

WHITE PAPER

From Radical Disruption to Robust Systems: Change Management for The Evolution of Trust in Higher Education

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ABSTRACT

Left unaddressed, disruptions in higher education created by emerging technologies, could irreparably damage the academy and the trust people place in our institutions of higher education. These same technologies, however, can be leveraged to enhance the ways in which we measure success and ensure academic integrity. By changing the primary way by which we assess performance we have an opportunity to leverage the functions of emergent technologies to create a robust system of evaluation that can sustainably manage a continuously changing technological landscape, while maintaining high levels of public trust.

Keywords

Academic Integrity, Disruption, Innovation, Competency-Based Evaluations, PBL, PLAR, Authentic Assessment, Information Communications Technology (ICT), Emergent Technology

1. Background

Since 2015, the authors have been working to design and develop an innovative model for course delivery in higher education. The main objective of the initial thought project was to imagine ways of integrating technologies that already exist (e.g. artificial intelligence), into an overall course structure that would be robust enough to incorporate and adapt to technologies that have yet to be perfected (e.g. haptics) or even invented (e.g. mobile virtual reality simulations). The goal of this integration would be to enhance the user experience. Courses in higher education would become more accessible, experiential, and engaging for students, and

the burden on instructors of tedious administrative tasks would be reduced, allowing them to better allocate that time towards meaningful interactions with students. The project is now at the prototype stage, with initial user feedback and insights to come over the next year. Over the last three years however, it has become clear to the design and development team that the key, the lynchpin, to effectively scaling robust course models that are more relevant to the needs of 21st century teaching and learning, is assessment. We posit that by adopting more personalized, skills-based assessments we can ensure a reliable and trust-worthy user experience that can be

resilient to the inevitable changes that come next for the institutions of higher education.

2. Introduction

Academic integrity is under threat. The credentialing colleges and universities are struggling with the disintegration of the perception of academia as “trustworthy”, which is perhaps, coupled with a growing anti-intellectualism stance in society. The trust relationship between the institution and the public is rooted in two long-held beliefs: first that the ways higher education measures performance are valid and reliable (i.e. cheating on tests is difficult), and second, that the outputs of those assessments (grades) are seen to directly correspond to the level of knowledge acquired by a student. New, and increasingly mobile and discreet technologies, however, represent a threat our ability to ensure a student abides by the guidelines and expectations set by the instructor and institution when completing an assessment. A loss of trust in this system could render it irrelevant. This disruptive threat could be seen however as an opportunity to prepare a change management strategy focused on assessment as the lynchpin of a robust system of teaching and learning that is not threatened, but rather, supported by new technologies.

3.1 The Problem

An erosion of trust between the public and higher education threatens the very core of academia. The value proposition of higher education is an agreement between student and institution that the degree or diploma that they will be receiving has an intrinsic value in the marketplace and society more broadly. The institution agrees to provide the appropriate knowledge and training to the student. The student agrees, in turn, that

they will not falsify their demonstrations of learning (assessments or evaluations). That agreement, and generally accepted steps that are insisted upon, such as placing mobile phones in a bag under the desk during exams, work to ensure the reliability of the degree or diploma. But what happens to the integrity of the system when we are forced to acknowledge that it is no longer possible, with our current methods and approaches – that our best efforts as educators are insufficient – to determine if a given student has broken that trust? What happens to value and validity of the degree or diploma?

3.2 The Role of Technology

The word “technology” is not referring solely to 1.0 or 2.0 Information Communications Technologies (ICT), but also to emergent technologies related to cognitive computing and increasingly being used in consumer-based products such as Google Glasses, Alexa, Siri, or haptic technologies. These technologies have, and will continue to change communications at the level of the individual.

Current assessment techniques are vulnerable to these technologies. Large, first-year enrolment classes remain overly dependent on quantitative assessment methodologies, like multiple-choice tests and exams. Mobile technology is small and powerful, a smart phone can fit into the student’s pocket and carry with it a rich database of correct answers and a wireless connection to the internet. Exam invigilators can and do detect times when a student might use the equivalent of a “cheat sheet” on their phone, or as many testing facilities have done, institutional policies can be developed that require phones to be surrendered prior to examination. But here is the imminent development – what happens then when

the watch that a student wears, or their eyeglasses or contact lenses are sources of that same information? Some might say that the confiscation method is still relevant when it comes to watches. But this is not a change management strategy, and clearly students cannot be asked to surrender their eyeglasses or contact lenses, which they need to read the very questions they are being asked to answer.

Due to this 'technology factor' and its unpredictability in both current on-site and online invigilation models, opportunities emerge for students to graduate without the knowledge that the institution has been entrusted to deliver, and without the skills they need to succeed in the marketplace. If we maintain the status quo for assessment in higher education, institutions will be powerless to defend against this threat.

4.1 The Opportunity

What if we could measure success not by a set of answers that were easily reproducible using digital devices, but instead through authentic demonstrations of a student's ability to use and apply the information and ideas they've encountered during a course? This form of assessment could function as a robust system for evaluation that would not be threatened by current and future technological trends, but instead, be supported and augmented by them.

The user experience is at the core of research and development in the technology industry, and higher education has been called upon in recent years to recognize and meet the needs of a diverse student demographic, within a rapidly changing digital existence and world of work. This proposed shift in assessment, away from standardized answers and towards authenticity for the user has the potential to better prepare students for their

evolving reality, while simultaneously better preparing higher education to meet the needs of diverse students in a digital world.

The good news is that authentic assessment strategies already exist and the work that must now happen is the integration of these models for assessment into an existing course structure. Designing new courses around the assessment lynchpin, allows for the integration of technology to support an authentic learning model. Instructors and students are then trained in a technology enhanced, competency-based model of teaching and learning that seeks to measure both a final product, as well as the process of inquiry and innovation that a person takes in the pursuit of that final product.

4.2 Authentic Assessment

Assessing competencies as opposed to content re-defines the acquisition of knowledge as the demonstration of skills that serve as expressions of theoretical facts or figures. Take for example a course in the Natural Sciences, where an instructor is interested in students learning about the Scientific Method. That learning objective could be measured by a set of multiple-choice questions asking students to identify its various stages. Alternatively, it could be measured by asking students to carry out and reflect on an actual experiment. Authentic assessment is not just the "what" of information, but the "how" and "why" of its role within a discipline or context.

Rooted in clear skill criteria (i.e. a list of the specific skills under examination and clear definitions of the embodiment of that skill), this approach can allow for more flexibility in how that criterion is expressed for each assignment and for each student within that course. For example, we could identify that

an understanding of the Scientific Method included the following skills:

1. **Earth Science Concept:** Identify and link the concepts under consideration
2. **Earth Science Terminology:** Grasp/Use course specific language
3. **Inquiry:** Articulate the steps taken to examine this/these scientific concepts
4. **Critical Thinking:** Actively observe the situation and surroundings, reason through the logic of your argument and deduce an ultimate conclusion.

Then students and instructors can be provided with a template to help them communicate and assess these experiential findings, allowing for individualized demonstrations of understanding based on the personal experiences of each student in the completion of that assignment.

Authentic assessment would benefit from technological support. The research supporting and advocating for a shift in evaluation assessment away from testing for information absorption (a transmissive view of education) to an examination of a student's ability to use and apply that information (a competency-based model for education), naturally fits with technological developments. In this more authentic paradigm, mobile devices, artificial intelligence, haptics, video capture and editing software all become tools as opposed to threats. They become tools that enhance a student's ability to engage in their learning, instead of threats to the integrity and trust systems of higher education.

By testing for skills as opposed to information, we remove the need to police the use of devices, as they will assist students in their demonstration of learning and help students to engage with

information and communicate ideas in continuously new and interesting ways. Authentic assessment typically, has been very successful in small, face-to-face learning spaces, but can these methods become more accessible at scale?

4.3 Another Role for Technology

Project-based learning (PBL) and teaching through Big Ideas are examples of instructional designs that lend themselves well to assessing personalized expressions of content more experientially and authentically. These pedagogies allow students to incorporate prior learning in both their examination of ideas as well as their ultimate communication of understanding. Why then do we not use these methods very often in higher education, and specifically undergraduate courses? Because they are still considered to be some of the most labour-intensive forms of instruction.

A technology-enhanced system can allow for the standardization of authentic assessment tools (e.g. a goal-setting flow chart) and templates (e.g. a peer review form with quantitative feedback, or interactive portfolio entries) to provide a more accessible and engaging experience for the student without sacrificing the institution's need for academic rigour and accountability. The introduction of more opportunities to micro-assess during the learning process can lead to an increase in the quality of information collected on learning, as well as an increase in the number of relevant data points collected, providing a more reliable educational output (i.e., grade).

This technology-enhanced system can also potentially increase security around identity authentication.

Biological measures such as retina scanners, fingerprint ID, and camera monitored test taking could allow for an enhanced version of the formal testing environment, no longer relying on confiscation as a strategy for academic honesty.

4.3 Growth & Proficiency

Measuring a student's proficiency at one point in time reflects not only how much the student has learned, but also the knowledge brought when they enrolled. Growth measurements however, examine the progress students have made specifically over the duration of a course. A robust evaluation system that leverages new technology, has the potential to measure both the level of proficiency someone has with a subject (i.e., the grade) as well as how much they may have developed (i.e., the growth) over the duration of the course, a lens on student learning that is currently missing in most of the courses offered in higher education. Growth measurements require the establishment of a baseline from which to accurately evaluate formative and summative changes. While these can be time intensive for instructors to perform, and especially in large, first-year enrolment courses, cognitive computing structures (i.e. A.I.) give an instructional designer the opportunity to draft tools and templates for diagnostic assessments, goal-setting tasks, skill check-in's and summaries that can then be automated and delivered to students at target intervals. These data can then feed into real-time progress reports that help students take more ownership of their learning from the outset of a course. With established diagnostics, we can measure performance (proficiency) at specific points in the instructional design instead of waiting until the end of the course. This provides the data needed for a

composite measure of a student's overall growth and creates a useful and relevant learner profile as opposed to a single static grade. With clear skill criteria we have more flexibility in how those criteria are manifest for each course or student, but to ensure the integrity of the performance (online or on-site) we need to build and incorporate authentic assessment structures that are not weakened by technology, but instead make use of it to create a potentially even higher level of academic integrity at the same time as an enhancing the user experience.

5. The Outcome

Assessment is the lynchpin of trust between the institution and the public. Without measurement techniques that support academic integrity, and results that are truly indicative of a student's level of knowledge, the value proposition of accreditation that comes with higher education simply disappears.

But what if we could design and develop authentic assessment practices that leverage the technology that may otherwise erode this bond of trust, and in doing so, create an institution of higher education that is better prepared to not only meet the needs of a changing demographic today, but also be resilient and responsive enough to meet and manage the changes of tomorrow? By focusing on technology-enhanced, competency-based assessments, higher education has an opportunity to create a robust system of evaluation that still benefits from centralized efficiency but is more effective at providing a personalized user experience at scale.

The ability to reliably measure student learning in more authentic, experiential tasks, and to reliably *scale those measures* through the use of emergent technologies,

changes the value-proposition of higher education from purely a credentialing institution to a vibrant culture of dynamic and engaging experiences that can provide students with the knowledge and skill sets they need to stay relevant in a rapidly changing world.

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