



(Karastelev, 2020)

#### ABSTRACT

Universities and colleges have dragged their feet making the move to online teaching and learning. Suddenly, with this COVID-19 crisis, everyone had to move online. Few universities or colleges are prepared for such a rapid shift. Meanwhile, the conventional wisdom remains - the gold-standard for learning is traditional face-to-face, while online is second-best. But perhaps, even without COVID-19, in-person learning is ripe for radical transformation. At the University of Illinois, we've been researching this transformation, and developing and testing online learning solutions. Simply put, online can be completely different, and with the right tools, potentially much superior to in-person teaching. To reap the benefits of online learning, we need to abandon the current generation educational technologies—systems and processes that mostly do little more than reverse-engineer traditional classrooms.

#### KEYWORDS

Covid-19; online learning;  
higher education; access

Traditional residential universities have dragged their feet making the move to online teaching and learning. Commuter colleges, too, have kept lecture theaters, classrooms and textbooks as core tools of their trade. The core business of traditional teaching and its auxiliary place-bound services have put a brake on the innovation needed to build innovative and engaging online learning infrastructures and approaches.

Suddenly, with this COVID-19 crisis, everyone had to move online. Few universities or colleges are prepared for such a rapid shift.

Meanwhile, the conventional wisdom remains - the gold-standard for learning is traditional face-to-face, while online is second-best. Often reluctantly and in a piecemeal fashion, many higher education institutions had already tried to migrate their traditional practices online. They made awkward attempts to replicate the traditional classroom with video lectures, e-textbooks, online

tests, and learning management systems that look like old-fashioned syllabi. The result was often a step back into all that was wrong with didactic modes of teaching.

But perhaps, even without COVID-19, higher education might have been on the verge of a deep structural crisis. One dimension of the looming crisis in the United States has been ballooning student debt. The fancy lecture theatres and the manicured lawns are ridiculously expensive. In many parts of the world, the students have been asked to pay more and more, and increasingly they can't.

Another crisis is what we call "attentional." Sitting in classes and listening to lectures is an absurdly sub-optimal cognitive load for today's students who on their personal devices have become habituated to designing their own information feeds then skipping through their messages.

So, even if we didn't expect to have to move online as precipitously as we were forced to by COVID-19, at the very least, in-person learning was ripe for radical transformation.

At the University of Illinois, we've been researching this transformation, and developing and testing online learning solutions (Cope & Kalantzis, 2017). As senior professors in a historically residential university, for some years we have only taught online.

Simply put, online can be completely different, and with the right tools, potentially much superior to in-person teaching. These are also the very reasons we must discard the back-to-the-future learning management systems. To reap the benefits of online learning, we need to abandon the current generation educational technologies—systems and processes that mostly do little more than reverse-engineer traditional classrooms.

Here are five reasons why, and why we would never choose to teach in-person again.

## **1. Scale Up Higher Education and Scale Down Its Costs**

In-person education does not scale. To achieve universal college education—and this surely is what we need for all citizens to face their personal as well as collective futures—we need to reduce the costs of teaching and learning.

It's not just a matter of reducing the need for expensive physical infrastructure. It is also a matter of making it possible for all workers and all those with domestic caring responsibilities to access higher education without having to leave their communities, jobs and homes.

This can only be achieved with online education as a thoroughly renovated version of that older idea, distance learning. Today, to those taking online courses we only offer a small discount. To achieve access for all, the sticker prices for online learning can and must be vastly reduced.

Unless of course, post-secondary education becomes a publicly supported right in the same way as K-12 education. But even in that scenario, it would have to become cheaper for the government and its taxpayers.

## **2. Develop Pedagogies of Social Knowledge and Collaborative Intelligence**

It's the human interaction that makes in-person learning so valuable, say its supporters. Yet in the lecture theater, all the students have to sit silently while the instructor speaks. In the classroom discussion, only one person can speak at a time. In these respects, the lecture theater and the classroom are hardly social, except when it comes to communicating pathogens. Not only are these suboptimal forms of communication in the era of social media. Paradoxically, their communications architectures are systems of social isolation.

Here is the difference with online learning: the educator might create videos, not like the lectures of old, but in short and digestible chunks. These are not simply to “tell,” but always prompt discussion and elicit contributions from students in the feed below the video. (The lecture of the truly “flipped classroom” certainly should not be a recording of old-style in-person lectures.) The student can stop and start, review or skip, and slow down or double the speed. Learning analytics will credit students for their engagement.

Then classroom discussions: instead of one person speaking at a time, everyone can comment in a social media-like feed, at the same time or at their convenience. These discussions can be synchronous or asynchronous. Engagement does not have to be locked into the four walls of the classroom and the cells of the timetable.

Here, students earn none of the conventional rewards for arrogance, nor are they penalized by social inhibitions or reticence—dynamics that create imbalances of participation in traditional classrooms. Indeed, everyone can be required to respond, and to measurably equivalent degrees. Learning analytics can track every learner’s engagement. This is simply a far superior communication and pedagogical architecture.

### **3. Create Pedagogies of Intense Engagement**

In the traditional model, learners are positioned as knowledge consumers—of lecture or textbook content, for instance—eventually demonstrating their absorption of acquired knowledge in end-of-course, summative assessments.

Lecture and textbooks may have been a matter of logistical necessity in heritage educational architectures. Rather than just put these online in recorded lectures and e-textbooks, e-learning ecologies open new possibilities.

In online learning architectures it is possible to position learners as knowledge producers and co-contributors to knowledge communities. One way to do this is to have students research and make posts into the class activity stream that exemplify themes prompted by instructors. Another is to create peer-reviewed projects, where interim feedback in the knowledge production process comes from multiple perspectives: peer, instructor and machine feedback. Then projects can be published and shared by the instructor to the community as collective knowledge.

The role of the instructor is to design e-learning ecologies, leveraging the social-collaborative complexity enabled by social knowledge technologies. (We use the phrase “social knowledge” because the mainstream social media are completely inappropriate for learning, given the size of their communicative chunks and way their algorithms prioritize posts.)

Embedded, on-the-fly formative assessments can track community engagement and personal progress. An example: in one of our recent 8-week courses with 54 students, using our CGScholar platform there were 14,500 pieces of actionable feedback on 3.3 million datapoints, giving students and instructors a far richer and more reliable picture of learning than ever possible with a traditional test (Cope & Kalantzis 2019).

### **4. Focus on Higher Order Thinking**

Traditional instruction and assessment measures long-term memory of fact and the correct application of procedure. (Definition of long-term: until the day of the test.)

Today, the devices that we keep close to our bodies serve us as cognitive prostheses. They remember things for us. We can look up far more knowledge than we could ever remember. Our apps execute procedures for us.

So, the foundational objectives of education change. Learning is about careful navigation of at-hand knowledge resources. It is about appropriate application of machine-supported procedures. More important than long-memory is higher order thinking, including critical, creative and design thinking.

The core capacities required by graduates are changing rapidly. These reduce the importance of long-term domain memory. Today's graduate capabilities include evidence-based reasoning, argumentation in support of verifiable claims, and testable judgement-calls.

Online environments can uniquely achieve this, by leveraging collaborative knowledge processes. Instead of individual minds, the social mind is acknowledged in the provenance of knowledge and the collaborative contributions of peers in the learning process.

Artificial intelligence can track and offer suggestions on the basis of what we term "complex epistemic performance". Machine learning works synergistically with human learning (Cope et al., 2020).

## 5. Lifelong and Lifewide Learning

University and college education has been for the past several centuries a distinct time of life. It has also required that the student is for a time taken out of life. This institutional form can be traced back to the monastic origins of universities in the early modern west and east.

Online learning, by contrast, can be embedded in the real world. It can be continuous, lasting for as long as life and stretching as wide as social and personal needs. What we love about the students in our online courses is that, by day, they are in the world. They bring knowledge and experience that we instructors could never have imagined, contributing this as partners in our knowledge communities. They can also test, live in real-world contexts, the new things they have learned in our classes.

But now the problem: none of the main commercial or open source learning management systems can do what we have just promised. The potential is there, but all rely on 1990s teacher-centered, hub-and-spoke, file-upload/download architectures. None are instrumented adequately for social knowledge, collaborative learning, or artificial intelligence. All try ponderously, painfully, to replicate the traditional classroom, perhaps with a few clumsy patches to mimic social networking.

In this time of crisis, we must seize the day. We must imagine a different future for higher education. If we are to adopt a stance of strategic optimism, we may be on the cusp of the biggest change since the invention of the social processes and artifacts of higher education in early modern times.

The danger is that when people were thrown abruptly into online learning by the COVID-19 Crisis, they were compelled to use flawed systems with limited training, confirming their worst fears about the quality of the online teaching and learning experience. Focused investment needs to be made in people and technology to renew and revitalize our pedagogical and social values. If nothing else, this crisis should lead to that.

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