

The real question we must address at this point in educational history is:

“What’s needed so that all students can succeed in the Digital Era?”

Understanding the Task

Everything preceding this chapter had one single purpose: to convince you that technological changes render traditional ways of schooling obsolete and that this gives schools the opportunity to reinvent themselves to better help students live successfully in the present world. In other words, “the present ain’t what it used to be.” While it’s true that much of what fills the rest of these pages has been a good idea for education for decades, the truth is that now that broadband access and personal devices have become ubiquitous across much of the world’s cultures – and especially with youth – if schools continue as they are, they will actually become counter-productive, hindering students’ preparedness for society, the workforce and a successful life. Perhaps you were already convinced? If so, now we can get down to the business of laying out the parameters for the next era of school-based learning.

This is the current situation as I see it and its implications: nowadays, students with self-initiative can readily “Build their own” education given the incredible access to resources, interactions and learning communities. This is great and without parallel in human history. These are the best of times. The challenge for education is twofold. First, how do we reinvent what we do so that we facilitate this individual fulfillment of potential? How do we not interfere and even improve the situation for students already motivated by a joy of learning and a hunger to keep growing? After all, isn’t this the type of student we all hope to see as an end result of our efforts at formal education, the epitome of our highest aspirations? So if “the kids aren’t broken, let’s not try to fix them.” But let’s make sure they are empowered to emerge as unique masterpieces of their potential, not reduce them to some less than ideal standardized outcome.

The second challenge is a little trickier, but speaks directly to the real contribution education should make. What do we contribute to the non-self-initiated students, those who need our help to reach our ideal of the hungry lifelong learner? After a century of Industrial Age Education this is especially challenging because the very nature of this approach – passive, one-size-fits-all, teacher-directed – all undermine the self-directed qualities that enable

learners to take advantage of the abundant opportunities available in our current Digital Age. For this reason, as we transition to the more personalized and autonomous learning that will characterize this century, our current students – those indoctrinated to “the old school” – will be the most difficult to change. Of course this is true of the current teaching staff because we have been taught, trained, and employed in the assembly line model. In order to get a clearer picture of our task, let’s understand where we tend to go wrong so we can avoid unhelpful, ingrained attitudes and approaches.

Most importantly, we have to realize that Education isn’t about knowing facts, passing tests or preparing for jobs. These are things that happen during the course of an education, but cannot be its purpose. If we believe that they are, we diminish our calling and contribution to society. The numbing routines of factory schooling combined with the incessant barrage of urgent deadlines every teacher and administrator face result in an overwhelming experience that can too easily nudge people onto a sort of automatic pilot and a narrowed focus. We become short-sighted – constantly prompted to respond to immediate needs. As we seek to re-invent schooling, we must operate fully alert to our true goals. My suggestion is that we begin with where we want to end up, not just pile in a lot of short-term outcomes and think that their accumulation automatically results in an education we can be proud of and is worthy of everyone’s efforts. This is the flaw in the “Standards Movements”: standardized outcomes are markers along a continuum of deep learning, they are not “learning” in themselves. When the debate focuses on what the standards are, and success is measured by their “achievement,” the implicit message is that these are the things that matter and so result in explicit teaching to the defined outcomes. Yet every set of standards begins with a mission statement or identified goals related to preparing students to be self-empowered lifelong learners. Such a vague connection is ignorance at best, deceit at worst. We move from Motherhood statements to Outcome Statements, from the spirit of growth to the letter of the law, from the joy of learning to teaching to the test. Every teacher and student knows the difference, as do many parents and even politicians. The case will be made later for why we must have an invigorated professionalism in education. Becoming advocates for the truth about learning and discovering how to bring the goals of our mission statements into the reality of our classrooms rank at the top of our professional responsibilities.

What I propose is that as we re-invent education we should devise a system that begins with 2020 vision of what we want, not a near-sighted clarity and only a blurry perception of the not too distant future. If we use the question, “What do we want our students to be like in

the year 2020?” our answer will sound a lot like our first group of self-driven lifelong learners. I contend that the true purpose of schooling in these early decades of the 21st Century is to create the conditions so that all students experience and operate from the human birthright of loving to learn and seeking self-fulfillment through intellectual and personal development. A half-century of educational reforms have neglected such re-invention, they have tinkered with the assembly line because that’s the best we had that suited the scale required by the contemporary world. We’ve seen how Digital technologies create a new reality empowering personalized access to resources. We need the equivalent of our schools that accommodate our current population of learners but to shed the unnecessary remnants of the Industrial Age and maximize the benefits of the present era.

The following proposal is based on drawing together everything I have learned over my professional career, a career that includes a decade of classroom teaching, leadership in web-based curriculum development, design of interactive online learning software, workshopping with teachers and consulting with administrators. Over these years I have participated in trials, errors and successes as our field has attempted to use technology to support school-based learning. These experiences culminate in an integrated systemic approach designed to help all students realize the goal of becoming self-initiated, self-motivated lifelong learners. As already indicated, such a goal is not easily achieved given the ingrained nature of last century’s approach to schooling. Thus, what follows are not suggested as “nice to have” or “worth considering,” but essential if we are to truly break from the past and begin a new era in schooling. Consequently, we can imagine that they will also not be easy or come without the stress and angst inherent in change. So I have been careful to only include what is essential. There are other aspects and initiatives that are worthy and can complement the following framework – what I suggest is not exclusionary, but it must form the foundation upon which other approaches are added or we risk replicating our past unsuccessful attempts to *reform* education rather than *transform* it.

As we progress through the 21st Century, technology will present us with an exponentially expanding list of cool new things to inject into learning experiences, but we need to first decide what is critical to making this 1:1 scenario work. In other words, “What, if we left it out, would end in failure?” It is my considered view that four main components are required. What follows is a brief overview of the four critical components, arguing the case for why they are essential and how they fit together to form an integrated whole. Neglect or ignore any of these four and we can expect to make a mess of it. They are:

1. A New (2020) Vision & its Pedagogies
2. New Routines for School-based Learning
3. A Framework for Student-managed Learning
4. Smart Digital Environments

These four are integral pieces we must fit together if we are to puzzle-out how to support wide-scale personal learning in our schools. After this long prelude, let's work our way through a high level overview of the four critical components, highlighting why they are essential and how they fit together into an. The remainder of the book will go into greater depth on each of the four foundational elements so that those of you who work in them can further explore the tasks and implications.



A New (2020) Vision & its Pedagogies

As discussed in the previous section, having a clear goal is essential before you can plan how to get there. The next – and often missing – step is to invoke pedagogies that align with the goals, enact these strategies and then continue refining our approaches so that we set into motion a continuously improving and organic system. To firmly establish the global consensus for variously worded versions of the “self-initiated, self-motivated lifelong learner,” a survey of international initiatives will be presented. Once it's become irrefutable that this must be our goal, a similar review of the pedagogical literature will follow. This review will focus on deep bodies of research that together provide better – and often seemingly contradictory to current – practices for evidence-based strategies to achieve our goal. In this way, by beginning with a clear goal and firmly establishing effective related pedagogical

strategies, we truly make a fresh start and side-step the short-sighted objections that maintain the status quo. Set aside the “how will we?” and “we can’t because” for a later day. Today, I challenge anyone to tell us why old habits and poor results should take precedence over a worldwide demand for engaged learners and firmly established bodies of research. Thus we begin by setting a foundation for what we hope to achieve, even if it seems like an impossible dream, because without this consensus every next step wanders off in some other direction.

New Routines for School-based learning

Once we have a clear goal and related research to help us move in the right direction, a next vital piece of the 1:1 Digital Learning puzzle relates to what we actually do in schools that helps us achieve our goal. Two important factors come into play. First, research is great, but the best, most rigorous studies yield findings that answer very specific questions. Research, by definition, attempts to control and limit the variables so any differences can be attributed to the experimental approach. This is how we build knowledge, one finding at a time. Classrooms, conversely, seem to present an infinite number of variables. Thus the first requirement is to develop models that remain honest to the research but also accommodate our real-life classrooms. This is very different from jumping on the bandwagon based on the latest journal article, buzzword or popular blog post. The argument will be made for transforming educational practice from the domain of hunches and habits to evidence-based strategies and continually developing professional knowledge.

The second factor is that schools, like any large organization of people, operate more efficiently when the core activities become routine. Everyone has a general understanding of what’s expected and what they should do. In this regard routines are positive as they shift some of our tasks to more or less automatic behaviors, freeing up cognitive and emotional capacities to engage in the activity at the heart of the routine. Three routines common to most schools today could be termed “Chalk and Talk,” “Research Assignments” and “Group Work.” I will propose three replacements supported by digital technologies and research findings that go by the names Look to Learn, ClassPortals, and WebQuests. Each of these strategies will be fully developed in later chapters where it will also become evident that they work together to increase more sophisticated thinking, personalized and self-initiated student achievements.

A Framework for Self-managed Learning

If our Digital Learning puzzle already has a new and clearer vision to guide us and research-based practices to bring it to life in the classroom, what's missing? If there is a single element that distinguishes this proposed transformation of school-based learning from the Industrial Age model to what can be achieved today, it is the following radical shift: it's not about teachers, but students; it's not about teaching, but learning; it's not about improving school results, but student's results; it's not about classroom management, but student's self-management; it's not about standardized outcomes, but individual flourishing; it's not *about us*, it's all about *them* – our students, our students' families, these leaders of our emerging societies. This shift presents the greatest challenge to those of us involved in schools. We have grown up in assembly line schools, been trained in strategies to teach successfully in them and taught within this teacher-centered conception. We were the ones responsible for delivering the curriculum, responsible, also, for the results our students achieved. In large systems this makes sense because teachers *do* have an impact on student learning, and someone needs to be accountable. But research clearly shows that the results of any top-down approach will never equal or surpass those achieved by the self-initiated. In last century's schools, empowering individual students at a large scale seemed impossible as many could slip between the cracks or fall off the assembly line which must maintain its forward momentum if learning for the masses was to continue. But today, we live in "the best of times." As presented in the initial chapters, the 21st Century empowers learners with rich, individualized resources and the beginnings of a new era that leverages digital data to guide personalized learning experiences.

So what's the problem? Perhaps ironically, the single component most lacking in our current approach to education – and the one that will undermine achievement in the Digital Era – is the absence of a clear, shared and internalized framework to support students' self-managed learning. We may encourage or challenge students to take such responsibility, but virtually everything in the Industrial Age school strips away student ownership: Who chooses the curriculum? Who designs the learning activities? Who motivates? Who sets the timeframe? Who mandates the tasks? Who evaluates the learning? Who is responsible for the results? So who owns the learning? And who is supposed to be a lifelong learner?

Fortunately deep bodies of research into motivation, achievement, cognition and the brain provide solid building blocks for a new approach to teaching and learning that puts ownership and management of learning where it belongs. The approach goes by the

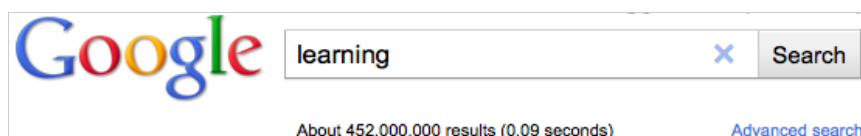
acronym CEQ•ALL (pronounced “Seek All”) and stands for Choice, Effort, Quality, Attitude and Lifelong Learning. Pedagogical rationale and student rubric will be presented as well as 10 snapshots of stereotypical student profiles and how CEQ•ALL advances achievement in each scenario.

Smart Digital Environments

As explored earlier, technology is transforming our culture from one of miraculous mass production to one where digital customization shapes many of our interactions to fit our individual interests and even anticipate our preferences. The assembly line transformed our reality last century, the classic example being the production of a Model T Ford taking only 93 minutes from start to finish and costing the equivalent today of \$3000. Examples of the emerging era of mass customization – or Alvin Toffler’s “demassification” – abound in many ways. You can build your own Ford or your own equivalent to a college education.

Amazon.com can suggest new books and music by sifting your previous choices and a massive user database of customers who share your interests. The Google search algorithm runs

through 200 signals before returning your millions of



results in hundredths of seconds. In these small, but seemingly magical ways, the wider society is shifting from “one-size-fits-all” to “all-fit-to-one’s-size” (and “sighs”). And this time around, digital technologies power the magic.

Clearly part of the problem for education is its scale and engrained patterns. Both factors inhibit change. But externals also contribute to the problem. First and most significantly, schools bear an only-increasing burden of new demands and requirements to appease politicians or solve society’s ills. This may sound cynical, but its cynicism at its worst to think you can continue to pile on more responsibilities and not suspect that other aspects will suffer. Add to this that education is not nearly as profitable as the entertainment market and it’s no wonder that software and electronics companies rarely invest in the school sector, leaving us at the mercy of one of the slowest industries to integrate technology, textbook publishers. So innovations come slowly to the classroom. But they will. And – as we’ve seen with Sixth Sense technologies – sooner than we think. Change will arrive with our students’ tablets and “Apps,” rendering our texts and talk obsolete.

This change will seem instantaneous, almost binary – it was “off,” now it’s “on.” All the other pieces of the 1:1 Digital Learning Puzzle address changes to the human elements, those that will be much slower to change (our vision, curriculum constructs and student-empowerment). Related to these three “human” elements, I have enjoyed the opportunity to present “vision-focused” conference keynotes, design technology-enhanced curriculum like WebQuests and develop the CEQ•ALL learning framework. I have also created learning-focused software and worked with software companies as well as been a keen observer of emerging technologies – so I can not resist presenting what are essentially design specifications for the Smart Digital Environments we need. The last section of the book forms an invitation – and challenge – to industry and individuals to provide the support educators need so that our schools can join the Digital Era equipped with the powers of data-mining and personalization currently enjoyed by our local grocery stores and online shops. But instead of tracking our purchasing patterns, our Smart Digital Environment will develop increasingly accurate learning profiles readily available to our students, teachers and parents. Rather than the Big Brother of global commerce snooping into your everyone digital decision, education can enliven a “Big Mother” who looks on with the children’s best interests at heart, pointing out insights into each individual that only a doting parent could provide. Ultimately, this is the promise of our Digital times: technology will take over more of the mundane, data-crunching tasks required of large-scale education, freeing our teachers and students from many of the de-humanizing aspects of an Assembly line education, and more closely approximating the one-to-one, person-to-person connections that can spark a lifelong joy of learning.

Conclusion

Education is poised to enter a new era. As profound as standardization was to scaling up from the one-room schoolhouse to today’s mega-schools, digitization can diminish the Factory Effect and bring the personal back into our schooling. To take advantage of what is possible, we must have a renewed vision for our purpose and goals. Our curriculum must be based on achievement and mastery, not age and seat time. Students must be in charge of their own learning. And the technology that currently tracks our online behaviors must be enlisted to highlight our learning characteristics. These are the best of times. These are the best of times.