enrolling in school now will be living through the next sixty years before they retire, what will the world look like? Mostly, we find it hard to imagine life in ten years' time. Yet, as educators we must consider that we are educating children for a world that is like a speculative fiction, present only in our imagination. We only need to look at the way technology has changed over one generation to realise how unpredictable the future is for our children.

Biomass
the total quantity or weight of an organism's given unit area or volume of habitat, which allows ecologists to quantify the relative percentages of living matter within any ecological community.

One of the key challenges for the twenty-first century is the urbanisation of children's lives around the world. Population projections ten years ago claimed that by the year 2020, most children would be living in congested cities. While we are on the brink of reaching a planetary population of eight billion, the majority of us will live in megacities. And although we are here in large numbers, species such as ants are ten times as prevalent. Yet it is the impact of our numbers that is of greatest concern. A recent article published on the Earth's **biomass** notes that although humans make up just 0.01 per cent of all the world's inhabitants in numbers, they have caused the loss of 83 per cent of all wild animals and 50 per cent of all plants. If we break down the figures for mammals on the Earth, livestock (mostly cattle and pigs) farmed to feed humans represent 60 per cent of all mammals; humans are 36 per cent and wild mammals are a mere 4 per cent (Bar-On et al. 2018). That is, to feed humans we are essentially

causing the extinction of all other mammals on the planet and altering the landscape significantly in order to house those animals. Worse, a recent report has revealed losses of more than one million further species around the globe by 2030 (United Nations 2019).

Beyond the impact across the globe on animals, plants and oceans, the increase in human population, urbanisation of the world's environment and farming practices to feed humans mean that resources are not being distributed fairly. In fact, the ecological crisis has greater impact on those who have fewer resources and less capacity to buffer themselves from the consequences of global catastrophe. Children—those who have had the least impact—are more likely to shoulder a greater share of the burden (Malone 2018a, b). We will return to this later. For the moment, let's follow a line of thought on the way we managed to get to this point. We'll consider the purpose of education and the role of schools.

The rise of modernity after the turn of the twentieth century saw human western capitalist societies shift away from a focus on the industrial revolution to a knowledge/information-based society. Education in these previous eras was dominated by the view that education was a practice of humanisation (Snaza 2013). The human rights movement supported this view, seeing education as the ticket to democracy. It fulfilled the capitalist imagery and positioned the individual as the measure of financial, social, cultural and political success. Upward mobility could be gauged through generational education success. A grandparent who only completed primary school then worked on the family farm; the parent who finished high school went on to work their way through the ranks in a corporation; the child who was the first in the family to graduate from university became a teacher. More exposure to education meant being more human, with better access to human culture and more human success. Education was a humanising process, and the role of schools and educators was to transform the wild, untamed, uneducated child into an educated, cultured adult human who could take their place as a well-socialised and capable human contributing to their society. This was the human project.

The child-human in this story is in the process of becoming human; a child is not yet fully human (Snaza 2013). In order to remove injustices and inequalities in human potential, children who are in poverty or disadvantage and don't have access to educational possibilities become the focus of organisations like UNICEF and UNESCO and other NGOs. A program like UNESCO's 'Education for All' (EFA), whose key focus is to provide basic education for every child, youth and adult globally, is a clear example of this positioning of the role of education as a means of transforming the inequalities of the (human) world, to alleviate oppression and create a socially just (human) world. Snaza (2013, p. 39) writes, 'for educators interested in social justice, "the human" has been understood as the most universal concept with which we can identify, an identification that allows us to denounce inequalities deriving from educational encounters.'

To be human and not animal is to be educated. To be civilised, not savage, is to be educated; to be adult, not child is to be educated—and so on, and so on. Considering education within this philosophical landscape opens up questions about what it means to be human and the role of education and schools in defining what is 'human'. If education sets humans apart from nonhuman animals, then a human without education can be dehumanised (Snaza 2013). But let's not go down that track yet. Later, it will take us on a turn to explore why and how humans are categorised, coded and labelled, and how those labels are reinforced.

For now, let's discuss what a 'revolutionary school or education' might look like, now we have come to see ourselves as part of an expanding populace that is having a detrimental impact on the planet. Given that we previously took for granted that schooling was the machinery of an industrial society to educate the not-quite-human (child) to become fully human, what is its purpose now? Being human in this sense, so well articulated by Snaza (2013), becomes an ontological question about the nature of the world. And knowing what humanness *is* becomes an epistemological question about what constitutes knowledge. Combined, these questions lead us to ask: *What do I need to know to be human?* Put like this, we see that it is a very 'human-centred' approach, and if we think about this within the context of our relationship with all the other nonhuman entities on the planet, it assumes that in some way, being human and knowing our humanness is what leads us to assume the status of humans as exceptional beings. This human story—that we are somehow exceptional because we have a consciousness of our humanness, and have education and learning (tools, language, abstract knowledge, books, technology)—has allowed us to consider the planet Earth and all its resources (including the humans who are 'not quite humans', like indigenous people) as less than us. Education allows humans to utilise all things for our own benefit, and in most cases privileges the survival of humans over all other things.

Now, in the twenty-first century, we are heading into an age that is transforming the experience of being human and our relations with non/more than humans. We are realising, through scientific research and technological advances, that where 'human' finishes and 'nonhuman' begins is not as clear as we assumed. Technology, in its organic and inorganic forms, changes us. This change has led to a realisation that we need to shift our focus from that of humans viewing themselves as separate, bounded systems (**autopoietic**) to one of parts of a complex, entangled system (**sympoietic**) that is dependent on others for its (and our) survival. This puts traditional education, as an inward-looking, 'it's only about us' human story, at risk of being totally irrelevant.

To return to the ways in which children and young people are thinking about their educational experiences in schools around Australia, this lack of congruence between the demise of the planet and the relevance of education to address our entangled lives is central to our shared imagination. For in future, humans need to be both singular and plural. Not to focus just on our own species as one dominant entity, but to recognise

Autopoiesis
the property of a singular living system that allows it to maintain and renew itself by regulating its composition and maintaining its boundaries.

Sympoiesis
Greek for 'making together', seeing all things as being entangled in ever-adapting, modifying and co-evolving systems in which there is a blurring of all boundaries.

that we are one among many interdependent species who are all reliant on the planet, and each other, for survival.

> School is the mould, which shapes our future. It is where we spend the most valuable time of our life—childhood. Yet I know from firsthand experience that many aspects should be changed: the cold impersonal attitude of teachers who drive for results, results, results, instead of creating happy memories and valuable life experiences for young people … The way to tell a good teacher is that they make you want to listen and get involved in the lesson, not to be forever looking at the clock bored out of your mind waiting to leave. (Burke and Grosvenor 2003, p. 88)

Learning without schools

Sugata Mitra, an Indian academic, was concerned with the lack of opportunity for education of children who didn't have access to regular school. He believed that in many places around the globe, and particularly in India, there were places where good teachers just would not go to teach. The irony was that these places were often where there were real social issues and education would be most needed: 'Good teachers don't want to go to just those places where they're needed most' (Mitra 2010a). Even though education could provide opportunities to support children and their families, without good teachers or schools this was not likely to happen. We find this also in Australia. It can be hard to persuade teachers to work in remote and regional country areas, or even the 'western suburbs' of cities, and if they go, it can be hard to keep them there.

Thinking about this dilemma and realising it was a global phenomenon, Mitra started a very simple experiment in New Delhi in 1999. He embedded a computer, much like an ATM machine, into a wall in a slum where children barely went to school and had no English skills. These children had never seen the internet. Mitra connected high-speed internet, turned it on and left the computer there. When he returned, he discovered some very interesting things had occurred. Young children had worked together rather than individually and taken on the roles of teachers to share skills. They browsed for information and learnt English along the way. One group of young children in another site in central India realised they could record their own music and play it back to each other. They did this in only four hours, despite never having seen a computer before. In another southern Indian village, Mitra found a group of boys who, within fourteen days, had downloaded instructions on how to construct a video camera, built one, and were making short films on bumble-bees. At the end of this experiment, which continued for five years in India, Mitra concluded that 'groups of children can learn to use computers and the internet on their own, irrespective of language and who or where they were' (Mitra 2010a).

→ For more on Sugata Mitra, see the TED Talks in the reference list at the end of the chapter.

The story of Sugata Mitra's experiments presents some interesting dilemmas for educators about the purpose of education and the role of schools as the key place where children learn to be adult humans, where they learn to fit into the world of labour that is our human existence. Practically and pedagogically, it shows that without teachers, children can excel in their learning, and that new technologies and self-organising or ecological learning models may well be one of the key elements for rethinking and revolutionising the role of 'schooling'. Clearly, children can adapt to different forms of learning beyond the controlled, managed learning that is evaluated by teachers or education authorities. This prompts the questions, Do we even need schools? Have they become redundant? These are questions I will explore more in the next chapter, but I want you to let them sit with you and resonate with your thinking. It's hard to imagine an education system that didn't rely on the institution of schools as we have come to know them over the past two centuries: four walls, teachers, chairs, tables, timetables, tests, sweaty bodies and anxious hands.

| **PAUSE, REFLECT, RECORD**	One child calls out: *'Knock, knock. How do you place an elephant into a refrigerator?'* Second child: *'I don't know—an elephant is really much bigger than a refrigerator. Does that mean I would have to kill it and cut it up? But I couldn't do that, so I am not going to do it!'* First child: *'Just open the fridge, put in the elephant, and close the door.'* Second child: *'But an elephant can't fit in a fridge, I told you that.'* First child *'You just need to imagine an elephant-size fridge!'* • In small groups, discuss: If schools were the solution, what was the problem? • Take the problem you have discussed and consider some alternative solutions that don't include schools.

The world of crisis, an imagination of possibilities

Using one wide lens, newspapers, television, magazines and documentaries bring to our lives images of a world on the verge of crisis. Whether it is the environmental crisis or the crisis of fear and terrorism, the world seems out of control. But there is another crisis afoot. It is a crisis of identity and constructions of self; a crisis that Ken Robinson might call the crisis of human resources. Its foundation, he believes, is that children and adults have no sense of what their talents are, so they find little value in education in their lives and for what they have to offer a changing world (Robinson 2010). We are all being socially constructed, and are constructing our worldview, through this lens of a world out of control. It is fast-moving and hard to hold onto; we need more

and more information, yet the more we acquire, the less we can see clearly what we want or need to know. Smartphones, internet, social media, and popular culture are the texts that produce our sense of who we are and how we are connected to others in this complex world. We are enmeshed in a huge, complex assemblage of connections, yet young people can feel so isolated and alone. The image of the internet as connectors and networks across the globe (below) is hauntingly beautiful, floating in the universe.

FIGURE 1.1 INTERNET AS GLOBAL CONNECTOR
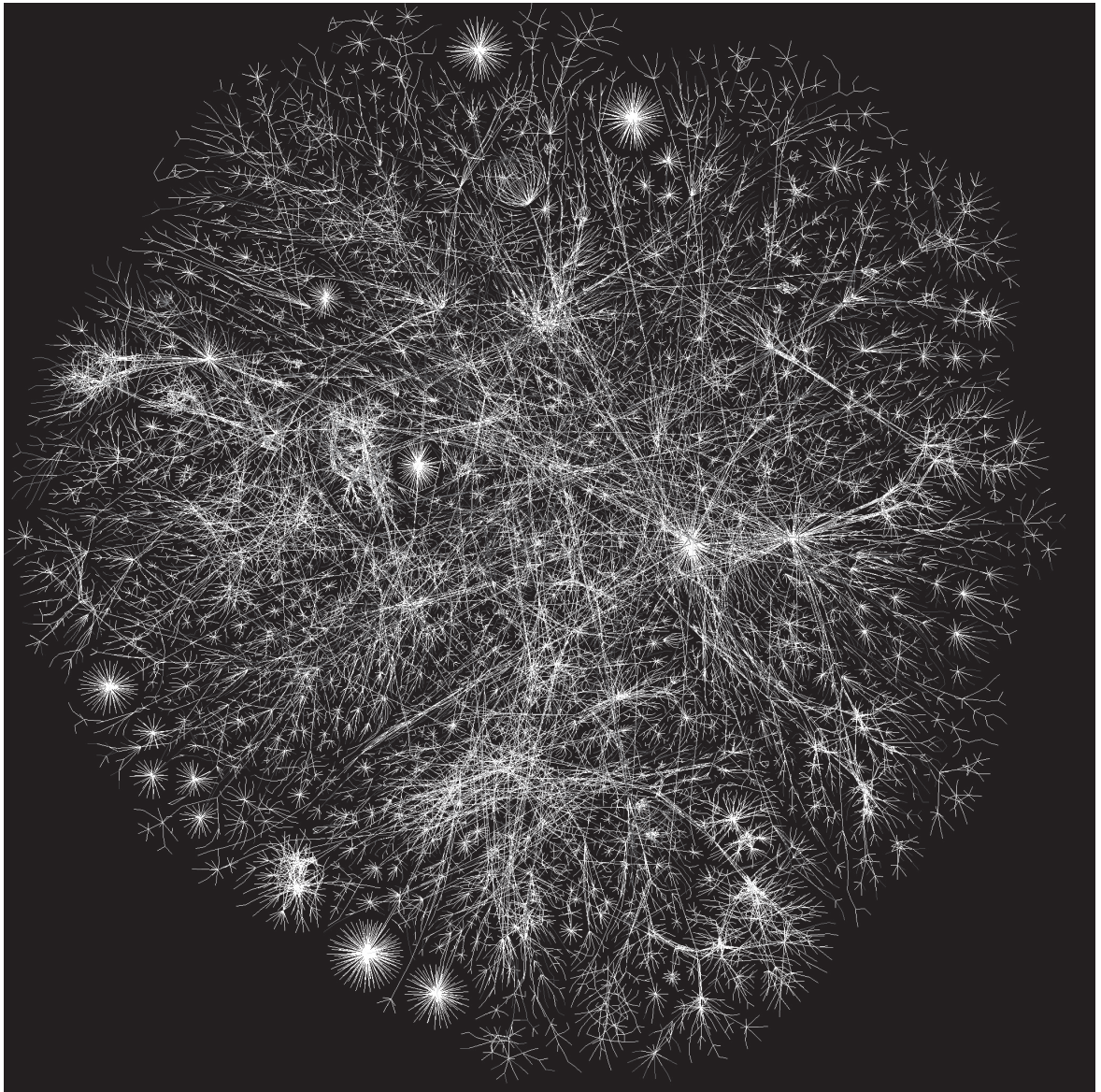
For many, uncertainty and chaotic visions are negative and frightening. Boundaries are blurred, containment impossible. They can also induce social prejudices and fear of the 'other', and lead us to retreat rather than reach out. Added to this, our education systems dislocate children from their natural talents and attempt to create factory-made learners. While this model may suit a small number of children, many are just hanging on, hoping that somewhere they will find their place. Year after year, they are moving further away from those intrinsic ways of knowing that are far greater than can ever be valued on a NAPLAN test. Bodies are aching to move and be creative, imaginations all tied up in small boxes. Now, that is not everywhere; it would be a huge generalisation for me to claim that all schools, classrooms and teachers are the same. But more often than not, children are finding solace in places beyond the classroom, wanting to find nurturing for different knowledge and differently sensing ways of being and acting in the world.

If you look outside formal schooling you can see that this generation is also living in an environment rich with knowledge that is shared by young people of all ages in different contexts, in space and time. We are members of a group acknowledged as the most mobile in human history. Travelling across the planet for business or pleasure, our generation is seeing the world and visiting destinations at a rate never known, connected by new technologies and social relations in amazingly new and exciting ways. For the first time, a generation understands the fragility of the planet Earth floating in a vast black universe and has access to information about it, often accompanied by ways to express and share our concerns, pain or anger with others. We are also part of the most photographed, regulated and watched generation of humans. Whether it is drones flying above our heads at the beach or our own family selfies, the social media explosion through smartphones has meant our everyday lives are followed and 'liked' by potentially millions of others. This exposes us to a new pool of cultural and social diversity that has the potential to enrich our lifeworld and expand our sense of connectedness and our understanding of difference as it blurs national boundaries. And while, a decade ago, we might have said using a mobile phone was a white middle-class privilege, I have found in my own travels that phones have become more and more accessible. Children in the streets of La Paz share images on Instagram, street peddlers in Bangkok play music on Spotify.

The shift from global markets to local economies through technology has meant that many children growing up in poor or disadvantaged communities now have access to broad educational opportunities. So, we find ourselves tied together in increasingly complex ways with others who we may have more in common with, or know more about, than our next-door neighbours. Globalising activities such as the transnational movement of people are supporting new kinds of cultural diversity and multiplicity in real and virtual communities. The continued erosion of artificial lines drawn around dominant Western cultures has meant the potential for north, south, east and western knowledge's blending, fitting together in new ways.

Globalisation and technological openness can be both destabilising and exciting, offering opportunities for new ways of looking at our world, connecting with information, ideas, and experiences that can shape news ways of thinking. Yet, simultaneously, this can also act to isolate, marginalise, and dehumanise humans, tearing individuals apart just as easily as it brings them together. What it clearly does do, though, is bring to bear possibilities for rethinking the relevance of schools, and in particular what is taught in classrooms. It challenges us to ask whether prioritising certain sorts of knowledge such as literacy, mathematics, and science over the creative arts, humanities, ecologies, and encouraging disciplinary boundaries, is really going to be helpful for the future.

• How do you respond to these changes and challenges? • What is the relevance, for the future, of what is currently taught in schools? • What new ways of thinking about teaching might be required?	**PAUSE, REFLECT, RECORD**

Are schools, like dinosaurs, bad adapters?

Schools still sit rather uncomfortably in the world we have just been unpacking—a little like dinosaurs. You might ask, 'What makes an organism like a school suited to a particular environment, or to a particular purpose? And what happens when schools don't adapt, when they can't change quickly enough?' From an ecological perspective, we could say it feels as though schools haven't acquired the evolutionary specifications; they haven't adapted quickly enough to respond to current social, political, ecological and technological changes. To survive change, living organisms need to adapt to their environments. This means changing the way they look, the way they behave, how they are built, or their way of life, to make them suited to survive and reproduce. For example, giraffes have very long necks so they can eat tall vegetation which other animals cannot reach. Cats' pupils are like slits, which makes it possible for their eyes to adjust to both bright light, when the slits narrow, and to very dim light, when the slits are opened wide. Without such adaptive mechanisms, organisms can become extinct.

Environments generally change slowly, so in the past, organisms had time to modify according to the changes; but as change becomes accelerated, there is less time to adapt, and if you are an organism with very specific needs engaging in very specialised activities, you are less likely to be able to adapt quickly. In those cases, throughout the history of the planet, when environments have changed, species have become extinct because they are poor adapters. Failure to adapt means extinction.

Papert (1993) claims that people from the nineteenth century could step into a contemporary classroom and know at a glance where they were. He also argues that

Karen Malone

since almost everyone has spent many years in schools, the image of school as we have known it is deeply imprinted in our collective and individual consciousness. Similarly, Bigum and Lankshear (1998) say that, while everything changes around us, education appears to stay the same. These authors liken educational change to pouring old wine into new bottles. Although the names of educational frameworks and practices may alter, patterned ways of thinking and operating remain the same. Townsend (2002, p. 24) observed that schools 'are still modelled on a curious mix of the factory, the asylum and the prison'. Burke and Grosvenor (2003, p. 152), reflecting on the longitudinal global project *The School I'd Like*, believe that schools have changed little: 'the history of education tells a story of institutional change on the surface, but fundamentally the classroom, its routines, the regimentation of life, the lived experience of school does not change.' I wonder, if they did that study again now, would they hear the same concerns, report the same inadequate routines and regimes that poorly address the complex lives of children?

Relevant learning presents a number of contextual challenges for us as educators, as it contests the status quo and demands that we reconsider the purpose and value of old models of learning, adapting to the needs of learners and ultimately to the needs of a changing society. Luke (2001), at the turn of this century, referred to educators as the 'cultural custodians' of a system that he believed lacked vision and whose answer to the challenges of new identities, new cultures, new technologies and new economies had been more tests and a US-style of commodity-driven instruction. Looking at education now, nearly two decades later, we have not moved on at all from these models. In fact, some would say the vision of education has become even narrower. The challenge for supporters of a revolution geared towards new ways of thinking about learning—as broad and largely beyond institutions—is how to develop a model of relevant learning that will be taken up by the older cultural custodians of traditional learning. There is a lot of investment by governments, institutions and teachers in these old models, and they are not easily discarded.

Do you as future teachers need to learn to view traditional classrooms critically, and ask how they are meeting the needs of today's learners? If they are not meeting learners' needs, are they dinosaurs, relics from a past time with little or no capacity to adapt? If so, are they on the verge of extinction and what could or should replace them? As educators, the authors of this book refute the old view of 'being schooled'. In fact, we argue that it is quickly becoming irrelevant. **Lifelong learning** and the extensive use of information and communication technologies (ICT), virtual classrooms and project-based learning in communities, are making the traditional physical spaces of classrooms relics of the past. Organs or parts of the body that no longer serve a function are called vestigial structures. They provide evidence that the species is still changing. The human appendix is one such example. It used to store microbes that helped to digest plant matter, but it is no longer needed in the human. Likewise,

Lifelong learning means new workers are less inclined to stay in the same position or even in the same vocation. Retraining for new jobs and upgrading qualifications during your working life is the key to participating in a new economy that is also responding to rapid change.

could we say schools and classrooms are vestigial structures? That is, if education and learning are like a human body, then schools are like an appendix—redundant, without any valuable function.

To address the 'educational revolution' head on, you will need to have a strong sense of your own values and beliefs. As future educators, you need to know how and why we view learners as engaged with (or disengaged from) knowledge, and come to understand why we connect the effectiveness of schooling with student disaffection. The role of teaching and the philosophies and theories that guide practice are therefore fundamental when discussing the ways teachers are addressing questions of relevance and purpose in education. Teachers need to be asking themselves: Is schooling as it has evolved beyond the twenty-first century actually a model worth having? Is it broken? Do we even need schools? Could we imagine school conceived any other way?

Ken Robinson puts it in these terms:

> One of the real challenges is to innovate rather than merely tinker at the edges of education. Innovation is hard because it means doing something that people don't find very easy for the most part. It means challenging what we take for granted; things that we think are obvious. The great problem for reform or transformation is the tyranny of common sense—things that people think, 'Well, it can't be done any other way because that's the way it's done'. (Robinson 2010)

While you cannot solve many of the social and political issues confronting schools and young people on your own, at the very least you should know about them, know how these issues influence teaching and learning, and ask some big questions about the future of the profession. I remember reading a passage by a philosopher many years ago who said people and systems don't change unless their backs are against a wall. Until schools get to the point where they can no longer function as they are, then like a steam train racing against a bullet train, those educators will continue to load wood into the fire to keep the train puffing along those well-grooved tracks. But are we (or should we be) on the verge of acknowledging that the model is broken, as Ken Robinson suggests at the beginning of this section?

• Write a statement about why we need schools as they are positioned today, and defend it. • Write a statement about why schools have become obsolete, and defend it. • Debate this issue with peers: one group should be educators from the past—say 100 years ago—debating with teachers now. The debate should focus on the positive and negative values of schools and classrooms as key sites for children's learning.	**PAUSE, REFLECT, RECORD**

The elephant in the room

A well-educated population is essential to a country's economic and social development. Societies therefore have an intrinsic interest in ensuring that children and adults have access to a wide variety of educational opportunities. Early childhood programs prepare children for primary education; they provide opportunities to enhance and complement their educational experiences at home and can help combat linguistic and social disadvantages.

> Primary and secondary education lay the foundations for development of a broad range of competencies as well as preparing young people to become lifelong learners and productive members of society. Tertiary education, either directly after initial schooling or later in life, provides a range of options for acquiring advanced knowledge and skills. (OECD 2009, p. 294)

If we were to imagine the worker of the twentieth century, who would it be? What tasks would this worker be involved in? If we were to find an image representative of the 'old economy' or traditional modes of work at the turn of the century what would it be—a smokestack, a factory floor, a production line? These were the signs of industrial progress. As the century unfolded, the worker moved from the factory floor to the overlooking offices to manage and control the machines of progress. The workers were the key assets of capitalism in an economy based on improving production to fulfil the demands of the new consumer society. Humans in this picture are appendages to the machines. The dream of improving or being promoted wasn't based on getting better qualifications but on showing loyalty to the corporation and producing more. It was also a gendered workplace. Women, because of their need to withdraw from the factory floor to have children, did not have the opportunities of their male co-workers. Upward mobility through the workplace was less of an aspiration.

If the old economy is represented by the factory smokestack, then the new economy of the twenty-first century is represented by the global image of the internet and the new, faster technologies that dominate the knowledge economy. Mobility and connectivity are key descriptors of this context. In this new economy, knowledge and information are bought and sold at the click of a mouse over vast distances, across virtual boundaries and transparent time zones. Mobile workers, who are constantly renaming and reconstructing themselves to fit into changing and evolving workplaces, represent employment in this context. Lifelong learning is a key element of a new view of education. Even in the most distant backyard industries of the low-income nations, the connection to the global economy is clear. A highly seductive and evocative media is connecting the world. The new work order of the twenty-first century is driven by globalisation, technological innovation and changing work practices.

In Australia, a Ministerial Task Force appointed in 2008 revised the national goals made a decade earlier. The government's referral recognised the need to consider the significant social, economic, ecological, cultural and technological changes that have

occurred over the past decade. The preamble to the Task Force's *Melbourne Declaration on Educational Goals for Young Australians* states:

> In the 21st century Australia's capacity to provide a high quality of life for all will depend on the ability to compete in the global economy on knowledge and innovation. Education equips young people with the knowledge, understanding, skills and values to take advantage of opportunity and to face the challenges of this era with confidence. Schools play a vital role in promoting the intellectual, physical, social, emotional, moral, spiritual and aesthetic development and wellbeing of young Australians, and in ensuring the nation's ongoing economic prosperity and social cohesion. Schools share this responsibility with students, parents, carers, families, the community, business and other education and training providers. In recognition of this collective responsibility, this declaration, in contrast to earlier declarations on schooling, has a broader frame and sets out educational goals for young Australians. (MCEETYA, Preamble 2008)

The declaration had only two key goals:

Goal 1: Australian schooling promotes equity and excellence; and

Goal 2: All young Australians become: successful learners, confident and creative individuals and active and informed citizens (MCEETYA 2008).

The body of the document focused on the Commitment to Action, in a section that focused on the importance of developing eight interrelated areas:

- developing stronger partnerships;
- supporting quality teaching and school leadership;
- strengthening early childhood education;
- enhancing middle years development;
- supporting senior years of schooling and youth transitions;
- promoting world-class curriculum and assessment;
- improving educational outcomes for Indigenous youth and disadvantaged young Australians, especially those from low socioeconomic backgrounds;
- strengthening accountability and transparency.

This report usefully provides a background that addresses the significant changes in society since the last set of national goals was proclaimed. However, changes such as rapid advances in technology; increased global integration and mobility; complex environmental economic, social and ecological pressures, including the consequences of climate change; the urgent need to continue to address questions of how we support our Indigenous people and acknowledge their history; the question of the relevance of education and schooling—these are never broached. Like the question of fitting an elephant in the fridge, the question of educational relevance sits like an elephant in the room. And like our steam train metaphor, the questions of 'transformation and change' in education are nearly always directed to focus on how to do what we do already, just bigger and better.

- With a partner, make a list of what you believe should be the goals of schooling in the twenty-first century.
- Share your list with others and then compare and revise any points based on the shared knowledge.
- Next, read the nationally agreed-upon goals (above) and compare these to your list. How do the national goals compare with the goals of the schools you attended as a child, or one you attended on your field placement?
- Consider whether the national goals (or which ones) seem relevant for the future world of children and young people.

Rethinking teaching and learning

As a future teacher, you will be charged with the task of providing the structures and processes that ensure teaching and learning environments have relevance to the needs of a society under rapid change, and purposes to match. Educational settings must be where students access the knowledge, skills and attributes required to be active citizens, and the capacity to design their own social futures. As we learn more about the changing nature of communities, what becomes apparent is that while many schooling practices are designed to give young people the kinds of learning experiences that will best equip them for these changes, many are not. The model of learning that is now required is very different from old education models—in fact they just won't fit together.

The Australian Council of Deans of Education (ACDE) reported in 2004 that 'the idea that education is something you learn in institutions, which then prepares you for life, is no longer relevant' (p. 21). As Sugata Mitra has shown us, even with very young children, the internet has created boundary-free environments where knowledge, ideas, schooling, collaboration and commerce can occur without limitations (Warner 2006). Mitra refers to this as self-organising education. Like the natural world, which is fundamentally a self-organising system, he believes we need to innovate by looking at the possibilities for education to operate in a more natural, organic, self-organising way. I have gone a step further in this chapter to say we don't need to control or manufacture learning as a self-organising system because in fact we are always in a set of complex relationships with a host of other entities. As Fritjof Capra (2000) puts it, 'self-organisation is a collective exercise'. What we need is a means for recognising learning and 'knowledge' that embraces complexity rather than reduces it. To think, as educators, that we can somehow crystallise the most important knowledge, the most useful knowledge, and disregard the rest, is naïve and limiting. Children, as the twenty-first-century learners discussed throughout this book, are illustrating this more and more. Learning happens in many ways: through new technologies, through their bodies, and through being in the world outside of the process of 'being schooled'.

Essentially, we find that many young people have superseded their 'school education' with their own real-world self-education and are finding the old style of education, its

delivery or content, less and less appealing or relevant. Students of all ages are voting with their feet—and their disengagement, boredom and antisocial behaviour are symptoms of a lack of active engagement and participation in school.

Teaching and learning in the twenty-first century need to place different demands on teachers. As the role of the teacher changes, so too will the role of educators who work with schools and teachers to support their learning programs. The changing context of a 'new basics' or a *narrower view* of education, has forced many of the possibilities for imagining new ways of teaching and learning into the background. But as a teacher who seeks to provide more purposeful teaching and learning opportunities for your children, you have an opportunity to explore the ways in which teaching and learning occur in the context of students' lives, now and in the future. This will help you create learning that is useful and relevant to your students' needs, even in a context that is demanding that you be more outcome- and product-oriented. There are always times, spaces, and gaps you can open up. You will need to decide how you can translate a managerialist model of education that works to control and regulate teachers, knowledge and learners into a more relational education model. Planning for this style of learning is discussed in Chapter 12. It may give you some ideas about how to rethink the classroom curriculum in practical ways.

While there is considerable debate and controversy about the nature and extent of the information that is most relevant to students, there is certainly agreement about the importance of students negotiating their own learning by considering their own health and well-being; being clear about the decisions they make; and considering the impact of their choices on their future place in the world.

This brings us to some core questions about teaching and teachers, such as why teachers teach. Nieto (2005, 2009), in her research with teachers asking this very question, came to this conclusion:

> My research has made it clear that previous experiences as well as values, dispositions, and beliefs fuel teachers' determination to remain in the profession. Sensibilities such as love, engaging with intellectual work, the hope of changing students' lives, a belief in the democratic potential of public education, and anger at the conditions of public education are all at the heart of what makes for excellent and caring teachers. Attitudes and values such as a sense of mission; solidarity with, and empathy for, students; the courage to challenge mainstream knowledge and conventional wisdom; improvisation; and a passion for social justice are teachers' motivations for entering the profession. On the other hand, teachers have never mentioned to me that teaching students how to take tests, learning to follow rubrics and templates, or heeding district mandates concerning the latest basal reader helped to keep them in the classroom or made teaching a rewarding experience. Although these tools and techniques may be helpful, truly 'highly qualified teachers' have never viewed them as ends in themselves. (Nieto 2009, p. 8)

So, if teachers know that these modes of learning are outdated and unsupportive of what they claim as their purpose for teaching, why do they continue to feel bound

by choices, made by bureaucrats, to return over and over again to these old, tired and irrelevant models?

As future educators, your ideas about how to create an effective learning environment for the students must fit with your expanding understanding of the complexities of knowing and learning and the multiple contexts in which current students will have to function (Lovat 2003). Arnold and Ryan (2003) argue that the transformative capacity of learning means 'Students of the twenty-first century can actively create the communities in which they live and learn, rather than live on the margins of those they inherit' (p. 5). You will have a chance to explore this potential in Chapter 2, where I provide examples of young people taking up these challenges locally and globally. Our students should be positioned as active participants in the world now, not just 'in preparation' for the future. As global citizens, old notions of 'civic' education are singular and narrow—the old nation state, the idea of belonging to 'my country', is becoming redundant in our multicultural and global society. Our students will live within the context of 'civic pluralism' and multiple citizenships. Their local, regional and global worlds simultaneously surround and construct who they are. They will be connected to a vast set of potential ways of seeing themselves, and they can move between these spaces at will.

To think differently about teaching, to return to young people as the focus, requires you to re-vision and re-name your emerging role as teachers. This revisioning and renaming will help you to see traditional cultural practices of schooling with a different lens. This new lens still acknowledges the importance of teaching and learning, yet there is the understanding that knowledge is not constructed in silos in disciplines; it is not hierarchical or set up as competing interests. So key learning areas such as creativity, problem solving and cultural understanding, have intrinsic and aesthetic value *as well as being* useful to the individual and to their society. Learning is seen as grounded in child–teacher relations, recognising a teacher's concern for the whole world of the child (a point discussed in greater detail in the following chapters).

When rethinking teaching and learning, attention is given to what is learnt but also to understanding learning as a relational process. This relational knowing recognises the importance and complexity of different ways of knowing and how all learning evolves in containers of multiplicity. Current teacher-centred and even some learner-centred pedagogies focus so predominantly on the learning subject—the 'I'—they neglect to acknowledge that learning always courses within complex sets of arrangements that are constantly working on and working with the teaching-learning activity. It is both a discursive and a material reality that we humans are participating in, making and remaking. To do justice to this complexity in a school or in a classroom is difficult, probably impossible, as the classroom environment is insular, isolated, and detached from the real world, which somehow sits awkwardly outside the school gate, the school boundaries. The school is like a factory: clock in, clock out, leave your body at the gate. The free, feeling, knowing self, with imagination, intuition, and creativity is lost to conformity, structure, hierarchy of disciplines, and abstraction.

Ken Robinson (2010), in his TED Talk on the learning revolution, believes we need to change metaphors from an industrial factory view of schooling to a view of education that is more organic. Read his story and consider what a new metaphor of education that is responsive to new times might look like.

> I think we have to change metaphors. We have to go from what is essentially an industrial model of education, a manufacturing model, which is based on linearity and conformity and batching people. We have to move to a model that is based more on principles of agriculture. We have to recognise that human flourishing is not a mechanical process, it's an organic process. And we cannot predict the outcome of human development; all we can do, like a farmer, is create the conditions under which they will begin to flourish.

Where to from here?

> How has the world of the child changed in the last 150 years? … it's hard to imagine any way in which it *hasn't* changed … they're immersed in all kinds of stuff that was unheard of 150 years ago, and yet if you look at schools today … they are more similar than dissimilar. —Peter Senge

Many researchers in the past noted that in order for educators to engage and achieve their goals of meeting the needs of their students, teachers would need to develop a spirit of critical reflection and develop their own professional knowledge and language (Beattie 2001; Fendler 2003; Moon 2008). That is, without a critical 'language of pedagogy' there was no way to share, discuss and build a profession in a collaborative way. Part of this learning concerned ways of raising questions about things that were taken for granted, to discover issues that needed to be debated, to uncover hidden realities that need to be transformed (Lima 2005). But the more we have learnt about the inadequacies, the more burdened we have become. It is now our/your responsibility to bring that knowledge to others, to make it explicit and to do something with it

The fundamental question to be addressed about teaching and learning, and in particular teaching and learning in school environments, is the importance of relevance. Whether learning occurs in a formal schooling context, on a virtual discussion board, a community inserted computer terminal, from viewing television, in the workplace or talking with our neighbour, for education to be valid and useful to the learner it needs to be relevant. Now, educators need to recognise the importance of young people actively co-constructing their learning, and value it. Our greatest critics and our greatest allies will be students. They will judge the relevance and purpose of the education we provide for them.

Not only do these learning experiences provide relevance and purpose to schooling, they also demonstrate that children can be knowledge generators, not just knowledge

Social actor

children are not being educated to become human adults; they are active agents in their own right. They should be viewed as having agency and being able to make choices about what learning is useful and relevant to their futures.

consumers. Children are supported to be **social actors** and competent active global citizens capable of being key players in designing potential futures for themselves and on behalf of others. Learning in this context is about contributing to the world now; it is not solely about being educated on how to be fully human in preparation for a role in the future.

Recent educational reforms and the language that has accompanied them are encouraging schools and their communities to rethink models of learning to take into account the lived experiences of students and support multiliterate and multimodal forms of learning. Even a specific physical space called a classroom is under question with the introduction of virtual classrooms and project-based learning in the community. But as Welborn aptly states, it will be teachers who will continue to make a difference in ensuring the relevance of teaching and learning. She says:

> I may be naïve, but I believe that what I do day in and day out *does* make a difference. Teachers *do* change lives forever. And I teach in public school because I still believe in public school. I believe that the purpose of public school, whether it delivers or not, is to give a quality education to all kids who come through the doors. I want to be a part of that lofty mission. The future of our country depends on the ability of public schools to do that. (Welborn 2005, p. 17)

While changes in the ways we think about teaching and learning may seem unclear and even overwhelming, understand that you are not alone. Most schools still operate within the traditional hierarchy that largely ignores students' knowledge, experience and perceptions. Your experience as a learner within these old systems should serve you well as a starting point for judging for yourself what did or did not work in schools for you as a student. But don't be fooled into believing that because you succeeded in school, the old 'school' model worked for everyone. And think about what it means to say it 'worked'. I am sure you will recall many students who seemed a nuisance at school. Yet if we looked closely at what was going on, we might have realised they were actively resisting a system that did little to support their individual needs—a school system that felt irrelevant.

You are starting the journey into the world of teaching and learning with a history. In fact the biggest factor driving what teachers do is often based on what happened in classrooms when they were children. But ask yourself how much the world has changed since you were at school. Are the questions we should be asking and the means for working with children relevant from that time? So be wary of thinking like the teachers described by Alison Cook-Sather:

> educators think that we know what education is and should be. Because we [educators] have lived longer and have a fuller history to look back upon, we certainly know more about the world as it has been thus far. But we do not know more than students living at the dawn of the 21st century about what it means to be a student in the modern world and what it might mean to be an adult in the future. (Cook-Sather 2002, p. 12)

In spite of frequent overhauls of the education system, the experience of schooling for most children and their teachers is that school/schooling and teachers/teaching stays the same. The powerful driver that keeps the wheels of the machine turning has a great investment in not changing the institution but to change children to fit into school. But now this school norm is so out of date it needs to be cleaned out of that elephant-size fridge and thrown into the recycling bin. Maybe, as twelve-year-old Robert put it (keeping in mind Robert is now forty years old), our vision needs to be driven not by questions of change or transformation but by questions like this: Why do we even have schools?

> My ideal school is no school—Robert, twelve years old. (Burke and Grosvenor 2003)

PAUSE, REFLECT, RECORD

Author Arthur C. Clarke has often been cited as making two key statements about the relevance of schooling and teachers: 'If a teacher can be replaced by a machine then they should be' and 'If a child has interest, then education will happen.'

The purpose and relevance of what we teach and how we teach will be fundamental to our own understanding of contemporary education. We need to ask ourselves some hard questions:

- Do children actually need teachers? Or schools?
- Imagine you had to justify your job to the children in your classroom—what would you say?

Chapter Summary

There are a number of key issues for teaching and teachers in new times:

- At the start of the twenty-first century, the world is changing and transforming at a rapid pace. Whether the issue is globalisation, war, population growth or nationhood, we need to start considering how we will manage to live together.
- New technologies and changing work economies have transformed the roles of workers from the factory floor to sitting at a computer. People move from job to job and need to know how to apply knowledge rather than to simply acquire it.
- Teachers who are committed to addressing the needs of learners in the twenty-first century need to be aware of their role in these new times and construct relevant pedagogies to support new ways of teaching and learning.
- Teachers are the success stories of the old education system; they don't reflect the hard cases—therefore, to understand how to provide relevant education, we need to step outside our own school experiences.
- Teaching and learning is a two-way exchange, and children and adults should see themselves as collaborators in the education enterprise, not as independent parties.

Author's reflections

Living on the planet has changed dramatically since I was a preservice teacher learning to teach. The average age of teachers is over 50, and I share a similar life story to the teachers who are now teaching in schools. We learnt how to teach in a very different world. When I did my undergraduate degree, I spent two hours a week learning how to draw enormous colourful pictures on the chalkboard (I loved it and was great at it, but I never used that skill again). Using computers for teaching was still cutting-edge, and mobile phones—well, they were those large bricks that only corporate people had connected in their cars. Since those times, technology has become an everyday part of our lives, from smart phones, smart televisions and smart cars to smart, techno-savvy children.

Young children are engaging with technology nearly as early as when they can walk. The other day my three-year-old granddaughter facetimed me, to tell me her mum was putting the horses away. Another time she pinched my daughter's phone at a café, sat under the table and sent me 40 colourful unicorn emojis with a love heart at the end. I have friends my age who don't even know how to find an emoji. Both times I was surprised, and a bit shocked at how competent she was with a smart phone, but should I be? I am also aware that passionate young people side-stepping adults and teachers altogether are utilising technology to rally together locally and globally to respond to global issues like climate change.

Over this time of being an educator I have seen many innovative teaching programs rise and then fall to the wayside. Passionate teachers burn out and leave the profession. Now, well into the twenty-first century, I am concerned about the relevance of education in Australia and overseas. As I walk past my local primary school with its regimented classrooms and timetables, I often think yes, I can see more computers on tables and there is a kitchen garden in the playground but what has really changed? The schools look the same as the one I taught in twenty-five years ago, the same as when I went to school fifty years ago, and the same as the school my mother describes from seventy years ago. How could this school still be relevant to my granddaughter's needs, when so much has changed in the world since I was a child? This child who sends me emojis and facetimes me at three years old, how will she fit in? Yet there it is, the four walls and classroom desks and chairs still holding child bodies to ransom to traditional pedagogies and teacher- or child-focused learning.

My advice to you as you start your journey is to be open to innovation from wherever it arises. Transforming the education system, I believe, will only come from a realisation that schooling should draw from real life and learners should be viewed as (post)human entities, not children. What does this mean? Does it sound a little cryptic? Like the slow revealing of the sunrise as light beams on the ground during an early morning walk in the forest, the chapters of this book, individually and together, will endeavour to reveal new ways of thinking about learners and life in the twenty-first century that will provide you with the tools to revive schooling. As one of the authors, I invite you to take that journey with us.

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