

Solutions for Modern Learning

Gearing Up for Learning Beyond K-12



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Introduction

Skate to where the puck is going to be, not to where it has been.

—Wayne Gretsky

Today is Wednesday, which means Lucy has two classes, history and biology. She gathers up her things—phone, snack, umbrella against the likelihood of rain—and drives to campus.

Today, Modern European History isn't very crowded, much like the rest of Lucy's college courses, with eleven students scattered across a room built for thirty. She remembers high school classes as being more crowded, and picks out a seat. Lucy quickly reviews part of this week's videos concerning the Congress of Vienna (1814–1815) on her phone until the professor arrives.

This is the third class and second campus of the day for Arthur to teach. He cobbles together a living by adjuncting part-time at as many colleges and universities as he can, as do most of his colleagues and friends. Entering the classroom, Arthur takes a moment to organize his thoughts, recalling which course this is, and where in the semester they are at this point, plus the name of one student who left an especially thoughtful comment on his lectures. He's used to this kind of mental orientation practice, as he conducts it every time he shifts campus and class. It's part of being a modern academic nomad, the typical 21st century professor.

Class begins with discussion, as Lucy's peers pick up arguments they made last week and online across multiple online venues, including messaging, discussion, and blogging services. Students and adjunct explore the events of 1815, all using various devices to reference the online discussion and resources: phones, phablets, laptops, crinkly forearm displays (flexible screens attached to their sleeves, light-based keyboards projected

onto desks or arms). They identify resources that confirm their insights, or challenge their classmates.' Students record or write their developing reflections, making them available for classmates to ponder and Arthur to assess. Most also throw digital content onto wall displays, using the classroom network to transfer documents from their own devices to the wall-mounted, floor-to-ceiling LCD screens. For her part, Lucy is a bit quiet, still thinking about the 1790s, as she's been playing a French Revolution massively multiplayer online game for months. The Revolution fascinates her with its powerful ideas transforming the lives of leaders and everyday French people alike. Lucy plays a lawyer from Lyons, fighting hard to preserve her city from the Terror. Several of her in-game colleagues, and one adversary, have become good out-of-game friends. Lucy's immersion in this engaging milieu has led her to a conundrum. She's still trying to figure out how Napoleon emerged on top of the revolutionary scrum, when other leaders, like Danton, had at least as much potential to lead the French nation. Back in her class, Lucy likes combining screenshots and video clips of *To the Bastille!* with period music and her own reflections, sharing them with classmates, thousands of fellow players, and simply interested folks. Maybe what she decides about Bonaparte's rapid rise to power can help her—and her classmates—understand the post-Waterloo political settlement.

After *Modern European History*, Lucy heads off campus to the city arboretum, where her *Plants and People* class takes place. There are no other students physically present, nor an instructor. Lucy has not met any of them in person. Instead, classwork consists of Lucy examining plants and their immediate environment, using her phone to ask questions and research. The previous week's homework (data sets, audio lectures, readings) prepared her for this arboretum class. At times, Lucy hovers her phone over a certain plant so that an app can overlay information based on Lucy's location and what the camera displays. She doesn't pay attention to other arboretum visitors, as she is focused on her work.

Biology finishes during late afternoon, and Lucy chats with her younger brother as she drives home in the gathering dusk. Jonathan has never seen the appeal of a physical campus, preferring the openness and flexibility of wholly online learning. Lucy thinks it's because he's living on his own for the first time and cherishes that independence, not wanting to be constrained by someone else's space. He disliked that

about high school and resents it at work. For his part, Jonathan thinks his older sister is just showing her age, wallowing in nostalgia for the times of crowded campuses and offline school spirit.

Before hanging up, Lucy and Jonathan each renew their vow to finish school before the other, grinning, because they know full well they'll never really stop learning in this world.

Never has there been a better time for learning. Yet, there has never been a stranger time to be teaching.

More people than ever before have access to more information. Indeed, the sheer amount of available content has driven us to invent new terminology (yottabytes!) and new professions (data curation specialist) just to cope with the bounty. Anyone who wants to learn about a topic may face vast and growing informational riches. Learners can also connect with an ever-growing number of teachers and fellow students.

Such teachers are not necessarily so fortunate. On the positive side, they too can partake of this grand banquet of learning, which allows them to more easily stay current in their fields while branching out to new ones. However, instructors face new challenges in many areas. In some countries, the traditional school-age population (roughly five to twenty-two) is dwindling, driving colleges and universities to increasing competition for fewer pupils (Taylor, 2014). New technologies present all kinds of problems for teachers, from added workload to greater complexity (and potential embarrassment) in the classroom to the possibility of online competition. In the United States, demographics, economics, and policy pressure combine to make the teaching life more difficult all too often.

Taken together, these factors mean that higher education is changing. Colleges, universities, academies, and other postsecondary education institutions are transforming into different places from the ones we once expected. They are becoming stranger institutions than the ones teachers, scholars, administrators, and legislators experienced, planned for, or hoped to enter. Visions of higher education drawn from popular culture, adults' memories, nostalgia, or pundits are increasingly likely to be out of date, politically biased, culturally partial, simply not very useful any longer, or a combination of these.

The leap from high school to college has changed and will mutate into still more unfamiliar shapes over the next decade. High school students and their parents have more to research about college options as they examine new campus features and programs, such as learning commons, 3-D printing support and makerspaces, and mobile device policies. These students and their families will have new options for study after high school, too, including a variety of online options. Parents' own high school experiences are gradually relegated to history, while their work and personal lives provide clues to the modern college: always-on Internet access, connections

through social media, a rising amount of part-time work, collaboration with distant, unmet people. Some may feel as though the transition from secondary to postsecondary education resembles science fiction, as in Vernor Vinge's classic 2006 novel about future high school, *Rainbows End*.

Revising Our Understanding of Higher Education

To be able to think seriously about higher education, we need to revise our understanding of that educational sector. We can't do otherwise if we want to realistically plan for jobs, for further education, local economies, or the continued growth of human knowledge. To paraphrase Wayne Gretzky's advice in the epigraph, we must strategize based on where higher education is likely to be going, not where it once was.

It's not an easy framework to adopt, given how many factors are in flux. Part of the appeal of Gretzky's aphorism is that it involves multiple objects sliding on ice, rather than being solidly planted on friendlier terrain, an apt metaphor for higher education's new developments. *Gearing Up for Learning Beyond K–12* approaches this slippery problem from a futures perspective. That means it draws on the forecasting field's tools of trends analysis, horizon scanning, and scenario construction.

Some of that trend analysis stems from my work on a long-term monthly publication. Since March 2012, I've published *Future Trends in Technology and Education (FTTE)*, a report tracking developments impacting higher education in more than one hundred categories. These categories include: educational contexts, such as economics, national policy, campus policies, and demographics; technology across many domains, from hardware to software to surveillance and robotics; and the many intersections of technology and education. Over the years I've written *FTTE*, certain drivers within these categories have emerged as sustained forces, drivers most likely to shape future campuses, while others have faded into unlikelihood (Alexander, 2014a). In the following chapters, we will focus on the former, our discussion honed by a critical understanding of what happened to the latter.

This book also relies on the New Media Consortium's Horizon Project. Horizon Reports are examples of the Delphi process, a method for working with experts in a field to distill their wisdom about that field's future. Initially devised by the RAND Corporation for use by the military, the Delphi process has spread to the business world and to nonprofits (Alexander, 2009). To the best of my knowledge, Horizon is the leading research effort using Delphi for the topic of education's future. Full disclosure: I have been on the advisory board for many Horizon Reports.

The most recent Horizon Reports for higher education reveal a sector wracked by change and uncertainty. Technological forces are clearly at play, freeing up access to open education, enabling the creation of new classroom types, and altering the ways

we process information. But Horizon now notes other forces at work, specifically those from the policy world. Competing demands for increased access to post-secondary education, reduced cost, more collaboration, more institutional agility, better digital skills, and a greater emphasis on teaching combine to place enormous pressures on campus leaders and staff (Johnson, Becker, Estrada, & Freeman, 2015).

It's important to keep in mind that division between technological change and change from other domains. Each can be very attractive and also exceedingly complex, drawing our attention to the exclusion of others. I find the futures approach with the daunting acronym of STEEP to be helpful in balancing these perspectives. STEEP stands for *social, technological, economic, environmental, and political forces*. It's a kaleidoscopic approach that helps us understand the interrelated, complex, multifaceted nature of shifts in education.

Imagining the Future of Higher Education

As befits a work drawing on the futurist tradition, this book does not guarantee certain futures or specific predictions. Instead it explores the full range of possible forms higher education might take, based on our best possible knowledge of the present. Let me expand on this point in the form of several caveats.

First, it is possible that a black swan event could disrupt higher education in ways this book does not anticipate. A *black swan* is Nicholas Taleb's term for very low probability, very high-impact occurrences, such as the sudden appearance of a black swan from a huge number of white birds. They are extraordinary events, are extraordinarily difficult to anticipate ahead of time. Ironically, we tend to change our sense of our own understanding afterward, back-filling to imagine we knew the event was actually quite predictable after all (Taleb, 2007). For the subject of this book, the appearance of affordable artificial intelligence reaching the level of a decent college tutor would constitute such a major disruption. If created for learning, a virtual entity, like the one depicted in the movie *Her* (Barnard, Farrey, & Jonze, 2013), could challenge the very structure of formal education. Another black swan would be a major terrorist attack on the United States, which leads to drastic restrictions on the Internet, on information access, the movement of populations, and public financing. All of these would alter education in sudden and deep ways. We could consider these and other extraordinary events but are limited by their low probability and by restrictions of space.

Second, *Gearing Up for Learning Beyond K–12* is focused on higher education in the United States. This is partly due to limitations of space in this volume, as addressing the sheer diversity and extent of global postsecondary education would require a great deal more text. The enormous research burden required to assess