Council of Ontario Universities, Academic Colleagues Committee Report to the Ontario Tech U AC

Alyson King (COU Academic Colleague Representative for Ontario Tech University)

Synopsis

This report provides an overview the Council of Ontario Universities meeting for Academic Colleagues held on August 16-17, 2022.

Background

The objective of the COU Academic colleagues committee is to support the COU council, consisting of the executive heads of the institution members of the COU, with feedback from academic colleagues concerning COU initiatives.

Meeting Summaries

COU Colleagues Meeting (August 16-17, 2022)

Evening meeting, August 16, 2022

Conversation with Lynn Lavallée, Ph.D., Strategic Lead, Indigenous Resurgence, Faculty of Social Work; Professor, School of Social Work, Toronto Metropolitan University.

Topic: Indigenizing research? Perpetuating harms and creating opportunities for tokenism.

- Dr. Lavallée's presentation grew out of the totality of her experiences in academia. In recent years, she was the first vice-provost of Indigenous engagement at the University of Manitoba and the chair of the Indigenous stream of the CIHR HIV/AIDS panel before moving to Toronto Metropolitan University where she is the Strategic Lead for Indigenous Resurgence. More information on her background can be found at: https://www.torontomu.ca/fcs/about/people/faculty/lynn-lavallee/
- Her experience in upper administration has demonstrated the challenges of balancing what the university wanted and what the community wanted, which were two very different things, especially when the university expected her to do things that the community did not want.
- Regarding the hiring of Indigenous faculty members, she notes that it is a good idea to hire those who are already teaching or working in other positions within one's institution rather than always looking outside for new hires. She pointed out that Indigenous peoples often want to remain in their homelands.
- Dr. Lavallée also noted the challenge of determining who is Indigenous and who is not because there are some people who are trying to reconnect with their families and communities; these people sometimes get mixed in with those who are untruthful (e.g., Joseph Boyden who lied about being from a reserve that was close to his family's island). Within the academy, we have the responsibility to do the work to determine who is lying about Indigenous heritage and those who are reconnecting. She drew a parallel with the question of what would you do if someone lied about having a PhD and with the idea of its connection to research ethics. Even though identity is very complex, universities have a responsibility to act if someone lies about their

Indigenous identity. There is also a challenge with balancing institutional policies about confidentiality with the need to investigate and report on lies and fraud.

- Dr. Lavallée commented on the problem of tokenism in research where a person is hired to check a box rather than to advance the person's career. She noted it is important to look at the expertise to do the work and not just at the terminal degree; for instance, traditional knowledge keepers have the content expertise to Indigenize the curriculum but are not hired into a stable, well-paying position. She cautioned against trying to fit teaching Indigenous knowledge into the constraints of the academy because some teaching can not be done within the confines of the institution without losing its essence. For instance, teaching Indigenous languages: the language experts often do not hold the terminal degree needed for university teach, and Indigenous languages are rooted in the land.
- The application process may also be challenging for some Indigenous people who have the knowledge but lack the teaching portfolio for teaching in an academic way. It is necessary to look at how existing rules might prevent people from applying. Furthermore, hiring one person to do "everything Indigenous" at the university is unfair and sets the person up for failure. May need to hire more than one person to do the work that is needed.
- See attachments for related articles by Dr. Lavallée

Dinner Debrief: The academic colleagues discussed the important of community and listening to community members. We wondered if the process of hiring could be different, emphasizing the importance of re-evaluating how we do things, as well as getting the unions on board and a reimagination of who we consider to be experts.

Morning meeting, August 17, 2022

(Due to conflicting meetings, I was unable to attend the meeting on Aug. 17, 2022 and the Alternate (Ramiro Liscano) was not available, so these notes are from the minutes.)

Welcome to the COU (presentation)

An Orientation for new and returning members was done. The slides providing an overview of the COU's structure is attached.

Information Sharing

Tip sheets in regard to academic considerations for the "triple cohort" and for EDI from Carleton University are attached.

COU Update

Update by COU President, Steve Orsini:

- Outreach and advocacy with the provincial government is continuing in an effort to further foster a strong and productive working relationship with the PC Party and build upon relationships established over the last four years.
- The COU participated in this year's Association of Municipalities of Ontario Conference – kickstarting a new partnership between the province's municipalities and universities. We hosted the keynote speech on Adapting to Climate Change: Local Government Tools to Build Climate Resilience which was delivered by the University of Waterloo's Dr. Daniel Henstra. COU

also created a booklet that features stories and resources by Ontario's universities for towns and cities to adapt and manage the social, economic and infrastructure challenges brought on by climate change which was shared with attendees, sent to government and shared broadly through a comprehensive social media strategy. (See attached)

- We are also building our back-to-school communications strategy which will focus on student success, highlighting how universities are committed to supporting students (both international and domestic) and responding to workforce needs. We are sending out our annual guide to MPPs which answers FAQs about Ontario's universities, we will have an article from Steve in OUSA's digital magazine on how universities are Preparing Students to Graduate Job-Ready and Resilient, and a robust digital strategy that will amplify relevant member stories around student success, university supports, labour market demand, etc.
- We are also developing our communications strategy for the upcoming year to raise awareness of the value of Ontario's universities, while also outlining how universities are critical partners to addressing the needs of Ontarians, as well as to the successful recovery and future prosperity of the province. This engagement will align with our sectoral advocacy priorities, ensuring the sector is well-positioned for the lead-in to the Fall Economic Statement and other key events in the calendar.

Updates from COU Working Groups

- COU has convened working groups on 1) international education and 2) sexual and gender-based violence to develop sector-wide policy and advocacy options on those two files. Each group has had their introductory meeting with further updates to be provided.
- The Ministry is launching the Ontario-Ukraine Solidarity Scholarships - each institution will be awarded four scholarships of $10,000 each to be awarded to students affected by the conflict in Ukraine or other conflicts based on academic merit and financial need. Institutions will have latitude to determine criteria and eligibility. Guidelines will be forthcoming to institutions over the coming weeks. The scholarships must be disbursed in the 2022-23 academic year.

COU COVID Advisory Group

- The COU COVID Advisory Group met on August 16th with scientific experts to discuss the current state of the COVID pandemic, and discuss principles for fall measures. There will be discussion about monkeypox, and appropriate measures to address any outbreaks. The principles that are developed by this group will be discussed by Executive Heads on August 22nd.

Nursing Expansion

- The government allocated 786 new nursing positions to universities, as part of its commitment in the Fall Economic Statement to increase new nursing seats by 1,000. A good number of these positions are in compressed, accelerated and bridging programs that will graduate student in 19-36 months.

Overview of the Facilities Condition Assessment Program

- The Task Force on University Space Transformation is intended to modernize data collection and management practices for university space needs. Originally developed in the 1970's, COU space standards ("Building Blocks") set targets for Ontario universities to strive for and/or use as a

guideline when determining space requirements on campus. Task Force (TF) originally approved by Council of Senior Administrative Officers (CSAO) in February 2018 with a mandate to take a strategic and forward-looking approach in reviewing current university space standards. The current standards are outdated/do not necessarily reflect reality or future planning/needs. This Task Force (TF) was originally approved by Council of Senior Administrative Officers (CSAO) in February 2018 with a mandate to take a strategic and forward-looking approach in reviewing current university space standards. After a brief hiatus the TF was re-engaged in spring 2021 with an expanded membership and a revised mandate. Members include representatives from CSAO, OCAV, OCUR, CUPA, OAPPA, IT/CIOs, OCUL, Teaching & Learning, Space Standards and guests/experts as needed. The mandate is to implement the initial recommendations and serve as an overarching and cross-functional group to review strategic issues related to space management and capital planning in the university sector.

- There will be nine workshops scheduled bi-monthly on a comprehensive range of topics to ensure COU standards will serve emerging and future needs of the sector. Workshops will deep-dive into each topic, including a review of the environmental scan, identifying strengths and weaknesses of the current space standards/framework, sharing knowledge, and discussing issues, strategies, opportunities and cautions around potential changes to improve and future-proof space standards. After the workshops are completed, Educational Consulting Services (ECS) will synthesize discussion and findings, and develop draft planning directions/ recommendations for further input.

From:	Alexander Burnett
To:	ACAD COLLEAGUES - GRP
Cc:	Chelsea Barranger; Lisa Krawiec
Subject:	Invitation - Measuring and Reporting of Space Inventory Attributes
Date:	Monday, August 22, 2022 12:13:55 PM
Attachments:	image001.png TF-Space-Transformation-Update-Academic Colleagues-17Aug-2022.pptx

[EXTERNAL EMAIL - USE CAUTION]

To: Academic Colleagues,

Please find the invitation below from Chelsea Barranger following her presentation on the Task Force on University Space Transformation on August 17th. Please note the RSVP date below.

**The attached presentation and a more fulsome recap of our last meeting will be shared with Academic Colleagues shortly*.

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Good afternoon Academic Colleagues,

We are writing in follow-up to our presentation and discussion on the Task Force on University Space Transformation held on August 17, 2022. Thank you again for allowing us to share our presentation and we appreciated the feedback we received at the meeting.

Moving forward, COU staff will work to ensure that Academic Colleagues are kept apprised of all future Task Force workshops and recruitment for participation at those workshops. Lisa and I would also be happy to provide updates over the course of the project as requested.

This update covers three follow-up items:

1. Participation in Workshop #5
2. Engaging Academic Colleagues to provide feedback on previous Task Force workshops
3. Deferred maintenance and facilities renewal

Workshop 5 Participation

The next workshop on Measuring and Reporting of Space Inventory Attributes is being held **on August 24 from 9:00am-12:00pm**. This workshop will cover attributes including (but not limited to): deferred maintenance/renewal; AODA/accessibility; health and safety; sustainability/footprint; operating costs; and use by other external groups (i.e., community and industry).

Please contact Chelsea Barranger (cbarranger@cou.ca) **by August 23** if you would like to put your name forward. In order to accommodate other members and groups, representatives are limited to **one or two** per group. We understand this is short notice.

The Workshop will include representatives from the Task Force, as well as:

- AVP, Physical Resources
- Director / Head of Accessibility
- Director / Head of Health & Safety
- Director / Head of Sustainability
- Director / Head of Physical Plant
- Director / Head of Institutional Planning
- Chair, Facilities Condition Assessment Program (FCAP) Task Force
- VP / Head of Finance & Administration
- Director / Head of Community Relations / Strategic Partnerships
- Architect with broad experience in post-secondary sector

DRAFT Workshop Agenda

1. Introductions / Study Overview / Workshop Plan and Purpose
2. Current Reporting Practices for Other Key Space Inventory Attributes
3. Other Jurisdictions - Measuring and Reporting of Other Space Attributes within Space Standards Framework
4. Identification and Prioritization of Space Inventory Attributes that Could or Should be Incorporated into the COU Framework
5. Mandatory versus Optional Reporting and Frequency and Granularity of Reporting
6. Strategies and Cautions for Measuring and Reporting New Attributes within the COU Framework
7. Conclusions and Next Steps

Previous Task Force Work and Academic Colleagues' Engagement

It was mentioned in our presentation that our consultant, Educational Consulting Services (ECS), prepares a summary report of discussions and proposed measures or adjustments to space standards after each workshop. While Academic Colleagues were unable to attend Workshop 1 (Classrooms and Instructional Laboratories) and 2 (Research Space and Graduate Student Offices), they are still able and welcome to provide their feedback on the proposed measures that came out of these workshops.

We have created a SharePoint folder with a copy of the summary workshop reports and documents laying out the proposed measures and providing a section for feedback. The folder is password protected (SpaceForce!22). The documents also contain feedback from Task Force members and workshop participants. We would welcome any feedback that Academic Colleagues may have **by September 16.**

Notes:

- Both the reports and proposed measures are **subject to change, confidential and not for circulation**.
- The reports provide a summary of the workshop discussions, as well as a rationale for each proposed measure. ECS is planning to pilot these measures with volunteer universities in the near future to determine their feasibility.
- We are seeking feedback on the proposed measures and not the report itself.
- Briefings for interested members to help "catch up" can be scheduled with COU staff and the TF Co-Chair upon request.

Deferred Maintenance and Facilities Renewal

Regarding deferred maintenance and facilities condition in the sector, advocacy on this file remains a priority for the sector and COU as there remains chronic underfunding through the Facilities Renewal Program (FRP). The Facilities Condition Assessment Program (FCAP) Task Force is currently preparing a new report, scheduled to be released in 2022, on the current state of deferred maintenance. A presentation and information can be provided to Colleagues when information is available.

Please contact myself (cbarranger@cou.ca) or Lisa Krawiec (lkrawiec@cou.ca) if you have any questions.

Best,
Chelsea

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Lavallee, Lynn. (2020). Decolonizing and Indigenizing Education in Canada. Toronto, ON: Canadian Scholars Press. (pp. 117-133).

CHAPTER 7

Is Decolonization Possible in the Academy?

Lynn Lavallee

In Canada, there has been a surge of discussion around reconciling, decolonizing, and Indigenizing the academy, particularly in the wake of the release of the Truth and Reconciliation Commission (TRC) final report (Truth and Reconciliation Commission of Canada, 2015). The TRC gathered statements from residential school survivors attesting to their experiences while in residential school. However, for Indigenous academics who have been addressing Indigenous matters in their research, attempting to advance Indigenous epistemology and ethical ways of conducting research with Indigenous communities, and battling the chilly climate for Indigenous people in the academy, this surge is more like a resurgence. As Urban Elder Vern Harper stated, "We were never idle!" and the same holds true for senior Indigenous academics who have been tirelessly working on advancing Indigenous knowledge in the academy while facing anti-Indigenous racism, microaggressions, and deeply embedded systemic racism in the academy. Many recall the 1996 Royal Commission on Aboriginal Peoples and the little, if any, movement that came from its recommendations, so it stands to reason that many Indigenous peoples, and this includes Indigenous knowledge keepers/Elders and scholars fighting the fight for decades, are a bit skeptical about the current reconciliation, decolonizing, and Indigenizing exercise. However, the current interest in decolonizing, reconciling, and Indigenizing the academy is a wave we can ride while many institutions consider Indigenous achievement a priority. Nonetheless, Indigenous peoples in the academy will continue to make space for their bodies, knowledge, and ways of knowing,

being, and doing. This chapter will focus on some of the challenges to consider in the quest to reconcile the academy and offer recommendations that could lead to systemic change.

Using the terminology reconciling, decolonizing, or Indigenizing the academy may indicate a strong commitment to advancing Indigenous knowledge in the academy and an attempt to be inclusive of Indigenous peoples and initiatives; however, institutions need to define what they mean by reconciling, decolonizing, or Indigenizing. Reconciliation, decolonization, and Indigenization provide a well-ordered platform that runs the risk of being interpreted as a box that can be checked off once accomplished, although those advocating for reconciliation continually emphasize this is a life-long process. Further, specific measurables that remain sustainable must be articulated and achieved in order to *check the reconciliation box*. In addition, funding commitments and funds spent must reflect stated priorities with respect to Indigenizing the academy; alternatively stated, it's not just giving lip-service to reconciliation but putting money behind insurgence, resurgence, and transformative change. The terminology is important to define in order to be accountable; however, recognizing the inherent issues with these neatly packaged terms needs further discussion.

Reconciliation at the level of the institution is terminology that has gained momentum. It has become an attractive sound bite that is rarely, if ever, defined by individuals and the institution. What would a reconciled institution look like? Reconciliation is defined as a "restoring of friendly relations" and "the action of making one view or belief compatible with another" (reconciliation, n.d.a). Both of these definitions are problematic. The former implies Canada was founded on friendly relations with Indigenous peoples and that restoration is the goal. Transformational change must be the end goal, not a restoration. We cannot return to friendly relations that never existed in the past. The latter definition is even more problematic in that it affirms colonization and is reflective of the residential school movement goal of assimilating Indigenous peoples and the aim to "kill the Indian in the child" (TRC, 2015, p. 130).

The term—reconciliation—also has significant religious meaning that cannot be ignored, particularly when referring to working with a community of people that were colonized through religion. Reconciliation is a Roman Catholic sacrament of penance (reconciliation, n.d.b). The term *reconciliation* never sat well with me, and when I heard Tracey Lindberg (2017) to

reconciliation as a religious term, I more fully understood my issue with the terminology. I was raised Catholic and, in particular, my maternal grandmother enforced a shameful, punitive, religious upbringing mixed with what I learned were mutated practices from Indigenous ceremony. It was an odd mix but one that still resonates with me today. I knew little about my grandmother's history and, for that matter, little about all my grandparents' and parents' upbringing; however, I knew my grandmother *went away to school* as a young child. She had siblings but never spoke about them. She came back from school with a "bowl" haircut. They called the school a convent where nuns taught the children. All my grandparents had passed away by the very early 1980s, so the term residential school was never used, but I remember there was always a threat to be taken away by a *white van* or child welfare. I'm not sure how the white van plays in but it was a specific threat by my grandmother: "The white van is going to come and take you away!" I experienced the sacraments of baptism, confession, and confirmation—I am intentionally not capitalizing these terms as a form of resistance. The sacrament of penance, also referred to as the act of contrition, where your sins are reconciled, was one of many experiences that led me to be critical of the church. My last confession was in Grade 7 or 8 with a new priest in a church I attended while at St. Paul's School in Toronto, and he alluded to a sexual act. I ran out of the church without doing my penance (prayers assigned by the priest so your sins can be reconciled with and through christ) so as to not have the priest see me and never set foot in the confessional booth ever again. This is the experience from which I speak when I refer to reconciliation, as it sparks a personal history but also blood memory of my ancestors (parents, grandparents, etc.) being colonized through religion. How can this history be reconciled? No amount of hail marys or our fathers, no number of acts of contrition prayers can undo this colonial history.

The term *reconciliation* is a neocolonial term meant to free non-Indigenous peoples from their sins against Indigenous peoples, but the harms are still happening. act of contrition states:

> O my god, I am heartly sorry for having offended thee, and I detest all my sins because of thy just punishments, but also because they offended my god, who art all-good and deserving of all my love. I firmly resolve, with the help of thy grace, to sin no more and to avoid the near occasions of sin. (found in my grandmother's catechism)

Contrition is meant to lead to reconciliation through christ, but as stated in the act of contrition, there is an expectation to *sin no more*. Harms, injustices, systemic racism, microaggressions, and outright, blatant anti-Indigenous racism are still happening within and outside of the academy, so how can we begin to use the term reconciliation? The entire concept of reconciliation in the academy can be paralleled with the persuasive techniques of a batterer in an abusive relationship, whereby an abusive person apologizes for harming their partner and in due time the abusive and apologetic behaviour continues in an cyclical fashion (Schutte, Malouff, & Doyle, 2010). From an institutional perspective, reconciliation can relate to the institution and individuals committing to bettering conditions for Indigenous peoples in the academy; yet others, often people with significant power in the institution, perpetuate anti-Indigenous racism, whether intentional or unconscious. Healing, let alone reconciliation, cannot occur in this environment. As such, the academy remains a violent colonial institution for Indigenous bodies.

Decolonization is an overly ambitious term when referring to institutional response to advancing Indigenous achievement in the academy. The process of ongoing colonization requires scrutiny in order to speculate about decolonization. Five stages or steps of colonization have been defined as: (1) denial and withdrawal; (2) destruction and eradication; (3) denigration, belittlement, and insult; (4) surface accommodation and tokenism; and (5) transformation and exploration (Laenui, 2000). The process of decolonization follows as: (1) rediscovery and recovery, (2) mourning, (3) dreaming, (4) commitment, and (5) action. Given the above definition of colonization and decolonization, the academy, while wishing to decolonize the institution, is still operating firmly within the phases of colonization. One need not look further than the experiences of anti-Indigenous racism that permeate the experience of Indigenous academics, staff, and students. While an institution may voice the commitment to decolonize, on a micro level, individuals, often times with significant power, belittle, denigrate, and insult Indigenous peoples and their ways of knowing, being, and doing. Worse yet, in the quest to decolonize the institution, there is a reliance on the Indigenous people within these institutions to do this work—assisting non-Indigenous people in learning, developing curriculum, and assisting in the securing of funding earmarked for Indigenous growth while padding the curriculum vitae of non-Indigenous scholars. The feelings of surface accommodation and the experience of tokenism are all too familiar to Indigenous peoples. Non-Indigenous scholars doing Indigenous work need Indigenous scholars and peoples' involvement

more than Indigenous scholars need them. With funding agencies and research ethics now requiring Indigenous participation, junior and even more senior Indigenous scholars, under the guise of *good intentions*, realize they are being tokenized once funds are secured and there is little, if any, further communication by nominated principal applicants. Dr. Barry Lavallee eloquently and directly critiques this notion, stating that Indigenous peoples are not the Sherpas to carry the settler body to the pinnacle of whiteness (Lavallee, 2018).

The process of colonization is well entrenched in the academy, and we need to speak this truth before we can propose to decolonize the institution. The term neocolonial is much more accurate, and a neocolonial state acknowledges that we are still functioning within systems that privilege whiteness and Eurocentric knowledge but might offer hope that Indigenous peoples and knowledges are equally valued. While I feel the ivory tower is a bit more inclusive of other ways of knowing than it was when I first began my academic journey almost 30 years ago and perhaps when I started my tenure as Assistant Professor, it takes one experience to realize that with two steps forward, we can take four steps back. When students stop coming to me expressing acts of violence through microaggression and anti-Indigenous racism, when a visibly Indigenous man who presents as a warrior can come into the academy and not have security called on him, when two-spirit and Indigenous trans academics can be in front of the classroom and not face violent coordination to annihilate their career, only then can I entertain the discussion on decolonizing the academy.

After a presentation where I discussed the university's approach to decolonizing the academy, a well-respected Elder came to me and whispered, "My girl, it can't be done," as she affectionately rubbed my cheek. I already felt that way about the *decolonizing exercise* being undertaken in the academy. While I do not want to damper people's enthusiasm about various initiatives that are undoubtedly advancing Indigenous knowledges in the academy and making spaces more welcoming for Indigenous students, staff, and faculty, I also want to ensure that I am not a pawn in this decolonizing exercise. I realize Indigenous people can be tokens made to speak to the amazing work of the institution and help check off the reconciliation box while hiding issues that may cast a more negative light or the institution not having the budget line up with stated goals about reconciliation. However, taking this opportunity to ride the reconciliation wave to make a little more change in the academy is where I see potential, at least for the time being. *Full stop* on the use of decolonizing the academy!

Indigenization is the least offensive of the three terms but also fraught with tension. Drs. Maria Campbell and Brenda MacDougall (2018) noted that Indigenizing is often interpreted as Indigenizing spaces by adding a few feathers here and there, hanging artwork and paintings, and even hiring more Indigenous peoples, but this does not lead to Indigenizing the institution. What resonated with me most from Drs. Campbell and MacDougall's presentation is that Indigenizing the academy falls on the shoulders of Indigenous people. However, this is no different than the actions of Indigenous academics who have been in the academy for decades attempting to advance Indigenous knowledge. Observations of the curriculum vitae of most Indigenous scholars will demonstrate extensive service to the university. Today, there are a few more Indigenous scholars to take on the work of *being the Indian* on committees and being asked to help advance non-Indigenous scholars' work on Indigenous topics. Having said that, the surge of attempting to Indigenize the academy is exponentially falling on the shoulders of Indigenous academic and non-academic staff, as well as Indigenous students. This also includes **Elders** or **Traditional Knowledge Holders** hired to help Indigenous students advance in a good way through their academic journey now being asked to assist departments and faculties, often in a tokenistic way, by conducting openings of events, sitting on committees, or guest lecturing in classes.

While on the topic of Elders and Traditional Knowledge Holders in academia, let me digress. Many Canadian post-secondary institutions now have positions such as Elder-in-Residence, hired primarily to assist Indigenous students through their journey. How one becomes an Elder comes from community. However, we are seeing people being hired within academia and given the title Elder when the community has not acknowledged this person as an Elder. At one point, I risked being lumped into the category of academic institutions hiring and anointing Indigenous Elders or Traditional Knowledge Holders. The department was given $10,000 of end of fiscal year money from the Aboriginal Education Council to hire an Elder to work with our students. I formed a hiring committee all Indigenous people: myself, part-time sessional instructors, and students. We interviewed five people, all of whom did not identify as Elders but carried knowledge that I felt could help our students. Some would be helpful to go to classes to speak about Indigenous peoples' history and culture, while others would be instrumental to work directly with some of the Indigenous students. We interviewed five people on a Friday, and by Friday evening, my phone was ringing.

People from the community were challenging the knowledge and character of all five individuals. A colleague and I met with three recognized Elders in Toronto: Vern Harper, Jacquie Lavalley, and Pauline Shirt. The outcome of their guidance was to hold an Acknowledgement Ceremony, whereby the individuals we were considering would bring people to speak to the work they have done and are doing in community, thereby not having the university validate someone's experience but involving community in this validation process. It was a phenomenal ceremony with the three Elders present, as well as Dr. Akua Benjamin, a person considered an Elder in the Black community in Toronto. We hired all five people, with each working in various ways based on their skill set. No one was given the title of Elder.

In summary, the use of these three terms—reconciliation, decolonization, and Indigenizing—is potentially dangerous for Indigenous people as it presents an unrealistic and impossible condition. terminology offers the institution a superficial checkbox that, given the current, beyond-inclement and chilly climate (see work by Christina Sharpe [2016] on climate in academia), leaves many Indigenous peoples discouraged about the future of next generations.

So where does it leave us if this terminology is problematic? It leaves us exactly where Indigenous scholars have been for decades, advancing Indigenous knowledges and peoples in academia. The wave of reconciliation has taken us a bit further along with a stronger understanding within the academia of the harmful impacts of colonization, that we are functioning with a colonial environment in the academy, and has provided non-Indigenous people with more education about how to contribute to change by supporting Indigenous people beyond performative allyship.

The arguments above present the academy as a colonial or neocolonial institution, and this position may be challenged by some, therefore warranting further elaboration. After all, in 2008, Prime Minister Stephen Harper publicly apologized for Canada's residential schools past (Indigenous and Northern Affairs Canada, 2010) and, at the 2009 G20 Summit, he stated that Canada has "no history of colonialism" (Dearing, 2009). To explore the notion of academia as a colonial institution, I look to the work of Dr. Sheila Cote-Meek (2014), who cites Memmi (1965), noting privilege is at the heart of the colonial relationship. The hierarchy and privileging of knowledges implicate the academy as a colonial institution. That a hierarchy of knowledge exists in the academy is not an assumption. That discussion in and of itself is another chapter or book, but many Indigenous and racialized scholars can

attest to their knowledges—even when brought forward with *academic rigour* and defining epistemology, ontology, and axiology—still being discredited without valid argument. Further, Cote-Meek (2014) considers **colonialism** to require a specific set of ideologies (Said, 1993) that involves inferiority, subordination, authority, and dependency, all of which are part of the experiences of Indigenous scholars in the academy. Cote-Meek (2014) furthers this, stating that in the "racialized hierarchy Indigenous people are at the bottom ... as is our knowledge" (p. 20). I wholeheartedly agree with this statement and reflect on something a reputable Black scholar said in a public forum: that until we see the advancement of Indigenous peoples in the academy and society, we cannot progress as racialized people. Of course, I'm paraphrasing but that is what I took away from her words.

To further complicate the colonialism of academic institutions, Cote-Meek (2014) talks about the scars of academic colonialism. When I began considering university as a possibility in my life as a mature student, my father was still alive and although he never attended post-secondary—he did not even complete Grade 1—his words still echo in the hollows of my mind: "Lynnie, make sure it [university] doesn't make you go crazy." I thought to myself, "What can he possibly know about university. He didn't even finish Grade 1!" I came to quickly understand what he meant, and reflect on his words when I feel I'm being swallowed up by the colonial violence that is ever-present in the academy.

Identity politics for Indigenous peoples in the academy is a topic that is becoming part of the discussion related to decolonizing, reconciling, and Indigenizing the academy. One of the most prevaricated acts of viciousness that contributes to colonial scarring in the academy is lateral violence often intersected with the notion of identity—who is Indian enough and who is a pretendian (an informal term for a person who falsely claims to have Indigenous ancestry; pretendian, n.d.)? While we don't often call people out publicly on their misrepresented identities, it is often those that are not secure in their identity as Indigenous people or people who are not completely transparent about their stated Indigenous identity that cause the most lateral violence and disruption that then perpetuates a stereotype that we can't all get along and thrive in the academy—in essence, that we don't belong.

While on the topic of identity, the notion of the *palatable Indian* is a consideration when discussing the topic of Indigenizing the academy. Many Indigenous scholars identify with being called an apple or sell-out from their community once gaining further knowledge in the colonial academy.

Equal pressure on the other end of the continuum is the notion of being palatable to senior administration and academic colleagues. That is, individuals in the academy are often open to having Indigenous people in the institution, as long as their own power and privilege are not challenged and we do not attempt to disrupt the status quo, ivory tower, or the supremacy of whiteness in the academy. The *palatable Indian* is therefore in a position to **not** disrupt the supremacy of whiteness but be the Indigenous person who counts in the diversity statistics, the public-relations poster child, and most detrimental, used by administration and others as the Indigenous voice countering other Indigenous people who are labelled as provocative, agitators, or the *angry Indian*.

One might ask, if I am so critical in stating that the academy is a colonial institution and the terminology of reconciliation, decolonizing, or Indigenizing is problematic, why am I an active participant in these structures? Commissioner and Justice Murray Sinclair is often quoted as saying education is the key to reconciliation and healing. I agree with this statement, that education is important to the health and well-being of Indigenous peoples, but I also believe that our ceremony and culture outside the academy will lead to our healing (Lavallee & Poole, 2010). In addition, education can be harmful if not delivered in a way that values Indigenous knowledges and people and where Indigenous students are not free from anti-Indigenous racism. There is an undeniable correlation between educational attainment and economic status, and I want to see my next generations gain knowledge through the colonial institution and break the cycle of poverty. I want my niece, nephews, and grandnephews to not live in poverty as I did growing up and as their mothers did right up until their passing to the spirit world. What I would like when they enter the academy is that they are free from anti-Indigenous racism, they walk with pride about who they are, and that their knowledges are accepted and valued in the academy. This is why I do what I do and why so many other Indigenous scholars before me have done so. These tangible outcomes are what reconciling, decolonizing, and Indigenizing the academy mean to me.

In my doctoral studies, I became keenly interested in epistemology and the hierarchy of knowledges. Through my undergraduate and graduate studies, I never saw myself reflected appropriately in the literature, even when the topics directly related to my experience and culture. I become *that person* in the class who would question concepts and statements that made other students roll their eyes. During my doctoral studies, I would intentionally sit

across from certain people so I could catch their facial exchange with other students when I spoke. I was made to feel like I did not belong because I questioned the dominant knowledge. So, when I was introduced to the study of knowledge and sought out the few readings on Indigenous epistemology, I became intrigued by the hierarchy of knowledge as it related to my experience in the academy. It was a natural progression that, after commencing my tenure as an assistant professor in 2005, each year in my annual report I would emphasize how my research, pedagogy, and service all address an attempt to advance Indigenous knowledge in the academy.

The fundamental raison d'etre of academic institutions is education and research informing education. Linked to education and research, universities and colleges have also long been an environment for social justice. Therefore, inclusion and valuing of Indigenous knowledges are appropriate and vital in education and research. There has been a tremendous amount of work by Indigenous scholars to advance Indigenous knowledges in the academy, and the reconciliation movement would benefit from recognizing these contributions. Again, we were never idle! For instance, many scholars have written about Indigenous knowledges and Indigenous methodologies in research (see, for example, Brant-Castellano [2000]; Cajete, [2000]; Hart [2002]; Kovach [2010]; Lavallee [2009]; Nabigon et al. [1999]; Smith [1999]; and Wilson [2001]). Indigenous scholars in the field of education and Native studies have advanced Indigenous knowledges in the academy for decades. For instance, Dr. Marie Battiste is a prolific writer on the topic of decolonizing education, publishing for over 30 years (Battiste & Barman 1995; Battiste, 2013). Dr. Willie Ermine wrote and presented on the topic of Aboriginal epistemology (Ermine, Battiste, & Barman, 1995). Dr. Laara Fitznor wrote about Aboriginal philosophies 20 years ago (Fitznor, 1998). There is also Dr. Eileen Antone's (2003) scholarship related to Indigenous adult literacy and learning. And Dr. Emma Laroque's book *Defeathering the Indian* was published back in 1975 and, unfortunately, is still relevant today and would be a useful tool in dealing with current microaggressions and anti-Indigenous racism in the classroom. I purposely reflect on these Indigenous scholars to demonstrate, "We were never idle!" and that the current decolonizing exercise needs to build upon the foundational contribution of these scholars. The decolonizing exercise cannot ignore the work of Indigenous scholars that helped pave the path to advancing Indigenous knowledge in the academy over the past three to four decades. Further, we cannot let the focus on decolonizing, reconciling, and Indigenizing

distract us from advancing Indigenous knowledges and dealing directly with anti-Indigenous racism on campus.

Ensuring Indigenous knowledges are recognized and valued in the academy and that Indigenous people are free from anti-Indigenous racism in the academy are two objectives that should be the focus of the reconciliation, decolonizing, and Indigenizing exercise. This is a monumental task that requires many approaches, starting with the decision-making bodies of the institution. Fundamental change in the academy is driven by the governance structures of the university, such as the Senate and/or Board of Governors. The most senior decision-making bodies of the institution need to transform beyond a token seat at the table. These positions need to include Indigenous leadership willing to speak to the advancement of Indigenous knowledges in the academy and not be a seat reserved for the palatable Indian. There cannot be only one Indigenous person on these decision-making bodies.

Senior leadership needs to be transformed to include Indigenous people in positions such as president, provost, vice-president, dean, and director. This should also include Indigenous-specific positions, both academic and non-academic, such as vice-presidents focused solely on Indigenous resurgence and senior non-academic positions to ensure we are at the tables where decisions and policies are being made, from how tenure and promotion will be decided to how research funding will be dispersed and how student awards and admissions are conducted. Given the need to have Indigenous leadership at all governance and policy levels of the institution, more than one person is required. It cannot and should not fall on the shoulders of one person. One senior level position cannot effect change and will contribute to unintended tokenism. Making substantial and more lasting change in the academy means making change at the policy level, from the Board of Governors and Senate down to departmental by-laws, and we require Indigenous people at these tables.

Increasing the number of Indigenous academic staff who are taking on the work of advancing Indigenous knowledges in the academy is vital to build a critical mass so we can transform the colonial academy and challenge policies and procedures. Across Canada there is an increased demand for Indigenous scholars. While institutions may boast about the number of new Indigenous hires, for a critical mass to develop, the increase in Indigenous scholars needs to be measured against the ratio of non-Indigenous scholars and account for the attrition and retirement of more senior Indigenous scholars. So, while it may be commendable that there are Indigenous-specific

hires, we need to look at the overall ratio of Indigenous to non-Indigenous scholars over time.

In the quest to Indigenize the academy, there has been a focus on required or mandatory curriculum. Some disciplines have had mandatory curriculum for decades, primarily due to accreditation standard requirements, such as social work and education in some provinces. There are essentially two models that are discussed with respect to *Indigenizing* curriculum: an infusion model and courses that focus solely on Indigenous content. I am more supportive of courses focusing solely on Indigenous content as it would hopefully require an instructor with the requisite expertise and more likely involve the hiring of Indigenous people to teach these courses. However, I have seen many Indigenous courses being taught by non-Indigenous people, and while these instructors may have the required knowledge and experience, I want to emphasize that we have to build capacity within Indigenous people. Another consideration opposing the infusion model is that instructors with little knowledge, and sometimes little or no interest, are *required* to teach the content. Indigenous topics are complex; it is not simply teaching about Indigenous history or promoting Indigenous culture. Take, for instance, identity. In Canada, one should have a sound knowledge about the Indian Act and changes over time with respect to identity, as well as the legislation and political context of non-status First Nations, Métis identity, and the diverse identities of the Inuit and people of the north. The infusion model encourages instructors who are not experts in the field and has the potential to perpetuate stereotypes, microaggressions, and anti-Indigenous racism in the classroom. The infusion model is probably the most harmful to Indigenous students, who are often called upon to be the expert witness to the delivered content. In essence, the Indigenous students are the Sherpas for the instructor and other students. We need to question the quality of the content delivered in Indigenizing curriculum and the repercussions of infusion and course models. This discussion needs to be explored before we dive into required Indigenous curriculum.

Finally, budgets need to reflect stated commitments to reconciling, decolonizing, and Indigenizing the academy. Rather than boasting about diversity statistics, the statistics that need to be transparent so they can be questioned relate to the money that is being spent to advance stated Indigenous-related goals and strategies. It is not enough to profile a funding envelope for Indigenous achievement; the academy must also report on how much of that envelope has been spent and who benefited from support. As mentioned

earlier, we need to move beyond helping non-Indigenous people and instead directly support Indigenous scholars, staff, and students. Metrics attached to reconciliation are needed and the most important metric to report is actuals related to budget.

My conclusions are simply stated but not a simple task. Let not the sound bite—reconciling, decolonizing, or Indigenizing—distract us from ignoring the decades of work by Indigenous scholars on advancing Indigenous knowledge in the academy and dealing with anti-Indigenous racism. We were never idle, and we will continue to advance Indigenous knowledge in the colonial academy for the next generations.

DISCUSSION QUESTIONS

1. Is decolonization achievable within academia? If so, what would decolonized education look like?

2. Is reconciliation possible? If so, what would a reconciled academic institution look like?

3. Should all curriculum in post-secondary education be Indigenized? If so, how can this be accomplished? What would it look like?

4. How can racism toward Indigenous people in the academy be adequately addressed?

GLOSSARY

colonialism: The practice of domination involving political and economic subjugation of one group over another other. In the context of academia, colonialism acknowledges the privileging of Western-dominant knowledge and the minimizing and discrediting of Indigenous knowledge. Colonialism is often used synonymously with imperialism; however, the Latin derivatives indicate colonialism often refers to a transfer of land/territory and a population, while imperialism emphasizes the exertion of power from one group over another. See, for example, the definition in the *Stanford Encyclopedia of Philosophy* (https://plato.stanford.edu/entries/colonialism/).

decolonization: The action or process of a state withdrawing power from a former colony, leaving it independent.

Elders: Within the Indigenous context, individuals who have accumulated a wealth of knowledge and are subsequently recognized by their community as holding such knowledge and given the title of Elder.

Indigenization: A term used to describe incorporating Indigenous worldview, knowledge, and perspectives.

reconciliation: A restoration of friendly relations.

Traditional Knowledge Holders: People who have accumulated a wealth of knowledge from previous Traditional Knowledge Holders or Elders and are recognized by their community as holding this knowledge.

FURTHER READINGS/WEBSITES

Battiste, M., & Bouvier, R. (2013). *Decolonizing education: Nourishing the learning spirit.* Vancouver, BC: Purich Publishing.

Cote-Meek, S. (2017). Supporting the TRC's calls to action. *University Affairs.* https://www.universityaffairs.ca/opinion/from-the-admin-chair/supporting-trcs-calls-action/

Cote-Meek, S. (2018). Making a long-term commitment to Indigenous education. *University Affairs.* https://www.universityaffairs.ca/opinion/from-the-admin-chair/making-a-long-term-commitment-to-indigenous-education/

DiAngelo, R. (2018). *White fragility: Why is it so hard for white people to talk about racism.* Boston, MA: Beacon Press.

Lavallee, L. F. (2019). Recommendations and thoughts regarding Indigenous governance and matters in academia and UofM. *Indigenous Resurgence and Insurgence.* www.lynnflavallee.home.blog

MacDonald, M. (2016, April 6). Indigenizing the academy: What some universities are doing to weave Indigenous peoples, cultures and knowledge into the fabric of their campuses. *University Affairs.* https://www.universityaffairs.ca/features/feature-article/indigenizing-the-academy/

Martin, K., & Mirraboopa, B. (2003). Ways of knowing, being and doing: A theoretical framework and methods for Indigenous and Indigenist research. *Journal of Australian Studies, 27*(76), 203–214. doi:10.1080/14443050309387838

Kanu, Y. (2011). *Integrating Aboriginal perspectives into the school curriculum.* Toronto, ON: University of Toronto Press.

Regan, P. (2011). *Unsettling the settler within.* Vancouver, BC: UBC Press.

Rodriquez, C. O. (2018). *Decolonizing academia: Poverty, oppression and pain.* Halifax, NS: Fernwood Publishing.

Stielgelbauer, S. M. (1996). What is an Elder? What do Elders do? *The Canadian Journal of Native Studies, 16*(1).

Toulouse, P. R. (2018). *Truth and Reconciliation in Canadian schools.* Winnipeg, MB: Portage & Main Press.

REFERENCES

Antone, E. M. (2003). Culturally framing Aboriginal literacy and learning. *Canadian Journal of Native Education, 27*(1), 7–15.

Battiste, M. A., & Barman, J. (1995). *First Nations education in Canada: The circle unfolds.* Vancouver, BC: UBC Press.

Battiste, M. A. (2013). *Decolonizing education: Nourishing the learning spirit.* Vancouver, BC: UBC Press.

Brant-Castellano, M. (2000). Updating Aboriginal traditions of knowledge. In G. Dei, B. Hall, & D. Rosenberg (Eds.), *Indigenous knowledges in global contexts* (pp. 21–36). Toronto, ON: University of Toronto Press.

Cajete, G. (2000). *Native science: Natural laws of interdependence.* Santa NM: Clear Light.

Campbell, M., & MacDougall, B. (2018). Ceremony, cultural knowledge and the classroom: Indigenizing without further colonizing. Paper presented at the Teaching and Learning Conference, University of Saskatchewan, Saskatoon.

Cote-Meek, S. (2014). *Colonized classrooms: Racism, trauma and resistance in post-secondary education.* Halifax, NS: Fernwood Publishing.

Dearing, S. (2009, October 3). Harper in Pittsburgh: "Canada has no history of colonialism." *Digital Journal.* Retrieved from http://www.digitaljournal.com/article/280003

Ermine, W., Battiste, M. A., & Barman, J. (1995). Aboriginal epistemology. In M. A. Battiste & J. Barman (Eds.), *First Nations education in Canada: The circle unfolds* (pp. 101–111). Vancouver, BC: UBC Press.

Fitznor, L. (1998). The circle of life: Affirming Aboriginal philosophies in everyday living. In D. McCane (Ed.), *Life ethics in world religions* (pp. 21–40). Atlanta, GA: Scholars Press.

Hart, M. (2002). *Seeking Mino-pimatisiwin: An Aboriginal approach to helping.* Halifax, NS: Fernwood Publications.

Indigenous and Northern Affairs Canada. (2010). Statement of apology to former students of Indian Residential Schools. Ottawa, ON: Government of Canada. Retrieved from https://www.aadnc-aandc.gc.ca/eng/1100100015677/1100100015680

Kovach, M. (2010). *Indigenous methodologies: Characteristics, conversation, and contexts.* Toronto, ON: University of Toronto Press.

Larocque, E. (1975). *Defeathering the Indian.* Agincourt, ON: Book Society of Canada.

Lavallee, B. D. A. (2018). "Outing" unconscious bias: Strategies to reconfigure harmful response modes in Indigenous health care. Paper presented at Leaders in Indigenous Medical Education (LIME), Flinders University, South Australia. Retrieved from http://www.limenetwork.net.au/resources-lime-publications/slice-of-lime-seminars/

Lavallee, L. F. (2009). Practical application of an Indigenous research framework and two qualitative Indigenous research methods: Sharing circles and Anishnaabe Symbol-Based Reflection. *International Journal of Qualitative Methods, 8*, 21–40. doi:10.1177/160940690900800103

Lavallee, L. F. & Poole, J. (2010). Beyond recovery: Colonization, health and healing for Indigenous people in Canada. *International Journal of Mental Health and Addiction, 8*(2), 271-281. doi:10.1007/s11469-009-9239-8

Laenui, P. (2000). Process of decolonization. In. M. Battiste (Ed.), *Reclaiming Indigenous voice and vision* (pp. 150–160). Vancouver, BC: UBC Press.

Lindberg, T. (2017). Present and powerful Indigenous women. Paper presentation at the Humanities and Social Sciences Congress, Ryerson University, Toronto, ON.

Memmi, A. (1965). *The colonizer and the colonized.* London, UK: Beacon Press.

Nabigon, H., Hagey, R., Webster, S., & MacKay, R. (1999). The learning circle as a research method: The trickster and windigo in research. *Native Social Work Journal, 2*(1), 113–137.

"pretendian" [Def. 1]. (n.d.). In *Wiktionary.org.* Retrieved from https://en.wiktionary.org/wiki/Pretendian

"reconciliation" [Def. 1 & Def. 2]. (n.d.a). In *English Oxford dictionary online.* Retrieved from https://en.oxforddictionaries.com/definition/reconciliation

"reconciliation" [Def. 2]. (n.d.b). In *Merriam-Webster online.* Retrieved from https://www.merriam-webster.com/dictionary/reconciliation

Royal Commission on Aboriginal Peoples. (1996). *Report of the Royal Commission on Aboriginal Peoples.* Ottawa, ON: Government of Canada. Retrieved from http://www.bac-lac.gc.ca/eng/discover/aboriginal-heritage/royal-commission-aboriginal-peoples/Pages/final-report.aspx

Said, E. (1993). *Culture and imperialism.* New York, NY: Vintage Books.

Schutte, N. S., Malouff, J. M., & Doyle, J. S. (2010). The relationship between characteristics of the victim, persuasive techniques of the batterer, and returning to a battering relationship. *Journal of Social Psychology, 128*(5), 605–610. doi:10.1080/00224545.1988.9922914

Sharpe, C. (2016). *In the wake: On Blackness and being*. Durham, NC: Duke University Press.

Smith, L. T. (1999). *Decolonizing methodologies: Research and indigenous peoples*. Dunedin: University of Otago Press.

Truth and Reconciliation Commission of Canada (TRC). (2015). *Honouring the truth, reconciling for the future: Summary of the final report of the Truth and Reconciliation Commission of Canada*. Ottawa, ON: Author. Retrieved from https://nctr.ca/assets/reports/Final%20Reports/Executive_Summary_English_Web.pdf

Wilson, S. (2001). What is Indigenous research methodology? *Canadian Journal of Native Education, 25*(2), 175–179.

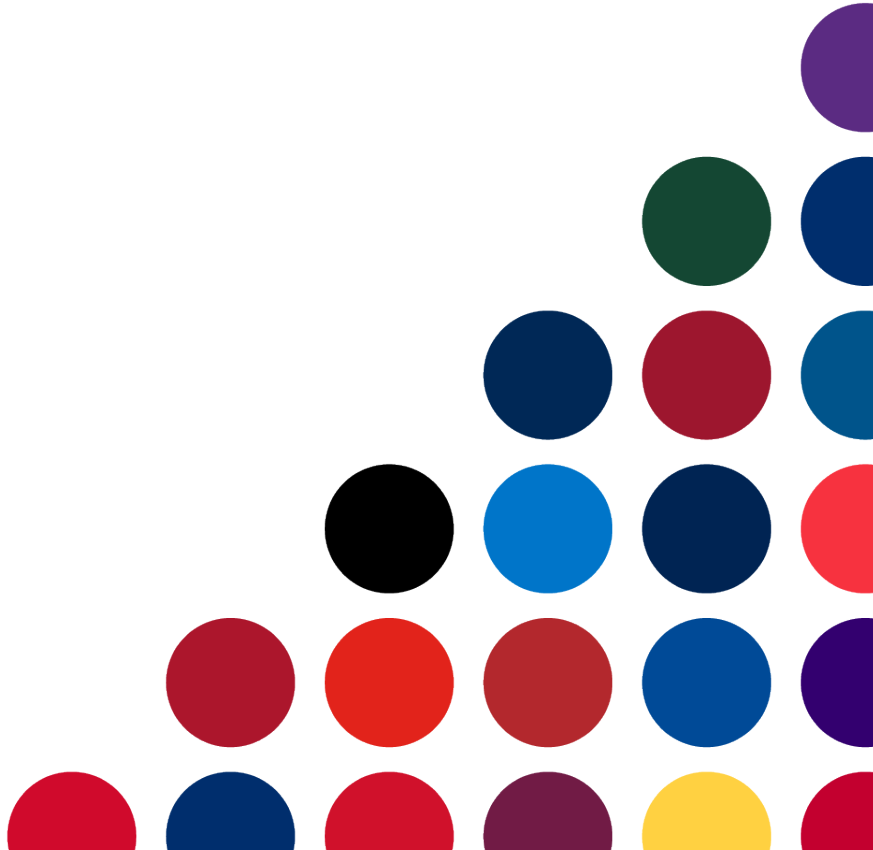
COUNCIL OF ONTARIO UNIVERSITIES

CONSEIL DES UNIVERSITÉS DE L'ONTARIO

COU Overview

Academic Colleagues

August 17, 2022



Purpose and Structure of COU

- COU is a membership organization

- From the COU Constitution:
  - "to promote cooperation among the provincially assisted universities of Ontario, and between them and the Government of the Province, and, generally, to work for the improvement of higher education for the people of Ontario."

    See: https://cou.ca/about/policies-constitution/

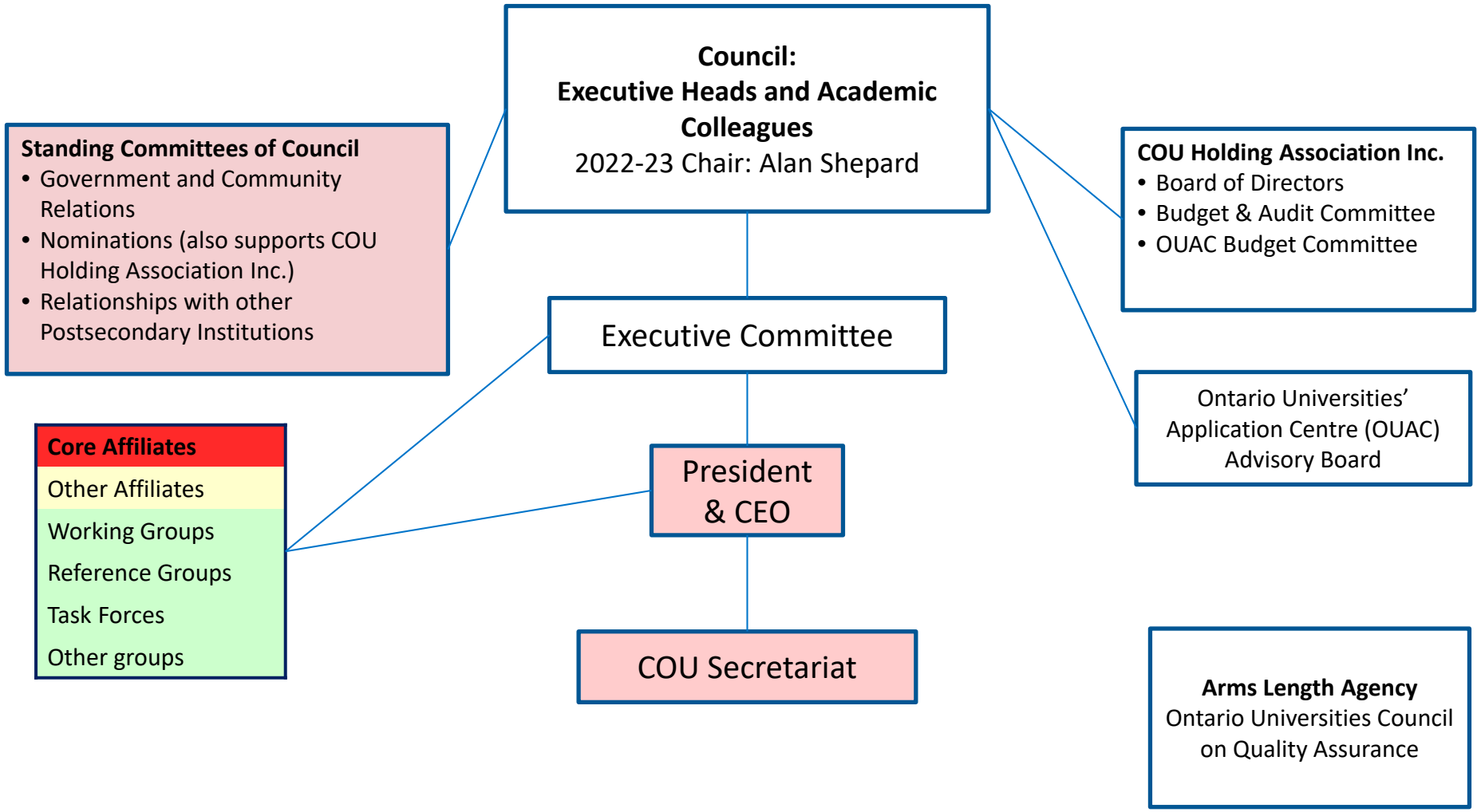
- Membership:
  - The Executive Head (President or Principal) of each member institution
  - One faculty colleague from each member

Academic Colleagues

Terms of Reference (developed in 2002):

- As members of the Academic Colleagues' group and COU committees, Colleagues seek to stimulate thoughtful and insightful discussion and action within Council and the wider university community.
- To serve as members of COU standing committees, task forces and working groups.
- To provide regular updates and reports on the activities of Council to their respective academic Senates or equivalent senior academic bodies as determined by their institutions.
- To anticipate, examine and analyze significant issues with a view toward specific contributions to Council objectives.

Council of Ontario Universities - Structure



What is a COU affiliate?

- Individuals at each COU member institution who are united by common interests and responsibilities, who work on behalf of Ontario universities. Much of COU's ongoing work is done through the affiliates.
- Some lead initiatives on behalf of the sector – VPs Academic (OCAV), VPs Research (OCUR), VPs Finance and Admin (CSAO), institutional planners (CUPA) – at the direction of Executive Heads.
- Some have operational responsibility within COU on behalf of member institutions
  - e.g., the Council of Finance Officers produces the annual financial reports in comparable form for each institution – "COFO reports".

COU Affiliates

Below are some of the affiliates supported by the COU Secretariat:

- Ontario Council of Academic Vice-Presidents (OCAV)
- Council of Senior Administrative Officers (CSAO)
- Ontario Council on University Research (OCUR)
- Council on University Planning and Analysis (CUPA)
- Council of Chairs of Ontario Universities (CCOU)
- Council of Ontario University Secretaries (COUS)
- Council of Ontario Faculties of Medicine (COFM)
- Ontario Universities' Public Affairs Council (OUPAC)

Committees at a glance

Committee	Role
Academic Colleague	Faculty Member
Executive Head	President
Ontario Council of Academic Vice-Presidents (OCAV)	Provost
Council of Senior Administrative Officers (CSAO)	VP Administration
Ontario Council on University Research (OCUR)	VP Research
Council on University Planning and Analysis (CUPA)	VP Planning
Council of Chairs of Ontario Universities (CCOU)	Chair of the Board of Governors
Council of Ontario University Secretaries (COUS)	University Secretary
Equity, Diversity, and Inclusion Reference Group	VP Equity and Inclusion
Council of Ontario Faculties of Medicine (COFM)	Dean of Medicine
Ontario Universities' Public Affairs Council (OUPAC)	VP Communications
Government Relations Officers (GRO)	Chief of Government Relations
Ontario Council on Graduate Studies (OCGS)	Dean of Graduate Studies
Ontario Association of Deans of Education (OADE)	Dean of Education
Council of Ontario University Programs in Nursing (COUPN)	Dean of Nursing
Legal Counsel	General Counsel
Ontario Committee on Student Affairs (OCSA)	Vice-Provost Students
Council of Finance Officers (COFO)	AVP Finance
Ontario University Registrars' Association (OURA)	University Registrar

Taskforces, working groups, reference groups, etc.

Taskforces, working groups, reference groups, etc., are formed for a specific period to undertake a specific task. They usually are staffed with Council members and senior university staff who are subject matter experts, with the COU Secretariat providing policy, research and administrative support. Some examples:

- Financial Sustainability and Competitiveness Working Group
- OCAV Task Force on Micro-credentials
- SMA3 Working Group
- OCAV Reference Group on Aboriginal Education
- Data Strategy Working Group
- Reference Group on Equity, Diversity, and Inclusion
- COVID-19 Reference Table
- Task Force on University Space Transformation

Questions?

COUNCIL OF ONTARIO UNIVERSITIES
CONSEIL DES UNIVERSITÉS DE L'ONTARIO

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Senior Lead, Member Relations and Governance
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Carleton University

SCIENCE IS FOR EVERYONE:

Integrating Equity, Diversity, and Inclusion in Teaching

A Toolkit for Instructors

Developed by:
Candice Harris
Martha Mullally
Rowan Thomson

Version 2.0

Welcome to this Toolkit!

This toolkit provides ideas to diversify science education to support recruitment, retention, and advancement of all students and bring topics of equity, diversity, and inclusion (EDI) to the curriculum. The toolkit encourages student creative expression and engagement, debunking myths and stereotypes around scientists, increasing representation of diverse role models, and more! These resources will help instructors develop equitable learning environments that support students from all backgrounds, fostering a culture of care and inclusive excellence. Through inclusive teaching, we prepare graduates for a professional environment in which EDI awareness is the cultural norm. EDI education is imperative for our students who represent the next agents of change in the fields of science, technology, engineering, mathematics, and medicine.

Carleton University

EDI Definitions

Equity

People of all identities and characteristics being treated fairly and respectfully, considering opportunities, access, treatment, power, outcomes, and resources.

Diversity

Differences within a group that may include race, ethnicity, gender identity or expression, family status, disability status, sexual orientation, age, or socioeconomic situation.

Inclusion

Ongoing process of intentionally creating welcoming and respectful environments and systems where there are opportunities for everyone to flourish, in which inequities in power and privilege are addressed.

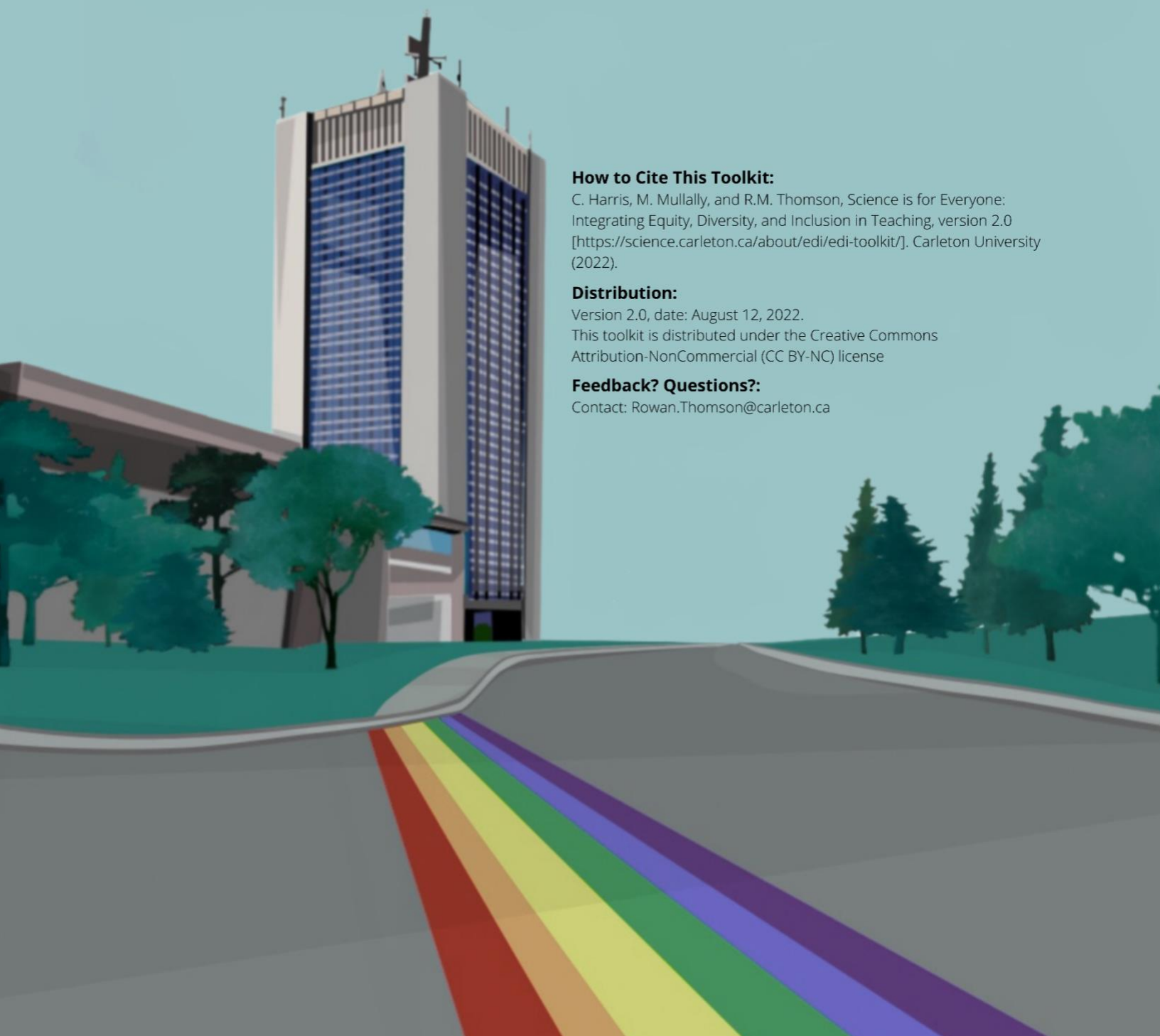
Source: R.M. Thomson, *Advancing equity, diversity, and inclusion: a how-to guide*, Physics Today (2022)

This toolkit was developed by Candice Harris, Martha Mullally, and Rowan Thomson, supported by Carleton University's Faculty of Science. We gratefully acknowledge that we work on the traditional and unceded territories of the Algonquin nation.

Acknowledgments

We would like to thank those who have contributed to our work, including: Sue Bertram, Veronic Bezaire, Emmerson Borthwick, Jenny Bruin, John Buschek, Claudia Buttera, Adrian Chan, Melissa Chee, Krista Craven, Roslyn Dakin, Maria Doria, Sara Harris, Kim Hellemans, Jason Hinek, Ikram Jama, Sean Landsman, James Mungall, Laura Pickell, Andrew Pullin, Jaime Sadgrove, Natalina Salmaso, Anil Somayaji, John Stead, Julia Wallace, and Pamela Wolff.

We would also like to thank our friends and colleagues from the Carleton Community, including the members of the Science EDI Committee, the Science Committee on Academic Planning (SCAP), and the STEM Ed Journal Club who participated in group discussions concerning the development of this project, providing insight and offering helpful suggestions for ways to improve this toolkit.



How to Cite This Toolkit:

C. Harris, M. Mullally, and R.M. Thomson, Science is for Everyone: Integrating Equity, Diversity, and Inclusion in Teaching, version 2.0 [https://science.carleton.ca/about/edi/edi-toolkit/]. Carleton University (2022).

Distribution:

Version 2.0, date: August 12, 2022.

Feedback? Questions?:

Contact: Rowan.Thomson@carleton.ca

EDI TOOLKIT ROADMAP

How to use this Toolkit:

Advancing EDI is a journey with concrete actions taken along the way. This toolkit is meant to provide ideas at different points on this journey, rather than act as a book to be read from end-to-end and implemented at once. All actions matter, small and large! This toolkit is not intended to make instructors EDI experts, but rather to provide ideas to support acknowledgment and engagement with EDI issues, while also providing resources to point students to. As we advance on this journey and gain more familiarity and comfort with EDI topics, it becomes possible to then push your limits further!

1. Course Outline

2. Course Website

Ideas for your course outline and website, with pre-curated resources & readily-adaptable text.

3. In the Classroom

Ideas for inside the classroom (values, actions, course materials).

4. Assignment Ideas

Consider an assignment question that broadens horizons.

5. In-Class Activities

As you get more comfortable with EDI-related content, consider in-class activities with a strong EDI focus.

6. Ongoing Learning

Start to rethink your pedagogical approach (deeper learning, self-reflection).

Remember: You are not expected to become an expert in EDI. You are a domain expert in your field, and that is why you teach science at university. There is no expectation that you become an expert in EDI or even that EDI overtly be a topic of discussion in your course. Instead, these tools are designed to help you to address EDI in your teaching design and delivery, to acknowledge the diversity of our student body and to use teaching practices that include as many people as possible.

1. For Your Course Outline

- Land acknowledgment (learn the importance of this here)
- How to address instructor (e.g., Prof. X, Dr. X, first name, or other) and their pronouns
- How students can contact the instructor (e.g., email, after class, student hours, Brightspace forum)
- Marking scheme with built-in flexibility
- Technology checklist (tools required for the course and tools that may be new to students)
- Student hours (office hours renamed)
- Community guidelines (i.e., codes of conduct)
- University expectations of student behaviour online (link)
- Accommodations: students with disabilities, pregnancy, religious (Interfaith calendar)
- Academic integrity statement (link)
- Academic integrity checklist tool (instructor version, student version)
- Mental health resources (link)
- Human Rights Policy (link)
- Sexual Violence Policy (link)

Click here for a course outline template and click here for an annotated version of the course outline

Have you considered?

- Incorporating flexibility into your course by allowing students to drop the lowest quiz/assignment mark
- Using multiple assignments/quizzes/exams to lower stakes and promote an inclusive learning environment
- Allowing for multiple modes of expression
  E.g., Assignments that can be completed as written work, videos, podcasts, completed individually or in groups
- Explicitly communicating with students about workload expectations
  E.g., Plan for X hours of reading/studying/problem-solving each week in addition to lecture time

2. For Your Course Website

- Your name, its pronunciation (NameCoach), your gender pronouns, and how students should address you (NameCoach can also be enabled on Brightspace – here's how)
- Discord and Online Behaviour Tool (link)
- Mental health support resources (other resources)
- Tools and websites for diverse learners (examples)
- Syllabus quiz (example)
- Midpoint course survey (example)
- Midterm exam reflection for students (example)

Click here for an example of a Brightspace template (*link coming soon*)

Have you considered?

- Including a welcome message for students (sample message)
- Using the calendar function in Brightspace to outline when assignments in your course are due
- Posting rubric and assessment criteria for assignments so students are informed of course expectations
- Posting past tests with marking keys so that students know what to expect on high stakes assessments
- Giving an outline of the types of exam questions and their point value so students know what to expect

3. In the Classroom: Actions, Values, and Course Material

- Use non-gendered terms like “friends”, “folks”, “they”, and “everybody” (Tip: When calling on students, identify them via a clothing item and their position in the room, e.g., “the person in the back row with the blue hat”)
- When allowing time for students to discuss ideas with other students, designate pairings (or instructions for whom to speak with in larger lecture halls) to prevent exclusion (Peer Instruction)
- For first lectures:
  - Explain the importance of the land acknowledgment (sample slides)
  - Discuss the Faculty of Science EDI statement (link)
  - Mention online communities and campus groups for students to join (click here)
  - Review the 7 Student Rights & Responsibilities Policy with students (link)
- Use examples of scientists from different backgrounds in lectures, to counter stereotypes (examples: #1, #2, #3)
- Incorporate Collaborative Indigenous Learning Bundles into your course (link)

Have you considered?

- Following the Universal Design for Learning (UDL) approach when planning lectures to help increase inclusion and accessibility in lesson plans (UDL resources & activities)
- Inviting students to share their chosen name and gender pronouns (Pronoun Poster)
  (Note: Sharing pronouns can create stress for students who do not feel safe or comfortable so always let this be optional – learn more here)
- Being familiar with the different gender identities (Gender Definitions)
- Knowing what the different letters mean in the LGBTQ+ acronym (LGBTQ2SQIA+ Explained)
  (Note: “Two-Spirit” is a term unique to Indigenous persons – learn about its meaning here)
- Familiarizing oneself with common language associated with gender and sexuality (Translanguage Primer)
- Talking to TAs about EDI challenges and resources; TA training (link)
- Using examples with broad appeal that may interest diverse learners
  E.g., applications in the life sciences as examples in computer science or math
- Accessibility in the lab and in field work for students with disabilities (Accessible Science Laboratories Tools)
- EDI challenges in fieldwork (Implementing EDI in fieldwork)
- Challenging norms and barriers by incorporating multiple perspectives when teaching
  E.g., sexuality from a non-heteronormative aspect, history from a non-colonial viewpoint
- Using older versions of textbooks, an open educational resource (OER), or open source softwares to lower costs
- Assumptions that may be linked to course materials/examples that are commonly used
  E.g., Examples that are heteronormative, racially biased, etc.; can you choose different materials/examples?
- Encouraging students to approach after class if an inappropriate term has been used in class and making students feel safe and welcome in offering corrections and expressing opinions
- Recognizing that different cultures deal with conflict in different ways (written exchanges versus face-to-face)
- Utilizing resources written by authors from diverse backgrounds
- Examining class resources to check for content that is racially or culturally insensitive, or potentially distressing for students with trauma, and cautioning if the material is necessary to include (learn more here**)**
- Giving students permission to fail/get things wrong in class, and framing failure as an essential step to success
- Maintaining awareness of current socio-political topics and social issues that might be impacting students

4. Class Assignments

Infographic Content

Create an infographic for a scientific concept, or an EDI topic related to science, that visually communicates the key points necessary for understanding. (Click here for a sample assignment & rubric.)

Here, students learn how to make scientific information accessible to the public while also learning skills in visual communication, topic comprehension, and concept summarization. (Tip: Try Canva and MS Word for templates.)

Neurodiversity | Inclusion | Information Accessibility | Creativity | Communication

Screen-Right

Create a short script featuring characters from a favorite TV show, movie, or book. Develop a scene and dialogue addressing a specific scientific topic (e.g., Black Mirror episode where ENSO climate patterns disappeared, Lion King demonstrating the types of symbiosis), or an EDI-related topic in science (e.g., Lisa Simpson learning about Henrietta Lacks, Rick & Morty in a dimension where science excludes female subjects). (Click here for a screenplay template.)

This assignment prompts an in-depth exploration of a scientific concept, with students having to write from multiple perspectives to create a dialogue. When choosing science topics relating to EDI, this assignment enables students to thoroughly understand a topic and its significance as a result of the immersion and visualisation required to create scenes and storylines.

EDI Barriers in Science | Neurodiversity | Inclusion | Immersive Learning | Communication | Perspective-Taking

Dear Gabby

Develop short letters from concerned individuals quoting misinformation related to a field of science (e.g., letters from an anti-vaxxer, a flat-earther, a parent who feels the internet is harmful), or ask students to write their own. Have students write a reply as a columnist to the question you or a peer created. (Bonus: For a low-stakes assignment, have students submit or trade assignments and write follow up responses with points that were not addressed.)

This assignment drives students to perspective-take and understand misinformed viewpoints, while building skills in communication and inclusion. Through writing responses to "concerned parties" who have been misinformed, students also practice having conversations with people from different backgrounds. Furthermore, students challenge academic gatekeeping ideals, fostering empathy and kindness in place of dismissal and exclusion.

Inclusive Practices | Science Communication | Differing Perspectives | Discourse Skills | Humanization

ELI5

Inspired by the popular Reddit.com ELI5 ("Explain Like I'm 5") subreddit forum (see example thread here), create a shared document whereby students answer forum questions about key concepts as if explaining the concept to a child. The resulting document can be used as a class study aid for students before exams.

This assignment requires students to have a deeper working understanding of a concept to successfully convey the material to a younger individual with no educational training in the subject. The student is pushed to think more creatively about the information as they consider metaphors or images to explain an academic topic and avoid the use of jargon terms to explain scientific phenomena. Furthermore, a sense of support is created between students as they work to contribute to a project that the entire class can use for study purposes.

Neurodiversity | Inclusion | Creativity | Communication | Peer Teaching

Fake News

Provide a choice of media articles which contain erroneous facts regarding a recent/significant journal publication (e.g., "scientists discover drug that can turn rats gay"). Have students read both the article and original study and prepare a write-up explaining how the media misinterpreted facts and what the actual findings from the study were.

By engaging students in an activity emphasizing the significance of scientific communication and knowledge sharing, this assignment discourages academia-related inclinations toward gatekeeping and individual interest.

Scientific Communication | Knowledge Sharing | Inclusion | Equality

BYOT (Bring Your Own Tool)

Ask students to find a resource that helped them to understand a class concept—this could be an infographic, a reddit thread, a YouTube clip, or even their own explanation. Using a tool like Padlet, have students add their resources to the board. Students can also like/comment on other posts, creating a network of peer support. (Example here.)

Students from different backgrounds learn in different ways. By asking students to find and share resources that help them to understand a difficult concept, they can help and support fellow classmates (building a sense of community) while also gaining access to a variety of resources that represent different learning style preferences.

Resource Sharing | Peer Support | Inclusion | Neurodiversity | Learning Style Preferences & Strategies

Tell a Friend

Discuss a new theory/controversial topic in class (e.g., stem cells, ADHD), explaining the opposing views and myths in addition to the facts and science. Have students approach two individuals outside of class to explain the concept to and complete a list of questions that compare old and new perspectives of those they spoke to. (Sample assignment here.)

This activity teaches students how to have conversations about potentially controversial science topics with others who do not study science. It allows students to fully engage with a topic and understand a variety of perspectives that can exist, combating unhelpful attitudes that academia can foster (e.g., elitism, competition).

Scientific Communication | Inclusion | Knowledge Sharing | Different Perspectives

Science Hero

Have students select an inspirational figure in the field and write a piece on why this person is their hero. This may include the figure's background and accomplishments, as well as reasoning for the student's selection. This integrative learning activity helps students to create connections between personal, academic, and professional experiences. (See sample assignment here.)

This project promotes self-directed learning about innovation, research, and development in science. This idea acknowledges the potential for affective learning (involving emotion) in developing motivation, inspiration, and engagement alongside traditional knowledge and skills. Students are also encouraged to develop their identity as a scientist that may be key for retaining individuals in the field, particularly those from under-represented groups.

Notable Figures | Writing Assignment | Diversity | Affective Learning | Student Identity

Academic Underdog Trivia Slides

Have students create a trivia slide for a notable figure who faced struggles because of their ethnicity, racial background, gender identity, intellectual disability, or other factor. Inform students that the best trivia slides will be added to a slide show to be shown before lectures, like the trivia slides shown in theatres before movies begin.

This short assignment allows students to learn about famous individuals who faced common struggles, while also learning more about the EDI barriers that exist in STEM. Furthermore, students gain an opportunity to share the stories or facts about notable figures that resonated with them. A pre-lecture slide show offers an easy way to integrate EDI material, creating a more supportive class environment that encourages diversity.

Notable Figures | Trivia Slides | EDI Barriers | Diversity | Creativity & Design | Short Assignment

Take-Home (Power)Points

Ask students to read a journal article and design a single ppt slide stating the research hypothesis, method, results, and implications. Encourage students to be creative and use visual data from the paper, or other images. Best slides can be used in future course lectures, for extra incentive. (See sample assignment here).

Through extensively reducing information and using images to help visually explain an article to a potential future class, students with different learning needs and backgrounds are taught how to navigate advanced journal articles and what pieces of information to focus on.

Inclusivity | Neurodiversity | PowerPoint | Journal Articles | Reading Comprehension | Communication

Have you considered?

- Including multiple assignment question styles whenever possible, providing students with a choice to help accommodate different learning style preferences and learning needs
  E.g., For an assignment, students can write a short argumentative essay, create an infographic, or create a slide deck
- If using short-answer questions on tests, provide options regarding answer methods students can choose from
  E.g., An exam may ask students to list steps of a process, draw a pathway, or describe what is occurring as an event takes place
- Using the tool CATME to address inequities in group formation and group work, while also providing peer feedback and identifying poorly functioning groups
- Including a "Test #0" or "Lab #0" so students can learn the process of tests and labs, respectively; this also helps students identify if they experience any difficulties related to the technology

5. In-Class Activities

Understanding Unconscious Bias

Video | 3 mins

A quick animation explaining unconscious bias and its dangers. Click here for inspiration for an in-class activity.

Unconscious Bias | Students | Awareness

What is Impostor Syndrome and How Can You Combat It?

Video | 4 mins

A short TED-Ed animation that helps students become more aware of impostor syndrome and the self-limiting beliefs that might be impacting academic performance and mental wellness. Click here for inspiration for an in-class activity.

Student Awareness | Animation | Women and Minorities in STEM | Academic Performance

Implicit Association Test

A collection of online tests to increase self-awareness of unconscious biases.

Unconscious Bias | Students & Teachers | Awareness | Race & Ethnicity | Gender | LGBTQ2SQIA+

YouTube Pre-Class EDI Playlist

An easy-to-access, curated list of trending music related to social causes and/or featuring diverse artists. Great for playing before lectures as students arrive to promote a sense of connection and belonging among students.

Songs are effective tools for conveying messages because of their meaningful lyrics, accessible imagery, and inherent ability to evoke specific emotions. Once a song ends, instructors can also use this opportunity to point out a quick fact related to the message of the song or tie it to an EDI issue before transitioning to lecture.

Pre-Lecture Activity | Music | Social Causes & Awareness | Inclusion

Have you considered?

- Using examples in class that represent multiple ethnicities
  E.g., In health sciences, the signs of infections such as ringworm on black skin
- Sharing a time when you or a notable figure faced failure and providing steps to take when this occurs
- Addressing the historical racial and sexist biases that have existed in the field
  E.g., The experimentation performed on African Americans and individuals with disabilities, how historical racism in healthcare fuels fear or hesitancy of vaccinations
- Reading widely and diversely to continue to educate yourself about racism, sexism, homophobia, ableism, etc., in higher education and in STEM education
- Challenging your own assumptions about students
  E.g., If a student stops participating, consider reaching out to check in and asking if they need help

6. Ongoing Learning: EDI Resources

Quick Reads (Online Articles, Blog Posts, Infographics)

The Soul of My Pedagogy

Article (Blog) | 12 min read

In this quick and enjoyable read, Bryan Dewsbury shares some motivation and insight for practicing inclusive teaching.

Inclusive Teaching | Pedagogy | Inspiration

Small Steps Instructors Can Take to Build More Inclusive Classrooms

Article (Blog) | 5 min read

This article focuses on the use of an assignment at the beginning of a course to increase inclusion in a lecture hall. The authors offer several practical pieces of advice, followed by students' perspectives on the assignment's impact.

Inclusive Teaching | Diversity | Equitable Classrooms | Activity Idea | Student Feedback

Addressing Diversity, Equity, and Inclusion in Science in an Undergraduate Course

Article (Blog) | 5 min read

A short online article that describes a course in EDI for science students and the difference it can make.

Equity, Diversity, and Inclusion | Course Design | Higher Ed | Inspiration

Longer Reads (Journal Articles, Texts, Documents)

Equity, Diversity, and Inclusion-Minded Practices in Virtual Learning Communities

Document | 17 Pages

A document containing numerous lists of practical tips for increasing equity, diversity, and inclusion.

Equity in the Classroom | Practical Tips | Educators

An Undergraduate Course That Introduces Topics of Diversity, Equity, and Inclusion into Science

Journal Article | 6 Pages

An article discussing the framework for a course on EDI topics, specifically geared towards university science students.

Equity, Diversity, and Inclusion | Inspiration | Course Design | Sciences

Universal Design for Learning in Higher Education

Document | 30 Pages

A comprehensive look at universal design, with examples for instructors to reference when designing their course.

Universal Design for Learning | Course Design | Inclusive and Equitable Classroom Practices | Teaching Guide

Structure Matters: Twenty-One Teaching Strategies to Promote Student Engagement

Journal Article | 10 Pages

This article discusses several strategies for encouraging the cultivation of equity within the classroom.

Inclusive Teaching | Equity in the Classroom | Practical Strategies | Higher Ed

Websites (Collections, Toolkits, Modules)

Uncovering The Hidden Curriculum – Universal Design for Learning (UDL) Resources

A website with definitions, explanations, activities, and suggestions to help foster inclusive and accessible lesson plans.

Universal Design for Learning | Accessibility | Inclusive Lesson Plans | Post-secondary Education

Carleton University Equity and Inclusion Resources

A list of tools and resources to help instructors learn more about inclusive teaching practices.

Carleton University | Equity | Inclusive Teaching Strategies | Resource Collection

University of Alberta WISEST Toolkit

A collection of resources including activities, articles, and examples of EDI in action.

Students & Teachers | Equity | Diversity | Inclusion | Toolkit

Request a Woman Scientist Database

A search engine that connects educators with women and gender minority experts in a variety of STEM fields.

Database | Women in STEM | LGBTQ2SQIA+

Equity Resources for STEM

A collection of unique resources including posters of STEM figures from underrepresented groups, platforms to connect students from different backgrounds with mentors, and more.

Equity, Diversity, & Inclusion | Resource Collection | Posters | Projects & Networks

Videos, Webinars, and Podcasts

3 Tips to Boost Your Confidence

TED-Ed | 4 mins

A short animation that offers practical tips for cultivating confidence, highlighting the importance of a growth mindset.

Practical Tips | Impostor Syndrome | Growth Mindset | Inclusion | Women in STEM

Quirks and Quarks: Black in Science Special

Podcast | 54 mins

A podcast episode describing the numerous examples of racism throughout the history of scientific discovery.

Diversity | Systemic Racism | Awareness | Inclusion | Race & Ethnicity

Inclusive Teaching Strategies: How to Support the Success of All Students

Podcast | 28 mins

This episode of "Lecture Breakers" describes four key areas where inclusive teaching practices can be implemented.

Inclusive Teaching | Practical Tips l Course Design | Equity in the Classroom

The Gardener's Tale

Video | 6 mins

A short video with a clever allegory describing the three levels of racism that can threaten a student's success.

Race & Ethnicity | Systemic Racism | Equitable Teaching | Student Support

Unlocking the Potential of Diversity in Education

Video | 14 mins

An enlightening TED Talk that speaks to the challenges faced by international students.

Diversity | Students | Race & Ethnicity

Solving the Achievement Gap Through Equity, Not Equality

Video | 9 mins

An eye-opening TED Talk that underlines the role and significance of inclusive teaching practices.

Inclusive Teaching | Neurodiversity | Race & Ethnicity

Fostering Inclusion in Our Teaching

Podcast | 30 mins

Leading experts in inclusive teaching discuss practical ways to tackle unconscious bias in higher education.

Inclusive Teaching | Unconscious Bias | Race & Ethnicity

Equity in STEM

Podcast | 40 mins

Educators share advice on how to create and implement a course framework that promotes equity for students.

Equity in the Classroom | Educators | Course Framework | Inclusivity

Teaching as an Act of Social Justice and Equity

Podcast | 35 mins

Guest speaker Bryan Dewsbury discusses the various ways he fosters equity in his biology lectures of 150+ students.

Equity in the Classroom | Educators | Inclusivity | Teaching Practices | Student Relationships

The Power of Believing That You Can Improve

TED Talk | 10 mins

Psychologist Dr. Carol Dweck describes her work on growth mindset, a great introduction to this influential field.

Ted Talk | Growth Mindset | Inclusivity | Diversity

Productive Failure

TEDx Talk | 17 mins

Learning scientist Manu Kapur describes the role that failure plays in learning, and how it can support student learning.

Ted Talk | Importance of Failure | Creating Supportive Learning Environments | Inclusive Teaching

Inspiring Examples of EDI and Science in Action

Diversifying Astronomy: Introducing Indigenous Astronomy & Sky Knowledge into Astronomy

The Centre for Indigenous Studies and the Department of Astronomy & Astrophysics have come together to create a new course at the University of Toronto. This course incorporates Indigenous science and knowledge to provide a new perspective for astronomy students to explore.

Indigenous Studies | Astronomy & Astrophysics | Interdisciplinary Studies | Cultural Diversity

A Program in Feminism & Science, Technology, Engineering, and Math

At the NYU Tandon School of Engineering, students can minor in an integrative program that addresses the intersection between science and diversity. Topics include the history of women in STEM, bias in the design of technical systems, and queer studies of technoscience. The University hopes to better equip students heading into STEM fields, preparing them for the barriers they may face, and encouraging them to change the world for the better.

Women in STEM | Program Minor | Interdisciplinary Studies | LGBTQ2SQIA+ | Science & Feminism

Project Biodiversify

This online platform invites submissions for biologists from underrepresented groups that have contributed to science. The project creates slides featuring the scientist, their research, and background information including EDI obstacles the individual has faced/overcome. The project aims to promote diversity and inclusion in classrooms.

Biology | Premade Slide Presentations | Notable Figures | Underrepresented Groups | EDI Topics

Want to Learn More?

Click here to view a collection of many other helpful and interesting resources tackling topics of equity, diversity, and inclusion.

THE TRIPLE COHORT

Academic Considerations

FIRST YEAR STUDENTS

What to Expect and Suggestions for Response

Some students may not have had much opportunity to socialize; may see increased absenteeism as they focus on peer relationships and partying!

- Incorporate regular check-ins with students (either yourself, or a TA)
- Be clear in your course outline what are the consequences of missed work
- Don't be afraid to reach out to a student if they have 'checked out' of the course

These students have had several years of normal adolescent development curtailed; some students may not have had the opportunity to develop 'life skills' before now.

- Consider including elements of the Hidden Curriculum[1] in your course

Time management is always a challenge for students as they transition to a new way of learning

- Encourage students to connect with a mentor at the SSSC
- Check out these **great tools**!

Students may not have the same level of background knowledge in core courses in Science

- Consider implementing a short 'diagnostic' quiz in Brightspace to assess where students may need more explanatory/background information

Students often do not know how to paraphrase; how to not copy and paste from texts as part of an assignment response

- Include examples of how to paraphrase in your course outline and / or Brightspace page
- Be explicit with what constitutes an offence
- See the attached academic integrity checklist

Transition to university life is stressful; remember these are young adults with developing brains! We tend to see the onset of ill mental health among first year students

- Familiarize yourself with the resources available to students on campus[2]
- Incorporate resources (e.g., web links) into your course outline and/or Brightspace page
- Address mental and substance use health in the classroom; when we talk about it, we reduce stigma and present ourselves as an ally! (see below)

[1] https://hiddencurriculum.ca/
[2] https://carleton.ca/wellness/living-well/resources/

ALL STUDENTS

What to Expect and Suggestions for Response

Students may be nervous, worried about making friends in their programs

- Employ think, pair, share[3] moments in your classroom
- Consider including ice breaker activities either in class or online

Some students may not have had adequate opportunity to develop their interpersonal skills

- Effective collaboration and teamwork skills will need careful scaffolding (meaningful discussion/planning for group formation, use of team charters or contracts) and encouragement (regular check-ins, peer evaluation)

Students may not know how to take effective notes in an in-person class

- Be mindful of the pace of your lecture, particularly in first few weeks of term; encourage students to attend the SSSC workshops

Some students may struggle with physically coming to campus (i.e., transportation concerns, energy and time required for commute to campus); may see absenteeism for in-person courses[6]

- Consider flexible assessments (best X out of Y)
- Encourage students to act as notetakers and create a forum on Brightspace to share notes
- Consider recording lectures; however, to continue to encourage class attendance you could implement a 'token' system wherein students can receive notes/lectures/course materials for a maximum of 3 (for example) 'tokens' spent throughout the term; TLS can assist with setting this up in Brightspace[7]

All of the above may also lead to increased challenges with mental and substance use health

- Familiarize yourself with the resources available to students on campus[8]
- Incorporate resources (e.g., web links) into your course outline and/or Brightspace page
- Address mental and substance use health in the classroom; when we talk about it, we reduce stigma and present ourselves as an ally! "University can be stressful and the stressors you face may initiate or worsen ongoing mental health/substance use issues. If you need support, do not hesitate to consult my course outline/Brightspace page/the Wellness website."

Students may not have had much experience with timed, in-person tests

- Ease into these assessments; offer lower stakes opportunities first
- Consider what is necessary to return to (i.e., pre-pandemic) or whether other forms of assessment may be more valuable/appropriate
- Incorporate a 'mock' midterm (or test), where students respond as if they are under exam conditions, but worth no, little, or bonus marks, e.g., low-stakes
- Have students fill in cue cards each class or week with the 'top 3 learning out comes' for the course. Students hand these in for marks but they can be returned on the day of an assessment for the student to use as an aid sheet.

Students may not be accustomed to having in real life ("IRL") conversations with professors, or how to manage difficult situations; we may see increases in lack of civility in communication with students

- Check out the EDI toolkit[5] for excellent suggestions on inclusive teaching practices

Students may not have had much experience with their programmatic or university clubs and societies

- Consider promoting your unit or programs' undergraduate society on your Brightspace page, or invite club members to come to your class to discuss initiatives

Time management will remain a challenge for many students, as they adapt to in person classes and possibly other commitments (e.g., jobs, volunteer hours, varsity sports, care-giving)

- Encourage students to connect with a mentor at the SSSC
- Check out these **great tools**!

All of the above may lead to students feeling more stressed, desperate; we may see increases in academic integrity (AI) offenses

- Be explicit (and give examples!) of what constitutes cheating in your course
- Include small assessments that involve some element of learning about AI
- Check out the attached academic integrity checklist

[3] https://www.kent.edu/ctl/think-pair-share#:~:text=What,sitting%20near%20them%20(PAIR).
[4] https://www.surfoffice.com/blog/large-group-icebreakers
[5] https://science.carleton.ca/toolkit/
[6] Note: in the pre-pandemic times, ~70% attendance would have been considered 'very good'; 50%, normative.
[7] Be mindful that acutely serious, ongoing, and / or chronic issues for some students may require more formal accommodations/considerations; if this is the case, consider reaching out to the Care Support Team and/or PMC
[8] https://carleton.ca/wellness/living-well/resources/

Carleton University | Faculty of Science

Impact of Lifting School Masking Requirements on Incidence of COVID-19 among Staff and Students in Greater-Boston Area School Districts: A Difference-in-Differences Analysis

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Conflict of Interest Statement. All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare no competing interests.

Funding Statement. No external funding was received for this study.

ABSTRACT

Background. In February 2022, following the rescinding of a Massachusetts statewide school masking mandate, only two cities (Boston and neighboring Chelsea) out of 79 school districts in the greater-Boston area, maintained masking requirements in K-12 schools. This provided an opportunity to examine the impact of removing masking on COVID-19 case rates among students and staff in the public-school setting.

Methods. We used difference-in-differences for staggered policy adoption to compare incidence of COVID-19 cases among students and staff in greater-Boston area school districts that lifted masking requirements to those that had not yet lifted masking requirements during the 2021-2022 school year.

Results. Before the statewide school masking policy was lifted, there was no statistically significant difference in case rate trajectories between school districts. However, weekly and cumulative case rates were significantly higher in students and staff in school districts that removed masking requirements, compared to districts that had not yet lifted requirements. We estimate that lifting of school masking requirements was associated with an additional 44.9 (95% CI: 32.6, 57.1) COVID-19 cases per 1,000 students and staff over the 15 weeks since the lifting of the statewide school masking requirement, representing nearly 30% of all cases observed in schools during that time. School districts that sustained masking requirements for longer periods tended to have older school buildings in poorer condition, more crowded classrooms, higher proportion of low income and English learning students and students with disabilities, and a higher proportion of Black and Latinx students and staff.

Conclusions. Masking is a relatively low-cost but effective intervention that can protect students and staff from substantial illness and loss of in-person days in school. Despite compelling evidence that masking significantly reduces the spread of SARS-CoV-2, political will and public adherence to masking has waned. Our study confirms that universal masking requirements can benefit all students and staff, and therefore represents an important strategy to mitigate the impacts of structural racism, ensure health equity, and to avoid potential deepening of educational inequities.

MANUSCRIPT

INTRODUCTION

The direct and indirect impacts of the COVID-19 pandemic on children, their families, and surrounding communities have been substantial. Through February 2022, more children and adolescents in the U.S. have been infected with SARS-CoV-2 than any other age group.[1] Mass infection during the Omicron wave was especially consequential for younger age groups. During December 2021 - February 2022, approximately one-third of all children and adolescents in the U.S. were newly infected with SARS-CoV-2, and peak hospital admissions for COVID-19 were at least 3 times as high as any other period during the pandemic.[1,2] While the risk of severe COVID-19 is markedly lower compared with adults, children with COVID-19 are at risk for severe acute complications, including Multisystem Inflammatory Syndrome (MIS-C) as well as persistent long-term sequelae (i.e., long COVID/post-COVID conditions).[3–18] Layered on these health impacts are substantial impacts to children's social environments. More than 140,000 children and adolescents in the U.S. were estimated to have lost a parent or caregiver to COVID-19 through June 2021.[19] In addition, COVID-19 has caused substantial interruptions in school settings, including staffing shortages, school closures, and missed school days, deepening existing educational inequities.[20,21]

Importantly, the impacts of COVID-19 have been disproportionately borne by groups made vulnerable by historic and contemporary systems of oppression, including structural racism and settler colonialism.[22–25] Black, Indigenous, and Latinx children and adolescents were more likely to experience severe COVID-19 outcomes, death of parents/caregivers, worsening mental health, and educational disruptions, among other outcomes, compared to their white counterparts.[3,19,21,26–29] These manifestations of structural racism underscore the urgent need to prioritize health equity in COVID-19 policies and programs that impact children and adolescents.

Schools represent an important venue for policies and interventions that minimize COVID-19's impacts on students and staff. Even prior to the COVID-19 pandemic, schools were not uniformly health-promoting environments, shaped by environmental racism and chronic underinvestment. Historic and contemporary policies and practices including redlining, land theft, disinvestment and gentrification have eroded tax bases and shaped the quality of public school infrastructure and associated environmental hazards.[23,30–35] These varying school conditions, including crowded classrooms, exposure to toxins and pests, and poor air quality due to outdated or absent HVAC/ventilation systems

have left school districts differentially-equipped to respond to COVID-19, with harms concentrated among low income and Black, Latinx, and Indigenous communities.[30,36,37]

Alongside improved ventilation, vaccination, testing, and social supports to minimize the secondary impacts of COVID-19, masking represents an important piece of a layered mitigation strategy in school settings.[38–41] A growing body of evidence supports the effectiveness of universal masking requirements in reducing SARS-CoV-2 transmission both in community and school settings.[42–48] During the emergence of the Delta variant prior to the start of the 2021-2022 school year, CDC issued guidance recommending "... universal indoor masking by all students, staff, teachers, and visitors to K-12 schools, regardless of vaccination status".[49] However, on February 25, 2022, CDC released updated guidance that limited masking recommendations in public indoor settings (including K-12 schools) to counties with high COVID-19 Community Levels – a CDC-defined metric largely determined by COVID-19 hospitalizations.[50] Following this updated guidance, many statewide policies requiring masks in both community settings and schools were lifted, largely shifting policy decisions to the local level.[51]

Massachusetts (MA) was one of only 18 states plus DC with statewide school masking requirements at some point during the 2021-2022 school year.[52] The Massachusetts Department of Elementary and Secondary Education (DESE) lifted the statewide school masking requirement on February 28, 2022, joining a number of other states, from California to New Jersey, that similarly removed mask mandates in schools around the same time.[52] With statewide school masking orders no longer in place and newly revised CDC guidance for public indoor settings, many MA school districts lifted masking requirements immediately, several sustained masking requirements for several weeks following the rescindment of the statewide order, and two districts – Boston and neighboring Chelsea Public Schools – maintained masking requirements through June 2022. The staggered lifting of masking requirements across Boston-area school districts presents a unique opportunity to evaluate the impact of school masking policies, during a period of highly transmissible SARS-CoV-2 variants and a rapidly changing COVID-19 policy environment.

The goal of this study was to examine the impact of staggered lifting of school masking requirements on the incidence of COVID-19 among staff and students in MA school districts, and to describe potential impacts of policy choices for health equity. Specifically, we aimed to (1) compare weekly incidence of COVID-19 in school districts that lifted masking requirements to districts where masking requirements had not yet been lifted; (2) estimate the difference in COVID-19 incidence among students and staff attributable to lifting mask protections (i.e., excess risk and population attributable fraction); and (3) compare school districts characteristics (e.g., staff/student sociodemographics, school

building conditions, etc.) for districts that chose to sustain masking policies for longer periods of time to those that lifted masking requirements earlier.

METHODS

Data Sources & Definitions

We used publicly-available, school district-level data on COVID-19 cases, enrollment, and staffing for the 2021-2022 school year from DESE.[53,54] Each Thursday, school districts are required to report COVID-19 cases among students and staff for the prior 7 days (Thursday-Wednesday). In addition to required case reporting throughout our study period, DESE offered state-sponsored testing programs options, including pooled and symptomatic testing and option introduced in mid-January for state-provided weekly take-home rapid antigen tests for schools that opt-in.[55,56]

For included school districts, we manually gathered data on dates of school and citywide masking policies from school district websites and/or local news sources as available. In addition, we obtained data on COVID-19 indicators in the surrounding communities (case rates, percent test positivity, testing rate) from the Massachusetts Department of Public Health (DPH) used for covariate adjustment in sensitivity analyses described below. Finally, for descriptive analyses, we extracted information on school district characteristics, including demographic information for students and staff, enrollment of DESE-defined selected populations (e.g., low-income students, English learners, students with disabilities, etc.) from DESE,[54] and information on school building condition and learning environment from the 2016 School Survey (most recent available data) from the Massachusetts School Building Authority (MSBA).[57]

Exposure and Outcomes

The primary exposure in this study was whether a school district maintained or lifted masking requirements in each reporting week. Under the statewide school masking requirement in place through February 28, 2022, all schools had masking requirements in place at the start of our study. A school district was considered to have lifted their masking requirement if their policy was rescinded prior to the first day of the reporting week (i.e., if the masking requirement was lifted part way through the reporting week, that week was classified as having masking requirements sustained).

Our primary outcome of interest was weekly reported rates of COVID-19 among staff and students. We reported rates as the number of COVID-19 cases per 1,000 staff and students (considered together), and separately among staff and students.

Inclusion and Exclusion Criteria

For this analysis, we considered the n=79 school districts within the greater-Boston metro area contained within the U.S. Census Bureau-defined Boston-Cambridge-Newton New England City and Town Area (NECTA) division after excluding Charter and Vocational/Technical school districts (**Figure S1**). Of these, we excluded n=7 school districts with unreliable or missing testing data for more than 5 weeks of the study period (**Supplementary Appendix, Methods**). Our final sample included n=72 school districts representing n=294,084 students and n=46,530 staff over the 40 calendar weeks of the 2021-2022 school year through June 15, 2022 (**Table S1**).

Statistical Analysis

We conducted a difference-in-differences analysis with staggered implementation to compare the weekly incidence of COVID-19 in school districts that lifted mask requirements compared to school districts where mask requirements had not yet been lifted.[58–61] In this analysis, we estimated the weekly and cumulative impact over 15 weeks of removing mask requirements on reported COVID-19 cases in schools that removed masking requirements (i.e., average treatment effect among the treated).

Sensitivity analyses

We conducted various sensitivity analyses to ensure our results were robust to changes in model specifications, data cleaning steps, and inclusion/exclusion criteria. Additional details can be found in the **Supplementary Appendix**. Briefly, we varied data cleaning procedures (raw data vs. corrections for 2-week reporting periods and corrections for non-reporting as zeroes), control groups (e.g., neighboring school districts only vs. entire NECTA division), weighting by schools' population size, smoothing/rolling average case rates, and adjustments for various covariates, including measures of community burden of COVID-19 (**Table S2**). Our final analysis corrected for non-reporting as zeroes, considered all school districts within the NECTA division as comparators, and was weighted by school population size to capture the population impact of masking policies across our included school districts. Our main analysis did not adjust for measures of community level COVID-19 burden, as a growing body of evidence suggests schools as a driver of COVID-19 community burden,[38,39,62] making it a mediating factor along the causal pathway rather than a confounder of the relationship between school masking policies and COVID-19 among students and staff.

Descriptive Analysis

Finally, to assess whether school masking policies were enacted with attention to health equity, we compared timing of lifting/sustaining school masking policies across various school district characteristics, including student and sociodemographics and physical characteristics of the learning environment using data sources described above.

RESULTS

Out of the 72 included school districts in the Boston-Newton-Cambridge NECTA division, only Boston and Chelsea Public Schools maintained masking throughout the study period (**Figure 1A**). Most school districts (n=46, 64%) lifted masking requirements when the statewide mask requirement was rescinded on February 28, 2022 (**Figure 1B**). The remaining 24 districts removed masking requirements in the following reporting week (n=17, 24%) or two weeks (n=7, 10%) after the statewide mandate was lifted.

Prior to the lifting of masking requirements, as cases declined during the initial BA.1 Omicron wave, reported COVID-19 case rates among students and staff were similar in Boston/Chelsea to school districts within the study area that later lifted their masking requirements (**Figure 2A**). However, following the lifting of masking requirements in late February through early March, reported COVID-19 rates diverged and were substantially higher in school districts that lifted their masking requirements compared to those observed in Boston and Chelsea Public Schools where mask requirements were sustained (**Figure 2A**). These trends held both overall (**Figure 2A**) and among students (**Figure 2B**) and staff (**Figure 2C**) separately.

Next, we report individual weekly effects (**Figure 3A**) and cumulative effects over the study period (**Figure 3B**) from our difference-in-differences analysis. We did not observe meaningful patterns in differences between school districts in the period prior to the removal of the statewide school masking requirement. Despite substantial variance between schools in the weeks corresponding to the initial Omicron wave, the districts followed approximately the same trajectories during the surge with no clear patterns that might violate the parallel trends assumption (**Figure 3A.1**). In contrast, once masking requirements were lifted, we observed consistently higher case rates in those school districts compared to districts which continued masking requirements. Lifting of masking requirements was associated with significant increases in reported COVID-19 cases among students and staff in 12 out of 15 individual weeks in the post-period (**Figure 3A.1**). These impacts increased with the amount of time since a

school district had lifted their mask requirement. In the first week following a lifting of masking requirements, we estimated an additional +1.44 (95% CI: +0.58, +2.29) COVID-19 cases per 1,000 students and staff, relative to school districts that had not yet lifted masking requirements. By the 9th week after a school district had lifted mask requirements, +9.68 per 1,000 (+7.11, +12.25) excess COVID-19 cases compared to school districts that had not yet lifted requirements (**Figure 3A.1**). We observed similar trends between students and staff, with slightly stronger weekly effects observed among staff (**Figure 3A.2**) compared to students (**Figure 3A.3**).

Importantly, the strength of the association between school masking requirements and COVID-19 case rates varied with the background rate of COVID-19 in the surrounding community, such that the strongest effects were observed in the weeks when background community case rates were at their highest for a given school district (**Figure S3**, **Figure S4**). Determining whether this is due to high community rates contributing to greater risk in unmasked schools or whether transmission in unmasked schools is contributing to higher community rates is difficult and beyond the scope of this paper. Nonetheless, these data clearly support a link between in-school transmission and community COVID-19 rates.

In the 15 weeks following the lifting of the statewide masking requirement in schools, the cumulative impact in school districts that lifted requirements increased over time for staff and students combined (**Figure 3B.1**), and for students (**Figure 3B.2**) and staff (**Figure 3B.3**) separately. Overall, we estimate that lifting of masking requirements was associated with an additional 44.9 (95% CI: 32.6, 57.1) cases per 1,000 students and staff over the 15 weeks since the lifting of the statewide mandate (**Table 1**). This excess rate corresponded to 11,901 (95% CI: 8,651, 15,151) total cases, representing 33.4% (95% CI: 24.3%, 42.5%) of cases in school districts that lifted masking requirements and 29.4% (95% CI: 21.4%, 37.5%) of cases in all school districts during that period.

This effect was even more pronounced among staff, where lifting requirements was associated with an additional 81.7 (95% CI: 59.3, 104.1) COVID-19 cases per 1,000 staff over 15 weeks, representing 40.4% (95% CI: 29.4%, 51.5%) of all cases observed among staff in school districts that lifted masking requirements and 35.1% (95% CI: 25.5%, 44.7%) of all cases observed among staff across all school districts over this period. In sensitivity analyses, the results were robust to modeling specifications, including data cleaning measures, population weighting, restricting comparison group school districts to only neighboring school districts, and to adjusting for covariates including measures of community burden of COVID-19 (**Figure S5**).

Finally, we found that school district characteristics varied with the length of time they sustained their individual masking requirements following the lifting of the statewide mandate. We found that school districts that sustained masking protections for longer periods were those with a higher percentage of low-income students, students with disabilities, and English-learning students (**Figure 4A**) and a higher percentage of Black and Latinx students (**Figure 4B**) and staff (**Figure 4C**). In addition, school districts that sustained masking requirements for longer periods also had school buildings that were older, in poorer physical condition (a category that included ventilation/HVAC), and higher numbers of students per classroom (**Figure 4D**). In contrast, we found that school districts that lifted masking requirements earlier tended to have a lower percentage of low income and English-learning students, students with disabilities, Black and Latinx students and staff, fewer students per classroom, and newer buildings that were generally in better condition. These differences between districts have important implications for our results, as it clarifies that the increased COVID-19 rates in schools which removed masks are unlikely to be related to a higher baseline risk of SARS-CoV-2 exposure for students and staff outside of school. It also suggests that, despite newer buildings in better condition, ventilation in schools which lifted mask requirements was generally not sufficient to substantially impact SARS-CoV-2 transmission

DISCUSSION

Given the dynamic nature of the pandemic, it is critical to examine in near real-time the need for and impact of preventive measures, including masking in school settings. Schools are, and will continue to be, an important yet politically contested space in the COVID-19 response, making analyses such as this one particularly relevant to decision-makers. Our analysis adds to a growing body of literature documenting the benefits of universal masking policies in public schools during a period of highly transmissible SARS-CoV-2 variants and a rapidly changing COVID-19 policy environment.

Our paper documents significantly higher rates of reported COVID-19 in school districts that lifted masking requirements compared to those that sustained masking requirements following the rescinding of the Massachusetts statewide school masking order. Specifically, we estimate that rescinding mask requirements in school districts in Eastern Massachusetts during March 2022 may have contributed an additional 45 per 1,000 COVID-19 cases among students and staff in the 15 weeks following the end of school-based masking requirements. In total, this represents more than 9,000 cases among students and nearly 3,000 cases among staff. The Massachusetts Department of Elementary and Secondary Education requires that children who test positive for COVID-19 isolate for a minimum of 5 days, or until symptoms abate. In the best-case scenario, our results translate to a minimum of 17,505 days of school

absence due to mandatory COVID-19 isolation in school children, and 6,547 days of teacher absence over the 15 weeks since the lifting of the statewide mandate (see methods in **Supplementary Appendix, Table S3**). Importantly, we observed the greatest impact of masking requirements in weeks with highest background community rates of COVID-19, underscoring the importance of early implementation and sustaining of school masking policies prior to and throughout surges. In addition, given the evolving understanding of the impact of long-COVID on children,[10–13] our results suggest that masking requirements may be an important tool for school administrators and elected officials to consider as they plan for the upcoming school year.

Understanding COVID-19 policy decisions requires attention to power and existing historical and sociopolitical context.[23,63–65] In the present study, we noted systematic differences in school masking policy choices by school district characteristics. Specifically, school districts that sustained masking requirements for longer periods tended to have school buildings in worse physical condition, more crowded classrooms, and a higher proportion of staff and students made vulnerable by historic and contemporary systems of oppression (e.g., racism, capitalism, xenophobia, and ableism). In addition, the only two school districts to sustain school masking requirements through June – Boston and neighboring Chelsea Public Schools – were also among the cities and towns in Massachusetts that have been most impacted by the COVID-19 pandemic to date. These differences in length of school masking policies may reflect an understanding among elected officials of how public policies are a key mechanism by which structural racism operates to produce health inequities.[23,30,33,63,65] Structural racism and racial capitalism are fundamental causes of COVID-19 inequities.[22,23] These forces operate via diverse mechanisms such as household crowding, employment in essential industries, and access to testing, vaccines and treatment, and differentially concentrate risk for both SARS-CoV-2 exposure and severe COVID-19 outcomes among low income and Black, Latinx, and Indigenous communities.[22–24,37,66] Knowledge of these differential conditions may influence support/opposition to COVID-19 mitigation measures and policies in schools, including school masking.[67,68] A growing body of work suggests that knowledge of these inequities may result in increasing support for protective measures among those directly impacted by structural racism and other systems of oppression while simultaneously decreasing support among systematically advantaged groups whose relative position largely insulates them from COVID-19 harms.[67–69] In several studies and polls, Black and Latinx parents were less likely to have confidence that schools could reopen safely without additional protections and more likely to support school masking requirements.[67,68,70,71] In contrast, when randomized to receive information about pervasive racial/ethnic COVID-19 inequities, white individuals were less likely to report concern about COVID-19, empathy for those vulnerable to COVID-19, and less likely to support COVID-19 prevention policies.[69] Given vastly unequal environmental conditions shaping COVID-19

risk, universal school masking policies are an important measure for mitigating the impacts of structural racism and may be especially important in settings where other preventive measures such as upgraded ventilation/filtration may be more resource- and time-intensive to implement. School districts and policymakers should consider these inequitable impacts when making plans about masking policies for the upcoming school year.

Because universal school masking policies to prevent SARS-CoV-2 transmission has been a contentious issue, we anticipate a number of critiques which we address here, several of which are commonly levied at any study of masking in schools. One common critique of this type is that COVID-19 is rare and mild in children. However, we observed weekly COVID-19 case rates exceeding 20 per 1,000 students at times during the study. These high rates likely represent substantial educational disruptions and present increased risk of long-term complications (i.e., long-COVID). In addition, we observed larger benefits of sustained masking among staff, who may be at increased risk of severe COVID-19 outcomes. A second common critique of mandatory masking in schools is that alternative approaches to reducing transmission, such as improved ventilation, exist. While this may be true in theory, our findings make clear that the ventilation systems in Eastern Massachusetts school districts were insufficient to prevent all COVID-19 cases in schools. Indeed, school districts with newer buildings and better ventilation were more likely to remove masking requirements earlier, and thus our findings of increased COVID-19 incidence in the absence of masks demonstrate that ventilation likely remained insufficient in most schools in our sample, reinforcing the need for layered mitigation measures.

A key strength of this study is our use of staggered dates of removal of mask requirements, and difference-in-differences methodology. These approaches enabled us to estimate the impact of masking requirements despite differences between school districts. While it is true that there are several factors which differ between school districts, and which are related to SARS-CoV-2 exposure risk, difference-in-differences methodology is immune to those sources of confounding whenever they do not experience changes over time coinciding with the policy change of interest (e.g., differences in sociodemographics or vaccination rates). Furthermore, when we investigated the distribution of known COVID-19 risk factors between school districts, we found that those districts which removed masks were those which *a priori* would have been expected to have lower COVID-19 rates. This suggests that any residual confounding of our results by COVID-19 risk would have led to our analysis underestimating the harms of removing universal masking policies.

A key question in any study looking at schools is how background community COVID-19 rates interact with school-specific rates. There are two potential reasons why community levels may be relevant, and

the correct analytic decision on whether to include community levels as confounder or not, is not straightforward. In sensitivity analyses, we found that the benefits of universal masking requirements persisted even after controlling for several measures of community COVID-19 incidence. We, however, did not prioritize these results in our main analyses, as we argue it is more appropriate to consider community rates of COVID-19 as part of the causal effect of school masking policies rather than a source of bias. School and community COVID-19 levels are so closely linked that it is difficult to rule out at least some of the variation in community COVID-19 rates being a direct consequence of changing school case rates.[63] That is, students and staff can infect their family and community members and vice versa. In addition, while some community-level policies changed during Spring 2022, these changes did not perfectly coincide with the school mask mandates being rescinded, nor did the community mask policies always align with school mask policies. Overall, we anticipate that although community case rates change over time and are connected to school case rates, the ways in which community cases and school cases are related should not depend on school masking policies.

A second reason to consider community COVID-19 cases is that there may be spillover between school districts or communities as individuals move between areas. This is not an issue of confounding, but rather a potential threat to the validity of estimating causal effects of COVID-19 prevention policies. Spillover between communities and school districts may reduce the difference in COVID-19 rates and has the potential to alter the case growth trajectory in masked schools. This latter issue is a potential threat to the parallel trends assumption required for difference-in-differences analyses. To address this, we used the staggered policy adoption model of difference-in-differences.[59–62] This approach uses all pre-policy change data as unexposed data, and aligns the comparisons for school districts which unmask to contemporaneous control districts, allowing us to estimate the impact of removing masks, uncoupled from calendar time. As a result, we anticipate that any remaining impact of spillover on our findings would be to decrease the estimated impact of removing masks, making our results an underestimate of the harms caused by removing mask mandates earlier.

Overall, our findings should be interpreted as the impact of universal masking policies, not masks *per se*, given that it is unlikely that all children and families removed masks when the requirement was removed, as masks were still encouraged in most school settings and utilized by many. Despite this, the impact of lifting required masking policies was substantial.

CONCLUSION

Undoubtedly, the Omicron wave will not be the final COVID-19 surge, and ongoing efforts to minimize the impacts of COVID-19 in school settings, including evidence-based public policy, are urgently needed. Our results underscore the importance of centering health equity in these policy choices and support universal school masking policies as an important piece of a layered mitigation strategy to reduce COVID-19 risk among those made vulnerable by structural racism and other systems of oppression. If trends from prior years persist, surges may be especially likely to occur in late December and January. Many students and staff will likely have spent time traveling, gathering indoors, or in other high-risk transmission settings during winter break, and epidemiologic best practices suggest a 14-day quarantine following these types of activities to prevent onward transmission. We recommend that school districts develop mitigation plans proactively in anticipation of a winter COVID-19 wave during the 2022-23 school year. In particular, requiring masks in schools in December and January, with a clear *a priori* decision threshold for removing masks in March or later as the winter wave abates, could be an effective strategy to minimize the impact of COVID-19 in school settings.

REFERENCES

1. Clarke KEN, Jones JM, Deng Y, et al. Seroprevalence of Infection-Induced SARS-CoV-2 Antibodies - United States, September 2021-February 2022. MMWR Morb Mortal Wkly Rep 2022;71(17):606–8.

2. Iuliano AD, Brunkard JM, Boehmer TK, et al. Trends in Disease Severity and Health Care Utilization During the Early Omicron Variant Period Compared with Previous SARS-CoV-2 High Transmission Periods - United States, December 2020-January 2022. MMWR Morb Mortal Wkly Rep 2022;71(4):146–52.

3. Payne AB, Gilani Z, Godfred-Cato S, et al. Incidence of Multisystem Inflammatory Syndrome in Children Among US Persons Infected With SARS-CoV-2. JAMA Netw Open 2021;4(6):e2116420.

4. Abrams JY, Oster ME, Godfred-Cato SE, et al. Factors linked to severe outcomes in multisystem inflammatory syndrome in children (MIS-C) in the USA: a retrospective surveillance study. Lancet Child Adolesc Health 2021;5(5):323–31.

5. McCormick DW, Richardson LC, Young PR, et al. Deaths in Children and Adolescents Associated With COVID-19 and MIS-C in the United States. Pediatrics [Internet] 2021;148(5). Available from: http://dx.doi.org/10.1542/peds.2021-052273

6. Godfred-Cato S, Bryant B, Leung J, et al. COVID-19-Associated Multisystem Inflammatory Syndrome in Children - United States, March-July 2020. MMWR Morb Mortal Wkly Rep 2020;69(32):1074–80.

7. Feldstein LR, Tenforde MW, Friedman KG, et al. Characteristics and Outcomes of US Children and Adolescents With Multisystem Inflammatory Syndrome in Children (MIS-C) Compared With Severe Acute COVID-19. JAMA 2021;325(11):1074–87.

8. Wanga V, Gerdes ME, Shi DS, et al. Characteristics and Clinical Outcomes of Children and Adolescents Aged <18 Years Hospitalized with COVID-19 - Six Hospitals, United States, July-August 2021. MMWR Morb Mortal Wkly Rep 2021;70(5152):1766–72.

9. Miller, Yousaf, Bornstein. Multisystem Inflammatory Syndrome in Children (MIS-C) During SARS-CoV-2 Delta and Omicron Variant Circulation—United States, July 2021–January 2022. Clin Infect Dis [Internet] 2022;Available from: https://academic.oup.com/cid/advance-article-abstract/doi/10.1093/cid/ciac471/6605071

10. CDC. Long COVID or Post-COVID Conditions [Internet]. Centers for Disease Control and Prevention. 2022 [cited 2022 Jul 5];Available from: https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/index.html

11. Stephenson T, Pinto Pereira SM, Shafran R, et al. Physical and mental health 3 months after SARS-CoV-2 infection (long COVID) among adolescents in England (CLoCk): a national matched cohort study. Lancet Child Adolesc Health 2022;6(4):230–9.

12. Lopez-Leon S, Wegman-Ostrosky T, Ayuzo del Valle NC, et al. Long-COVID in children and adolescents: A systematic review and meta-analyses [Internet]. bioRxiv. 2022;Available from: https://www.medrxiv.org/content/10.1101/2022.03.10.22272237.abstract

13. Kikkenborg Berg S, Palm P, Nygaard U, et al. Long COVID symptoms in SARS-CoV-2-positive children aged 0-14 years and matched controls in Denmark (LongCOVIDKidsDK): a national, cross-sectional study. Lancet Child Adolesc Health [Internet] 2022;Available from: http://dx.doi.org/10.1016/S2352-4642(22)00154-7

14. Magnusson K, Skyrud KD, Suren P, et al. Healthcare use in 700 000 children and adolescents for six months after covid-19: before and after register based cohort study. BMJ 2022;376:e066809.

15. Asadi-Pooya AA, Nemati H, Shahisavandi M, et al. Long COVID in children and adolescents. World J Pediatr 2021;17(5):495–9.

16. Zimmermann P, Pittet LF, Curtis N. How Common is Long COVID in Children and Adolescents? Pediatr Infect Dis J 2021;40(12):e482–7.

17. Izquierdo-Pujol J, Moron-Lopez S, Dalmau J, et al. Post COVID-19 Condition in Children and Adolescents: An Emerging Problem. Front Pediatr 2022;10:894204.

18. Kompaniyets L, Bull-Otterson L, Boehmer TK, et al. Post-COVID-19 Symptoms and Conditions Among Children and Adolescents - United States, March 1, 2020-January 31, 2022. MMWR Morb Mortal Wkly Rep 2022;71(31):993–9.

19. Hillis SD, Blenkinsop A, Villaveces A, et al. COVID-19-Associated Orphanhood and Caregiver Death in the United States. Pediatrics [Internet] 2021;Available from: http://dx.doi.org/10.1542/peds.2021-053760

20. Parks SE, Zviedrite N, Budzyn SE, et al. COVID-19-Related School Closures and Learning Modality Changes - United States, August 1-September 17, 2021. MMWR Morb Mortal Wkly Rep 2021;70(39):1374–6.

21. Nunez-Smith M, COVID-19 Health Equity Task Force. Presidential COVID-19 Health Equity Task Force - Final Report and Recommendations [Internet]. U.S. Department of Health and Human Services; 2021. Available from: https://www.minorityhealth.hhs.gov/assets/pdf/HETF_Report_508_102821_9am_508Team%20WIP11.pdf

22. Laster Pirtle WN. Racial Capitalism: A Fundamental Cause of Novel Coronavirus (COVID-19) Pandemic Inequities in the United States. Health Educ Behav 2020;47(4):504–8.

23. Bailey ZD, Moon JR. Racism and the Political Economy of COVID-19: Will We Continue to Resurrect the Past? J Health Polit Policy Law 2020;45(6):937–50.

24. Emerson MA, Montoya T. Confronting Legacies of Structural Racism and Settler Colonialism to Understand COVID-19 Impacts on the Navajo Nation. Am J Public Health 2021;111(8):1465–9.

25. Cowger TL, Davis BA, Etkins OS, et al. Comparison of Weighted and Unweighted Population Data to Assess Inequities in Coronavirus Disease 2019 Deaths by Race/Ethnicity Reported by the US Centers for Disease Control and Prevention. JAMA Netw Open 2020;3(7):e2016933.

26. Shi DS, Whitaker M, Marks KJ, et al. Hospitalizations of Children Aged 5-11 Years with Laboratory-Confirmed COVID-19 - COVID-NET, 14 States, March 2020-February 2022. MMWR Morb Mortal Wkly Rep 2022;71(16):574–81.

27. Bailey LC, Razzaghi H, Burrows EK, et al. Assessment of 135 794 Pediatric Patients Tested for Severe Acute Respiratory Syndrome Coronavirus 2 Across the United States. JAMA Pediatr 2021;175(2):176–84.

28. Marks KJ, Whitaker M, Anglin O, et al. Hospitalizations of Children and Adolescents with Laboratory-Confirmed COVID-19 - COVID-NET, 14 States, July 2021-January 2022. MMWR Morb Mortal Wkly Rep 2022;71(7):271–8.

29. Xiao Y, Yip PS-F, Pathak J, Mann JJ. Association of Social Determinants of Health and Vaccinations With Child Mental Health During the COVID-19 Pandemic in the US. JAMA Psychiatry 2022;79(6):610–21.

30. Neal DE. HEALTHY SCHOOLS: A MAJOR FRONT IN THE FIGHT FOR ENVIRONMENTAL JUSTICE. Environ Law 2008;38(2):473–93.

31. Wilson S, Hutson M, Mujahid M. How Planning and Zoning Contribute to Inequitable Development, Neighborhood Health, and Environmental Injustice. Environ Justice 2008;1(4):211–6.

32. Bullard RD. Dismantling Environmental Racism in the USA. Local Environ 1999;4(1):5–19.

33. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. Lancet 2017;389(10077):1453–63.

34. Bullard RD, Wright BH. Environmental justice for all: community perspectives on health and research needs. Toxicol Ind Health 1993;9(5):821–41.

35. Bullard RD. The Threat of Environmental Racism. Nat Resour Environ 1993;7(3):23–56.

36. Pastor M Jr, Sadd JL, Morello-Frosch R. Who's minding the kids? Pollucion, public schools, and environmental justice in Los Angeles. Soc Sci Q 2002;83(1):263–80.

37. Kitzmiller EM, Drake Rodriguez A. Addressing Our Nation's Toxic School Infrastructure in the Wake of COVID-19. Educ Res 2022;51(1):88–92.

38. Wiens KE, Smith CP, Badillo-Goicoechea E, et al. In-person schooling and associated COVID-19 risk in the United States over spring semester 2021. Sci Adv 2022;8(16):eabm9128.

39. Lessler J, Grabowski MK, Grantz KH, et al. Household COVID-19 risk and in-person schooling. Science 2021;372(6546):1092–7.

40. Gettings J, Czarnik M, Morris E, et al. Mask Use and Ventilation Improvements to Reduce COVID-19 Incidence in Elementary Schools - Georgia, November 16-December 11, 2020. MMWR Morb Mortal Wkly Rep 2021;70(21):779–84.

41. Falk A, Benda A, Falk P, Steffen S, Wallace Z, Høeg TB. COVID-19 Cases and Transmission in 17 K-12 Schools - Wood County, Wisconsin, August 31-November 29, 2020. MMWR Morb Mortal Wkly Rep 2021;70(4):136–40.

42. Budzyn SE, Panaggio MJ, Parks SE, et al. Pediatric COVID-19 Cases in Counties With and Without School Mask Requirements - United States, July 1-September 4, 2021. MMWR Morb Mortal Wkly Rep 2021;70(39):1377–8.

43. Jehn M, McCullough JM, Dale AP, et al. Association Between K-12 School Mask Policies and School-Associated COVID-19 Outbreaks - Maricopa and Pima Counties, Arizona, July-August 2021. MMWR Morb Mortal Wkly Rep 2021;70(39):1372–3.

44. Donovan CV, Rose C, Lewis KN, et al. SARS-CoV-2 Incidence in K-12 School Districts with Mask-Required Versus Mask-Optional Policies - Arkansas, August-October 2021. MMWR Morb Mortal Wkly Rep 2022;71(10):384–9.

45. Andrejko KL, Pry JM, Myers JF, et al. Effectiveness of Face Mask or Respirator Use in Indoor Public Settings for Prevention of SARS-CoV-2 Infection - California, February-December 2021. MMWR Morb Mortal Wkly Rep 2022;71(6):212–6.

46. Murray TS, Malik AA, Shafiq M, et al. Association of Child Masking With COVID-19-Related Closures in US Childcare Programs. JAMA Netw Open 2022;5(1):e2141227.

47. Boutzoukas AE, Zimmerman KO, Inkelas M, et al. School Masking Policies and Secondary SARS-CoV-2 Transmission. Pediatrics [Internet] 2022;Available from: http://dx.doi.org/10.1542/peds.2022-056687

48. Dawson P, Worrell MC, Malone S, et al. Pilot Investigation of SARS-CoV-2 Secondary Transmission in Kindergarten Through Grade 12 Schools Implementing Mitigation Strategies - St. Louis County and City of Springfield, Missouri, December 2020. MMWR Morb Mortal Wkly Rep 2021;70(12):449–55.

49. CDC. Guidance for COVID-19 Prevention in K-12 Schools [Internet]. Centers for Disease Control and Prevention. 2021 [cited 2022 Jul 5];Available from: https://web.archive.org/web/20211001030138/https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/k-12-guidance.html

50. CDC. COVID-19 Community Levels [Internet]. Centers for Disease Control and Prevention. 2022 [cited 2022 Jul 27];Available from: https://www.cdc.gov/coronavirus/2019-ncov/science/community-levels.html

51. Camera L. New CDC Mask Guidance Marks Major Shift for Schools [Internet]. U.S. News & World Report. 2022 [cited 2022 Jul 5];Available from: https://www.usnews.com/news/national-news/articles/2022-02-25/new-cdc-mask-guidance-marks-major-shift-for-schools

52. Decker S. Which States Ban Mask Mandates in Schools, and Which Require Masks? [Internet]. Education Week. 2021 [cited 2022 Jul 5];Available from: https://www.edweek.org/policy-politics/which-states-ban-mask-mandates-in-schools-and-which-require-masks/2021/08

53. Massachusetts Department of Elementary and Secondary Education. Positive COVID-19 Cases in Schools [Internet]. [cited 2022 Jun 22];Available from: https://www.doe.mass.edu/covid19/positive-cases/default.html#weekly-report

54. School and District Profiles - Statewide Reports [Internet]. Massachusetts Department of Elementary and Secondary Education (DESE). Available from: https://profiles.doe.mass.edu/state_report/

55. DESE/DPH Protocols for Responding to COVID-19 Scenarios - SY 2021-22 [Internet]. 2022 [cited 2022 Jun 22];Available from: https://www.doe.mass.edu/covid19/on-desktop/protocols/protocols.pdf

56. Massachusetts Department of Elementary and Secondary Education (DESE), Massachusetts Department of Public Health (DPH). New COVID-19 Testing Program Option for K-12 Schools [Internet]. 2022 [cited 2022 Jun 22];Available from: https://www.doe.mass.edu/covid19/on-desktop/2022-0118new-testing-program.pdf

57. Massachusetts School Building Authority. 2016 SCHOOL SURVEY REPORT [Internet]. 2016. Available from: https://www.massschoolbuildings.org/sites/default/files/edit-contentfiles/Programs/School_Survey/2016/MSBA%202016%20Survey%20Report_102417-FINAL.pdf

58. Athey S, Imbens GW. Design-based analysis in Difference-In-Differences settings with staggered adoption. J Econom 2022;226(1):62–79.

59. Goodman-Bacon A. Difference-in-differences with variation in treatment timing. J Econom 2021;225(2):254–77.

60. Callaway B, Sant'Anna PHC. Difference-in-Differences with multiple time periods. J Econom 2021;225(2):200–30.

61. Roth J, Sant'Anna PHC, Bilinski A, Poe J. What's Trending in Difference-in-Differences? A Synthesis of the Recent Econometrics Literature [Internet]. arXiv [econ.EM]. 2022;Available from: http://arxiv.org/abs/2201.01194

62. Johnson KE, Lachmann M, Stoddard M, et al. Detecting in-school transmission of SARS-CoV-2 from case ratios and documented clusters. medRxiv [Internet] 2021;Available from: http://dx.doi.org/10.1101/2021.04.26.21256136

63. Michener J. Race, power, and policy: understanding state anti-eviction policies during COVID-19. Policy Soc 2022;41(2):231–46.

64. Woolhandler S, Himmelstein DU, Ahmed S, et al. Public policy and health in the Trump era. Lancet 2021;397(10275):705–53.

65. Bailey ZD, Feldman JM, Bassett MT. How Structural Racism Works - Racist Policies as a Root Cause of U.S. Racial Health Inequities. N Engl J Med 2021;384(8):768–73.

66. Krieger N, Waterman PD, Chen JT. COVID-19 and Overall Mortality Inequities in the Surge in Death Rates by Zip Code Characteristics: Massachusetts, January 1 to May 19, 2020. Am J Public Health 2020;110(12):1850–2.

67. Cotto R Jr, Woulfin S. Choice With(out) Equity? Family Decisions of Child Return to Urban Schools in Pandemic. JFDE 2021;4(1):42–63.

68. Gilbert LK, Strine TW, Szucs LE, et al. Racial and Ethnic Differences in Parental Attitudes and Concerns About School Reopening During the COVID-19 Pandemic - United States, July 2020. MMWR Morb Mortal Wkly Rep 2020;69(49):1848–52.

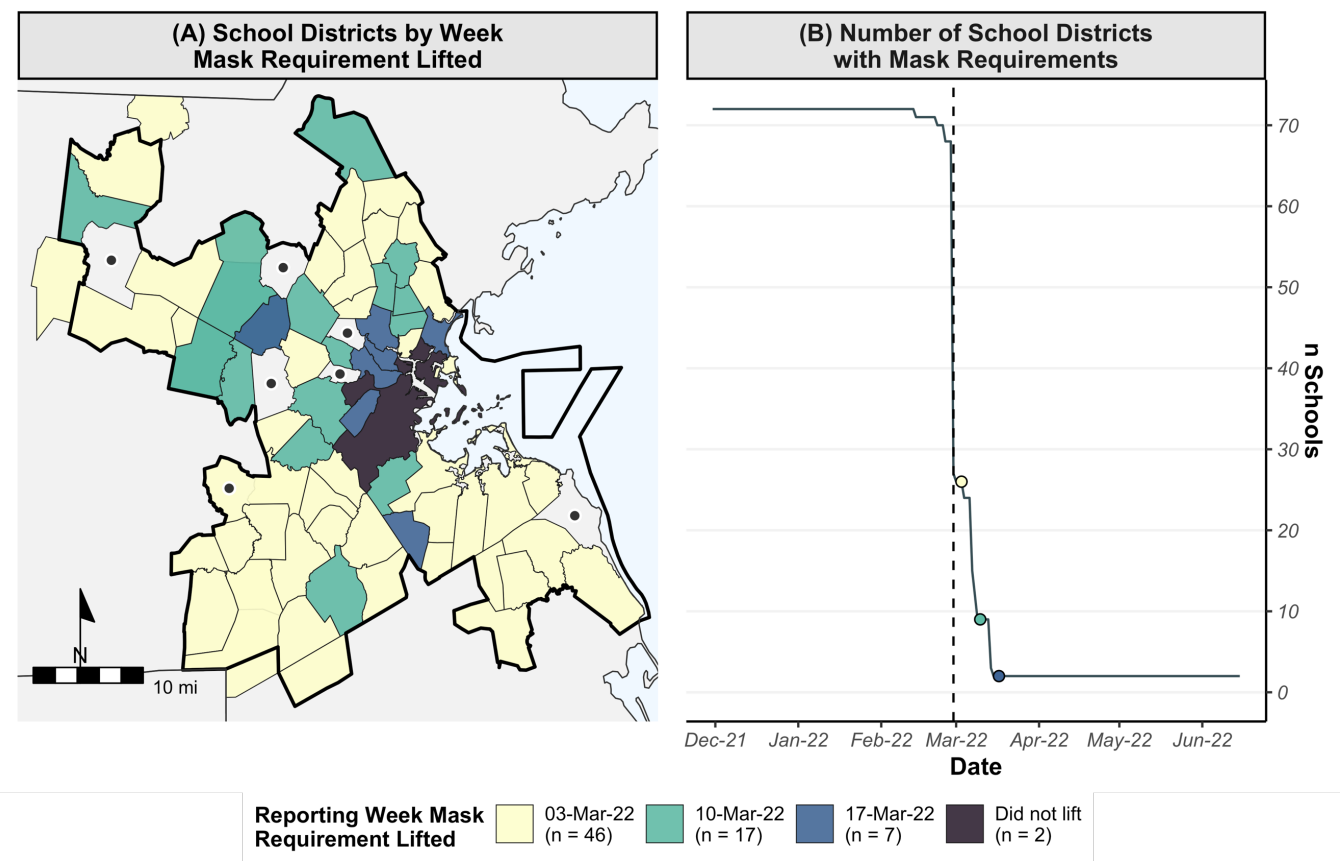
69. Skinner-Dorkenoo AL, Sarmal A, Rogbeer KG, André CJ, Patel B, Cha L. Highlighting COVID-19 racial disparities can reduce support for safety precautions among White U.S. residents. Soc Sci Med 2022;301:114951.

70. Annie Ma, Associated Press, Hannah Fingerhut, Associated Press. Racial split on COVID-19 endures as restrictions ease in U.S [Internet]. PBS NewsHour. 2022 [cited 2022 May 17];Available from: https://www.pbs.org/newshour/health/racial-split-on-covid-19-endures-as-restrictions-ease-in-us

71. Parr R. New K-12 Parent Poll: Student mental health, academics pose challenge to Massachusetts schools COVID recovery plans [Internet]. MassINC Polling Group. 2022 [cited 2022 Aug 1];Available from: https://www.massincpolling.com/the-topline/new-k-12-parent-poll-student-mental-health-academics-pose-challenge-to-massachusetts-schools-covid-recovery-plans

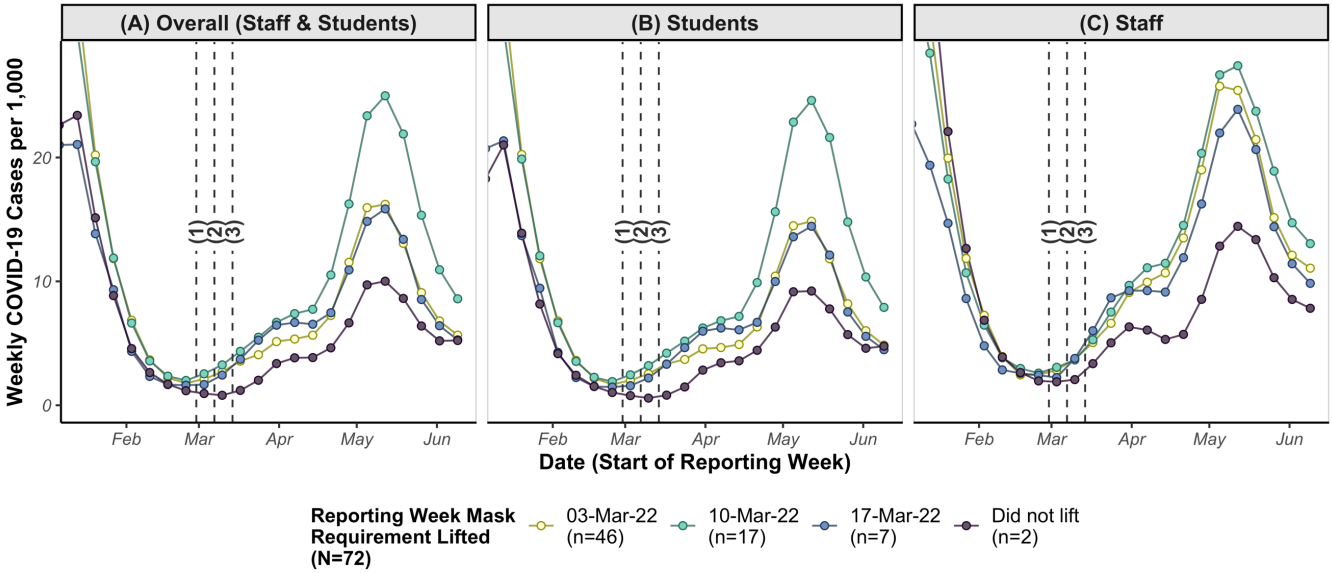
TABLES & FIGURES

Figure 1. *(A) Map of school districts in Boston-Cambridge-Newton NECTA division by reporting week in which mask requirements were removed and (B) number of school districts with mask requirements remaining in place over time*[1]



[1] Black dots denote the n=7 school districts excluded from the analysis due to unreliable data reporting, see **Figure S1**

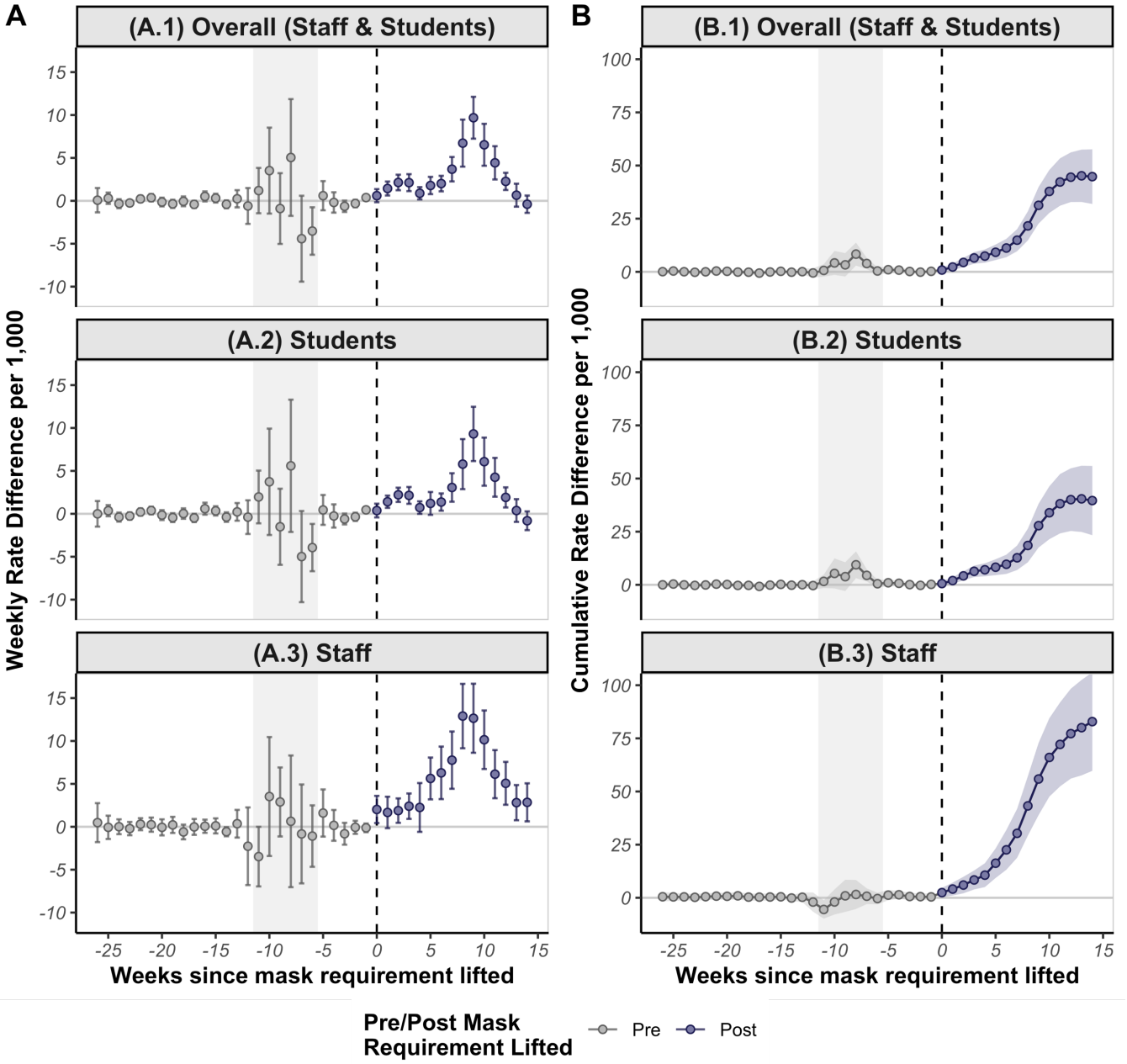
Figure 2. *Weekly reported rate of COVID-19 cases (A) overall, (B) among students, and (C) among staff in Boston/Chelsea Public Schools, by week masking requirements were lifted for school districts within the Boston-Cambridge-Newton NECTA division.*[2]



(1) Week of 28-Feb-22: DESE Statewide Mandate lifted (n = 46)
(2) Week of 07-Mar-22 (n = 17)
(3) Week of 14-Mar-22 (n = 7)

[2] Dates on the x-axis were restricted to the period immediately before and after universal school masking requirements were lifted statewide and in most school districts. Difference-in-differences analysis includes all weeks in the 2021-2022 school year.

Figure 3. *Weekly (A) and cumulative (B) differences in rate of COVID-19 overall (top), among students (middle) and among staff (bottom) in school districts that lifted masking requirements compared to school districts that had not yet lifted their masking requirements in that week.*[3]



[3] *Results are modeled estimates from our difference-in-differences analysis. The grey band in the background of the plot depicts the initial BA.1 Omicron wave in December 2021-January 2022.*

Table 1. *Rates of COVID-19 overall and by school district masking policies and estimated impact of lifting masking requirements in the 15 calendar weeks following lifting of statewide school masking requirements, overall and for staff and students separately*

	All Districts			Mask Requirements Sustained		Mask Requirements Lifted		Average effect of lifting mask requirements			
Group	**n Cases**	**Avg. Pop**	**Rate per 1,000[a]**	**n Cases**	**Rate per 1,000**	**n Cases**	**Rate per 1,000**	**Rate Diff. (95% CI)[b]**	**Attributable cases (95% CI)[c]**	**AF% (95% CI)[d]**	**PAF% (95% CI)[e]**
Overall (Staff & Students)	40,416	337,226	119.8	4,766	66.1	35,651	134.4	44.9 (32.6, 57.1)	11,901 (8,651, 15,151)	33.4% (24.3%, 42.5%)	29.4% (21.4%, 37.5%)
Students	32,198	291,149	110.6	3,674	60.0	28,524	124.1	39.9 (24.3, 55.4)	9,168 (5,594, 12,743)	32.1% (19.6%, 44.7%)	28.5% (17.4%, 39.6%)
Staff	8,218	46,077	178.4	1,091	101.0	7,127	202.1	81.7 (59.3, 104.1)	2,882 (2,092, 3,673)	40.4% (29.4%, 51.5%)	35.1% (25.5%, 44.7%)

[a] All rates represent cumulative reported COVID-19 cases per 1,000 population over the 15 calendar weeks since DESE lifted the statewide school masking requirement on 28-Feb-2022

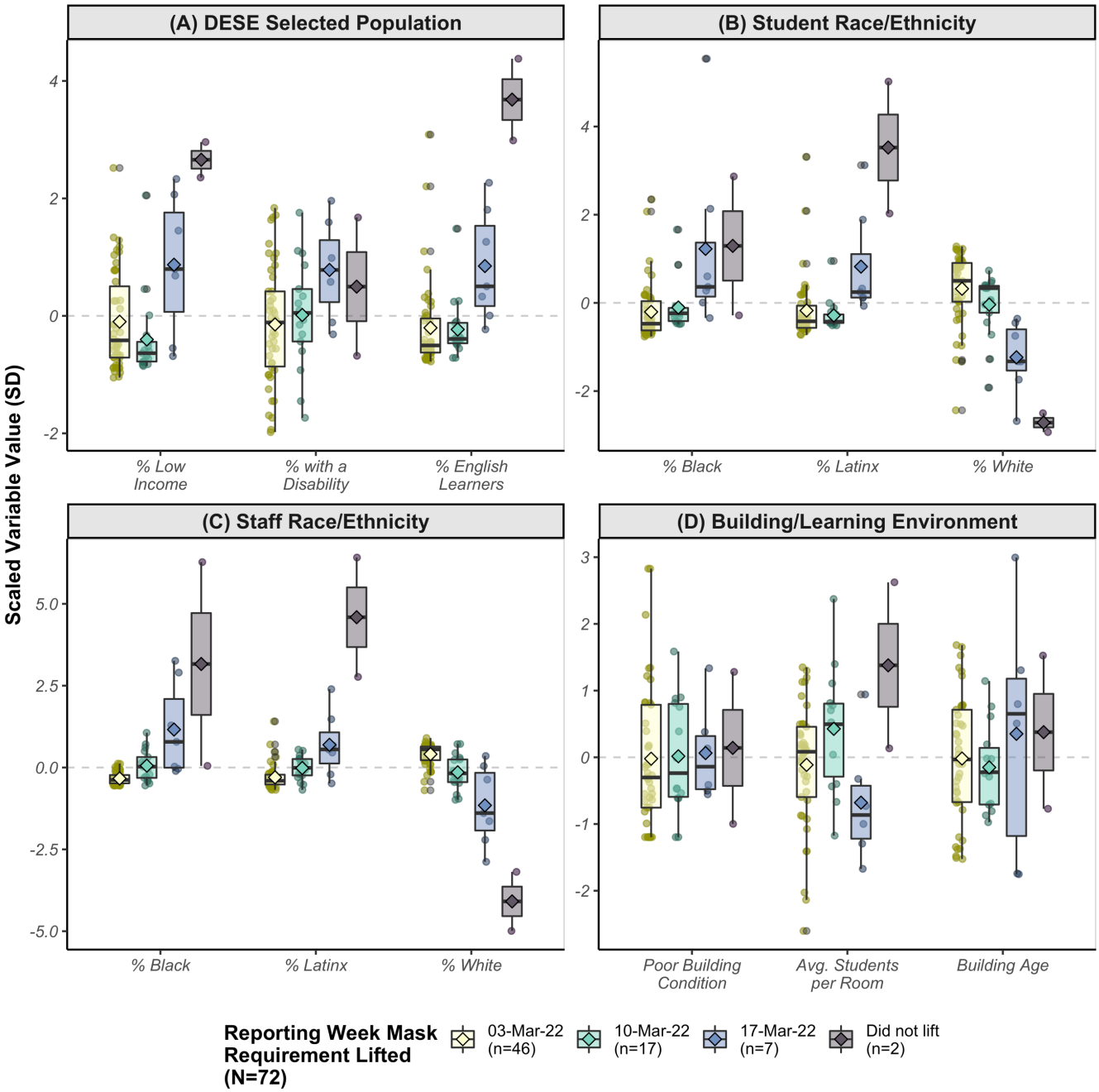
[b] From difference-in-differences models, the difference in COVID-19 rates per 1,000 attributable to lifting masking policies in districts that lifted masking requirements, compared to districts that maintained masking requirements over the 15 weeks since the statewide school masking requirement was lifted. The cumulative average treatment effect among the treated (ATT).

[c] Total number of COVID-19 cases attributable to lifting masking requirements in the school districts that lifted masking requirements over the 15 calendar weeks post-lifting of statewide school masking requirements. Calculated by multiplying cumulative ATT by the average number of students in school districts that removed masking requirements.

[d] Attributable fraction (expressed as a percent): the percentage of COVID-19 cases among students in schools that did not lift mask mandates attributable to lifting masking requirements over the 15 calendar weeks post-lifting of statewide school masking requirements. Calculated by taking the cumulative ATT divided by the observed COVID-19 case rate in school districts that lifted masking requirements

[e] Population attributable fraction (PAF%), expressed as a percentage: the percentage of COVID-19 cases *in all school districts* - both those that lifted and those that sustained masking requirements - attributable to lifting masking requirements over the 15 calendar weeks post-lifting of statewide school masking requirements. Calculated by taking number of attributable cases divided by the total number of cases observed across all districts

Figure 4. *Distribution[4] of selected characteristics of school districts by week masking requirements were lifted, including (A) percentage of students in selected populations as defined by the Massachusetts Department of Elementary and Secondary Education (DESE), race/ethnicity of (B) students and (C) staff, and (D) physical building conditions and learning environment characteristics from the 2016-2017 Massachusetts School Building Authority (MSBA) school survey*



[4] Variables are scaled to enable them to be depicted on the same scale – zero represents the mean value with units in standard deviations

Adapting to Climate Change:

Local Government Tools to Build Climate Resilience




UNIVERSITY OF WATERLOO

Daniel Henstra
Department of Political Science
Climate Risk Research Group

Climate Risk Research Group

Outline

1. Climate change in Ontario
2. Climate resilience
3. Tools for building climate resilience
4. Provincial partnership
5. University partnership

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Climate Change in Ontario

- higher average temperatures; more extreme heat days
- more precipitation in winter and spring; more extreme precipitation

1. Health impacts

- heat-related illness
- respiratory illness; cardiovascular disorders
- increased pollen and plant spores
- greater UV exposure; skin cancers; more high-ozone days

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2. Social impacts

- food system (degraded soil; evaporation; invasive pests)
- housing damage and destruction
- psychological stresses (depression; anxiety)
- critical infrastructure failure

3. Cultural impacts

- damage to historic sites
- displacement from homes and land (evacuation; relocation)

Climate Resilience

1. Definition

- anticipate, respond to, recover from climate shocks and stresses
- adaptation: adjustments to reduce climate change risk

2. Objectives

- reduce exposure of people and property
- reduce vulnerability by protecting most sensitive people and systems
- prepare for recovery

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Tools for Building Climate Resilience

1. Governance

- mainstreaming: integrate climate resilience into decision-making
- coordination: establish formal structure to align department efforts

2. Planning

- official plan
- zoning bylaws
- development conditions
- plan of subdivision
- relocation

3. Economic tools

- grants and subsidies
- targeted fees and credits
- climate-related financial planning

4. Nature-based tools

- green roofs
- street tree planting
- wetland conservation and rehabilitation

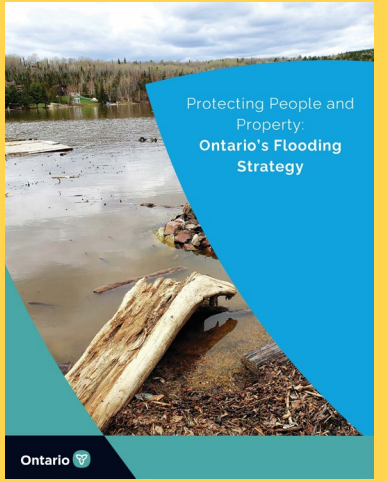
Provincial Partnership

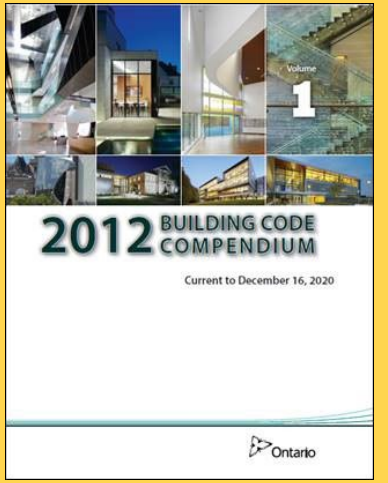
1. Leadership

- motivation: signals adaptation is a priority
- consistency: ensures climate resilience is considered province-wide
- legal leverage: helps local staff fight for resources

2. Regulatory power

3. Financial support





University Partnership

1. Climate risk assessment

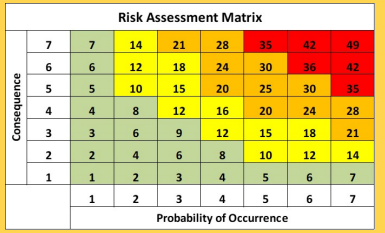
- identifies climate hazards; estimates likelihood and consequences
- focuses adaptation efforts; prioritizes investments

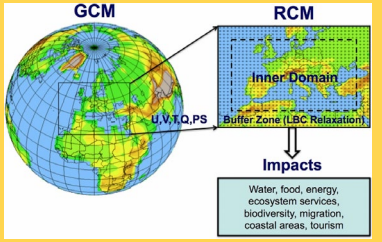
2. Knowledge translation

- interpret climate models and science for municipal planning

3. Collaborative partnerships

- engage academics, local officials and community stakeholders





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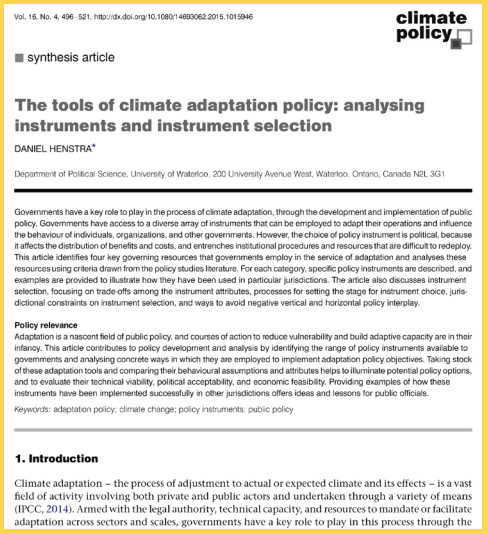
Conclusion

- climate change is serious and irreversible; urgent need to adapt
- local governments have tools to build climate resilience
- how can your work prepare for a warmer, wetter, wilder climate?



Vol. 16, No. 4, 496–521, http://dx.doi.org/10.1080/14693062.2015.1015946

climate policy

synthesis article

The tools of climate adaptation policy: analysing instruments and instrument selection

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Governments have a key role to play in the process of climate adaptation, through the development and implementation of public policy. Governments have access to a diverse array of instruments that can be employed to adapt their operations and influence the behaviour of individuals, organizations, and other governments. However, the choice of policy instrument is political, because it affects the distribution of benefits and costs, and entrenches institutional procedures and resources that are difficult to redeploy. This article identifies four key governing resources that governments employ in the service of adaptation and analyses these resources using criteria drawn from the policy studies literature. For each category, specific policy instruments are described, and examples are provided to illustrate how they have been used in particular jurisdictions. The article also discusses instrument selection, focusing on trade-offs among the instrument attributes, processes for setting the stage for instrument choice, jurisdictional constraints on instrument selection, and ways to avoid negative vertical and horizontal policy interplay.

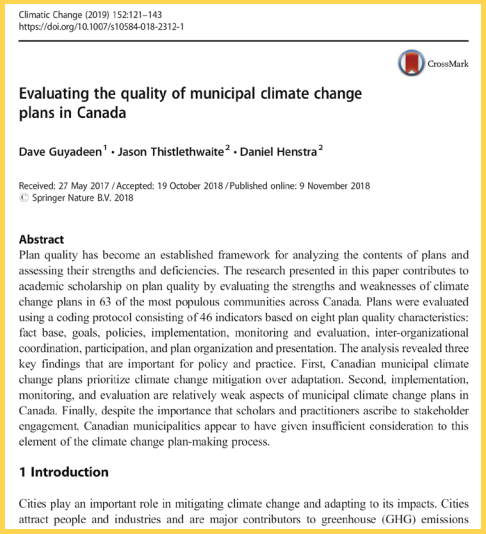
Policy relevance

Adaptation is a nascent field of public policy, and courses of action to reduce vulnerability and build adaptive capacity are in their infancy. This article contributes to policy development and analysis by identifying the range of policy instruments available to governments and analysing concrete ways in which they are employed to implement adaptation policy objectives. Taking stock of these adaptation tools and comparing their behavioural assumptions and attributes helps to illuminate potential policy options, and to evaluate their technical viability, political acceptability, and economic feasibility. Providing examples of how these instruments have been implemented successfully in other jurisdictions offers ideas and lessons for public officials.

Keywords: adaptation policy; climate change; policy instruments; public policy

1. Introduction

Climate adaptation – the process of adjustment to actual or expected climate and its effects – is a vast field of activity involving both private and public actors and undertaken through a variety of means (IPCC, 2014). Armed with the legal authority, technical capacity, and resources to mandate or facilitate adaptation across sectors and scales, governments have a key role to play in this process through the



Climatic Change (2019) 152:121–143
https://doi.org/10.1007/s10584-018-2312-1

CrossMark

Evaluating the quality of municipal climate change plans in Canada

Dave Guyadeen[1] · Jason Thistlethwaite[2] · Daniel Henstra[2]

Received: 27 May 2017 / Accepted: 19 October 2018 / Published online: 9 November 2018

Abstract

Plan quality has become an established framework for analyzing the contents of plans and assessing their strengths and deficiencies. The research presented in this paper contributes to academic scholarship on plan quality by evaluating the strengths and weaknesses of climate change plans in 63 of the most populous communities across Canada. Plans were evaluated using a coding protocol consisting of 46 indicators based on eight plan quality characteristics: fact base, goals, policies, implementation, monitoring and evaluation, inter-organizational coordination, participation, and plan organization and presentation. The analysis revealed three key findings that are important for policy and practice. First, Canadian municipal climate change plans prioritize climate change mitigation over adaptation. Second, implementation, monitoring, and evaluation are relatively weak aspects of municipal climate change plans in Canada. Finally, despite the importance that scholars and practitioners ascribe to stakeholder engagement, Canadian municipalities appear to have given insufficient consideration to this element of the climate change plan-making process.

1 Introduction

Cities play an important role in mitigating climate change and adapting to its impacts. Cities attract people and industries and are major contributors to greenhouse (GHG) emissions

Tornado damage in Maple, Ontario. Photo: James G (CC-BY-NC-ND 2.0)

CANADIAN CLIMATE INSTITUTE / INSTITUT CLIMATIQUE DU CANADA

A WHOLE-OF-GOVERNMENT APPROACH TO CLIMATE ADAPTATION

Mainstreaming adaptation and improving coordination in government decision making

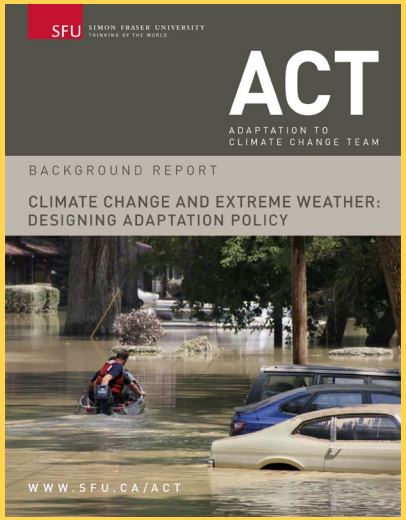
National governments, armed with broad legal authority, robust administrative capacity, and superior economic resources, have an important role to play in leading and facilitating climate adaptation. In federations such as Canada, this leadership requires effective coordination with the regional governments—provinces, states, or territories—that exercise authority within their boundaries and jurisdiction. Many countries, including other federations such as Austria, Belgium, and Germany, have adopted national adaptation strategies and plans that set out priorities and coordinate efforts in this field, so Canada has examples to look to in ensuring effective inter- and intra-governmental coordination and mainstreaming of adaptation.

Despite global progress on the adoption of national adaptation policies over the past decade, there has been a widespread implementation deficit, whereby most countries have had difficulty in translating aspirations into concrete adaptation initiatives (Dupuis and Knoepfel 2013; Mimura et al. 2014). Two common challenges governments have faced at the implementation stage are (1) coordinating adaptation policies horizontally across departments and agencies and (2) integrating adaptation objectives into government functions, which is typically referred to as "mainstreaming" (Bednar et al. 2019; Lee et al. 2022).

This paper identifies promising mechanisms to coordinate adaptation within governments and to embed adaptation objectives into public decisions and policies. The Government of Canada is leading the development of Canada's first National Adaptation Strategy, which will outline a shared vision for climate resilience, identify priorities for collaboration, and establish a framework for cohesive action to reduce climate change risks (Canada

Dr. Daniel Henstra
is a professor of political science and co-lead of the Climate Risk Research Group at the University of Waterloo.

This scoping paper is part of a series that explores specific challenges and



SFU SIMON FRASER UNIVERSITY THINKING OF THE WORLD

ACT

ADAPTATION TO CLIMATE CHANGE TEAM

BACKGROUND REPORT

CLIMATE CHANGE AND EXTREME WEATHER: DESIGNING ADAPTATION POLICY

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Climate Risk Research Group

UNIVERSITY OF WATERLOO

PARTNERING TO HELP MUNICIPALITIES BUILD CLIMATE-RESILIENT COMMUNITIES

ONTARIO'S UNIVERSITIES
Partnering for a better future

Table of Contents

Introduction

Ontario's regions and municipalities are often at the forefront of climate resilience and adaptation, working locally to help protect their communities.

As municipalities continue to act on climate change and prepare for future impacts, Ontario's universities are forging strong, solutions-driven partnerships within these communities. These critical partnerships enable regions across the province to lead innovation when it comes to combatting climate change.

Whether it is by making infrastructure more resilient, reducing landfill waste, protecting drinking water or effective mitigation and adaption strategies – addressing these challenges will be critical to ensuring Ontarians can continue to live, work and play in the cities and towns they call home.

Ontario's universities will continue to work with local municipalities and industry to implement sustainable, long-term climate change solutions and ensure a better future for our communities and province.

This booklet features some of the many examples of research, innovative programs and work underway at our universities on how towns and cities can adapt and manage the social, economic and infrastructure challenges brought on by climate change.

Also included is the contact information for the university research and program leads, so you can access resources to help address the unique challenges your community is facing.

Mitigating local impacts of climate change through community-based research

Extreme heat management, flood mitigation and shoreline damage are among some of the many ways Ontario's universities are partnering with municipalities to address local impacts of climate change through university research. These solutions are helping ensure municipalities across the province can both mitigate and adapt to unexpected climate events, while ensuring the health and safety of residents and the best outcomes for the environment.

Helping municipalities mitigate shoreline damage

By mitigating damage to shorelines, municipalities can help ensure they continue to be habitable for residents and that ecosystems can adapt to new environmental pressures. Professor Liette Vasseur at Brock University is working together with municipalities to mitigate shoreline damage by helping them plan for a more sustainable future. Currently, Vasseur is collaborating with mayors of municipalities on the Great Lakes and St. Lawrence River to recommend sustainable policies and nature-based strategies that best protect shorelines, such as tree planting, routing drainage water and installations and blockades to protect against waves and ice.

For more information, contact the Department of Biological Sciences, Brock University at 905-688-5550.

Brock University – Brock professor helps municipalities mitigate damage to shorelines and plan for a more sustainable future

Addressing climate change through a holistic approach to health

Tackling today's biggest climate change challenges, such as emerging infectious diseases and food security, requires an interdisciplinary approach – one that considers the interconnectedness of human, plant, animal and environmental health. Researchers at the University of Guelph's One Health Research Institute are leveraging the One Health research approach to work across disciplines and address the most complex animal, human and environmental health problems, such as fighting superbugs, reducing food contaminants, sanitizing waste water and predicting influenza outbreaks.

For more information, contact the University of Guelph at 519-824-4120.

University of Guelph – One planet, One health

Managing critical water resources through watershed research

Studying bodies of water can provide critical insights into climate change. Professor April James and her team at Nipissing University are bringing this research to a local level to help shed light on the relationship between water quality and human impact on the environment in northern Ontario communities. By leveraging computer modelling, field study and lab analysis to study the movement of water, James' research is helping provide a better understanding of local watersheds and how they process water, which will help in planning, conserving and managing the long-term sustainability of fresh water resources.

For more information, contact Nipissing University at 705-474-3450.

Nipissing University – Dr. James reflects on a decade as Canada Research Chair

Partnering to ensure safe municipal drinking water

Rising temperatures can potentially cause the growth of harmful algae, which could compromise drinking water quality. The Drinking Water Research Group (DWRG) at the University of Toronto is studying how to keep municipal drinking water safe. Led by professors Robert Andrews, Ron Hofmann and Susan Andrews, DWRG works across government and industry to research and address critical drinking water challenges. Some of these projects include, microplastics in drinking water, filtration, emerging pathogens, disinfection of reuse waters, as well as the impact of harmful algae blooms on water quality.

For more information, contact the Department of Civil and Mineral Engineering, University of Toronto at info.civmin@utoronto.ca or 416-978-3099.

University of Toronto – Drinking Water Research Group

Protecting Ontarians from extreme heat

With temperatures rising across the province, extreme heat is set to increase the burden on the health-care system and cost home and business owners more money. New guidance to address irreversible extreme heat developed by the University of Waterloo's Intact Centre on Climate Adaptation (Intact Centre) profiles steps to protect Ontarians who may be most vulnerable to extreme heat. The Intact Centre works with homeowners, communities, governments and businesses to identify and reduce the impacts of extreme weather and climate change through cost-effective practices that will protect residents.

For more information, contact the Intact Centre on Climate Adaptation, University of Waterloo at intact.centre@waterloo.ca or 266-338-9164.

University of Waterloo – The ultimate code red: Preparing Canada for extreme heat

Transforming and commercializing waste to reduce environmental impact

Curbing the rise of greenhouse gases will be critical to reducing the impacts of climate change across the province. The Institute for Chemicals and Fuels from Alternative Resources (ICFAR) at Western University is leading research that could transform waste and by-products, such as biomass residues from agriculture and forestry, organic municipal wastes, plastics and heavy oils, into value-added products with the lowest possible environmental impact and carbon footprint. Some examples of innovative work being conducted at ICFAR include transforming waste into carbonized materials that can be used as soil amendments and fertilizers, as well as an efficient and cost-effective carbon capturing solution.

For more information, contact the Faculty of Science, Western University at science@uwo.ca or 519-661-2111 ext. 89192.

Western University – Transforming waste, industrial by-products to reduce environmental impact

Developing green solutions to urban and suburban challenges

As urban centres in Ontario become more populated, they will need green solutions to building infrastructure, urban planning, environmental governance, and more, to ensure they are climate-resilient. The City Institute at York University (CITY) brings together faculty members, post-doctoral fellows, graduate and undergraduate students and visiting scholars from across the social sciences and the humanities to provide new and innovative approaches to addressing complex urban challenges in Toronto and the Greater Toronto Area, such as renewal and resilience, building the world's longest practical suburban greenway in northwest Toronto and planning the development of urban infrastructure.

For more information, contact The City Institute at York University at city@yorku.ca or 416-650-8125.

York University – City Institute

Helping local industry adopt sustainable solutions

Ontario's universities are partnering with industry to find solutions to pressing industry challenges that will ultimately impact the communities they operate in, such as finding new and more sustainable methods of delivering products and services or managing operations. By working together, universities are helping ensure industry partners can continue to make a positive impact on their communities – one that will be felt for years to come.

Helping maple syrup operations adapt to climate change

As the domestic and international demand for Ontario maple syrup increases, preventing sugarbush damage as the climate changes will be critical to ensuring the sector continues to thrive. Professor Gerardo Reyes and his team at Lakehead University are partnering with Camphill Communities Ontario (CCO) to develop adaptation strategies that will ensure CCO's maple syrup operation can adapt as the climate changes and even enhance production. To do this, they are examining factors, such as temperature, precipitation, snow cover, foliage health, soil conditions and overall health of the sugarbush, to provide solutions to address unexpected climate change events that could impact ongoing operations and production.

For more information, contact the Faculty of Science and Environmental Studies, Lakehead University at 807-766-7211.

Lakehead University – Research in action: Sustainability in the face of climate change

Integrating climate change adaptation into municipal and industrial planning

One of the most effective ways to adapt to climate change is to integrate climate strategies into existing planning and policy processes. The Climate Risk Institute (CRI) at Laurentian University is working with government, Indigenous communities and industry to lead and support several projects that help promote, plan and sustain climate change adaptation planning, decision-making and action across diverse regions and stakeholder groups. This includes assessing a northwestern Ontario forest's adaptability to climate change; developing climate change information products for agriculture, municipalities and Indigenous communities in Bruce, Grey and Huron Countries; as well as assessing the climate change risk of abandoned or orphaned mine sites in Ontario. These projects will help in various planning and management processes – from risk management to infrastructure renewal.

For more information, contact the Laurentian University at info@laurentian.ca.

Laurentian University – Climate Risk Institute

Bolstering nuclear safety in Pickering

As Ontario Power Generation (OPG) prepares to decommission its nuclear power plant in Pickering over the next decade, ensuring the process is safe for both the environment and communities is critical. Ontario Tech University researchers are partnering with OPG and RMUS Canada to test Spot – a four-legged robot – that will help bolster the safety of the nuclear maintenance program at OPG. Through the program, university researchers are leveraging machine learning and artificial intelligence to analyze the data gathered by Spot and determine if the technology could effectively alert personnel of potential on-site safety hazards. The findings of the research will have a broad impact across industrial applications with the university sharing its findings with industry partners and municipalities across North America.

For more information, contact the Faculty of Engineering and Applied Science, Ontario Tech University at 905-721-8668.

Ontario Tech University – 'Spot' on: Ontario Tech researchers investigating remote-inspection effectiveness of four-legged robot

Creating sustainable cities through thought leadership

A sustainable city improves the quality of life for residents in the face of significant environmental changes by leveraging the power of creative thinking, citizen collaboration and new forms of data and technology. Led by professors Kevin Kee and Brian Ray, the University of Ottawa's Sustainable Cities Initiative explores critical questions and develops compelling solutions to some of our biggest problems from a human sciences lens, such as: how can we live well on a planet with limited resources? The Initiative brings together thought leaders from academia, industry and government to address challenges associated with a warming climate and how we can build a more environmentally and socially sustainable urban future.

For more information, contact the Faculty of Arts, University of Ottawa at arts@uOttawa.ca or 613-562-5973.

University of Ottawa – Faculty of Arts launches sustainable cities initiatives thanks to $1M donation

Reducing concrete's carbon footprint

Reinforced concrete infrastructure accounts for almost 10 per cent of global carbon dioxide emissions. Working to change this are two Queen's University civil engineering experts Neil Hoult and Josh Woods who, together with their academic collaborators and industry partners, are invested in cutting the carbon dioxide emissions generated by concrete production in half. The research considers several approaches, including studying how to better design structures to use less concrete and reduce material consumption and structure weight. Supported by industry and municipal partners, including Arup, Aecon, KPMB Architects, and Lafarge, along with the City of Kingston and the Cement Association of Canada, the research program will help make concrete cleaner.

For more information, contact the Department of Civil Engineering, Queen's University at 613-533-2122.

Queen's University – International effort to reduce concrete's carbon footprint

Studying environmental governance to enhance public policy

Strong municipal environmental policy can help both government and residents address climate change. Professor Christopher Gore at Toronto Metropolitan University is studying the interaction of infrastructure, agriculture, climate change, cities and energy provision to generate new knowledge about environmental governance. By examining municipal policies, systems and processes, Gore evaluates public opinion on environmental issues and brings together government, civil society and industry to reach collective climate change mitigation and adaptation goals through public policy and administration.

For more information contact, Toronto Metropolitan University at 416-979-5000.

Toronto Metropolitan University – Helping government and residents address climate change

Developing Ontario's cleantech innovation ecosystem

The cleantech market is projected to exceed $3.3 trillion by 2022, according to Export Development Canada. To support this growing sector and diversify the local economy, Trent University is partnering with the City of Peterborough to bring together students, researchers and industry through Cleantech Commons (the Commons) – a hub for collaborative research, innovation, commercialization and entrepreneurship in clean, green and sustainable solutions. To support these new ventures, Trent and the Commons also launched the Trent Enterprise Centre, which is the only cleantech accelerator in Canada with both shared laboratories and pilot facilities to support cleantech start-ups, business growth and commercialization.

For more information, contact Trent University at 705-748-1011.

Trent University – Supporting cleantech start-ups, business growth and commercialization

Addressing equity and accessibility within climate action planning

As an increasing number of municipalities are declaring climate emergencies and developing comprehensive climate action plans, efforts to mitigate climate change can unintentionally create social inequities within communities. Researchers at Wilfrid Laurier University are partnering with stakeholders across Canada, and internationally, to identify, develop and test innovative and practical approaches to addressing climate change in a manner that helps ensure and address equality. Led by Laurier's Viessmann Centre for Engagement and Research in Sustainability (VERiS), the project features a series of workshops that brings together members of equity-seeking groups, community organizations, government, social innovators and academics to help shape and focus the research.

For more information, contact the Viessmann Centre for Engagement and Research Sustainability, Wilfrid Laurier University at veris@wlu.ca.

Wilfrid Laurier University – Laurier research centre leads new international partnership to address equity an accessibility within climate action planning

Powering greenhouses with clean technology

As farmers look to expand operations and increase their access to low-carbon energy solutions, they will need innovative and effective clean energy technologies. Professor Rupp Carriveau at the University of Windsor is partnering with the Ontario Greenhouse Vegetable Growers (OGVG) and Kruger Energy to explore the use of existing wind farms to power and heat greenhouses in southwestern Ontario, which boasts the highest concentration of greenhouses in North America. The project proposes building a commercial facility that takes locally captured wind energy and turns it into electricity and hydrogen for greenhouses that can grow fruits and vegetables. This will help municipalities and governments meet the growing energy and food needs of communities across the province in a sustainable way.

For more information, contact the Department of Civil and Environmental Engineering, University of Windsor at 519-253-3000.

University of Windsor – Joint venture to examine potential for wind to power greenhouses

Developing the highly skilled talent needed to address local climate change challenges

Today's students will be tomorrow's leaders in clean technology, adaptation and climate resilience, making critical contributions to climate change policy, research and innovations in their communities. To help municipalities develop the talent it needs to continue to fuel the green economy, many Ontario universities offer work-integrated learning opportunities that will help students address climate change with local, Ontario-made solutions.

Launching new, green community projects

To help the City of Sault Ste. Marie enhance sustainability and waste management, students at Algoma University are working with the municipality to launch projects through CityStudio Sault Ste. Marie. In partnership with Algoma, CityStudio provides students with work-integrated learning experiences, while also helping the city launch new projects, such as a waste management app. Through these opportunities, students are developing critical soft skills, such as creativity and communication, and gaining valuable experience as they prepare to enter the local workforce.

For more information, contact the Academic Dean's Office, Algoma University at dean@algomau.ca or 705-949-2301.

Algoma University – Algoma U partners with CityStudio Global to bring civic innovation and city-campus collaboration to the Sault

Supporting climate change adaptation in rural Ontario

Ensuring rural municipalities can address their key climate change concerns, such as increased rainfall, snowfall, ice build-up and flooding, is vital to protecting residents and critical infrastructure. Carleton University professors Shawn Kenny and Kathryne Dupré are developing strategies that aim to help rural Ontario municipalities integrate climate change considerations into their asset management plans. This includes strategies to help municipal leaders engage key stakeholders and community members, integrate climate change within the asset management framework, and advance tools, standards, and best practices that can be adapted to inform sustainable and resilient infrastructure.

For more information, contact the Department of Civil and Environmental Engineering, Carleton University at ceeinfo@cunet.carleton.ca or 613-520-2600 ext. 5784 or the Department of Psychology, Carleton University at psychology@carleton.ca or 613-520-2644.

Carleton University – Studying rural readiness for climate change

Protecting Ontario's forests through work-integrated learning

To help capture carbon dioxide and mitigate the effects of climate change, the McMaster University Carbon Sink Forest initiative launched by McMaster's Centre for Climate Change, is developing a model forest where 1,000 native tree species will be planted to help promote and preserve biodiversity, sustainability and conservation. As a living learning lab, students across biology, ecology, biogeochemistry, hydrology and geomatics will gain critical work-integrated learning experience in the field, gaining exposure to studying and evaluating tree growth, survival rates, GIS mapping and leveraging drones and satellite imagery. This experience will help prepare students to better understand our natural environment, providing key insight into preserving Ontario's many forests.

For more information, contact the Centre for Climate Change, McMaster University at climate@mcmaster.ca or 905-525-9140.

McMaster University – Establish a model forest with McMaster

Training Ontario's future municipal leaders

Providing students with the opportunity to learn about careers in government can help develop a strong public sector talent pipeline that has the tools to introduce critical climate change policy and projects, while providing an invaluable work-integrated learning opportunity. Through a special topics course titled Arts, Designers and City Builders, OCAD University is connecting students with city leaders to help them learn more about municipal issues and policy development. The course is part of a broader program called CivicLabTO that brings together students, faculty, researchers and city staff to conduct research and address urban challenges.

For more information, contact the Office of the Vice-President, Academic and Provost, OCAD University at 416-977-6000.

OCAD University – Partnership with City of Toronto training students to be future municipal leaders

Appendix

See below for more ways to get in touch with Ontario's university climate change researchers and learn more about partnership opportunities.

Mitigating local impacts of climate change through community-based research

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Helping local industry adopt sustainable solutions

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Developing the highly skilled talent needed to address local climate change challenges

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