

Introduction

MAKING DEEP LEARNING A MOMENTUM MAKER

Deep learning is different in nature and scope than any other education innovation ever tried. It changes outcomes, in our case the 6Cs of global competencies: **character, citizenship, collaboration, communication, creativity, and critical thinking**; and it changes learning by focusing on personally and collectively meaningful matters, and by delving into them in a way that alters forever the roles of students, teachers, families, and others.

Most of all it affects the whole system—not a few individuals, or a small number of schools or districts, but *all* members of the system: children and adults alike. If one had such high aspirations—equity and excellence for the entire system—how in the world would you go about it? This is what our book is about. We can't say that we solved the problem, but we can report that we have helped unleash a torrent of new energy and corresponding insights that we try to capture in the various chapters. With our school system partners we have made substantial progress down the path of education transformation. We also know that anything new and promising can look like a shiny object for those desperately in need of a solution, or those easily led. So we worry about whether deep learning will turn out to be the siren call from Greek mythology—something appealing that lures people to go somewhere that may not end well. Nonetheless we are on the side of salvation but aware of how very demanding and counter-cultural the changes are that we write about.

On the pull side there is an explosion of technology-related learning developments underway that will only expand exponentially. We take the position that learning is the foundational driver and technology can be a great accelerator. Those who are frustrated with the current education system, including those who fight for greater equity, understandably are impatient for new results. Such restiveness can lead people to over claim. The cover of July 21, 2017, issue of the *Economist* features a picture of the brain with the caption: *The Future of Learning: How Technology Is Transforming Education*. The story is based mainly on a research study funded by the Gates Foundation, and conducted by the Rand Corporation—a report titled *Informing Progress: Insights on Personalized Learning Implementation and Effects* (Pane et al., 2017). The study was based on some 40 schools

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in Next Generation Learning Challenges' (NGLC) Breakthrough School Models program. Three quarters of the schools were charter schools, and on the average were small (230 students for elementary, and 250 for high schools). All were pursuing *personalized learning* (PL) defined as “prioritizing a clear understanding of the needs and goals of each individual student and the tailoring of instruction to address those needs and goals” (Pane et al., 2017, p. 2). These PL schools were compared to a national sample of what the authors refer to as representing “more typical practice” in “traditional district schools” (p. 3). There were some indicators that showed the promise of PL, but the overall results did not reveal major differences between the two sets of schools.

Noting the fact that PL is only a small part of our model of deep learning, and that the comparison involves a group of privileged “breakthrough model” schools, the results are unimpressive to say the least. In the NGLC sample:

Schools were implementing specific PL practices to varying degrees with *none* of the schools looking as radically different from traditional schools as theory might predict. (Pane et al., 2017, p. 2, emphasis added)

And further:

More difficult to implement aspects did not appear to differ from practices in schools nationally, such as student discussion with teachers on progress and goals, keeping up to date documentation of student strengths, weaknesses and goals, and student choice of topics and materials. (Pane et al., 2017, p. 2)

No kidding! The Rand research is fine. It is *The Economist* that so badly wants change in public schools that it is ready to will it into existence. *The Economist* gets some of the premises right. As it notes: “Together, technology and teachers can revamp schools,” and “make sure education technology narrows rather than widens inequalities” (Economist, 2017). But there is no strategy or theory of action about how to do this. We saw above from the RAND research that even privileged schools, when they get the opportunity, do not go very deeply in changing practice. Our book is different. It is based on a comprehensive model of deep learning and on its actual progress in a large number of public schools in seven countries. It is the case that good technology can accelerate good learning. In developing countries, new inexpensive adaptive software can be especially powerful for reaching large numbers of disadvantaged learners, as we will see in our own case of Uruguay.

We have been working on system change intensely since 2003. Our modus operandi is to partner with large chunks of systems to help cause significant change together, learn from it, do the next one better, learn more, and so

on. We call it informed practice chasing theory to the betterment of both. We have learned that many of the best ideas come from leading practitioners, not from research per se.

The need for change and the opportunity to take action are converging. The old system works for only a minority, and those who succeed, with better marks for example, are not all that well off either when it comes to living in increasingly complex times. What's interesting is that the new set of crises is forcing humankind to reconsider its relationship to each other and to the planet and universe. The circumstances that now face us represent a unique configuration of challenges that make it essential that we proactively change the world through learning. Put another way, what Paulo Freire, the Brazilian educator and critical philosopher, saw for peasants in the 1960s, and as essential for the betterment of all, is now coming to pass on a global scale. Freire (2000) had one basic assumption, namely that humankind's "vocation" is as a subject "who acts upon and transforms the world, and in so doing moves toward ever new possibilities of a fuller and richer life individually and collectively" (p. 32). He went on to observe that in times of transition (and we need not document that now is one of those times), humans need more than ever to be connected to the "mystery of changes" that are happening.

Deep learning then is about finding our place in a complex, indeed scary world. It is about transforming our reality through learning, both individually and with others. What is significant about the "deep learning movement" is that it is not driven by policy or by the top (government). It gets its strength from the "middle" (districts and municipalities) and from the "bottom" (students, teachers). Wise policy makers will leverage and further stimulate promising deep learning developments because they come to see the necessity and desirability of having citizens who are steeped in the global competencies.

Our book stems from work we are actually doing in partnership with schools systems around the world. We show that the status quo is fundamentally losing ground, that we are and can specify the alternative, and that the emerging breakthroughs we document are capturing the attention and immersion of students, families, and educators in what can only be called *an intentional social movement*. As such, it has the power to transform contemporary school systems. Having said that, we worry that the movement of deep learning is fragile and may become domesticated by strong forces in the status quo, or become weakened because the work becomes too complex and hard. So keep in mind that the outcome could go either way: exciting learning that is part and parcel of transforming learners and the world they inhabit, or yet another uneventful chapter in the lives of teachers and their students. The more things change, the more they stay the same. Or is there something different about the world today? We think so, and this book is about how the world of learning might turn out in profoundly better ways than the present.

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Our approach to bringing about fundamental change is to work jointly with those in the system. Thus we work with all levels of the system: local schools and communities, mid-level (districts, municipalities, networks), and top-level (governments). We are, if you will, re-culturing systems in a living laboratory of learning. In particular, we are working with some 1,200 schools in seven countries in a partnership called *New Pedagogies for Deep Learning* (NPDL) including Australia, Canada, Finland, the Netherlands, New Zealand, the United States, and Uruguay (see the Appendix for a brief commentary on each country). We use the term *re-culturing* deliberately. Edgar Schein (2010)—a pioneer in the study of organizational culture—defines it as “a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration” (p. 18). Deep learning represents a change in culture; it is not a change in program. Programs don’t scale; culture does (Scott, 2017).

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We can’t say that deep learning system change has occurred at scale in these cases, but there is a growing critical mass deeply engaged in the effort—enough to give us confidence that whole system change is a distinct possibility. Beyond this the good news is that there are many other examples of deep learning occurring in individual schools around the world that could be leveraged for bigger change.

We would be the first to say that the barriers are enormous: bad policies, wrong testing regimes, growing inequity that those in power try to preserve and indeed increase, inadequate and uneven investment in public education, and the complexity of proving that new deep learning is on the right track and will produce outcomes in a reasonably short time period.

We know that the uptake of deep learning on the part of students, teachers, families, and others is impressive and in some cases magnificent, as we portray and document. What we don’t know is where this is heading. We can say with confidence that the current education system doesn’t work and one way or the other will transform or disappear over the next two decades. Increasingly, students will not tolerate boring or alienating schooling. And the dynamics of a digitally laced global world will force radical changes whether we like it or not.

Our approach in this book is to capture what is happening in the seven countries in which we work on the deep learning agenda. It is important to understand what is already happening because in many ways it is coming from people inside the existing system. We highlight practices that are leading transformation in schools, districts, and systems. We invite you to visit **www.deep-learning.global** to see who we are, what we do, and why we do it. In addition to our expansive website, you will find a page of resources dedicated to this book, including the videos referenced in the chapters. To access the book’s online resources, click on the *Deep Learning* book cover featured on the NPDL home page. Go to **www.deep-learning.global** whenever you see the online resources icon in the margins of the book.



This book is divided into three sections:

Section I: Engage the World Change the World sets the stage for powerful whole system change in learning by painting the picture of “Why deep learning?” “What makes it deep?” and “Why it matters.” We then introduce a model for leading the transformation of learning in schools, districts, and systems.

Section II: The Living Laboratory examines an exciting social movement that is impacting thousands of students, teachers, and families across the globe. We use our NPDLP partnership to bring definition to the concept of deep learning; identify the elements that foster the design of deep learning; explore a collaborative inquiry process that propels rapid shifts in learning and teaching practice; consider cases and vignettes illustrating the conditions and leadership that mobilize deep learning and support it to flourish at local, intermediate, and system, state, and country levels; and examine the new measures needed to assess and communicate progress in deep learning.

Section III: A Precarious Future highlights the emergent discoveries we are uncovering on the deep learning journey, identifies coherence making outcomes, and takes up the matter of how and if transformation might be possible.

Deep learning is valuable learning that *sticks*. Following Freire (2000)—and this is the central breakthrough of this book—it situates the learner as someone who acts upon the world (usually with others), thereby transforming her- or himself *and* the world itself. *Engage the world change the world* is fundamentally a learning proposition. It excites students; it excites teachers and parents; and it is the future. It is our book.

One final advance organizer concerns the question of “transformation of learning for all students” as it plays out in the course of addressing both “excellence and equity.” In the course of this work, we discovered what we now call “the equity hypothesis” (Fullan & Gallagher, 2017), namely, that deep learning is good for all, but it is especially powerful for those most alienated from the traditional schooling system. Resolving the equity-excellence miasma is at the heart of societal survival, and deep learning has a starring role to play. Deep learning, as we portray it, is capable of bringing together excellence and equity for all, thereby reversing the deadly trend of growing inequality in the world. This is not just a moral question; it is a matter of survival, and even better, prosperity.

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