INTRODUCTION

WHY THIS BOOK IS CALLED *A BRIEF HISTORY OF THE FUTURE OF EDUCATION*

The digital revolution has only just begun, but already it overwhelms us. We live in a new digital landscape that is overwhelming our ability to manage our lives, outdating our laws, transforming long-standing customs, reorganizing the economy, reordering our priorities, redefining our workplace, changing our concept of reality, and making us sit for ever-longer periods of time in front of glowing screens. As the world continues to change at a frenetic pace, so will education. That is the focus of this book.

Although we offer ideas and pathways for changes in how we educate the digital generations (those generations who've grown up in an internet-connected world), this book is primarily about accepting the reality of change and encouraging you, as an educator or educational stakeholder, to be willing to experiment and try new things with learners.

Ask yourself, "What is the future of education in a world where connectivity has and is fundamentally transforming knowledge?" Knowledge will always be important, but we live in an *age of InfoWhelm*, where information is instantly accessible, limitless, and overwhelming. Because of InfoWhelm, most of us now carry a side brain around with us all the time in the form of an internet-connected device. We constantly use our side brain to look up information and stay connected to our family, friends, workers, and interests. As a result, we increasingly outsource menial facts from our consciousness and focus more on application and creation than retention.

Many of us don't bother to memorize phone numbers anymore. We just tap on our phones, and they do the rest. We become paralyzed from digital withdrawal when a wireless network goes down. Our students are deeply connected, always-on learners whom the internet seriously, intelligently augments. These students take instantaneous access to information and around-the-clock connectivity for granted. To them, connectivity is a right, not a privilege—they wonder out loud why they must memorize the names of the countries and capitals of the world when they can find the correct answer online or with artificial intelligence in three seconds or less.

Anyone with an internet-connected device has access to the totality of human knowledge—presuming he or she can effectively navigate the mass data piles housed online. Rote memorization increasingly does not reflect the needs of our citizens or our workforce.

In light of this dramatic shift, educators need to understand that learners are our customers—they are our clients. To connect with them, we must be willing to come to them rather than expecting them to always come to us. We must treat them like customers and not servants, because learning is no longer defined just by a teacher and school bell.

WHY EDUCATORS MUST ADAPT

For the first time, there is real competition in education because learners have many new options for learning at their disposal—the most innovative ones don't even have the word *school* in them. To appeal to these learners, traditional education and traditional educators must work to understand, use, and compete with these other possibilities. We must constantly contend with disruptive forces such as mobile devices, social networks, cloud-based learning, learning apps, the maker movement, massive open online courses (MOOCs), gaming, flipped learning, personalized learning playlists, blended and hybrid learning, streaming video, and virtual learning environments to name but a few.

All of these trends are far more compelling, creative, relevant, and social for the digital generations than the traditional forced march through curricula that many learners continue to experience today. As a result, what we are seeing is the gradual separation of teaching and learning from buildings called schools. School will always be an institutional provider for childcare and socialization, but modern education is happening all over the place, and a growing percentage of it is delivered electronically rather than face-to-face in classrooms. In 2016, 5.8 million Americans enrolled in at least one online course (F. Smith, 2016).

Dealing with change isn't just a matter of educators being good at what we do; it's about what we do being relevant to the world outside of school and the present and future needs of our clients, who also happen to be our learners. If education is going to survive—and because adaptive technologies can already replace much of what teachers traditionally do, that is something of an open question—we're going to have to seriously and quickly up our game.

As authors, we will say more than once in this book, apps and advanced algorithms can't replace teachers—more accurately, they can't replace *good* teachers. The most powerful influence—the killer classroom app for the 21st century—is and will continue to be a great teacher. However, based on the way many teachers often spend their time, adaptive hardware and software can and will automate many traditional teaching and learning tasks such as delivering content, assessing learning, and communicating with parents (Arnett, 2016). Teachers who are only information dispensers, book readers, babysitters, and multiple-choice-quiz givers will have their jobs automated and ultimately eliminated in the same way that it has happened to both white-collar and

blue-collar workers in the modern global workforce. Education researcher Thomas Arnett (2016) writes,

> The teaching profession is not immune to the effects of scientific and technological progress. Today's students often find that it is much quicker and more convenient to throw their questions at Google than to make time for dialogue with a teacher. The resources available online include not just a list of hyperlinks to text-based websites, but also videos, interactive simulations, and games that rival teachers' abilities to make learning engaging, fun, and memorable. New learning platforms, such as Khan Academy, make it easier for students to find educational resources that match what they are trying to learn. And at the cutting edge of edtech, cognitive tutors and adaptive learning technologies can measure students' individual learning needs and then deliver targeted instruction similar to individual tutoring. Software has even started to grade students' essays with teacher-like accuracy. (p. 3)

How much longer will students need a school or a teacher to learn algebra or physics? We believe that teachers who are unwilling or unable to change will become extremely vulnerable to the shifts of an ever-changing labor market. Ask yourself these questions: "Will teachers who are only information dispensers, book readers, babysitters, and test givers find themselves automated out of a job? And if so, how soon?"

We hope that an increasingly automated education environment will free teachers for more human and emotionally complex interactions with learners, but there are some long-standing educational paradigms and unconscious assumptions that education and educators are going to have to overcome first. Part of that process means acknowledging what research already confirms: our learners are different—fundamentally different, neurologically different from those of past generations (Carr, 2010; Doidge, 2007; Medina, 2008; Ratey, 2013; Small & Vorgan, 2008; Willis, 2007).

As we examine in detail throughout this book, modern students look at and interact with the world through a unique lens. As a result, they learn in fundamentally different ways from those of their predecessors. To see why, consider how visual learning; social learning; the age of super-mobility; and big data, gaming, and personalization are changing the face of education.

HOW 20TH CENTURY MINDSETS IMPEDE LEARNING

Standing in the way of making education relevant for 21st century learners are 20th century education mindsets. We must keep in mind that people raised on 20th century learning, those both inside and outside of education, really don't understand what's going on in education today. Many parents, politicians,

community members, board members, educators, educational leaders, and other decision makers are completely out of touch with how 21st century learners and even young teachers think, relate, and communicate. They don't understand modern teaching, learning, and assessment. Many of them think and speak using the traditional language of compliance because that was their school experience when they were growing up.

Generations raised on 20th century learning understand grades; behavior; some of the fundamentals of literacy; and other abstractions like effort, inspiration, success, and failure. But what if the older generations better understood how 21st century generations think and learn? What if the older generations understood the pros and cons of different instructional and assessment models, the inherent limitations of letter grades, or how to coach daily core 21st century skills like critical thinking, problem solving, and observation? The older generations are the sleeping giants of education. If they had any clue how poorly current education serves many learners, no matter how successful some learners navigate education in its current form, they would redirect the anger currently pointed at teachers and principals and superintendents, and point it instead at policymakers and politicians, perhaps even taking up the task of making the necessary changes themselves. It's critical that we take every opportunity to engage and inform these generations about what is going on because the futures of all nations are at stake. That is the purpose of the book and why we call it *A Brief History of the Future of Education*.

CREATING A MOVEMENT

The purpose of this book is twofold. First, it is to inform all stakeholders of the current state of education; second, it is to create a movement to move education from where it is to where it needs to be. As stakeholders, we include teachers, educational leaders, technology learning specialists, parents, and all members of the wider community.

Teachers, young and old alike, will find here a description of the current state of school and education. Educational leaders will have to help create a vision to change traditional schools. Technology learning specialists will have to help educators and leaders alike in embracing tools to improve modern-day teaching, learning, and assessment. For parents, this book provides a better understanding of how different students in the digital generations are and strategies to help them become lifelong learners. For the community members who are part of the modern-day workforce and anyone else, this book becomes a road map to the future of education.

Chapter 1 defines "That's the Way We've Always Done It" (TTWWADI) and examines TTWWADI's current impact on schools. **Chapter 2** is a wake-up call to the scary and often-sneaky nature of change in our world and how a broad, fixed mindset in schools is a troubling situation. **Chapter 3** explores how many modern-day innovations disrupt markets, business, communities, or

societies and what these disruptions mean for the digital generations and the schools that claim to prepare them for a brave new world. **Chapter 4** investigates how learners who are ever under digital bombardment prefer to learn and how teaching must account for those preferences. We also offer some helpful instructional strategies, tools, and resources to access these learning tendencies. **Chapter 5** provides a workshop-level set of experiences to prepare readers to accept change and open their minds to the future of education. **Chapter 6** presents a preview of a student going to school twenty years in the future. We follow up her experience with eleven predictions about the future of learning. **Chapter 7** explains how we as educators can have it all—address academic standards, address content, and prepare for standardized tests while simultaneously cultivating modern-day learning skills. **Chapter 8** analyzes eleven critical roles that educators must embrace to prepare their learners for the future and provide them with resources and professional outlets to prepare for these new roles. Finally, the closing **epilogue** challenges readers to change their schools to prepare students for their futures and not our past. It uses an analogy about *committed sardines* as a call to action for educators and change agents to immediately reform schools to create the global citizens we desperately need—now and tomorrow. Each chapter concludes with a link to a digital resource collection associated with the chapter's content, a summary of the chapter's main points, and a series of questions to prompt discussion.

As the philosopher Eric Hoffer writes, "In times of radical change, the learners inherit the earth while the learned find themselves perfectly equipped for a world that no longer exists" (as cited in Stanton, 2013). Our greatest fear is that despite our very best intentions to do what's right for our learners, we're instead doing a great job of preparing our learners for yesterday rather than tomorrow.

Our hope is this book will address the first obstacle by helping you become aware of what's going on in the world outside of education and why it is so critical that we respond. We face a depth and breadth of change unparalleled since the Industrial Revolution. The old values and institutions are breaking up, and we're unsure what will replace them. Change either happens to us or despite us. Are we going to deny the changes that are happening? Are we going to resist them? Or are we going to accept the fact that we too must change?

It's time to stop asking what will happen if we do make the necessary changes and start asking what will happen if we don't. We get only one chance.

HOW TO APPROACH THIS BOOK

Do you remember the *choose-your-own-adventure* stories from your childhood (if you are young, ask your parents)? The books asked you to select from a variety of choices in order to progress to the next part of the story. They allowed readers to decide the next step.

You can choose to read this book by starting at the beginning and reading until the end—the left-to-right, top-to-bottom, beginning-to-end, page-after-page method. If that strategy works for you, great! Alternatively, you can opt for the choose-your-own-adventure approach—a strategy that closely aligns with the way in which many members of the digital generations prefer to learn. Your entry point can be anywhere you want it to be. You can skim or scour the table of contents, or search the book itself for a topic you find interesting, relevant, or required. Once you identify a starting point, feel free to jump right in. For example, if you are a classroom teacher facing the challenges of distracted and disengaged learners, you might want to jump directly to Chapter 4, "The Nine Core Learning Attributes of Digital Generations," and continue examining the areas pertaining to modern-day teaching, learning, and assessment in the classroom that you will find in Chapters 6, 7, and 8.

If you are a parent, we recommend starting at the very beginning to examine TTWWADI, traditional mindsets, and learning in an age of disruptive innovation. These are topics that will appeal to parents and all of education's major stakeholders—learners, educators, and change agents—because they begin at the macro level and narrow down to the micro level.

We offer these variable reading strategies to empower you to experience the text in a way that meets your needs. Regardless, this book will be an easy read. The chapters are contiguous in that there is a natural progression, yet at the same time, each also stands alone. Although we cross-reference content when necessary to provide avenues to further reading or review, we wrote each chapter independently of other chapters. Sometimes this means revisiting ideas across multiple chapters, but in each chapter, we are careful to approach these ideas from fresh perspectives and provide insights from new angles.

The time is now to better prepare students for their futures rather than our past. This book will help you make this essential leap!