Canadian Higher Education

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Canada's postsecondary education sector consists of five major kinds of organizations: universities, colleges, polytechnics, apprenticeships, and private vocational colleges. Enrollments in Canadian public colleges and universities was around 2.05 million in 2016/2017, with most of those enrolments in the university sector. Canada's education system is under the purview and responsibility of its ten provincial and three territorial governments, and there is no single or unifying educational system or policy at the national level. Although higher education institutions across Canada face similar challenges (e.g., financial, technological, and political pressures), it is important to acknowledge that what I describe below will not apply uniformly to all provinces, territories, and institutions.

> In Canada, it is broadly understood that an educated and skilled citizenry is key to social, political, cultural, and economic prosperity.

I focus here on one significant implication for Canadian higher education arising out of the six emerging technologies and practices identified in this year's Horizon Report: there is an urgent and pressing need to invest in professional learning and development of current faculty, near-future faculty (i.e., graduate students), and senior leaders in the use of digital technology in education. Adopting, or merely *considering* to adopt, any of the technologies or practices identified in the 2020 Horizon Report requires these three groups of individuals to become fluent in pedagogy and in the role technology plays in education.

This implication is relevant because an improved understanding of educational technology and its relationship to pedagogy will allow current faculty, future faculty, and senior leaders to make evidence-informed decisions around the use, adoption, and even rejection of emerging technologies and practices in their efforts to enhance learning, teaching, equity, diversity, inclusion, and student success.

The results of the 2018 and 2019 Canadian National Online and Digital Learning Surveys reveal a need to prepare Canadian faculty members to teach online, even though online learning is an established field of practice. Now imagine an environment that includes any two or three of the elements identified in the 2020 Horizon Report, and it becomes clear that the landscape that higher education is potentially facing in the near future involves practices much more complicated than online teaching.

It is paramount, therefore, that faculty, graduate students, and senior leaders understand

- *what*, if anything, these innovations make possible for education,
- *how* these innovations could be used in appropriate ways, and
- *whether* these innovations should be used.

In the words of Seymour Papert, faculty, graduate students, and senior leaders need to be able to criticize the technologies and practices listed in the Horizon Report and understand other people's criticisms of them. Among the most pressing issues to understand may be the collection, retention, use, and sharing of data that underpin many of these approaches, including learning analytics, artificial intelligence, machine learning, and adaptive learning.

Canadian institutions of higher education could act upon this implication in the following ways:

- Offer pedagogical training for all faculty, near-future faculty, and senior leaders. Such preparation should go beyond preparing faculty to *use* these technologies and instead focus on preparing everyone to gain further pedagogical expertise and become digitally fluent. Such training for instance, might invite senior leaders to explore whether tools their institution is currently using allow students to request that data collected about them be deleted.

- Embed required pedagogical training for doctoral students in graduate coursework.
- Require educational technology vendors to provide additional information pertaining to their products. For instance, vendors could be asked to provide learning efficacy reports and make transparent the black-box algorithms that some of their products are using.
- Develop practices that support and foster resilient relationships among professionals working together toward the design and development of digital learning experiences (e.g., teams consisting of faculty, instructional designers, data scientists, assessment experts, and so on).
- Identify the new roles and activities faculty might be asked to take on in the near future, and support individuals in gaining skills and knowledge relevant to those roles. For instance, do near-future faculty need to be able to recognize the limits of the recommendations provided by learning analytics dashboards? Will they be required to collaborate with artificial intelligence systems? Institutions should prepare individuals for such activities.
- Invite critical reflection on whether educational institutions *should* be adopting particular technologies. Some of these technologies, for instance, enable the automation of various aspects of teaching, including assessment, development of learning paths, and so on. Institutions of higher education are able to adopt some of these practices. Should they? Which technologies should we adopt? Which ones should we reject? Which ones should we resist?

In Canada, it is broadly understood that an educated and skilled citizenry is key to social, political, cultural, and economic prosperity. Empowering faculty, graduate students, and senior leaders with the knowledge and skills around the emerging educational landscape will enable them to make informed, appropriate, and ethical decisions toward serving our students and society to the best of our abilities.

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