

Opinions – For Debate

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# What might the future bring? COVID-19 planning considerations for faculty and universities

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## Abstract

This paper applies a scenario planning approach, to outline some current uncertainties related to COVID-19 and what they might mean for plausible futures for which we should prepare, and to identify factors that we as individual faculty members and university institutions should be considering now, when planning for the future under COVID-19. Although the contextual focus of this paper is Canada, the content is likely applicable to other places where the COVID-19 epidemic curve is in its initial rising stage, and where universities are predominantly publicly funded institutions.

## Background

At the start of April 2020, the human health and disruptive effects of the COVID-19 pandemic were being felt globally. Academia has responded in multiple ways, from suspending in-person classes following social distancing directives, to mobilisation of those disciplines directly related to response efforts. For example, numerous modelling studies have been produced that illustrate the anticipated impacts of various interventions (e.g. social distancing) on the epidemic curve of COVID-19 [1, 2]. While these models show epidemic curves that stretch into the fall and into 2021, there are sufficient uncertainties (e.g. how long will immunity last?) and complex dynamics (e.g. how will citizens react as social distancing measures remain in place?), meaning such results should not be used as the sole basis for planning for the future.

In 2009, the Public Health Agency of Canada (PHAC) produced a planning document, to help prepare for Canada's anticipated fall wave of pandemic H1N1 influenza [3]. This document contained: (a) descriptions of plausible future scenarios for how Canada might experience the 2009 pandemic; and (b) planning considerations for PHAC including factors that could impact human and financial resources. The PHAC report was underpinned by two planning methodologies: scenario planning [4], which aims to describe the range of plausible futures so that decisions and plans can be robust in the face of uncertainty; and a modified Political, Economic, Social, Technological (PEST) analysis [5], a framework for identifying macro-level factors in the wider environment that can impact organisations' abilities to function. Its purpose was to prepare PHAC staff to think about the different ways the future could unfold, and to think about the different factors that could impact the way they did business, so that planning and decisions could be more robust and less likely to be thwarted by surprise.

This paper applies a similar approach, in order to: (a) outline some current uncertainties related to COVID-19, and what they might mean for plausible futures for which we should prepare; and (b) list factors that we as individual faculty members and university institutions should be considering now, when planning for the future under COVID-19. Although the contextual focus of this paper is Canada, the content is likely applicable to other places where the COVID-19 epidemic curve is in its initial rising stage, and where universities are predominantly publicly funded institutions. Given that the pandemic is rapidly evolving, the applicability of this work to various contexts is also expected to change over time.

## COVID-19: what might the future bring?

There are several key 'axes of uncertainty' about how the pandemic will unfold in Canada, that we should consider when planning for the future, for time horizons of the Fall 2020 term (September to December 2020), the 2020/2021 academic year (September 2020 to August 2021) and beyond. These axes should be considered together, not singly.

## Social distancing/activity restrictions: from 'even more lockdown', to 'returning to usual'

Will we still be social distancing, like we currently are, in the fall? Will we have had to sustain the current level of social distancing from March to September? Or will there be some sort of

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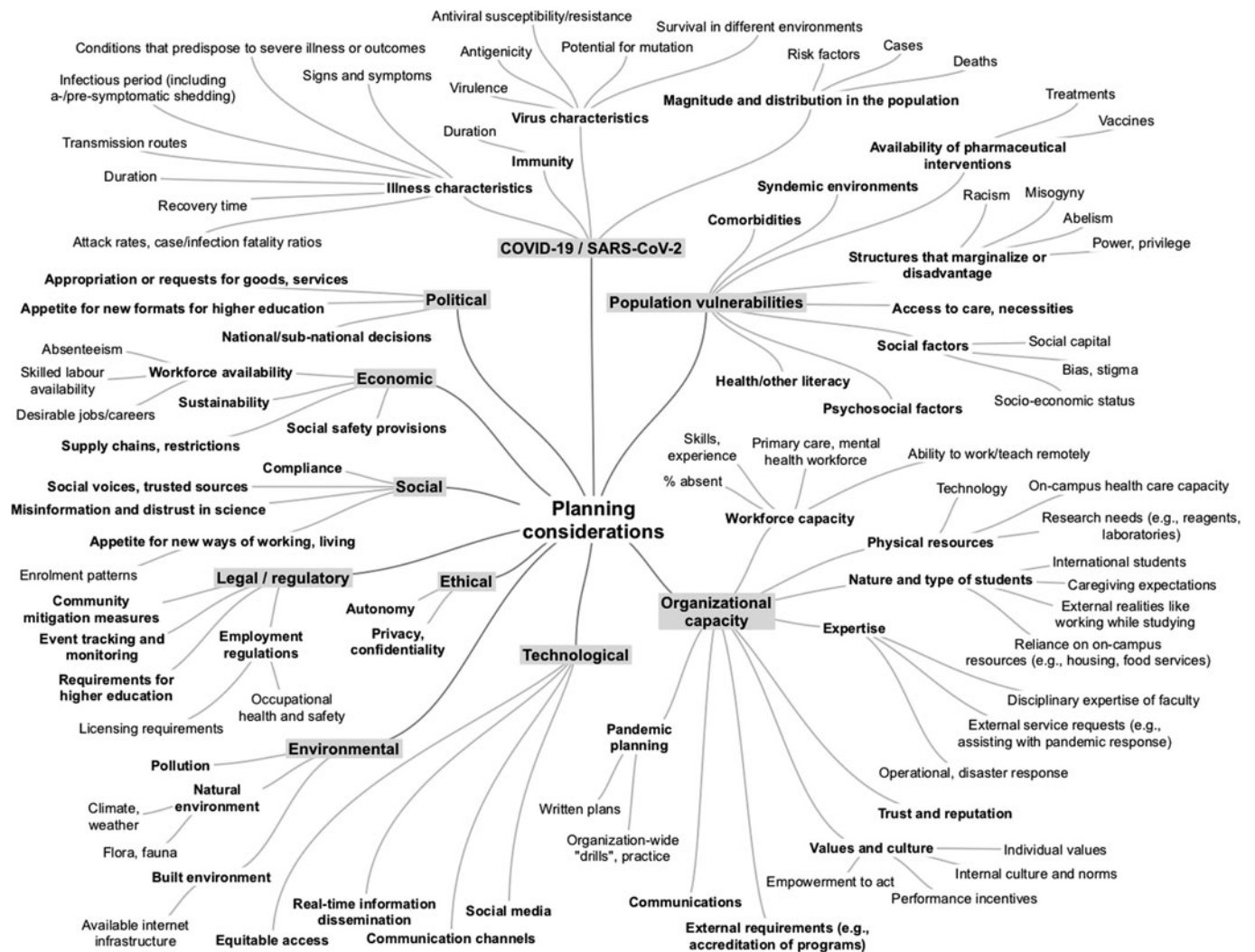


Fig. 1. Dynamic macro-environment factors with the potential to influence how the COVID-19 pandemic will impact academia.

lifting (and reinstating?) of measures and restrictions? Will measures be similar to how they are now, or less restrictive, or more restrictive? Will measures be applied as broadly as they are now, or become more targeted to specific groups, characteristics or functions? These uncertainties mean that we could find ourselves in situations like 'things are similar to what they are now', or 'things are more restrictive, and we need to deliver upcoming terms even more remotely' or 'things are back to normal, but with uncertainties and the need to change quickly if the virus throws us a curveball or three'.

### *Impact on our people: from 'on our radar but rare', to 'big losses, heavy impacts'*

At the time of writing, most individuals within the university community (and Ontario and Canada as a whole) are mainly impacted by COVID-19 via the social distancing measures currently in place, but it is reasonable to expect that the direct health impacts of the virus will become more widely felt. How many of our staff, faculty, and students will get sick? Will we lose substantial workforce capacity (e.g. capacity for individual research projects, for university-wide operations, or to cover for absent

instructors and administrators)? If we lose workforce capacity, will it be widespread or localised, ongoing or sporadic? Will we face widespread grief, burnout and mental health impacts related to illness, intensive care, intubation, death or isolation? How will those populations currently marginalised by society or within the University community be disproportionately impacted? How will these impacts intersect with our cultures and customs? These uncertainties mean that we could find ourselves in situations like 'most people are not feeling substantial personal impacts', as we are now, to 'many people are substantially impacted' (e.g. they are sick or dealing with death and grief of family, friends and colleagues, there are deaths among the University community, there is a noticeable loss of workforce).

### *Universities as part of society: from 'doing what we usually do', to 'widespread mobilisation'*

At the time of writing, most of the university community (i.e. staff, faculty and students) are in the same roles and with essentially the same responsibilities as they were pre-pandemic. And although we are seeing academia voluntarily donating goods (e.g. personal protective equipment, reagents, swabs) and services

**Table 1.** Selected macro-environment factors with the potential to influence academia's functioning, under COVID-19

Factor	Examples of practical planning steps for academia
<i>The Disease (COVID-19 and SARS-CoV-2)</i>	
Characteristics that predispose people to severe outcomes	Assess which segments of the university community are particularly vulnerable to severe outcomes, and create policies or accommodations to ensure adequate protection.
Immunity	Because the duration of immunity is unclear, prepare for a possible future where a proportion of the University community is susceptible (and perhaps in isolation) at any given time.
Distribution of cases/death (e.g. by age, sex, risk factors)	Assess which segments of the university community are particularly vulnerable to illness/death; beyond policies/accommodations to protect them, create contingency plans to function in their absence (e.g. the older cohort of faculty and staff).
<i>Population Vulnerabilities</i>	
Social, economic factors	Create flexible options (e.g. for remote classes) that function in the face of changing socio-economic disadvantage (e.g. ability to afford internet connections) and broader social forces (e.g. caregiving responsibilities).
Groups that society/academia marginalises, or excludes from power, privilege	Create equitable institutional policies that adequately support groups that are typically marginalised or excluded.
<i>Social, Technological, Economic, Environmental, Political, Legal/Regulatory, Ethical Factors</i>	
Compliance	Consider situations where staff, faculty and students may not, or cannot, comply with public health directives or organisational policies, and create incentives for compliance (e.g. adjusting performance assessments so those whose research suffers when on-campus activities are suspended are not disproportionately disadvantaged).
Workforce availability	Consider how a proportion of the population ill or unable to work may drive the availability of external or temporary workers (e.g. sessional lecturers paid per course, casual staff), by reducing broader workforce availability while also increasing the demand for highly qualified individuals.
Political decisions	Make contingency plans in case political decisions (e.g. restrictions on supplies, protectionist policies) impact activities (e.g. ability to share data, research resources).
Social, political appetite for new ways of working	Consider how successfully conducting university activities under pandemic conditions (e.g. delivering remote classes) may lead to post-pandemic views on how universities can/should function (e.g. push for cost-saving, multi-institution online courses).
Equitable access to technology	Identify how issues like cost, geographic availability and connectivity to different technologies can (dis)advantage different groups (e.g. rural students with intermittent internet may attend fewer video classes).
<i>Organisational capacity to respond</i>	
Workforce capacity	Make contingency plans for classes, research projects and administrative tasks that account for some % of the workforce missing, some % at less than full capacity (overall, and at different times), and absent expertise, experience, authority and skills (e.g. identify instructors to cover different courses in the event of sudden illness/absenteeism).
Trust and reputation	Identify core business functions that rely on reputation and trust (e.g. universities' abilities to recruit students; researchers' abilities to build and sustain partnerships), and ensure all actions do not erode said trust/reputation (e.g. ways that students are treated during the pandemic will demonstrate how the institution values students).
Faculty expertise	Identify ways to reconsider workload, so faculty experts critical to the pandemic response (e.g. mathematical modelling, epidemiology), and key to the organisation's own planning (e.g. scenario planning, digital pedagogy, crisis communication, ethics) can devote adequate time to new activities.

(e.g. medical students conducting contact tracing) [6, 7], the vast majority of university physical and human resources are still being used for the same purposes as they were pre-pandemic.

A widespread and often subconscious assumption people seem to be making is that our roles and responsibilities as individual faculty or as universities, for example, are guaranteed to continue to be 'business as usual, albeit maybe remotely'. Will we all stay in our roles as usual (even if working remotely)? Will university resources be called upon in new ways to help the pandemic response, for example using laboratory or dormitory space for testing and community care? [8] Will we 'lose' faculty, staff or students to front-line institutions so they can help aide response efforts, and if yes for how long? Will public funding for universities be diverted? Will immune individuals be mobilised (e.g. to fulfill essential public/

in-person functions, to donate plasma)? These uncertainties mean that we could find ourselves in situations like 'we are doing the same business we've always been doing', to 'ad hoc or individual volunteering of physical and/or human resources to support pandemic responses', to 'universities are obligated to repurpose resources to aide in the pandemic response', or perhaps – in the most extreme – even to 'universities see their public funding diverted to pandemic response'.

### COVID-19 planning considerations for faculty and universities

There are many dynamic factors influencing the pandemic and how it will unfold. Considering and organising these factors by

broad categories can challenge us to think broadly and plan for influences from ‘unexpected’ domains. The PEST framework [5] uses political, economic, social and technological categories, which the PHAC H1N1 planning document [3] expanded to also include: the disease; population vulnerabilities; regulatory factors and the capacity to respond. Other expansions of the PEST framework include environmental, legal and ethical categories [9, 10]. A diagram showing the types of factors within these categories is given in Figure 1, and Table 1 presents a selection of these factors, together with practical ways that faculty and universities might consider them in their planning.

Such planning can draw on existing contingency planning literature, including in the areas of outbreaks, disaster and emergency response and business operations, e.g. [11–13]. As well, such planning can and should be undertaken at all levels within academic institutions, in that individuals, departments and institutions can all evaluate their activities and abilities to deliver core business functions in light of the factors presented here. For example, individual researchers and research groups can conduct continuity and contingency planning for research projects, laboratory functions and graduate student theses. Departments and Institutions can, for example, create contingency plans for teaching commitments and administrative functions by identifying back-ups, or determining which can be temporarily suspended. Additionally, Departments and Institutions can take a unit- or organisation-wide approach to allocating or redistributing common resources (e.g. online teaching supports) to best serve the needs of the whole.

It is important to note that the factors and examples provided here do not form a complete list, and that different individuals, departments and institutions will have specific or unique issues with which they will have to deal (e.g. disruption of in-person data collection such as visit schedules for clinical trials). Thus, comprehensive planning should include a full assessment of possible issues specific to each individual, department or institution, and should not be limited to the factors and examples presented here.

### Next steps

Given the range of uncertainties we currently face with COVID-19, and the numerous broader forces that will influence how the pandemic will unfold, what concrete actions can we take?

First, we can use the possible future situations to ‘test’ how well the decisions and plans we are currently making could hold up, under a range of different futures. For example, in preparing courses for fall offerings, we might choose to build in flexibility to allow pivoting between in person and remote delivery quickly, should the pandemic shift. Second, we can use the possible future scenarios to ask ‘what plans would I wish I had implemented now, if this future comes to pass?’. For example, research project supervisors can consider what alternate training to give graduate students and technical staff now, so they can cover for each other in case of illness and absence.

Third, we can use the broad list of factors to ‘test’ whether decisions and plans being made now might need to change if these factors change. For example, researchers and departments can consider how they would need to respond to future declines in graduate enrollment, for example to minimise impacts on research projects and teaching assistant capacities. Or, as another example, staying abreast of information about predisposing factors (e.g. comorbidities) and immunity will allow institutions to

remain flexible so our most vulnerable can continue to self-isolate at home even if social distancing measures lift.

Fourth, we can apply an equity lens throughout our planning and decision-making, to ensure that – at a bare minimum – we do not perpetuate or amplify existing barriers or disadvantages because of our individual and organisational decisions. COVID-19 is manifesting in a world that is gendered [14], ableist [15] and racialised [16, 17], and it behooves each of us to ensure our individual and organisational responses work to oppose discrimination. Specifically, we can work towards equitable policies, plans and decisions by taking three actions, by ‘valuing all individuals and populations equally, recognising and rectifying historical injustices and providing resources according to need’ [18].

Finally, the axes of uncertainty and macro-environment factors given here can be expanded, both as the pandemic unfolds and new knowledge is generated, and by integrating perspectives from a wide range of backgrounds (e.g. economics, ethics, history, sociology, geography, planning) to identify additional key uncertainties about the future and key planning considerations. Additionally, individuals and institutions in locations that are further along in the pandemic (e.g. Asia) can delineate additional uncertainties and macro-environmental factors, for example those related to lifting social distancing measures, planning for subsequent potential waves, rebuilding resources or dealing with longer-term health and other impacts of both COVID-19 and our responses to it. It will also be critical to hear how faculty and universities decide to deal with these issues, including in real time and via post-pandemic assessments (such as those aimed at improving pandemic plans). Nevertheless, this paper can function as a starting point for individual and institutional planning, and to initiate conversations of how academia can plan for an uncertain future under COVID-19.

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**Conflicts of interest.** Dr Majowicz was an epidemiologist with the Canadian federal government (Health Canada, PHAC) from 2001 to 2011, working in the area of food safety, and was part of the Agency’s 2009 H1N1 pandemic influenza response where she participated in scenario planning. She holds or has held research grants and contracts from the British Columbia Centre for Disease Control; the Canadian federal government (Health Canada, Public Health Agency of Canada, the Canadian Safety and Security Program); the Canadian Institutes of Health Research; the Dairy Farmers of Canada’s Research Funding Program; the Ontario Ministry of Agriculture, Food, and Rural Affairs’ Food Safety Research Fund; the University of Waterloo (various seed funds) and the World Health Organization. She is an associate editor at *Epidemiology and Infection*, for which she receives a small honorarium, and she has served as a paid expert on behalf of the Attorney General of Canada in legal proceedings, providing evidence on the public health risks and benefits of unpasteurised milk. She also provides unpaid expertise via participation on the Joint Food and Agriculture Organization of the United Nations/World Health Organization Expert Meetings on Microbiological Risk Assessment Roster of Experts and the editorial boards of *Foodborne Pathogens and Disease* and *Environmental Health Review*. She has previously provided expertise to the Joint Food and Agriculture Organization/World Health Organization Core Expert Group on VTEC/STEC, and to the World Health Organization’s Foodborne Disease Burden Epidemiology Reference Group; except for the research contract declared previously, these were unpaid activities with



reimbursed travel to attend face-to-face meetings. She has previously provided unpaid expertise as a member of the Scientific Advisory Committee for Cancer Care Ontario's Infectious Agents and Cancer Report, and the FoodNet Canada (formerly C-EnterNet) Advisory Committee (PHAC).

## References

1. **Flaxman S, et al. (2020)** Report 13 – Estimating the number of infections and the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries. Available at <https://doi.org/10.25561/77731> (Accessed 3 April 2020).
2. **Tuite A, Fisman DN and Greer AL (2020)** Mathematical modeling of COVID-19 transmission and mitigation strategies in the population of Ontario, Canada. *medRxiv* 2020.03.24.20042705. doi: <https://doi.org/10.1101/2020.03.24.20042705>. (Accessed 3 April 2020).
3. **Public Health Agency of Canada (2010)** A tool for the potential fall 2009 wave of pandemic H1N1 to guide public health decision-making: an overview of the Public Health Agency of Canada's planning considerations, September 2009. *Canadian Communicable Disease Report* **36**, 1–20. doi: <https://doi.org/10.14745/ccdr.v36i00as3> (Accessed 1 April 2020).
4. **Wilkinson A and Kupers R (2013)** Living in the futures. *Harvard Business Review* **91**, 118–127.
5. **Aguiar FJ (1967)** *Scanning the Business Environment*. New York: Macmillan.
6. **Samson N (2020)** Canadian universities heed the call for help in the fight against COVID-19. *University Affairs* 2020; 31 March. Available at <https://www.universityaffairs.ca/news/news-article/canadian-universities-heed-the-call-for-help-in-the-fight-against-covid-19/> (Accessed 02 April 2020).
7. **Edwardson L (2020)** University of Calgary medical students quadruple province's COVID-19 contact-tracing capacity. *Canadian Broadcasting Company (CBC) News* 2020; 24 March. Available at <https://www.cbc.ca/news/canada/calgary/u-of-c-covid-19-contact-tracing-1.5509022> (Accessed 5 April 2020).
8. **O'Leary ME (2020)** Mayor: New Haven asks for coronavirus housing help; Yale says 'no'. *New Haven Register* 2020; 27 March. Available at <https://www.nhregister.com/news/coronavirus/amp/Mayor-New-Haven-asks-for-coronavirus-help-Yale-15162606.php?> (Accessed 5 April 2020).
9. **Schmieder-Ramirez J and Mallette L (2015)** Using the SPELIT analysis technique for organizational transitions. In Carmo M (ed.), *Education Applications and Developments*. Lisbon: inScience Press, pp. 292–293.
10. **Moro Visconti R (2016)** Healthcare public-private partnerships in Italy: assessing risk sharing and governance issues with PESTLE and SWOT analysis. *Corporate Ownership and Control* **13**, 122–131.
11. **Westergaard JM (2008)** Contingency planning: preparation of contingency plans. *Zoonoses and Public Health* **55**, 42–49.
12. **Challen K et al. (2007)** Clinical review: mass casualty triage – pandemic influenza and critical care. *Critical Care* **11**, 1–6. doi: 10.1186/cc5732.
13. **Morton Hamer MJ et al. (2019)** Economic community of West African states disaster preparedness tabletop exercise: building regional capacity to enhance health security. *Disaster Medicine and Public Health Preparedness* **13**, 400–404.
14. **Wenham C et al. (2020)** COVID-19: the gendered impacts of the outbreak. *The Lancet* **395**, 846–848.
15. **Anon (2020)** Preventing discrimination against people with disabilities in COVID-19 response. *United Nations (UN) News* 2020; 19 March. Available at <https://news.un.org/en/story/2020/03/1059762> (Accessed 15 April 2020).
16. **Devakumar D et al. (2020)** Racism and discrimination in COVID-19 responses. *The Lancet* **395**, 1194.
17. **Anon (2020)** Stop the coronavirus stigma now. *Nature* **580**, 165.
18. **Jones CP (2014)** Systems of power, axes of inequity: parallels, intersections, braiding the strands. *Medical Care* **52**, S71–S75.