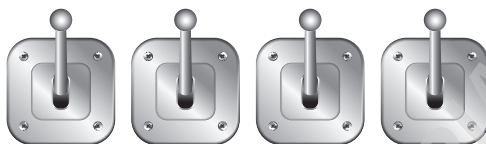# CHAPTER ONE

The Future of "School"

If you think in terms of a year, plant a seed; if in terms of 10 years, plant trees; if in terms of 100 years, teach the people.

Confucius

Albermarle County stretches across rural rolling hills from the red brick monuments of the University of Virginia to backwoods grade schools in some of the poorest corners of central Appalachia. One might look elsewhere for the changing fabric of education, unless one had heard of Pam Moran, the diminutive, insightful, fiery, passionate superintendent of Albermarle County Schools who has gained a well-deserved international reputation for breaking pretty much any boundary that stands in the way of great learning for her 13,000+ students. Pam, her supporting cast of educational leaders, and their students have been featured in articles, on television, and across educational social media as they rethink and rework the place we call "school." Their students gather in informal, somewhat noisy collaborative spaces that used to be hushed quiet by attentive librarians. Budding student musicians and robot-loving techies, who used to rush off campus after the last bell of the day, now hang out after-hours in the recording studios and the maker spaces, publishing their latest songs and building stuff out of odds and ends. Teachers are celebrated, not disciplined, for taking risks. One principal moved his desk into the middle of the school entry hall to make the point that his job is "in" the school, not behind a closed door.

Albermarle County does not have deep pockets, and many of their students come from underserved communities where education is poorly understood and often not supported in the traditional social fabrics of farm, town, and family. But Pam says that "what is emerging right now, what is coming out of work we have been doing over the last decade when budgets have been very tight, is a network of choices and opportunities that are not dependent on funding or direction from the government. We have been forced to figure out ways to encourage schools to adapt beyond-the-horizon opportunities for our students" relying largely on themselves. What sets Albermarle County schools apart from many other districts is that they have actually done it, not fearfully or cautiously or tentatively, but boldly and courageously.

Redesigning the School "Operating System"

The education-industrial community, the system that is hugely responsible for shaping the lives and opportunities for *your children,* spends billions of dollars every year and an endless flood of human capital in building, updating, and reforming the "hardware" and "software" of K–12 education. The problem is that we have virtually ignored the K–12 education "operating system," which has not had a substantial redesign since the middle of the 19th century. We will not fundamentally change education until we stop designing around an operating system that is 150 years old. *How* we change this operating system by finally getting around, over, or past the frictions that have kept it stuck is the problem we need to solve.

Whether you are a parent, an employer, or a classroom teacher, it is highly probable that you underestimate the magnitude of change coming to K–12 education. As I detailed in an article for the Transforming Teaching Project at the Harvard Graduate School of Education (Lichtman, 2015), the K–12 operating system includes not only physical campuses and teams of people but also the processes, standards, assumptions, and mind-sets that determine how schools have worked for at least 150 years. The current K–12 education operating system guides everything a school does: how we measure student progress; how we compartmentalize learning by subject; how we assign teachers to groups of students; our outdated daily and annual schedules; suffocating and ineffective professional development for our teachers; vast overuse of standardized testing; rigid, top-down

decision making; prison-like physical campuses; and impermeable boundaries between schools and the communities they serve.

This system performed extraordinarily well when measured against the economic and social needs of the late-19th through mid-20th centuries when the alternatives for learning were limited largely to cloistered monasteries, ivy towers, and red one-room schoolhouses. Most educators and many students and parents, similar to those in Albermarle County, recognize that the system is critically flawed when matched against the outcomes we want for students in the 21st century. And yet most educators continue to design curriculum, instructional practices, assessment, schedules, training, physical campuses, support systems, and new digital technologies for a system that no longer meets current and future expectations. As Alan Daly, chair of the education department at the University of California, San Diego, told me "We are not thinking about education at a systems level. We think in narrowly defined parts and believe that if we can hone practice or solve a problem in one narrow area then all will be well, and this is just wrong. We have to intersect much more carefully and systematically among teachers, districts, colleges, student-users, and community stakeholders as co-thinkers, codesigners, and co-constructors of a better *system* of learning."

Where the Rock Is Going to Roll

So, let's ask the question: *What will "school" look like in 20 or 25 years?* Will the type of dramatic changes we see taking root in places such as Albermarle County schools over the last decade become the norm, or will they still be outliers? What is the inevitable future with which we must try to intersect? In work with John Gulla of the EE Ford Foundation in 2016, we reflected on the hundreds of schools, thousands of educators, and numerous education thought leaders with whom we have collectively crossed paths in the last five years and offered this general vision:

> Adult and student co-learners will seamlessly connect physically and virtually via multiple optional pathways in a web-like, global, socio-neural network to create and share wisdom and knowledge,

unrestricted by the bonds of time and space, unfettered by the boundaries of subject, classroom, and age, and learning skills and tackling timeless questions and profound problems that face us as individuals, as communities, and as a species. "Schools" will be critical portals into this web of practice, physical places where we gather as relationship-rich communities. These school portals will offer spaces to interact in traditional face-to-face settings as well as providing easy access to individual and group virtual reality devices with which learners in one physical location can form deep, authentic relationships with multiple co-learners in any other spot on the globe. Adult and student co-learners will share insights, experiences, and data, generating artifacts of ideas and actual physical objects that will "print" anytime, anywhere. The sum of human knowledge and, increasingly, nuance will be accessible to anyone on the globe with an Internet-connected device, in real time by posing questions in a common language without the need to query, program, or understand how a computer thinks differently from how a human thinks. Adults and children of all ages will be teamed according to their respective unique talents, aptitudes, interests, and passions, progressing at differentiated rates through a series of increasingly complex challenges as they grow in understanding and ability. School will not be an event that occupies our lives for 10 months a year for 12 or 14 or 20 years in our youth. We will all be connected to "school" throughout our childhood and adult lives, diving in when we need, to find what we need, for as long as we need.

If this future is inevitable, what will happen to the big pieces of the education operating system: classrooms and buildings, the teachers, unions, textbook companies, district offices, and administrators? What will happen to the architects who design campuses, bus drivers who pick up our kids in the morning, and the single moms who need somewhere for their children to go during the work day? What will happen to our 150-year social commitment to public education that is open and available to all? Will these all completely disappear in 20 years? Hopefully not; the richest elements of truly transformational learning are relational, not

transactional, and these relationships can develop only when a diverse group of students and adults spend a great deal of time together.

But there will be dramatic changes way beyond what many educators conceive today. Many of these changes are already taking shape. Families have much greater choice about how and where their children learn than just a decade ago. That curve, along with other demographic, economic, technological, and social trends, is only growing steeper and, in fact, may be leading to a step-function leap unlike anything the system of education has seen since the invention of the printing press. Twenty years from now there will have been a series of tectonic shifts of people, money, and other resources away from mainstream traditional public and private schools into alternative learning systems that are fundamentally different from the dominant models today. Those shifts will have disrupted the lives of many within the extended system of education. Some people and schools will adapt; others will probably not. That is the nature of real evolution: some species and individuals thrive while others die out.

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How Will the Learning Experience Change?

Students, teachers, and sources of knowledge will be hyper-connected via a variety of virtual pathways, most of which have not been invented yet. Every student and teacher will have Internet-enabled devices that are either free or extremely cheap. There will be no hard textbooks. Students and teachers will access content from universal libraries of digital curriculum that are open source, fully accredited, and free.

Rather than treating all students as part of an averaged group, the primary academic focus will be on how well a student can explore and learn along a "lane" tailored specifically to each individual. The sorting of

students that now takes place largely along lines of test-based scholastic aptitude will broaden to include a combination of aptitude, interest, learning style, and social-emotional abilities. There will be few, if any, subject boundaries; learning will take place across broad interdisciplinary themes that combine real-world problems and direct experience. K–12 and post-secondary learning systems will have adopted a vastly greater emphasis on social and emotional awareness that helps create a balanced life for students and teachers.

How Will Schools Function Differently?

Physical schools will still exist, but students and adults will spend much more time in a diverse ecosystem of physical and virtual communities and less in isolated classrooms. Schools will have developed powerful student and adult partnerships with colleges, universities, companies, incubators, laboratories, and nonprofit nodes in this greater learning ecosystem. Daily schedules will have many fewer, if any, boundaries, and 10-week summer vacations will have largely disappeared.

The static teacher-student ratio, one teacher in a room with a given number of students for a fixed period of time, will become vastly more fluid. All teachers will *not* be essentially similar cogs on a wheel with the same skill sets or expectations. Schools will have a mixture of master teachers, assistants, coaches, tutors, and mentors, connecting with students physically and virtually. Frequent, ongoing professional development and the desire on the part of teachers to continue to learn and grow throughout their careers will be absolute job requirements.

Our teacher-mentor-coaches will mostly be members of the millennial generation, digital natives, used to a vastly more flexible lifestyle than the now-retiring population of baby boomers. School leaders will also mostly be millennials, less tied to tradition and more willing to take risks, unless schools continue to make the deadly mistake of filtering out job applicants with those critical qualities. In order to keep pace with the rate of change, successful schools will have adopted flat, distributed management systems that require decisions to be made across the organization,

which means that educators will be valued for their strength of creativity, teamwork, and comfort in dynamic settings.

How Will Our Mission Shift?

The learning experience will focus on the needs of individual students in ways that our largely cookie-cutter classrooms, curriculum, and assessment protocols fail to do today. Educators and parents will tackle ongoing new issues of physical and virtual safety as the boundaries of learning breach the walls of classroom and campus. College and career-readiness goals will shift as colleges wrestle with massive dissonance about their own missions and as many of the jobs that our students will encounter don't even exist today. Colleges will have changed their admissions criteria away from the failed focus on standardized tests, allowing secondary schools to offer a much wider range of courses and experiences tailored to each student. Performance or badge-based job apprenticeship opportunities will be intimately wrapped together with classroom-like education as the boundaries of what students learn and how that learning might be applied are dramatically more "smeared" than they are today.

As schools seek to find a powerful or even unique set of conditions that will offer truly differentiated value to customer families, community stakeholders will be involved in virtually every decision that affects learning, including strategy and implementation of evolving practices. Schools will have richer, real-time customer-feedback systems in order to align the desires and needs of individual students and families with their school experience.

Why Is This Future Inevitable?

Is this really what learning will look, feel, and act like in just 20 years? Might this crystal ball be off in the time line and scope? Sure, but not by much. Lacking a global social, economic, political, or environmental meltdown, this transformation in education won't take 50 or 100 years, and

something very much like this future state is inevitable. Those of us who work in schools know that school years are sort of like dog years: Five years can pass on the world calendar in almost the blink of a school's eye. And, as we will see in this book, nearly all of the elements of this future are already percolating in place or incubating in our imagination, design studios, and schools today.

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These dramatic changes to our educational system are inevitable for four reasons:

- First, **because we must.** The world that our young people will engage over their lifetimes is already very different from that of former generations, and it will likely become even more different as the rate of change accelerates. Although there will always be a timeless set of knowledge that helps in this preparation, students graduating and hoping to find a job in the developed world need skills that help them navigate a future that is increasingly VUCA (volatile, uncertain, complex, and ambiguous). The tectonic shifts from the industrial to the information age require our students to be able to think, not just know. If education does not prepare our students to deal with this future, then the value proposition of an equitable, broad, rich, liberal arts education, let alone one focused on passing standardized fill-in-the-bubble tests, becomes decreasingly attractive to value-conscious consumers.
- Second, **because we want to.** I, and many others, some of whom you will hear from in this book, have asked thousands of educators, parents, students, and community stakeholders what they want education to look like today and in the future, and there is tremendous agreement. We want a system that is more equally balanced between academic achievement and the development of noncognitive skills that prepare students to lead happy, healthy, and successful lives. If our traditional schools do not offer the community of consumer stakeholders what they want, they will find it somewhere else.

- Third, **because we know better.** Past evidence on how children learn has reflected the work of sociologists, psychologists, and educational researchers. These are now joined by cognitive neuro-scientists armed with brain-mapping technology that proves how learning takes place at its most foundational levels. We can see how engagement takes place within the brain and can connect that engagement to better levels of cognitive development through the processes of deeper learning.

- Fourth, **because we can.** Technology is never the *driver* of trans-formation, but it is always a critical *enabler.* Recall this simple fact: The Pony Express was the best communication technology across long distances in North America in 1860. By 1920, just 60 years later, roughly a third of American homes had a telephone. Similar to the rise of technologies that fueled the agrarian, industrial, and information revolutions, holographic and virtual technologies are already forming the basis of a global socio-neural network with the capacity for deep, authentic, relationship-based learning that does not require the traditional school operating system. Just as we are finding ways to treat cancer patients based on their individual genetics, data-mining technologies and artificial intelligence will increasingly enable us to know what does and does not work better in terms of learning for each individual student.

There is no cookie-cutter model for schools in the future. What John Gulla calls "the urgent insecurity of a frightening world" does not affect all families in the same way, and that will be increasingly reflected in a range of educational approaches that meet the needs of individual students. A broad spectrum of learning opportunities already exists for many families and, with a global economy and social structure that has fundamentally mutated from producer-driven to consumer-driven, there is every reason to believe that the differentiation of these opportunities will only continue to increase.

If these visions of the future, about which there is great concern and tremendous enthusiasm, are even *somewhat* correct, then *how* we make the transition is where we must focus our attention. There are two

end-member pathways for how these changes will take place. In the first, we learn from our knowledge of history and our mistakes of the past. We stop banging our collective heads against unyielding walls of special interests that kill innovation, that keep the rock of education rooted in place. All of the community stakeholders who see how powerful learning can become when we break the chains of an outdated system press these levers that are available to us. We just do it.

The alternative is to let the passage of history and the inevitable evolution of human social systems fill the gap between need and capacity, in which case our current system of education will not evolve and morph into the future; it will dissolve piecemeal or blow up quickly, a mutation that will be vastly more disruptive than if we choose the first path. I emphasize again: The march of human history has *never* withstood the dissonance between what we need and our ability to achieve it. These changes are *going* to happen; the only question now is *how*. We each have a choice. We can choose to ignore the signs, or *we* get to make *how* happen. As you will see in the rest of this book, there are people across every category of the school-community spectrum who are making these changes a reality today. This future is actually *not* far-fetched or improbable; it is already taking shape in towns and cities and schools just like yours.