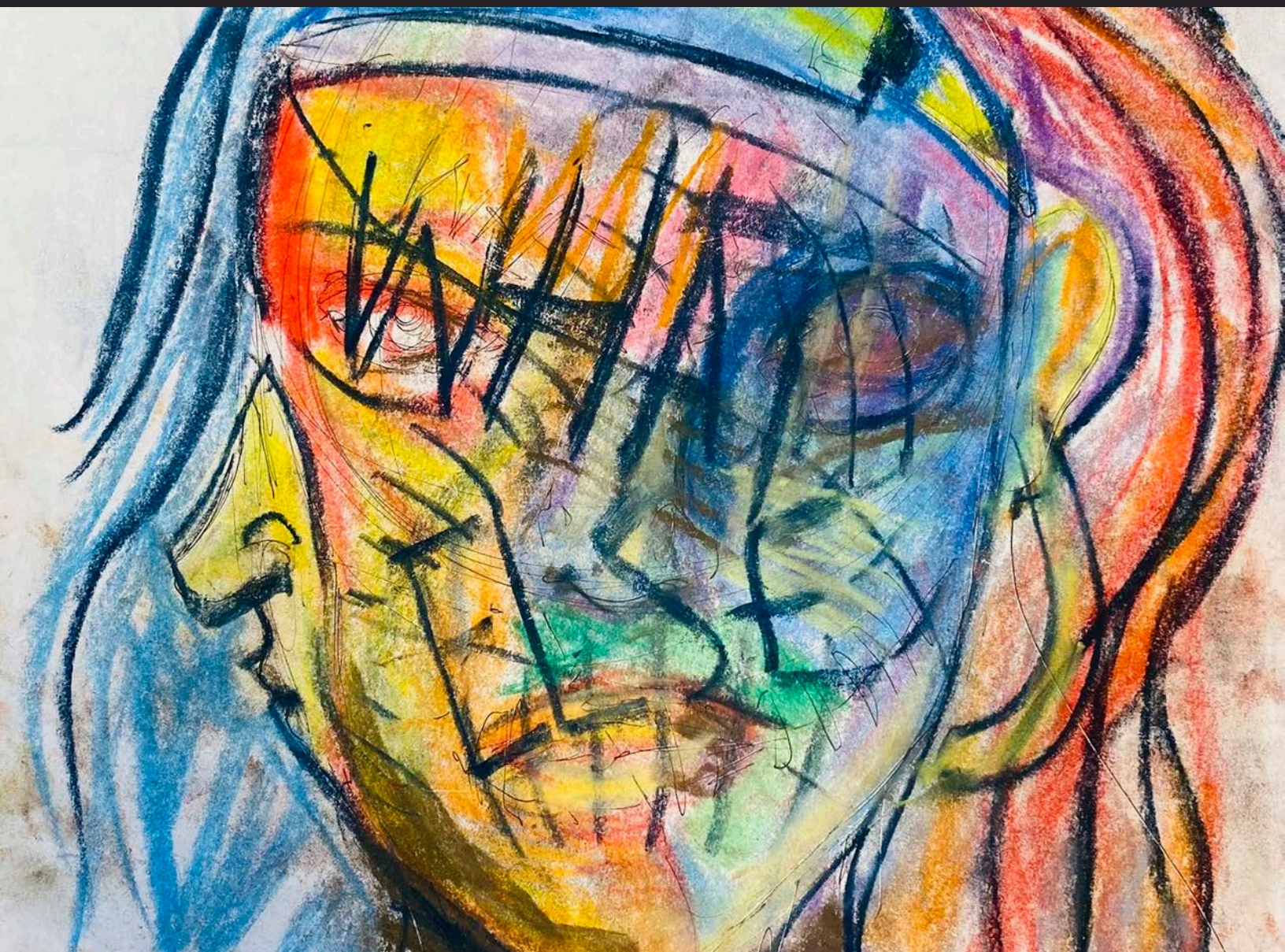


Children and Schools During COVID-19 and Beyond: Engagement and Connection Through Opportunity

August 2021



Children and Schools During COVID-19 and Beyond: Engagement and Connection Through Opportunity

An RSC Policy Briefing

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The opinions expressed in this report are those of the authors and do not necessarily represent those of the Royal Society of Canada.

Background on the Policy Briefing Report Process

Established by the President of the Royal Society of Canada in April 2020, the RSC Task Force on COVID-19 was mandated to provide evidence-informed perspectives on major societal challenges in response to and recovery from COVID-19.

The Task Force established a series of Working Groups to rapidly develop Policy Briefings, with the objective of supporting policy makers with evidence to inform their decisions.

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Authors' Note

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Report Overview

This Policy Briefing Report from the Children and Schools COVID-19 Working Group is intended to serve as a pandemic recovery resource for educators, administrators, support staff, school mental health professionals, and decision makers in the education sector, as well as parents/guardians and the general public. Toward this aim, this report comprises nine stand-alone chapters that provide a review and synthesis of the current state of knowledge up until August 8, 2021. Some of the chapters contain original research data, and all of the chapters contain expert opinion and detailed recommendations for a pandemic recovery in education. The recommendations provided in the executive summary are not exhaustive, but rather reflect a synthesis of the recommendations found at the end of each chapter. An Appendix on infection prevention and control is also included.

Chapter 1: The Impact of COVID-19 on the Mental Health of Canadian Children and Youth by Tracy Vaillancourt, Peter Szatmari, Katholiki Georgiades, and Amanda Krygsman

Chapter 2: The Impact of COVID-19 on the Learning and Achievement of Vulnerable Canadian Children and Youth by Jess Whitley, Miriam H. Beauchamp, and Curtis Brown

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Executive Summary

We spent the better part of the past year scrutinizing and synthesizing the research on the effects of the COVID-19 pandemic on Canadian children and youth in the context of education. Our expert peer-reviewed Policy Briefing Report highlights that there are notable threats to children's well-being, educational success, and healthy development.

Over the past eighteen months, the pandemic has not only claimed the lives of millions worldwide, it has also upended nearly every public and private institution around the globe. Healthcare and long-term care were hit especially hard, but so were school systems, with over 90% percent of the world's 1.6 billion students (along with their caregivers and educators) impacted by school closures. In Canada, all provincial and territorial schools were closed for extended periods at some point during the pandemic, the longest being in Ontario where children and youth were out for more than half of the 2020-2021 academic year. Educators and school boards adapted to the unprecedented disruptions in education, developing multiple models of educational provisions, including fully remote online learning and blended learning programs for children and youth who could not attend school in person. Parents and other caregivers, many of whom were lacking necessary resources, also shouldered the weight of supporting their children's learning during the pandemic. Despite these valiant efforts, these variations in versions of learning developed urgently at a time of crisis, were experienced by 5.7 million Canadian children and youth who were dealing with numerous challenges, with far-reaching and potentially long-lasting consequences.

Indeed, because of these education disruptions, far too many Canadian children and youth have experienced disengagement, chronic attendance problems, declines in academic achievement, and decreased credit attainment during the pandemic, with the influence far deeper for those already at-risk before COVID-19 was declared a global pandemic. The negative reach of the pandemic has also extended beyond traditional educational indicators, affecting virtually all aspects of child development. School closures have impacted the food security of children and youth, as well as the detection and reporting of child maltreatment and neglect. Closures have also thwarted children's fundamental need to belong, resulting in greater social isolation and loneliness, and have led to a notable deterioration in mental health. Compounding these issues is the fact that children and youth were not only isolated from their peers and their educators, but they also experienced lengthy separations from their extended family and community networks such as teammates, coaches, mentors, counsellors, and spiritual leaders.

Schools have never been just about reading, writing, and arithmetic. They provide opportunities for learning and engaging with areas like the Arts, the natural world, current events, sexual health, and digital literacies. Schools also provide food resources for children and youth in need. They provide therapy for those with disabilities. They constitute a rich setting within which to develop social competencies. They can serve an important liaison function with families and community services. They are the first point of contact for children and youth with concerns related to mental well-being and the most common setting for the provision of mental health services in Canada. Moreover, schools help keep children and youth safe because educators are the primary reporters of child abuse and neglect. Our Policy Briefing Report has highlighted that one of the best ways to mitigate these threats to the well-being, education, and safety of children and youth is to aim to keep schools open whenever and wherever it is safe to do so.

The pandemic has been challenging for children and youth. It has also been challenging for teachers, support staff, and principals who have been faced with having to quickly adapt their learning environments, being vigilant around ever-changing public health directives, and worrying about their own health and safety—all while trying to keep children and youth engaged and motivated. This is no small feat and one that must be recognized and valued. Our Policy Briefing Report also underscores that pandemic recovery must involve the adults in schools who care for students. Educators' working conditions are students' learning conditions. Thus, the well-being of educators cannot be divorced from the well-being of the children and youth in their charge.

In sum, it is clear from our report that it is neither tenable nor ethical to keep children and youth separated from the relationships, supports, and learning opportunities of schools. We are on the cusp of a "generational catastrophe" that requires swift action to mitigate the harm. Accordingly, our overarching recommendations for a pandemic recovery in education are as follows, with more detailed suggestions found in the Policy Briefing Report.

Recommendations

Recommendation 1: Prioritize the safe re-opening of all schools in Canada and work toward ensuring that schools stay open. Schools must be the first to open and the last to close.

Recommendation 2: Prioritize educators, school staff, and support workers in the vaccine rollout plans. Earmark federal funding to schools so they can effectively implement infection prevention and control measures as needed based on the hierarchy of controls; elimination/substitution controls, engineering controls, administrative controls, and personal protective equipment. Resources must also be allocated to ensure safe buildings and proper ventilation.

Recommendation 3: Address educational gaps. Intervention programs should be developed for children and youth who have been negatively impacted by interrupted or unfinished schooling. Small group offerings during the school day, individual virtual supports provided after school, summer camps with a combination of play, high quality recreation, and academics are some of the options that should be considered in partnership with community organizations. To ensure equity, these programs will need to be free to children and their families. Moreover, interventions to re-engage youth who have left school or have experienced chronic attendance issues during the pandemic need to be considered for supplemental funding. Addressing educational gaps also requires an investment in the social-emotional development of children and youth through school-based social-emotional learning approaches.

Recommendation 4: Take steps to reduce inequity. Inequities undermine the work of educators. Children and youth who live with the impacts of poverty and economic inequity also experience hunger, homelessness, unequal access to high-speed Internet and technology, and are more likely to belong to historically marginalized and underserved groups. Schools cannot solve all of society's problems, but they are a place where we can identify and acknowledge them. Importantly, we must ensure that schools do not magnify existing inequities, and that curriculum and assessment actively draw on and reward diverse backgrounds, settings, and experiences.

Recommendation 5: Create a national strategy that emphasizes children's mental health as important for life success and do so in the context in which they are most easily accessible—schools. This strategy should also provide coordinated care across sectors in a stepped care framework and across a full continuum of mental health supports spanning promotion, prevention,

early intervention, and treatment. This national strategy must also include plans to deal with the tragedy of suicide in all segments of the population, but in particular, among adolescent boys and among First Nations, Métis, and Inuit youth who are disproportionately affected. We must also prioritize and invest in the wellness and well-being of school and system staff without whom our goals cannot be achieved.

Recommendation 6: Invest in comprehensive population-based follow-up studies so that more accurate information about how the pandemic may have affected all Canadian children and youth, and those disproportionately affected, can be obtained. We need a precise account of who was impacted, how, and for how long, so that we can take appropriate steps toward providing systems and services that can better support them moving forward.

Recommendation 7: Improve internet and digital access. The pandemic has revealed the needs and inequities related to technology access. These shortcomings not only impact the education of children and youth, but also limit the abilities of children and their families to successfully navigate services including vaccine appointment websites and employment, education, learning, and social networks. The Government of Canada needs to make all access to digital learning platforms, high-speed Internet, and digital devices for learning, public, universal, and free of charge, in both English and French.

Recommendation 8: Improve teacher expertise by including digital pedagogy in all teacher preparation programs. Develop a clear plan and strategy so that all Canadian teachers will have full digital proficiency within three years. Digital expertise should not only include knowledge of apps, tabs, platforms, and other technical resources, but also the ability to determine when digitally based resources do and do not provide unique added value for effective learning compared to other resources. Digital expertise should also include knowledge of how to identify, minimize, and manage the risks that often accompany digitally based learning.

Recommendation 9: Support teaching as essential work. The troubling lack of support for educators during the pandemic may have fundamentally undermined their capacity to rebound once the pandemic is better controlled. The formation of a national roundtable in collaboration with existing federations, unions, and affiliated associations including the Council of Ministers of Education, Canada is needed to reconsider the professional status of education and work to improve the conditions under which educators and children and youth spend their days.

Recommendation 10: Prioritize recess and other forms of breaks as an essential part of the school day for all grades and ensure that every school is equipped with appropriate space for learning and socializing outdoors. Outdoor, nature-based space is a valuable environment for learning and provides necessary breaks from desk-based learning. Time and forethought are needed to assess, plan, implement, monitor, and sustain a routine of new practices that support and protect children and youth in this space. Steps need to be taken to ensure recess and outdoor learning is part of school and board improvement efforts, ensuring attention to the built landscape, social environment, staff training, student voice, and outdoor spaces abundant with nature and natural materials.

Chapter 1: The Impact of COVID-19 on the Mental Health of Canadian Children and Youth

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Abstract

Children and youth flourish in environments that are predictable, safe, and structured. The COVID-19 pandemic has disrupted these protective factors making it difficult for children and youth to adapt and thrive. Pandemic-related school closures, family stress, and trauma have led to increases in mental health problems in some children and youth, an area of health that was already in crisis well before COVID-19 was declared a global pandemic. Because mental health problems early in life are associated with significant impairment across family, social, and academic domains, immediate measures are needed to mitigate the potential for long-term sequelae. Now more than ever, Canada needs a national mental health strategy that is delivered in the context in which children and youth are most easily accessible—schools. This strategy should provide coordinated care across sectors in a stepped care framework and across a full continuum of mental health supports spanning promotion, prevention, early intervention, and treatment. In parallel, we must invest in a comprehensive population-based follow-up of Statistics Canada’s Canadian Health Survey on Children and Youth (Statistics Canada, 2019a) so that accurate information about how the pandemic is affecting all Canadian children and youth can be obtained. It is time the Canadian government prioritizes the mental health of children and youth in its management of the pandemic and beyond.

The Impact of COVID-19 on the Mental Health of Canadian Children and Youth

The COVID-19 pandemic has caused unprecedented educational and social disruptions to students worldwide. At the beginning of the pandemic, the United Nations Educational, Scientific, and Cultural Organization estimated school closures in 138 countries which impacted 80% of children globally (Phelps & Sperry, 2020). Two months into the pandemic, this rate increased to 188 countries affecting 1.7 billion students worldwide (UNESCO, 2020). Heading into the second year of the pandemic, UNESCO’s COVID-19 global monitoring of school closures indicated that half of the world’s students were still affected by partial or full school closures (UNESCO, 2021). In Canada, 5.7 million children and youth attending elementary and secondary school have been impacted by school closures (Statistics Canada, 2021).



Although school closures have caused major disruptions, even when schools remained open, the experience of schooling has been fundamentally altered. For example, to contain the spread of COVID-19, changes have been made to the ways in which the curriculum is delivered in Canada. In some provinces and territories, parents of elementary school students have been offered the choice to have their child learn in-person or virtually, while students in secondary school have been presented with a blended learning model that includes class cohorts attending school part of the time in person and the other part virtually. Full-time e-learning is also available to older

students in some areas of the country. In other areas, in-person attendance is the expectation with few exceptions (e.g., high risk or living with high-risk individuals). However, the provision of in-person, blended, or full-time virtual learning has also depended on the local and provincial risk levels of COVID-19 infection. All provinces and territories have developed contingency plans as risk fluctuates in their local community. Other changes have also been made to ensure the health and safety of students. Social distancing measures have been implemented in classes and during recess and breaks, substantially decreasing the amount of time students are able to interact with their peers (and teachers). Mandatory mask wearing has been implemented in most schools across Canada, as has the establishment of smaller cohorts of students, although variability exists across provinces and communities depending on the level of risk. For example, for mandatory mask wearing, there is some variation in the grade at which masks are required across the country (e.g., Ontario: Grade 1 to 12; Alberta: Grade 4 to 12) which also changes depending on location (e.g., required on buses) and on community level of risk tolerance. These interruptions have been dynamic; not a single static adjustment, but rather an ongoing series of adjustments that varied across and within provinces/territories.

Although these changes were advised to prevent further infections, they are not inconsequential. Virtually all aspects of children's development have been affected. Of note are the disruptions in areas of skill development that are fundamental to optimal growth and wellness. Students' learning and academic achievement have been negatively affected (Davies & Aurini, 2021), especially for learners who were academically vulnerable before the pandemic (Whitley et al., 2021). Children and youth are now moving and playing less at school (and in their communities) than before the pandemic (McNamara, 2021), which has had "immediate collateral consequences" on their development (Moore et al., 2020), including their mental health (Kang et al., 2021).

Child and Youth Mental Health Before the Pandemic

Since COVID-19 was declared a pandemic, many have raised significant concerns about a growing "mental health crisis" among young people. Multiple commentaries have been written in the press (e.g., "From Depression to Self-harm, Teens are Struggling During COVID-19", *Globe & Mail*, March 15, 2021; "Is a Mental Health Crisis the Next Pandemic?", *Psychology Today*, March 17, 2021) and in scientific journal editorials about how COVID-19 is causing a mental health calamity in children and youth (Bhatia, 2020; Cénat & Dalexis, 2020; Golberstein et al., 2020; Jiao et al., 2020; Kumar & Nayar, 2021; Liu et al., 2020). But even before the pandemic, Canada's children and youth were not faring well relative to other economically advanced countries in terms of mental health and happiness (UNICEF, 2020). For example, Canada ranked 31st out of 38 high income countries on measures of well-being (defined as feeling positive and being in good mental-health). Canada's ranking on physical health was also dismal—30th. But it is Canada's ranking on teen suicide rates, 35th out of 38 countries, that really highlights our systemic failure. Adolescent and young adult suicide data from Statistics Canada (2019b) underscores that this risk is not equally shared. Adolescent boys from First Nation and Métis communities and Inuit regions are particularly vulnerable, thus Indigenous-led life promotion and suicide prevention programming must be a part of any child and youth mental health strategy.

The poor performance of Canada on UNICEF's (2020) latest report card is an all too familiar story. Whilst many countries are showing improvement in the percentage of adolescents reporting mental health issues in the past decade, Canada is showing little if any improvement (UNICEF,

2019, 2020). In fact, for the past three decades, one in five Canadian children and youth have met diagnostic criteria for at least one mental disorder (Breton et al., 1999; Offord et al., 1987), a rate that is consistent with more recent data. The six-month prevalence estimates for DSM-IV defined mental disorders from the 2014 Ontario Child Health Study indicates that 18% to 22% of children and adolescents are affected (Georgiades et al., 2019).

Having this many Canadian children and youth with impaired health for this long is a national failure (Vaillancourt et al., 2020), one that should have set off a public alarm like the one raised by the current pandemic. After all, we have known for some time that mental health problems are the leading cause of health-related burden in youth and the leading cause of disability worldwide in adults (Copeland et al., 2015; Whitford et al., 2013). Moreover, poor mental health contributes to significant difficulty with schoolwork and educational behaviour like paying attention and self-regulating (Duncan et al., 2021). It also affects children's relationships with caregivers, peers, and teachers (Whitley et al., 2018; Vaillancourt & Boylan, 2021) and is linked to morbidity and mortality (e.g., Walker et al., 2015). Mental health difficulties in children and youth are entrenched—existing across a variety of contexts, and persistent. Between 50% to 75% of mental health disorders in adulthood begin before the age of 15 (Kim-Cohen et al., 2003; Kessler et al., 2001; 2007). The continuity of psychopathology is well illustrated in a recent study by Krygsman and Vaillancourt (2021) who found that Canadian youth from the general population who followed an elevated trajectory of social anxiety symptoms from ages 10 to 18 were 20 times more likely to be depressed, 16 times more likely to have social anxiety disorder, 16 times more likely to have agoraphobia, and 13 times more likely have generalized anxiety disorder in adulthood compared to those who followed a low trajectory of social anxiety symptoms across childhood and adolescence.

The persistence of mental health problems highlights the urgent need to intervene early. Unfortunately, only around a quarter of affected Canadian children receive mental health services and these services are typically afforded to those with severely impairing mental disorders (Georgiades et al., 2019; Mental Health Commission of Canada, 2017). It also highlights the need for Canada to create a national strategy that emphasizes children's mental well-being as important for life success, in addition to academic attainment, an area in which Canada has excelled (OECD, 2016). This strategy should aspire to coordinate care across sectors in a stepped care framework¹ and across a full continuum of mental health supports spanning promotion, prevention, early intervention, and treatment. Of note, this strategy must include culturally sensitive services and supports delivered in schools and embedded within the broader community, which includes strong safety nets, with close connections to community mental health and hospital care for children and youth requiring more intensive service. As Vaillancourt et al. (2020) point out, this can only be done by a federal government that works with the provinces and territories to implement and evaluate evidence-based practice and policy. Such a partnership also requires input from school boards who understand firsthand the challenges of their respective, local communities. This type of partnership is a very important component of effective connection and intervention that is facilitated when care is provided within a community.

This national strategy must include *school-based mental health* as a first step along a continuum of care pathway. Schools are the societal institution responsible for child and youth development, which includes educating the whole child. This education not only includes numeracy, literacy,

¹ Stepped care models provide first line interventions that are accessible, convenient, and cost effective (Salloum et al., 2016).

and science competencies but also social-emotional competence (Vaillancourt et al., 2021a). Academic achievement cannot be disconnected from mental health. Poor mental health has a detrimental impact on education-related outcomes such as lower academic achievement, lower school engagement, and higher school drop-out (Whitley et al., 2018). Schools represent a prominent sector for a national child and youth mental health strategy given the established relationship teachers, administrators, and support staff have with children, youth, and their families in our communities. The role of these caring adults cannot be underestimated. Studies regularly demonstrate that the most consistent asset of children and youth is a strong positive bond with a competent adult, which is often a teacher (Luthar et al., 2000; Sanders et al., 2016). Accordingly, schools and school boards play a vital role in the promotion of mental health, especially in the context of the pandemic (National Academies of Sciences, Engineering, and Medicine [NASEM], 2021). Schools have the capacity to increase awareness about mental health, identify students who are at-risk, provide prevention and early intervention services, and connect students with community services (Halladay et al., 2020; Kutcher & Wei, 2020; NASEM, 2021; Ontario Ministry of Education, 2013).

Schools are also a natural partner for a national child and youth mental health strategy because they are, in fact, already doing the job (e.g., School Mental Health Ontario) and doing it well (Knopf et al., 2016; O'Connor et al., 2018; Sanchez et al., 2018). Schools are often the first point of contact for students with mental health concerns and the most common setting for the provision of mental health services in Canada (Georgiades et al., 2019) and elsewhere (Costello et al., 2014; Green et al., 2013; Merikangas et al., 2011; Ryan et al., 2014). In the U.S., 35% of adolescents received their mental health services exclusively in the school setting (Ali et al., 2019). In Canada, there is a strong and growing network across provinces related to school mental health where ideas and innovations are shared and contextualized (see Mental Health Commission of Canada, 2013). Several provinces have established infrastructure, strategic directions, implementation support teams, curriculum-embedded wellness promotion and social emotional skill development, educator mental health literacy and training, and protocols for school-based stepped care to advance culturally responsive evidence-based practices in school mental health. One notable concern with the pandemic is that students are being disconnected from these important mental health resources by virtue of schools being closed or adopting blended learning approaches. Being disconnected from teachers when schools are closed is especially problematic for at-risk children and youth, who benefit enormously from their relationship with teachers (Vaillancourt et al., 2021a; Westheimer & Schira Hagerman, 2021). Indeed, teachers are an important “protective asset” for students (Sanders et al., 2016; Sanchez et al., 2018).

All mental health services in Canada need greater investment (McGrath et al., 2020), and school-based mental health services offer significant promise and an important return on investment as a first step in a stepped-care model (Kutcher & Wei, 2020). Stepped-care models provide a framework for the delivery of mental health services such that the first step requires the least resources, and then depending on the response to treatment, other steps are mobilized, as needed, to ensure further resources are offered to a child or youth on their mental health journey. The pandemic has acutely highlighted a failed health care model in Canada whereby the bulk of mental health services have been provided by schools, and thus, if children and youth are not in school, they often turn to tertiary care in emergency rooms (ER) or hospitals in its place. In other words, without a gate keeper to provide the initial and least intensive service, the most expensive source of care and possibly the less effective for the presenting concerns, is accessed. This is well

illustrated during the pandemic whereby, with school closures being a common occurrence, many hospitals are reporting increases in ER visits for mental health concerns. For example, Toronto Hospital for Sick Children has seen a 120% increase in ER visits during the pandemic for mental health concerns (P. Szatmari, personal communication, May 12, 2021). Since January 2021, the Children's Hospital of Eastern Ontario reported an "unprecedented" number of young patients admitted to the hospital "in the throes of severe mental health crisis that left them suicidal" (Payne, 2021). This issue is not unique to Ontario. According to Children's Healthcare Canada (2021), children's hospitals "are experiencing, on average, double the number of admissions following attempted suicide, a three-fold increase in admissions related to substance use, and a 60% increase in the number of admissions related to eating disorders". In the U.S., the Centres for Disease Control and Prevention (2020) noted a 24% increase in mental health-related ER visits for 5–11-year-olds and a 31% increase for 12-17-year-olds at the beginning of the pandemic (Leeb et al., 2020). In Western Australia, a 104% increase in ER visits and admissions was observed at the beginning of the pandemic for children with anorexia nervosa compared with the three previous years (Haripersad et al., 2021). In Ontario, which has had the longest school closures of any province/territory in Canada (Vaillancourt et al., 2021a), admissions for eating disorders were 223% above capacity in June for the province's five paediatric hospitals (Kohly, 2021).

As mentioned, the increases in tertiary care access are driven in part² by pandemic-related stressors including school closures, underscoring again the role that schools play in the promotion, early identification, and intervention of mild to moderate mental health concerns. The Ottawa Community Pediatricians Network noted that "when schools are open, children are able to get more support", but when schools are closed, pediatricians see "a surge of mental health disorders within their practices" (Payne, 2021). Although troubling, it is important to bear in mind that the mental health system for children and youth has been at a breaking point for years. For example, between 2009 and 2017, the rate of ER visits in Ontario for mental health care increased by 47% and with the largest increase found for children and youth aged 10 to 21 years (>90%; ICES, 2021).

Focusing on *school-based* mental health also complies with the World Health Assembly's comprehensive mental health action plan, which advocated for providing "comprehensive, integrated and responsive mental health and social care services *in community-based settings*" (World Health Organization [WHO], 2013 p. 11; our italics). It is also in keeping with the Mental Health Strategy of Canada, which explicitly advocates for the importance of "schools for universal mental health promotion, and stigma reduction, as well as for early recognition of mental health problems" (Mental Health Commission of Canada, 2013, p.1). Equipping schools to lead in child and youth mental health requires more resources and more training than is currently available. Regarding resources, although the Canadian Government's latest Federal Budget (2021) has allocated historic investment in children by financing, for example, an affordable universal childcare program, when it comes to the mental health of children and youth, the budget falls short. Indeed, according to Children's Healthcare Canada and the Pediatric Chairs of Canada, the budget is "insufficient to meet the urgent and growing demands for complex healthcare interventions to address the crisis in child and youth mental health". Because *all* children and youth in Canada are exposed to a notable stressor (i.e., the pandemic), the need for adequate mental health funding for this vulnerable population has never been greater. The science on adverse childhood

2 The reasons for increased ER visits (and admissions) likely vary and are not solely driven by school closures, as such, these associations will require a closer investigation once more data become available.

experiences cannot be ignored. Negative or adverse experiences in childhood can derail potential. Children exposed to early and ongoing trauma are more likely to have physical health problems, to die earlier, to underachieve academically, and are more likely to have impaired mental health and relationships (Afifi et al., 2010; Almuneef et al., 2016; Anda et al., 2007; Barra et al., 2018; Campbell et al., 2016; Crouch et al., 2018; Cunningham et al., 2014; Dong et al., 2004; Dube et al.,



2009, 2001; Levenson, 2016; Rothman et al., 2010; Sachs-Ericsson et al., 2017), that persist well into adulthood (Anda et al., 2001, 2007; Baiden et al., 2017; Bellis et al., 2014; Dietz et al., 1999; Fuller-Thomson et al., 2013; Rossegger et al., 2009; von Sneidern et al., 2017). This sequelae and loss should matter to all of us. Healthy children are inextricably linked to a healthy nation. The reverse is also true.

Regarding training, the Canadian Teachers' Federation (2012) conducted a study with the aim of assessing barriers to the provision of mental health services for students and the level of preparedness to address student mental health concerns. Most teachers (> 90%) recognized that student mental health issues were a serious concern. Barriers to student mental health services were also identified, including not having enough school-based mental health professionals (88.6%), professional training for staff to deal with their students' mental health issues (87.4%), or funding for school-based mental health services (84.7%). Other barriers included a lack of community-based mental health professionals (77.65%), coordination between schools and community (74.7%), and referral options in the community (67.0%), as well as not prioritizing students' mental health (54.1%). These gaps in knowledge highlight that if teachers, alongside administrators, support staff, and school mental health professionals are to continue to be the stewards of children's mental health, then they need far more support in this role (Kutcher et al., 2013; Kutcher & Wei, 2020; NASEM, 2021). The stakes are too high to have education provide this valuable service without appropriate guidance about best practices in school-based mental health.

Finally, investing in school-based mental health services helps level the playing field. Schools can provide professional services to *all* school-aged children regardless of their family's access to care in community mental health settings. Schools can also provide care that is more spatially or temporally accessible and "provide the greatest ease of access for the largest number of young people" (Kutcher & Wei, 2020, p 174). For example, with neighbourhood schools, caregivers do not have to travel far to access care for their child. Care can also be accessed during the school day which reduces the need for caregivers to miss work for these mental health appointments. Providing care in schools can also help reduce stigma because the care provided is more discrete. Providing care in schools also means that school-based mental health care workers familiar with the community are the ones providing the service. These individuals are more likely to be culturally sensitive and meet the needs of students in their context, capitalising on known community resources to build resilience. Schools are also more likely to provide "youth friendly" services that can be "seamlessly linked to primary health care providers" (Kutcher & Wei, 2020, p 174). Finally,

because health care is publicly funded in Canada, mental health services are limited. Thus, many services are accessed by youth (or families) with resources like private health insurance and family income. This inequity partially explains why socioeconomically disadvantaged children and youth are overly represented when it comes to mental health problems. The burden is in fact 25-39% higher for Canadian children and youth from low-income families (Guhn et al., 2020; see also Knopf et al., 2016).

Child and Youth Mental Health During the Pandemic³



Canada needs a national child and youth mental health strategy. This was apparent before the pandemic, and since COVID-19 was declared a pandemic, this need has become even more pronounced. Factors like the lack of contact with peers and teachers, the fear of health and death of family members, and the decreased structure in daily living seem to have contributed to increased anxiety, depression, and behavioural problems in many children and youth (Fegert et al., 2020). Cross-sectional studies examining the mental health of children and youth in the context of COVID-19 from around the world appear to support this assumption

(e.g., Duan et al., 2020; Liang et al., 2020; Ma et al., 2021; Marques de Miranda et al., 2020; Orgilés et al., 2021; Tang et al., 2021; Xie et al., 2020; Yeasmin et al., 2020; Zhou et al., 2020). These studies consistently suggest that children and youth are not doing well during the pandemic. For example, a systematic review of 12 eligible studies (N=12,626 children and adolescents) reported that COVID-19 did have an impact on mental health (Nearcho et al., 2020; see also Loades et al., 2020). Another systematic review of 16 eligible studies on adolescent mental health and found “evidence to support the potential negative impact of the pandemic on adolescent mental health” (Jones et al., 2021). Crowdsourced data suggests that most (57%) Canadian youth aged 15 to 17 have experienced a decline in perceived mental health (Children First, 2020). A meta-analysis of 29 studies that included 80,879 participants found that 1 in 4 youth experienced clinically elevated symptoms of depression and 1 in 5 experienced clinically elevated symptoms of anxiety during the first year of the pandemic (Racine et al., 2021). As the pandemic progressed, these pooled estimates increased, reflecting a doubling of pre-pandemic estimates. The authors warned of an “influx of mental health utilization” because of these estimations. Results from two cross-sectional studies conducted in the spring of 2020 and the fall of 2020 on over 2000 Canadian children and youth aged 9 to 16 found that more youth were bored (34%), worried (27%), and sad (15%) during the pandemic than before the pandemic (Maximum City, 2021). Many youth (>75%) also felt worried about the pandemic and concerned that they were missing out on important life events. Not all the news was somber from this report. Over a quarter of the

³ We provide a systematic review and synthesis of the current state of knowledge up until August 8, 2021.

youth surveyed (26%) felt that the pandemic had some positive effects on their lives including more time to spend with their family and more time to pursue their interests. In a study of youth (age 10 to 19 years) in the Netherlands, with two time points (May 2020 and November 2020), tension and depression increased during the pandemic, particularly for younger youth and those exposed to more stressors (Green et al., 2021). In a Canadian study of children and youth (aged 6-18 for parent-reports and 10-18 for self-reports), Cost et al. (2021) found that, although 67-70% of children and youth “experienced deterioration in at least one mental health domain”, the mental health of some improved (19-31%) during COVID-19. Cost et al. also found the rates of deterioration were greatest for those with a pre-existing diagnosis and among children who perceived greater stress from being socially isolated. This is consistent with other cross-sectional studies examining COVID-19 in children and youth with pre-existing mental health problems, as well as other pre-existing vulnerabilities like physical health problems (Hawke et al., 2020), neurodevelopmental conditions (e.g., Asbury et al., 2020; Sciberras et al., 2020; Theis et al., 2021), and those living in adverse socio-economic circumstances (Whitehead et al., 2021) and in racialized communities (Ezell et al., 2021). There is nothing new here, differential exposure and vulnerability have been reliably associated with differential outcomes (Cicchetti & Rogosch, 1996).

Although the decline in mental health of children and youth in Canada and worldwide during the pandemic is expected, it is important to note that some problems exist with these cross-sectional studies. Many published and preprint studies do not meet the standard of good research practices (Vaillancourt et al., 2021b). Specifically, providing definitive evidence about the magnitude of change using these types of data is incorrect, open to bias, and can be potentially harmful (Vaillancourt et al., 2021b). Cross-sectional pandemic data have often relied on retrospective recall approaches, which confound current mood states and experiences with the recall of past events. This is problematic because when perceptions of change and current stress are measured concurrently, it is difficult, if not impossible, to determine the true magnitude of change. Thus, cross-sectional data cannot be used to make concrete inferences about individuals or population change. Only longitudinal designs can be used to identify definitively individual differences in rates of change over time (Hofer et al., 2012). Moreover, in the absence of a randomized control trial, only longitudinal designs that include baseline data prior to the pandemic can be used to make inferences about causality.

There are few longitudinal studies examining changes in children’s mental health during the pandemic, even fewer studies with comparable *population-based* pre-pandemic baseline data, and none that are Canadian. Results from these limited studies suggest that there is a deterioration of mental health in some children and youth, but the results are not as striking as those promoted in the media. This hopeful appraisal could however be due to a survivorship (i.e., attrition) bias. Specifically, Czeisler et al. (2021) found that participants with subsequently missing data had higher depression and anxiety symptoms than those who complete more assessments. The authors suggested that bias “could lead to overly optimistic interpretations of mental health trends over time” (p.1).

So what do longitudinal studies say about changes to children’s mental health during the pandemic? In a Canadian study of 184 adolescents from the community who were assessed on four occasions over the course of two years before the pandemic, and again during the pandemic, researchers found that “anxiety and depression scores were significantly higher than previous trajectories would have predicted” (De France et al., 2021). In an American study of 322

young adolescents (mean age = 11.99), *reductions* in mental health problems were found for some youth who had elevated problems before the pandemic (Penner et al., 2021). Specifically, clinically significant reductions were found for internalizing, externalizing, and total problems. The conclusion drawn by the authors of this study was that “COVID-19 stay-at-home regulations may offer protective effects for youth mental health”, perhaps for those who find school to be a stressful experience. In another American study that combined two longitudinal samples (N=224) of children aged 7-10 and adolescents aged 13-15, Rosen et al. (2021) found that internalizing and externalizing psychopathology increased substantially during the pandemic and that higher exposure to pandemic-related stressors moderated the association (more stressors = higher psychopathology). In China, Zhang et al. (2020) assessed 1241 youth before and during the pandemic and found increased odds of being depressed, engaging in non-suicidal self-injury, suicidal ideation, suicide plans, and suicide attempt following the lockdown. In Norway, there was a small increase in anxiety and depression for adolescents (age 13 to 16; N=3,572) and those living in lone-parent homes were more impacted (Hafstad et al., 2021). In Australia, Magson et al. (2021) compared adolescents’ mental health (N=248) one year before the pandemic and two months after government restrictions and online learning were implemented. As has been shown in other studies, increases in depressive symptoms and anxiety were found along with a decrease in life satisfaction. These effects were especially evident in girls. COVID-19 related worries, online learning difficulties, and increased conflict with parents were associated with increases in mental health problems. Depression and anxiety symptoms were examined in 12 longitudinal studies of adolescents (N=1339) from three countries (10 from U.S., 1 from Netherlands, and 1 from Peru; Barendse et al., 2021). Teens were assessed before the pandemic and during the first 6 months of the pandemic. Results indicated that depression symptoms increased significantly, while anxiety symptoms remained stable across time. Adolescents who were multiracial and under lockdown restrictions fared the worse on mental health. Finally, Achterberg et al. (2021) assessed children (N = 151; age 10 to 13) during the lockdown and four annual assessments prior to the pandemic in the Netherlands and found no changes in internalizing problems and a deceleration of the decrease in externalizing problems.

Taken together, although most longitudinal studies suggest a worsening of mental health in relation to the pandemic, the picture is still nuanced in terms of magnitude of change across different outcomes, age groups, gender, race, and other demographic features. Moreover, because most of the data were collected several months after the COVID-19 stay-at-home measures were enacted, it is important to reassess this now and again over time. Hawes et al. (2021) for example, found that symptoms of depression and anxiety peak in 415 youth in the first spring of the pandemic and then decreased over the course of early summer. This re-assessment is also important given the mounting number of parental deaths (and those of other family members) in Canada and abroad. Although there are no comparable data for Canada, the estimated and projected parental deaths from the U.S. are striking. Models suggest “that each COVID-19 death leaves 0.078 children aged 0 to 17 parentally bereaved” (Kidman et al., 2021). This represents a 17.5% to 20.2% increase in parental deaths due to COVID-19.

Population-based studies also point to an increase in mental health difficulties in children and youth during the pandemic. In the U.K., an increase from 10.8% in 2017 to 16.0% in July 2020 was found, with the highest prevalence of mental health problems found among adolescent girls (27.2%; Newlove-Delgado et al., 2021). In a nationally representative sample of German children aged 7-17 years, the prevalence of mental health problems also increased from 9.9% (pre-pandemic)

to 17.8% (between May 26 and June 10, 2020), with increases in anxiety being the most pronounced (14.9% vs. 24.1%; Ravens-Sieberer et al., 2021). In this study, children with “low socioeconomic status, migration background and limited living space” suffered the most during the pandemic. In a population-based study of Icelandic adolescents (N=59,701) assessed in 2016, 2018, and again in 2020, Thorisdottir et al. (2021) reported an increase in symptoms of depression and a worsening of mental well-being in all age groups during the pandemic compared to before the pandemic. Adolescent girls were found to be more affected than adolescent boys, consistent with results from Newlove-Delgado et al. (2021).



Not having a Canadian population-based longitudinal study of children and youth is problematic for a variety of reasons and arguably contributing to our children’s mental health crisis (Georgiades et al., 2021). Because we do not have a national longitudinal study of children and youth, we cannot provide timely evidence on their health and well-being, nor can we accurately monitor the impact of the pandemic on our most vulnerable populations. In their policy brief on the impact of COVID-19 on children, the United Nations (2020) identified the need for “a rapid accumulation of data on the scale and nature of impacts among children” and yet a recent large-scale search of children’s mental health research in the context of the pandemic found a “striking lack of research” on this topic (Racine et al., 2020). This gap in knowledge also renders us ill equipped to coordinate a national response to determine how Canadian children and youth are doing and what their current and future needs are. Such information is essential for helping policymakers make the best choices about where and how money should be spent to help children and their families. Continuity in data collection allows us to establish if we are doing the right things and doing them right—for all children. It also creates a unique opportunity to assess how COVID-19’s impact may have differed across provinces and territories—including assessing the impact of diverse public health and policy responses.

Finally, the federal government needs to establish a policy framework for child and youth mental health and a national children’s commissioner is needed to advise the Cabinet of Canada and contribute to all policies that impact children and youth. The Children’s Commissioner would be responsible for ensuring that all federal legislation is in line with the framework and would provide an annual scorecard on what the government is doing in meeting its child and youth mental health objectives. These suggestions are consistent with best practice evidence. Systematic reviews of clinical practice guidelines in child and youth mental health (e.g., Bennett et al., 2016) find that the only guidelines to be consistently highly endorsed, according to international standards, are those produced by arm’s length government organizations like the National Institute for Health and Care Excellence in the U.K. rather than by professional medical societies.

Conclusion and Recommendations

In the latest, Children First (2020) report, the top threats to childhood in Canada were identified. Poor mental health ranked 2nd on their list. As experts in this field, we have long recognized that

mental well-being is an integral component of children’s health and success, as well as the health and prosperity of our nation. We have also long recognized the disconnect between what we advocate for and the reality of life for Canadian children and youth. Even before the pandemic, children and youth in Canada were not faring well in large part because mental health has not been prioritized by our governments, both provincially/territorially and nationally. The pandemic has put a spotlight on this problem and with this attention comes the need for action. To improve the mental health of Canadian children and youth in the post-pandemic era we need to do the following:

1a. Create a national strategy that emphasizes children’s mental health as important for life success and do so in the context in which they are most easily accessible—schools. This strategy should also provide coordinated care across sectors in a stepped care framework and across a full continuum of mental health supports spanning promotion, prevention, early intervention, and treatment. We recognize that education is the responsibility of provinces and territories, but a national approach that includes education as an integral sector is what is needed to reduce the striking disparity in practice and policy across the country when it comes to children’s mental health. This national strategy can only be done by a federal government that works with the provinces and territories to implement and evaluate evidence-based practice and policy.

1b. A national strategy must also include plans to deal with the tragedy of suicide in all segments of the population, but in particular, among adolescent boys and among First Nations, Métis, and Inuit youth who are disproportionately affected. This strategy should include connections to the First Nations Mental Wellness Continuum Framework and the National Inuit Suicide Prevention Strategy.

2. The federal government needs to establish a policy framework for child and youth mental health and a national children’s commissioner is needed to advise the Cabinet of Canada and contribute to all policies that impact children and youth and to advise provinces/territories and coordinate pan-Canadian efforts. Moreover, an annual scorecard on how Canada is doing with respect to child and youth mental health is needed.

3. Implementing a national strategy will take time so in the interim, *new* funding must be allocated to schools in 2021-2022 and 2022-2023 (and beyond) to deal with growing mental health crisis among children and youth. The funding given to the provinces/territories for schools must be earmarked/protected by the federal government.

4. Invest in a comprehensive population-based follow-up survey of the Canadian Health Survey on Children and Youth (Statistics Canada, 2019a) so that accurate information about how the pandemic is affecting all Canadian children and youth, and those disproportionately affected, can be obtained.

Children are not the immediate face of COVID-19, but they are the face of its future. This future may well involve lasting harms to a generation if we do not act now (Georgiades et al., 2021). The pandemic has caused many unprecedented hardships for Canadians. Yet it has also provided an extraordinary opportunity to right our past wrongs by finally investing in the mental health of Canadian children and youth. Any nationally led response to COVID-19, and beyond, must recognize that there is no health without mental health (Chisholm, 1954) and that children and youth are an essential component of this response. As Racine et al. (2020) stated so well, children

and youth “count on adults to be their advocates. [They] depend on us to notice and act on inequalities they are facing. Our collective responsibility is to give them a voice by ensuring that their mental health is an international priority, both within and outside the academic realm” (p.2).

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Chapter 2: The Impact of COVID-19 on the Learning and Achievement of Vulnerable Canadian Children and Youth

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Abstract

Many children and youth in Canada are identified as vulnerable due to educational, environmental and social factors. They are more likely to be negatively affected by events that cause significant upheaval in daily life. The changes imposed by COVID-19, such as physical distancing, school closures, and in some cases, termination of community-based services, all have the potential to weaken the systems of support necessary for these children to learn and develop. Existing inequities in educational outcomes experienced by vulnerable children prior to the pandemic have been greatly exacerbated as cracks in our educational and community support structures are revealed. Many children and youth have experienced disengagement, chronic attendance problems, declines in academic achievement and decreased credit attainment during the pandemic, with the impact far deeper for those already at-risk. Challenges experienced by families during the pandemic, leading to increased stress and, in some cases, trauma, also affect the educational well-being of children. Parents, many of whom are also lacking necessary resources, have shouldered the weight of supporting their children's learning during the pandemic. This chapter examines what is known to date regarding the impact of COVID-19 on vulnerable children and youth and provides recommendations to guide post-pandemic planning. Vulnerable children and youth, and their families, require access to reliable, high-speed internet and devices, effective and inclusive learning spaces and contexts and a range of coordinated social services. All stakeholders, including schools, school boards, community service agencies, and provincial and federal governments, need to develop and fund initiatives that address these critical areas to ensure that educational opportunities for all children and youth can be realized.

The Impact of COVID-19 on the Learning and Achievement of Vulnerable Canadian Children and Youth

The COVID-19 pandemic is a shared global experience, inescapable on every continent and affecting all members of society. However, its impact, both in terms of the actual illness and public health measures put in place to curb its spread, has affected individuals, groups, and communities to varying degrees (Bascaramurty & Alphonso, 2020; Choi et al., 2020; Craig et al., 2021). "As with most systemic challenges, those who are most impacted by crises are those who are already

the most vulnerable" (Wilke et al., 2020, p. 2). Children and youth positioned as *vulnerable* are likely to be particularly affected by global events that cause significant upheaval in daily life. The changes imposed by COVID-19, such as physical distancing, self-isolation, school closures, and in some cases, termination of community-based services, all have the potential to weaken the systems of support necessary for children to develop and flourish (Clinton, 2020). In this chapter, we examine what is known to date regarding the impact of COVID-19 on vulnerable children and youth. Given



the recency of the pandemic, we draw on empirical research where possible, while considering reports from media, government and school-related associations as complementary sources of insight. We conclude with recommendations that emerge from our examination to guide those engaged in developing supportive post-pandemic plans for vulnerable children and youth.

Vulnerability Defined

We conceptualize vulnerability as existing in the interactions between the circumstances, resources and capacities of a child and their family and environment. Vulnerable children are influenced by detrimental social, economic and/or educational factors (Eloff et al., 2007). They have an increased likelihood of being harmed or experiencing more severe harm than other children (Schweiger, 2019). The COVID-specific literature typically defines vulnerability through environmental and social indicators such as economic hardship, housing stress, and lack of access to materials and infrastructures (Drane et al., 2020; Herrenkohl et al., 2021; Masters et al., 2020). Often contrasted with resilience (Boyce & Kobor, 2015), vulnerability places children at risk for difficulties in withstanding significant change or disruption, such as altered social networks, reduced educational support, or increased family stress (Prime et al., 2020).

Child adjustment is reciprocally related to the experiences and challenges of parents and other family members. Disruptions to family health and well-being, such as history of trauma, special needs, chronic health conditions, and family relational dysfunction, can sometimes place children in situations of vulnerability, especially when necessary supports and resources are not in place (Wilke et al., 2020). According to Prime et al., "...links between hardship, caregiver well-being, family well-being, and children's adjustment are not unidirectional; rather, the links operate within a mutually reinforcing system, whereby stress and disruptiveness in one domain begets the same in another" (p. 632). Adverse effects of the pandemic on parents and families can impact children through multiple mechanisms (McGrath et al., 2020). Children in care or families at risk of separation may need additional attention and support through the COVID-19 pandemic (Wilke et al., 2020).

Chronic exposure to racism and marginalization often intersects with and exacerbates inequities in social and health-related experiences for families (Cohen & Bosk, 2020; James, 2020; Prime et al., 2020; Raising Canada Report, 2020). According to Canadian scholar Carl James, "the pandemic has not only added to the social and educational inequities among young people, it has exacerbated the racial injustice with which racialized and Indigenous youth must contend" (2020, p. 1). Racist incidents against Asian-appearing individuals have increased during the pandemic, spurred by stigma related to the virus's origins in the Wuhan province of China (Heidinger & Cotter, 2020; Kong et al., 2021). Preliminary indications suggest that COVID-19 has deepened the negative impact of pre-existing vulnerabilities and disparities and further contributed to disenfranchisement and marginalization (Raising Canada Report, 2020).

Alongside the socially and economically driven definitions of vulnerability lie the educational ones (e.g., Willms, 2018). Given the school interruptions and closures associated with the pandemic, children who were already behind their peers academically and/or who require special services and supports to succeed academically are likely to be particularly affected (Clinton, 2020; Masters et al., 2020). There is also a compound effect of academic and social vulnerability in that social disadvantage is over-represented among those deemed educationally vulnerable, a pattern termed the "continuous cycle of disadvantage" (Masters et al., ...p. 1). For these children, reduced access to the human and material educational resources negatively impacts learning.

Other authors in the Royal Society of Canada COVID-19 series specifically address the mental health dimension of the COVID-19 pandemic (Vaillancourt et al., 2021). Although inextricably linked with mental health, the focus of this chapter is on the academic and learning-related outcomes and approaches for those most vulnerable to the effects of the pandemic and associated restrictions.

Impact of COVID-19 on Learning and Achievement

Global organizations such as UNICEF and UNESCO have raised concerns throughout the pandemic about its negative impact on child education due to school closures estimated to affect 1.5 billion students worldwide (Gustafsson, 2021; UNESCO, 2021). They claim that the health crisis is quickly becoming a child rights crisis as access to quality education is hindered or simply unavailable to many children world-wide. Article 28 of the United Nations Convention on the Rights of the Child (1989), on which Canada is a signatory, recognizes the right of children to education. Recent COVID-19 literature highlights concern regarding increased absenteeism, poor literacy and math outcomes, and the potential for long-term educational disengagement, drop-out and lifelong reductions to educational and vocational attainment for students living and learning in vulnerable circumstances (Andrabi et al., 2020; Bao et al., 2020; Engzell et al., 2021; Frenette et al., 2020; Maldonado & De Witte, 2020; Sabates et al., 2021).

A number of studies examining the impact of COVID-19 on academic achievement have been conducted in the U.S. (Dorn et al., 2020; Kuhfeld et al., 2020), Belgium (Maldonado & de Witte, 2020), the Netherlands (Engzell et al., 2021; Meeter, 2021), and Germany (Depping et al., 2021; Schult et al., 2021). Most of these studies compared student performance on standardized measures prior to and following the spring 2020 school lockdown and found small, significant declines, with a few studies showing greater inequity for students of colour, those with a migration background, or from families with fewer years of formal education. Canadian data are limited at this time to analyses based on historical comparisons. These reveal mixed findings, including higher teacher-assigned grades, increased secondary failure rates, and lower than expected scores on report cards and standardized literacy tests (e.g. Star Reading, Developmental Reading Assessment) for young children in Alberta and Ontario (e.g. Cook, 2020; Davies & Aurini, 2021; Nerestant, 2021; TDSB, 2021).

COVID-19 and Learning Loss

In considering the emerging findings on the impact of COVID-19 on academic achievement, it is important to remain cautious about an overemphasis on ‘learning loss’. Discussions about learning loss have permeated news media, policy briefs, opinion pieces, and research (Dorn et al., 2020; Engzell et al., 2021; Ewing, 2020). Learning loss is typically defined as the discrepancy between the assessed academic skills and knowledge of students and grade-level curricular expectations and/or gaps between the academic performance of some groups of students compared to others (Dorn et al., 2020; Pier et al., 2021).

Learning loss discussions are often limited in four respects. First, they suggest that children have not been learning when their schools were closed or while engaged in remote learning. In other words, learning is equated solely with academic achievement, and the skills and comprehension that children may have developed (e.g., land-based learnings) are not valued nor, by extension, measured (Delandes-Martineau et al., 2020; Rodriguez, 2021). Second, learning loss is most often defined through narrow definitions of achievement, primarily basic literacy and numeracy (e.g.,

Vegas, 2021). The full sense of learning, including motivation, engagement and inclusion, and the broad curricular goals of schools, is greatly reduced (Zhao, 2021). Consequently, responses to presumed learning loss often include large-scale standardized testing to assess and rationalize remediation of these narrow skills. This approach often perpetuates the cycle of inequity and poor performance for students who are disengaged from schools or



who do not reflect majority linguistic or cultural profiles (Campbell et al., 2018; Hargreaves, 2020). Third, learning loss discussions often depict the impact of inconsistent schooling as applying equally to all students when, in fact, the negative influence is differentially experienced by those most vulnerable (Bailey et al., 2021; di Pietro et al., 2020). And fourth, the notion that learning is lost suggests that it is unlikely to be recouped. However, most skills, competencies, and knowledge related to reading and mathematics, the arts, history, and social studies can be engaged with successfully at any point in an individual's lifespan, albeit potentially requiring greater intensity and personalization of instruction and practice (Thompson & Steinbeis, 2020; Woodard & Pollak, 2020). The special education and intervention literature would dispute the notion that achievement is forever compromised if skills are not taught and learned at a fixed point in time (Lovett et al., 2020; Marita & Hord, 2016; Vaillancourt et al., 2020). School curricula and standardized tests which determine the grade at which a concept or skill is introduced and evaluated are determined by the system in which students learn rather than being developmentally mandated. Some authors have suggested using the terms COVID 'slide', 'slow down', 'learning disruption', or 'unfinished' learning to better reflect the effects of the pandemic on student progress (Gordon et al., 2020; Martin, 2020; Rodriguez, 2021). What determines whether learning or academic achievement is lost is determined by how well vulnerable students are supported and resourced during and following the pandemic.

Impact of COVID-19 on Children and Youth with Special Education Needs

Children with special education needs (SEN) comprise 10 to 20% of total student enrollment, as many as 1 million children in Canada (Whitley, 2020). Many of these children have pre-existing neurological or neurodevelopmental disabilities known to impact cognitive and academic functioning, such as Attention Deficit Hyperactivity Disorder, Learning Disabilities (e.g., Dyslexia, Dyscalculia), Autism Spectrum Disorder (ASD), Intellectual Disability, or Traumatic Brain Injury, to name a few. These students required a range of inclusive and special education services before the pandemic. Most require differentiated instruction and accommodations to be able to flourish academically. Many rely on established routines and relationships as well as professional and informal support (Toseeb et al. 2020). Some with more complex needs require a broad network of services from community organizations, health care providers, and school staff, many of which

have been reduced due to pandemic restrictions (Fontanesi et al., 2020). We have adopted the term 'special education needs' to reflect the heterogeneous and diverse group of children and youth who require supports of some kind to be able to learn and engage with peers in schools. As such the term suggests a deficit lens, where some students require something 'special', beyond or apart from the norm; the term also situates the need within the child rather than within the environment (see Connor, 2020 and Parekh & Brown, 2020 for a fuller discussion). We acknowledge these tensions and the limitations of the term. Where possible, we use the original language of the source material we draw on in the chapter.

Emerging literature documents the impacts of COVID-19 on children with SEN, generally from the perspective of parents and caregivers. A qualitative study by Neece et al. in the U.S. (2020) examined the perspectives of 77 parents of children with intellectual and developmental disabilities. The sample was primarily Latinx, and approximately half of the children had been diagnosed with ASD. Approximately 1/3 of the sample reported decreases in services as a significant challenge during the pandemic. The majority of parents were primarily concerned with the obligation to stay at home to care for their child. Lack of educational and developmental progress was a potential impact noted by about 16% of parents. Other studies provide emerging evidence that the pandemic has worsened symptoms of the disorders themselves and associated comorbidities (Masi et al., 2021), such as increased conduct problems in children with ADHD, and reduced prosocial behaviour in those with ASD (Nonweiler et al., 2020). Concerns have also been raised that online schooling and management of video-conferencing platforms may not be appropriate for children with pre-existing attentional or perceptual impairments (Aishworiya et al., 2020).

Learning during COVID-19 - Reducing barriers to access

Vulnerability in education is often a product of a lack of access to adequate resources such as reliable, high-speed internet and sufficient internet-enabled devices, inclusive learning spaces and contexts, and therapeutic, social, and recreational services.

Vulnerability via Digital Access

During the pandemic, access to digital technologies has been a significant issue for many families. Inconsistent access to high-speed internet and sufficient digital devices is a barrier to participation in educational and service-related activities (e.g., therapies, recreational supports, respite) developed because of school closures. In a survey of almost 6000 families on Prince Edward Island, 29% were extremely or very concerned about internet service if home-based learning continued (PEI Department of Education and Lifelong Learning, 2020). In Manitoba, the Winnipeg School District reported that 40% of students did not have a computer at home (Froese, 2020). British Columbia school districts reported that up to 30% of families have no access to internet-enabled devices (BC Ministry of Education, 2020). In recognition of the significant barrier posed by internet and device availability for vulnerable children, some governments and school boards equipped families with paid cell phones with data plans and loaned digital devices (e.g., Calgary Board of Education, 2020; CBC News, 2020, Samba, 2020). Others funded and delivered internet-enabled smartphones to students without access (Modjeski, 2020). Other schools providing school ground hotspots for students who could spend time close to the school or delivered digital and paper materials to families (e.g., Government of Northwest Territories, 2020; McPhee, 2021).

In 2016, the Canadian Radio-television and Telecommunication Commission (CRTC) declared that broadband internet was a vital basic service for all Canadians. However, data in 2019 revealed that 12.6% of Canadian households do not have broadband internet service and there are inequities in internet speed between rural and urban households (CRTC, 2020). Even when available, high-speed and unlimited internet costs are prohibitive for many families; households in the lowest income quartile are significantly less likely to have home internet and have multiple internet-enabled devices than those in the highest quartile (Frenette et al., 2020). Federal, provincial, and territorial programs have been put in place to support some low-income families in accessing high-speed internet (Government of Canada, 2019; Rogers, 2021). In many rural areas of Canada, residents have described living in an ‘internet dead zone’ or in areas where internet access is incredibly costly or unreliable, including some First Nations communities (Human Rights Watch, 2021; Jabakhanji, 2020). Indigenous communities and those in Northern regions are among those most disadvantaged by a lack of connectivity; as of 2018, over 50% of Nunavut households had download speeds of less than 5 Mbps. “Many residents still have trouble opening an email, let alone trying to use video-conferencing applications for personal, professional, or health reasons” (Internet Society, 2019, p. 7).

The pandemic has revealed to schools and governments the needs and inequities related to technology access. This access allows children and their families to successfully navigate services, employment, education, learning, and social networks (Canadian School Boards Association (CSBA) and the Canadian Association of School System Administrators (CASSA), 2020). In some provinces and territories, parents had the choice of returning their children to school full time or continuing to receive blended or fully virtual services when schools opened again in the fall of 2020. However, many parents felt that they were forced to make difficult decisions based on their unique situations. For example, options were limited for those who had to work outside the home to provide for their families, who lacked childcare, who lived in multi-generational households with high-risk elders, whose children were immunocompromised, or who were without the internet capacity to engage in virtual learning.

Vulnerability via Access to Inclusive Learning

Attendance at school. One of the most concerning ways that vulnerability has been documented during COVID-19 is through absence rates. Student absenteeism and disengagement during the pandemic, regardless of the modality of learning, have increased in many jurisdictions (Goldstein et al., 2020). The exact scale of the problem is, however, difficult to determine, in part because of challenges in defining and measuring attendance in virtual and hybrid settings. Is it logging on to a synchronous lesson? Interacting with a teacher? Completing an assignment asynchronously? (Attendance Works, 2021; Jordan & Chang, 2020; Kamenetz, 2020). Physicians and mental health professionals underscore the importance of being physically present at school (Sick Kids, 2021; UNESCO, 2020). For some students, schools are the only place they feel safe and can engage in satisfying relationships with peers and adult educators. In many communities, schools are also a hub for food programs, childcare, mental health services, disability supports, extracurricular activities, and even medical services (Dorn et al., 2020). School attendance supports child development through social, emotional, and academic development and acquiring critical thinking skills (Heyne et al., 2019b; Wang & Eccles, 2012). Chronic absence from school or attendance under significant distress can jeopardize skill development (Kearney & Graczyk, 2014). The detrimental impact of

reduced school attendance on developmental outcomes is well-documented and is exacerbated by the pandemic (Wong, 2021).

A recent UNICEF informational campaign shows rows of empty desks with the caption “Absent: 168 million children” (UNICEF, 2021). The accompanying press release states that “Each additional day without face-to-face schooling puts the most vulnerable children at risk of dropping out of school forever.” Students continue to be physically distanced from school due to closures or rotating cohort schedules. For those already on a path to long-term disengagement, the loss of connections and oversight facilitated by just being present in a school building widens the cracks, allowing them to fall through and be lost to the education system entirely (Baker, 2000; Drane, 2020; Wong, 2021). When students are absent from school, educators cannot fulfill their duty of care mandate to report troubling situations to child welfare agencies because cases of neglect or abuse are more difficult to identify. Authorities in Quebec noted a significant decrease in the number of reports made to child protective services in the spring of 2020 when schools were closed (Montréal West Island Integrated University Health and Social Services Centre, 2020). For children and youth already vulnerable to myriad impacts of the pandemic, chronic or permanent absence from school

prevents access to educational and vocational opportunities, as well as mental and physical safety.

Engagement in remote learning options. For most children, the impact of the pandemic on learning and achievement depends in part on the quality of any remote or in-person offerings and the resources available in the home and community. Some Canadian provinces and territories offered in-school options for the young children of families who were essential workers or children with special education needs in congregated or segregated classes (Government of Manitoba, 2021;



Government of Northwest Territories, 2020; Government of Yukon, 2020; Ryan, 2020). Also, various distance and remote learning options have been provided across Canada while schools have been physically closed. These range from asynchronous delivery models, with physical materials delivered to students’ homes, as well as access to digital resources such as websites, applications, and broadcast options, to synchronous engagement of whole classes of students through virtual platforms (Connected North, 2020; Saltwire Network, 2020). Some territories highlight learning on the land as an important option for families during school closures, either as part of school-scheduled activities or as family-led time (Government of Northwest Territories, 2020; Government of Yukon, 2020).

Researchers have not yet explored the advantages and limits of distance learning in meeting Canadian students’ needs. As ministries and school boards developed remote learning models in

the context of an emergency, research was not in place to compare, for example, the achievement or well-being of vulnerable children taking part in the various approaches. A qualitative study of typically developing children in Quebec gathered the perspectives of children 5 to 14 years on school closures and most of these children raised issues regarding the limitations of virtual platforms for both academic learning and socializing (Larivière-Bastien et al., 2020). Many children and families identified as vulnerable are even less likely to have the social, linguistic, or cultural capital valued in formal educational settings (Drane et al., 2020), much of which is necessary to engage effectively with virtual learning. A small number of non-Canadian studies have shown the positive effects of virtual learning on academic achievement (e.g. Clark et al., 2020; Schult et al., 2021). Some evidence suggests that among families who have the skills and resources to navigate virtual learning and in contexts of responsive, quality virtual learning offerings, academic gains can be made, and the impact of school closures can be mitigated (e.g. Kaffenberger, 2020; Schult et al., 2021). Other studies have found that racialized students, and those from lower socio-economic schools or communities, are more likely to be enrolled in virtual learning and thus assumed or found to be less likely to progress than their peers who receive in-person schooling (Dorn et al., 2020; Parolin & Lee, 2021). Inequities are thus reinforced and exacerbated for communities already experiencing disadvantage. It is important to consider this emerging research alongside the significant literature exploring effective approaches to distance and online learning over the past 15 years. For many teachers and schools, engaging with students remotely and teaching at a distance was utterly unanticipated. The learning curve demanded of them, alongside juggling their own family and personal challenges, has been extraordinary.

The most commonly noted concerns about virtual learning for students already vulnerable in educational settings are that the schedules, formats, and supports are not well-aligned with the needs of these students. In some instances, this is a quantity issue. Many students, particularly those in cohorted, intensive secondary courses, do not have sufficient opportunities to learn from and with others who can motivate participation, provide engaging learning opportunities, offer a range of explanations, answer questions, and model activities. Some secondary students have physically attended school every second day for the 2020/2021 school year, with far fewer direct instructional hours than before the pandemic (Government of Manitoba, 2020; OCDSB, 2020). In other cases, the access barrier is one of quality—or a fit between the student's specific needs and the distance learning offerings. Guidance from provinces and school boards across Canada reflects an understanding of the need to be flexible in requiring certain types and amounts of participation via distance (e.g., Ontario Ministry of Education, 2020). These documents also highlight the need to develop approaches to virtual learning that are based on culturally responsive pedagogy, universal design for learning, and a tiered approach to progressively intensive service provision that mirrors that of a physical school setting (Edmonton Public School Board, 2020; Government of Manitoba, 2020).

With respect to the quality of at-home learning engaged in by families of children with SEN, the small literature base shows a trend of perceived insufficient or inappropriate offerings (Garbe et al., 2020; Greenway & Eaton-Thomas, 2020; Whitley et al., 2021). In a survey completed by 238 parents of children with SEN in the U.K. (Greenway & Eaton-Thomas, 2020), 68% reported receiving educational resources from their school, with just over half indicating that the resources were not appropriate for their child's needs, a finding echoed by Garbe et al. (2020) conducting research in the U.S.. For some students, including those with ADHD, parents reported significant challenges for their child in engaging with virtual classes, particularly in terms of executive functioning, staying

focused, and avoiding environmental distractions (Hai et al., 2021). Designing and implementing remote learning options in inclusive ways that reflect differentiation and alignment with the goals and supports required through students' individual education plans is a significant challenge for educators and school systems, particularly given the rapid changes that many have had to make in response to public safety measures.

The role of families in learning. Many of the approaches to at-home learning, particularly for young children or those with academic needs or disabilities, require the support of parents and other family members. Provincial and territorial government documents include mention of parents not being expected to take over the teaching while highlighting the importance of parent involvement and partnership (e.g., Nunavut Department of Education, 2020). For many students, it is not realistic to expect parents and other home-based learning partners to provide individual support to motivate, engage, instruct, and monitor learning and schoolwork. Students who are homeless or living in congregated settings, for example, lack the types of support that are necessary to participate fully in virtual learning. Children identified as English or French Language Learners may have families at home who are also new to the languages of instruction at school. Due to language barriers, these families may be unable to access the materials and communications sent home, much less be prepared to support their children in their learning (Breiseth, 2020; Sugarman & Lazarin, 2020).

Parent engagement and support for at-home learning and academic discussions with children has been found to mediate the relation between family vulnerability (e.g., socio-economic status) and student achievement (e.g., Altschul, 2012; McNeal, 2014). During periods of COVID-19 distance learning, many parents and teachers have been closer than ever before—at times with a full view of each other's homes and personal lives. For many children, particularly those who are young, who have a disability or who require support to remain motivated and engaged, distance learning cannot happen without the collaborative efforts of home and school. During periods of distance learning due to COVID-19, "Parents often bear much of the responsibility for the quality of the learning experience their child will have access to" (Bérubé et al., p. 7).

Many families have been unable to manage the changing circumstances, stress levels, financial burden and, in some cases, trauma caused or worsened by the pandemic (Gadermann et al., 2021; John-Henderson & Ginty, 2020). Families of vulnerable children may encounter challenges in their relationship with school staff. These challenges can be intergenerational, where the negative experiences students have with their own schooling can carry over into their interactions when supporting their children many years later (Crozier & Davies, 2007; Gwernan-Jones et al., 2015). According to Scott and Louie (2020), "Unfortunately, evidence of the distrust of the school system is prevalent for Indigenous people. Parents may feel unwelcomed in the school environment due to the legacy of residential schools and experiences of racism in the education system. This is particularly true in rural contexts where parents are more likely to have attended the schools their children now attend; places where many Indigenous parents felt alienated and unwelcomed as students" (p., 119).

Parents of children with SEN have encountered challenges in meeting the needs of their children and obtaining sufficient support from teachers and schools (Asbury et al., 2020; Becker et al., 2020). Fontanesi et al. (2020) found that parents of children with disabilities perceived less social support and experienced higher levels of burnout compared to other families, and Masi et al. (2020) reported that among 302 caregivers of children with neurodevelopmental disabilities, 77%

reported a negative impact of COVID-19 on child well-being with over half not satisfied with services received.

Relying on families as co-educators creates inequities among students in the same ways that it does when schools are open. Engaging families in distance learning is essential to many students'



learning but needs to be considered in light of the range of support and capacities that exist in homes and communities.

Vulnerability via Access to Social and Therapeutic Services

Throughout the COVID-19 pandemic, the abrupt end or shift of service provision, including social, therapeutic, and recreational services, has been highlighted as a significant stressor for families and a barrier to access for children to safety,

support, care, and development (Crawley et al., 2020; Neece et al., 2020; Raising Canada Report, 2020; Wilke, 2020). Social supports include child protection services, mental health and addictions supports, nutrition and housing programs (Brown et al., 2020; Herrenkoh et al., 2021). Global and national organizations have highlighted concerns about child protection and the increased risk of harm and neglect to children whose families are under financial, social and mental stress, have fewer home-based support systems (e.g., Bérubé et al., 2020; Raising Canada Report, 2020; UNICEF, 2020).

Therapeutic services, such as those provided by allied health professionals including speech-language pathologists, behavioural therapists, physiotherapists, occupational therapists, social workers, psychologists, and neuropsychologists, may also be even more critical during the pandemic for children with pre-existing conditions. "Health care professionals are warning that children will be forced to wait months or even years to access care, which will affect their growth and development" (Raising Canada, 2020, p. 6). For many children, services were offered prior to the pandemic through schools and community-based organizations. The significant challenge of coordinating and offering cohesive, family-centred, appropriate and timely services for children has been documented for decades prior to the pandemic (Dewan & Cohen, 2013; Law et al., 2003; Matthews et al., 2020). Families who are not as well-resourced in terms of educational, financial, social, and cultural capital are less likely to be able to advocate for and secure sufficient services for their child(ren) and family (Caagrande & Ingeroll, 2017). As with so many other areas, these challenges grew when schools closed and agencies shifted to new service delivery models. Even when schools re-opened, access to outside agencies and professionals has been reduced or prohibited due to continued pandemic-related public health restrictions.

Many examples of virtual approaches to social service delivery for children and families emerged during the pandemic, most related to supporting students with disabilities and their families and

students with mental health needs (see Vaillancourt et al., 2021). Many school boards, community organizations, and hospitals arranged for secure virtual platforms to allow some students to access individual therapeutic services when needed (e.g., CASLPO, 2020; Rocky View Schools, 2021). The small body of existing and emerging literature shows very mixed perceptions concerning parent satisfaction of teletherapies offered to vulnerable children during COVID-19 (Battistin et al., 2021; Masi et al., 2021); studies conducted over the past decade have reported more positive experiences with some studies showing equal efficacy in outcomes for virtual or face-to-face (e.g., Hao et al., 2021). The element of choice is important to consider; during the pandemic, families were forced to access services and therapies virtually, on short notice and regardless of preferences. In the broader literature, some families prefer the convenience of virtual delivery and in rural populations, virtual offerings can increase equity and access to vital services (Barr et al., 2019; Dadds et al., 2019; Fairweather et al., 2016).

Discussion and Recommendations

Our clearest sense of the impact of COVID-19 on vulnerable children comes from the decades of evidence that preceded the pandemic. We know that, in general, children who do not have access to adequate support and resources are more likely to struggle when adversity is introduced. In the context of the COVID-19 pandemic, this adversity is caused by and includes physical distancing, school closures, distance learning, financial and social disadvantage, and cuts to many community-based services and supports. We also know that children are nested within families and communities and that stress on one part of these interconnected systems affects the others. Concerns about the long-term educational well-being of children post-COVID-19 include doubts that families, education systems and communities can provide what is needed for children with unfinished or disrupted school learning. Given the persistence of inequitable school and community experiences and outcomes for many vulnerable groups, several recommendations should be considered in addressing vulnerability during the ongoing pandemic and afterwards.

1. Equip families and children with free, universal access to reliable high-speed internet and internet-enabled digital devices to sufficiently support educational and social connectivity.
2. Develop and fund processes to empower parents and families to support child learning at home as well as in collaboration with educators. Education authorities should fund positions such as cultural brokers or family allies or liaisons that may facilitate relationship-building, skill-building, and information sharing. An analysis of existing barriers, informed by parent voice, can inform effective approaches.
3. Identify, develop, and evaluate virtual learning practices for meeting the needs of diverse groups of children. Effective approaches can then be shared broadly across professional networks. Educators will require training and support to deliver virtual or blended learning both during and after the pandemic.
4. Develop and fund intervention programs for children and youth who have been negatively impacted by interrupted or unfinished schooling. Diagnostic and formative assessments can provide information necessary to guide planning. Small group offerings during the school day, individual virtual supports provided after school, summer camps with a combination of play, high quality recreation and academics are just some of the options that might be considered in partnership with community organizations. Interventions and higher-tiered

approaches should not detract from students' access to the full curriculum and inclusion in their grade-level classroom.

5. Develop and fund interventions to re-engage youth who have left school or have experienced chronic attendance issues during the pandemic. These may include outreach and mentorship programs, land-based programs, transitional programs with therapeutic and educational elements, or community-based programs staffed with qualified educators.
6. Prioritize coordinated access to services and supports for families during times of crisis. Education authorities and community agencies should revisit processes for referral and access to specialist services and implement inter-agency wraparound services for vulnerable students and their families.
7. Continue to offer virtual approaches to therapeutic service delivery as options for families. Many innovative approaches to virtual therapy and support were developed or enhanced during the pandemic by schools and community organizations. These should be studied and should remain as options for communities and families for whom virtual approaches are more accessible, desirable, efficient, and effective.
8. Work towards greater flexibility for schools and boards in curriculum delivery and assessment. This is essential during times of significant upheaval or disruption such as a pandemic but is also recommended for systems broadly. Flexibility might entail, for example, focusing on major themes within curriculum expectations alongside identification and a focus on essential learning outcomes, with more formative than summative assessments.
9. Conduct further research in order to understand experiences and learnings during the pandemic and both its immediate and long-term impact on children and families. This research should be conducted across disciplines to recognize the sociological, psychological, and educational intersections, and should include scholars bringing lenses of racial inequity and Indigenous ways of knowing. It should be designed and results should be interpreted with the voices of students, families, communities, educators and leaders.

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Chapter 3: Estimates of Student Learning During COVID-19 School Disruptions: Canada in International Context

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Abstract

The COVID-19 pandemic disrupted Canadian public schools during the spring of 2020 and over the 2020-21 academic year, forcing most to close for many consecutive months and to provide in-person learning only sporadically. Longstanding research suggests that lengthy periods out of school are likely to generate lower-than-expected growth in academic achievement compared to established norms—what we call “learning shortfalls”—and can also widen student achievement gaps. New research suggests that remote learning was less effective than in-person learning during COVID-19 school closures, particularly among younger and vulnerable students. Since Canada lacks high quality data that directly measured learning between the spring and fall of 2020, in a previously published study we extrapolated from our research on summer learning to estimate likely shortfalls in literacy and numeracy skills during that period across three plausible scenarios (Aurini & Davies, 2021). Building on this research, this chapter accomplishes three new tasks: we review new international studies on student learning during the spring of 2020 and the subsequent 2020-21 school year, re-assess our original estimates in light of those studies, and review international policy discussions on the possible impacts of learning shortfalls. Studies from other countries suggest that students learned less than did previous cohorts during the spring 2020 school closures and also during the 2020-21 school year, particularly when they engaged mainly in remote learning. These studies prompt us to now doubt our original ‘best case’ scenario that depicted the spring 2020 school closures as generating learning similar to that of previous years, and to instead endorse our ‘middle’ and ‘worst case’ scenarios that predicted learning shortfalls of 3.0 to 3.5 months among typically performing students and up to one full year among lower-performing students. Further, new international studies prompt us to believe that further learning shortfalls likely accrued in Canada later during the 2020-21 school year, particularly among younger students who learned remotely. We use this reassessment to consider international policy discussions about likely consequences of those learning shortfalls in the realms of education, mental health, and job markets. We conclude with two policy recommendations. First, educational authorities should institutionalize high-quality, targeted, and voluntary summer programs for the purposes of not only to recovering current learning shortfalls, but also to help their systems adjust to aftermaths from any future pandemics. Second, policy actors should help build research capacity in the area of academic achievement by engaging in biannual testing of student skills for the purpose of diagnosing their progress and needs.

Keywords: COVID-19; school closures; student achievement gaps; summer learning

Estimates of Student Learning During Covid-19 School Disruptions: Canada in International Context

Introduction: Student Learning During Covid-19 School Disruptions

At the height of the COVID-19 pandemic in 2020 90% of the world’s student population was impacted by school closures (UNESCO, 2020; 2021). Canada was no exception. Most provinces closed schools by mid-March for the remainder of the school year, or for approximately 70 days, representing 1/3 of a school year of lost instructional time (People for Education, 2020). During the spring 2020 school closures, teaching and learning ranged widely, from distributing workbooks to posting materials online. Weekly instructional contact between students and teachers decreased dramatically compared to in-person schooling, from one to twelve hours for students

in kindergarten and Grade 9 and two to three hours for students in Grades 10 to 12 (Campbell, 2020; Gorbet et al., 2020). Teachers reported losing regular contact with many of their students (Canadian Teachers Federation, 2020), and expressed concerns about “growing inequalities”, “curricular gaps” and “declining skill development (social, emotional, cognitive, physical, behavioural)” (Alberta Teachers Association, 2020a, 2020b).



These challenges continued throughout the 2020-2021 school year. Across Canadian provinces and territories, 2020-21 school plans varied, not only in the fall but throughout the school year as subsequent waves of COVID-19 sent students and teacher back and forth between in-person and remote learning. Manitoba, for example, initially proposed three scenarios (in-person, blended, and fully remote options), eventually settling on in-person schooling in September 2020 with contingency plans in place (Manitoba, 2020). However, like other provinces, several school jurisdictions moved to remote learning in May to curb rising COVID-19 numbers for the remainder of the school year (Rosen, 2021; People for Education, 2021). Ontario moved its in-person students back and forth between the classroom and remote learning, and eventually closed schools for the remainder of the school year after the 2021 spring break. Alberta switched to in-person school in January, while British Columbia, Quebec, and Nova Scotia provided in-class, remote and/or hybrid options (People for Education, 2021). While Ministries and school boards are now better prepared as they move into the 2021-2022 school year, many are anticipating ongoing school disruptions to be the ‘new normal’, at least in the foreseeable future.

The school disruptions over 2020 and 2021 have likely had a significant impact on children’s learning. As described below, a range of international studies have demonstrated that students across a wide variety of nations suffered from sizeable “learning shortfalls” in which they improved their skills at slower rates that would be expected given norms established in previous cohorts of same-age peers. Moreover, some international research is suggesting that the online instruction provided in the spring of 2020 actually resulted in “learning loss” in which students’ measured skills actually dropped, a phenomenon that is unfortunately common for many students during the summer months, but that is otherwise rare during school years.

Yet, in Canada the full extent of those impacts is uncertain. Canada lacks high-quality and large-scale data that can be used to directly measure any impacts of those disruptions on student achievement. Compounding this problem, provinces like Ontario cancelled their planned standardized testing in 2020 and 2021, precluding the possibility of comparing achievement shortly before and after the school closures. Available studies of achievement are limited to single school boards or handfuls of schools, or parent and teacher surveys that can only capture their perceptions of student learning. Nonetheless, those studies paint a worrying picture. A study of eight Edmonton area schools, for example, found that students’ reading test scores were lower in September 2020 compared to previous years, with learning shortfalls particularly pronounced

among younger children (Betkowski, 2020). The Toronto District School Board similarly found that many students' early literacy had been harmed by a periodic or continual absence of in-person classroom reading opportunities caused by the school closures (Alphonso, 2021). In a survey of 350 Canadian teachers conducted in the fall of 2020, respondents estimated that their students lost an average of 2.4 months of learning over the course of 2020, and only 7% rated their students as being 'on track'. Teachers in early primary grades estimated even larger learning shortfalls (Chen et al., 2021). Another recent survey of Canadian parents suggests that many believed that e-learning had compromised their children's learning (60%) and mental health (69%), and that most (82%) wanted in-person learning prioritized in the 2021-2022 school year (Bensadoun, 2021). Unfortunately, neither survey provided actual and precise measures of achievement, and offered only broad impressions of student learning.

To compensate for the lack of definitive data, in a recent publication we estimated likely shortfalls in learning caused by the COVID-19 school closures by extrapolating from our research on "summer setback" – losses of literacy and numeracy skill during summer vacation (Aurini & Davies, 2021). We reasoned that summer vacations have several parallels to the COVID-19 closures and that the research designs used to measure summer setback provide a useful framework for predicting learning shortfalls and emerging achievement gaps. We predicted learning shortfalls across 3 different scenarios and recommended that provincial ministries/departments of education offer targeted literacy and numeracy supplementary programs during the summer of 2021 and beyond in order to partly compensate for likely learning shortfalls and widened achievement gaps driven by the COVID-19 school closures. We argued that since summer programs have been shown to not only shore up learning losses, but also generate a variety of secondary benefits such as promoting better home-school relationships, parent engagement, and healthy lifestyles (e.g., Council of Directors of Education, 2011), they would provide one of many possible strategies for mitigating COVID-19 school disruptions.

Since we wrote our paper, a series of international studies of student learning during both the spring of 2020 and the subsequent 2020-21 school year have emerged, along with international policy discussions of likely consequences of student learning shortfalls. Accordingly, this chapter builds on our original paper by undertaking a series of tasks. We first review a longstanding body of research on the impacts of non-school time on student learning in order to ground our rationale for hypothesizing negative impacts of school closures. We next outline our original estimates of a range of learning shortfalls across several plausible scenarios, and then reviews newer international studies on student learning from both the spring of 2020 and the subsequent 2020-21 school year. We use these studies to re-assess our original estimates: we now doubt our original 'best case' scenario and instead endorse only our 'middle' and 'worst case' scenarios that predicted learning shortfalls of 3.0 to 3.5 months among typically performing students and up to one full year among lower-performing students. Further, new studies are prompting us to believe that Canadian students likely had additional learning shortfalls over the 2020-21 school year, particularly among younger students who learned remotely. With these revised estimates in mind, we next summarize international policy discussions that warn of likely consequences of these learning shortfalls in the realms of education, mental health, and job markets. We conclude by recommending that educational authorities strive to compensate for learning shortfalls by institutionalizing voluntary and high-quality summer programs for literacy and/or numeracy, and by creating a research infrastructure that can be used to track seasonal patterns of student learning.

Research on Impacts of Non-School Time on Student Learning

The 2020-21 COVID-19 disruptions created an unprecedented amount of non-school time for school-aged Canadians. When schools re-opened in mid-to-late September 2020, most students had been out of school for six months. Most schools provided at-home learning platforms in the spring of 2020, but their consistency, duration, and effectiveness were unclear. Further, many schools were closed off and on again during the 2020-21 academic year, forcing students to return to remote learning.

Having students out of school for lengthy periods of time poses two major challenges. First, few parents or guardians can provide learning environments on par with those provided by professional teachers. Perhaps a small number of non-teachers can be effective instructors for their children if both parties are highly motivated, but they appear to be rather exceptional. Second and relatedly, children's learning opportunities outside of school are very unequal. Educational policies typically regulate school learning resources. They standardize curricula, monitor student-teacher ratios, used provincial funding formulae to equalize spending across students, and provide teachers with common training. But learning opportunities across students' homes and neighbourhoods are far more disparate. Households vary greatly in their budgets, disposable income, and amount of parental or guardian discretionary time per child, among other things. Some researchers thus characterize public schools as "great equalizers" because schools provide children with far more equal learning opportunities than do non-school environments (Downey, 2018). The fact that most Canadian children spend most of their time outside of school one when considers late afternoons, evenings, weekends, holidays and summers, points to the potency of their non-school environments.

There are several well-established sources of non-school time that impact children's schooling outcomes. Research on the impacts of children's pre-school years (Duncan et al., 2007; Duncan et al., 2014; Janus & Reid-Wesoby, 2016; Janus & Duku, 2007; Perry et al., 2018), chronic school absenteeism (CBC, 2019; García & Weiss, 2018; Gottfried, 2014; Office of the Child and Youth Advocate, 2019; Ready, 2010), out of school learning supplements provided by families (e.g., Aurini & Hillier, 2018; Park et al., 2016), and time parents spend engaged supporting language and other educational-related activities (Phillips & Lowenstein, 2011; Snellman et al., 2015) demonstrate that time in and out of school can be pivotal for most children. These literatures align with a sizable body of qualitative work on the 'home advantages' provided by families before and after children start formal schooling (Lareau, 2011).

In this chapter we focus on another prime source of non-school time—summertime. Summer vacations are the longest stretches of non-school time that most children encounter between preschool and high school completion. Whereas schools tend to equalize school-year learning resources, children's routines vary far more during their summer vacations. Some are left to entertain themselves, while others readily engaged in a variety of skill-enhancing practices. To capture whether summer vacations generate varying rates of learning and achievement, researchers have developed "seasonal learning designs" that compare learning gains and losses during the school year to those that emerge during the summer months. By testing children's skills at the end (spring) and beginning (fall) of successive school years, researchers can capture summer learning gains and losses and compare them to school year learning rates. Summer learning programs are commonly seen to provide a means to stem learning losses in July and August. The predominate

strategy for assessing those programs is to compare the learning gains or losses accrued among their participants to those of control groups comprised of similar school-year classroom peers.

American seasonal learning research offers several key findings. First, many children experience summer learning losses, losing on average one month in both literacy and numeracy, though many lose considerably more (Atteberry & McEachin, 2020; Cooper et al., 1996). Second, learning rates become far more disparate during the summer months than during the school year (Alexander et al, 2016; von Hippel et al, 2018). Third, summer learning losses often accumulate over repeated summers and can be important drivers of achievement gaps as children age (Alexander et al, 2007; Atteberry & McEachin, 2020). Fourth, socioeconomic and racial achievement gaps may grow in the summertime, though American researchers now disagree on this issue (e.g., compare Alexander et al., 2007 to von Hippel et al. 2018 and Kuhfeld et al., 2020). Finally, summer learning interventions can stem learning losses, generating positive effects that are modest to moderate in size (Cooper et al., 2000; Davies & McKerrow, 2021).

Our Estimates of Learning Shortfalls in Canada:

In Aurini and Davies (2021), we used our summer learning data¹ to predict possible impacts of the spring 2020 COVID-19 school closures on student achievement. We asked: (1) What were the likely learning shortfalls among typical elementary-level students over the 6-months between the original spring school closures and the end of the summer in 2020? and (2) What was the likely range of these shortfalls between students at the mean versus those at the 25th and 75th percentiles? We offered predictions across a range of scenarios based on differing assumptions about the effectiveness of schools' online instruction provided during the first interval of the school closures (March-June 2020), and about parents' possible responses during the second summer interval (July-August 2020).

In our 'best case' scenario, we assumed that children learned at typical school-year rates during the first interval, and typical summer rates during the second. In this scenario, teachers and students quickly adjusted to online formats, were readily engaged in schoolwork, and were supported by their parents at levels typical of other years. Further, this scenario assumed that during the months of July and August 2020, children learned at rates similar to those of typical previous summers. One might question these assumptions since the spring and summer of 2020 were quite unlike those in previous years. More parents, guardians, and children spent longer periods of time at home during that summer than in previous summers, but their experiences likely diverged—some adults were laid off, others lost their jobs, and others worked extended hours. Further, unlike previous summers, fewer children attended day camps and related summer programs.

Since the impacts of those conditions on patterns of student learning are unknown, we also estimated a 'worst case' scenario. This scenario was based on reports that remote learning was

¹ Over 2010-15 we partnered with Ontario's Ministry of Education to evaluate its summer programs, conducting what became to our knowledge the largest summer learning study outside the United States. We created a quasi-experiment that designated summer program attendees to be the treatment group, and their non-attending school-year peers to be the control group. We collected quantitative data on 14 unique student cohorts defined by combinations of year, language, and test type, totalling 3,723 summer attendees and 12,290 control students. Both groups were given pre-tests in literacy and/or numeracy in the latter half of June and then post-tests in mid September. We also obtained data on previous school year grades and attendance and measures of their demographics and family practices. Our project also had a qualitative component in which we interviewed 235 parents, teachers, and students, and observed summer programs in session over 3 summers. For further information on this project, see Aurini and Davies (2021).

improvised and implemented haphazardly from board to board, school to school and classroom to classroom, and that many students soon disengaged from that school-sponsored learning over that period (e.g., Clarke, 2020). Accordingly, this scenario assumed that the remote instruction provided during the first interval was largely ineffective and managed to generate learning only similar to that generated by students’ home environments; it assumed that few parents/guardians were in a position to boost their children’s learning beyond that of a typical summer, since few parents are as effective as professional teachers (Campbell, 2020).

Our third ‘middle ground’ scenario assumed that the online instruction during the first interval generated lower learning rates than in typical school years but did generate some learning—that akin to a 3-week full-day summer intervention over a two-month period (we multiply those effects by 1.35 to extend them to a 3.5-month period). Based on reports about student engagement, we estimated that many students had 8 weeks of half-day learning between early April to the end of May, which is broadly comparable to 3x1.35 weeks of full-day learning achieved in summer programs. To that estimate we add a typical summer rate for the remaining 2.5-month period. We then used a series of statistical techniques to generate estimates of learning shortfalls across our three scenarios, reproduced in Table 1.² The top row of displays the best-case scenario in which an average student gained roughly 3.5 months, while at the quartiles students gained roughly zero and almost 7 months respectively. Thus, even in the best-case scenario we predicted a difference of almost 7 months of learning over a 6-month period.

Table 1. Three Scenarios for Predicted Learning Gains/Losses and Confidence Intervals Between Mid-March and Mid-September 2020, Years of Learning

	Students at Mean	25th percentile	75th percentile
Scenario 1: Regular school rates + summer program rates	.346 (.284,.408)	.019 (-.066,.104)	.687 (.638,.736)
Scenario 2: Summer control rates + summer control rates	-.009 (-.143,.126)	-.718 (-.903, -.534)	.731 (.625,.838)
Scenario 3: Summer program rates + summer control rates	.043 (-.099,.183)	-.651 (-.823, -.480)	.760 (.635,.886)

Note: This table is reproduced from Aurini and Davies (2021). Predictions based on adding two estimated rates in 2020: 1) those during the 3.5-month school closure from mid-March to the end of June, and 2) those from the 2-month summer break from the beginning of July to the beginning of September. Scenario 1 combines standard learning rates (3.5 months) and standard summer rates. Scenario 2 combines summer program rates and standard summer rates. Scenario 3 substitutes standard summer rates for both periods.

² For each of 14 cohorts, we used ordinary least squares and quantile regression models that estimated mean summer learning growth/losses, as well as corresponding scores at the 25th and 75th percentiles, adjusting for students’ prior achievement, test interval, grade level and school board. We then conducted a meta-analysis of summer program effects across those cohorts, which showed that those programs had significantly positive effects overall, but with considerable heterogeneity in their effect sizes across cohorts. We used that meta-analysis to build uncertainty into our estimates by adjusting for each cohort’s sample size, mean learning, standard deviations. We used the English results only because they were more reliable than the French results and used the same standardized tests that were reported recently in a massive American study (Renaissance Learning, 2020).

The next row of Table 1 displays predictions for the ‘worst case’ scenario. It predicted that students at the mean broke even, while those at the quartiles had respective losses and gains of more than 7 months, creating a gap of approximately 1.5 years. Thus, this scenario predicts that the COVID-19 school closures greatly polarized learning rates, and generated learning shortfalls of at least 3.5 months among typical students. Scenario 3, presented in the bottom row of Table 1, offers a less extreme prediction, but tells a familiar story, nonetheless. Students at the means were predicted to have small, negligible gains, while those at the quartiles were predicted to have losses and gains smaller though comparable to those in the second scenario. Students at the lower quartile lost 6.5 months of learning, while those at the upper quartile gained more than 7.5 months of learning. Thus, in this scenario, typical students had learning shortfalls of 3.5 months. Indeed, these predictions resemble the findings from American studies in which typically students had shortfalls of 2 months in reading and 3 months in math between the spring and fall of 2020 (Kuhfeld et al., 2020; Renaissance Learning, 2020).

Thus, across our three scenarios, we predicted that the average student had shortfalls between zero to 3.5 months over the full 6-month period. These predicted shortfalls could be exaggerated if the spring 2020 online instruction was more effective in Canada than was commonly reported, and more effective than suggested by studies conducted in other countries (reviewed in the next section). However, 2 of 3 scenarios predicted that average students had sizeable learning shortfalls, with lower performers losing 7 months to a full year, and with pre-existing achievement gaps being widened by sizeable amounts ranging from 6 months to 1.7 years. As reviewed next, studies conducted elsewhere appear to accord with the latter scenarios.

Reassessing our Predictions in Light of Emerging International Research on Learning Shortfalls Caused by COVID-19 School Disruptions

In 2020-21, a series of studies emerged that estimated learning shortfalls across several countries. An initial set of studies examined shortfalls that accrued during the original school closures in

the spring of 2020, after which a new set emerged that measured additional shortfalls that accrued over the subsequent 2020-21 school year. Their common research strategy to measure learning shortfalls across these studies was to compare gains made by the 2020 cohort to those established among preceding cohorts of otherwise similar students. Some studies took place in jurisdictions that offered both in-person or



remote instruction, and so those studies also attempted to estimate differences in learning across those two modes of teaching.

The initial series of papers measured achievement shortfalls by drawing on seasonal learning data that happened to test students just before the spring school closures and then again in the fall of 2020. In the United States, students were found to be 2 months behind in reading and 3 months in math compared to previous cohorts (Kuhfeld et al., 2020; Renaissance Learning, 2020). Comparable data from the Netherlands (Engzell et al., 2020) suggest that the 8-week school lockdowns in the spring of 2020 produced an average loss of learning of approximately 1/5th of a school year. Their data implied most students made little academic progress during the initial closures, and that those with less educated parents fared considerably worse. In Brazil, Lichand et al. (2021) used data from São Paulo to compare learning and dropout rates from online classes in the spring of 2020 to those from the spring of 2019 when all classes were in-person. They found remote learners to have a far higher risk of dropping out—more than 250%—and that online students in 2020 learned only 27.5% of what in-person students had learned in the previous cohort. Some high schools partially reopened for in-person classes in 2020; their students' test scores were 20% higher than those of remote learners. Summarizing these and several other studies conducted in China, Germany, Switzerland, Belgium, and Australia, a systematic review concluded that the spring 2020 school closures negatively affected achievement, particularly among younger students and less affluent students (Hammerstein et al., 2021). Indeed, their results suggest that the amounts of learning that arose from remote instruction was not very different from that which students can acquire without any instruction.

A newer set of studies have recently tracked learning from the spring of 2020 over the 2020-21 school year. In the United States, Lewis et al. (2021) found that on average students in Grades 3-8 had lower reading and math gains than did pre-pandemic cohorts. Students ended the 2021-22 school year with declines in math of 8 to 12 percentile points and 3 to 6 percentile points less in reading compared to previous cohorts. Declines were larger for students in majority Black, Latino, and high-poverty schools, particularly in the early elementary grades. Further, they found that student achievement declined during the spring of 2020, rose in the fall of 2020, but declined again during the spring 2021, particularly in math. In other words, students not only began the 2020-21 school year with lower achievement than in prior years, but also had smaller than typical gains over the course of that year, particularly during its second half. The authors suggest that student learning stalled between winter and spring of 2021 because of many acquired "pandemic fatigue" after enduring remote schooling for nearly a full year. Indeed, more students reported 'liking school less' by the winter of 2021 compared to the previous fall.

In another large-scale study of 1.6 million elementary school students across 40 states, McKinsey and Company (2021) found that average achievement by spring of 2021 was 4 months behind in reading and 5 months in math compared to that of previous cohorts; these gaps were somewhat larger in schools whose students were majority Black. These patterns did not vary significantly across elementary grades. The authors warned that these declines should be cause for concern since elementary-age children typically take major strides in reading during their early elementary years that are crucial for later academic success as they transition from 'learning to read' to 'reading to learn.' Extrapolating over the summer months, the authors projected that by the fall of 2021, students could be behind on average 5 to 10 months in math, and 3 to 5 months in reading. In addition, their surveys showed that academic losses were linked to child well-being: parents

whose children had fallen significantly behind academically were one-third more likely to express concern about their child's mental health and were more 12% likelier to report that their child had become chronically absent from school. Those tendencies were again larger among Black students. The authors warned that given longstanding associations between chronic absenteeism and high school dropout rates, schools will need to embrace extra programs aimed at re-engaging students, such as free summer programs, high dosage tutoring and "vacation academies."

A Texas study (TEA, 2021) compared learning in districts that had mainly online instruction versus those that engaged mainly in-person instruction. The former experienced larger learning shortfalls over the 2020-21 school year: proportions of students that met state expectations in math dropped 32% in districts with mostly virtual instruction, but only 9% in districts with mostly in-person instruction. The largest declines in proficiency were encountered in math across all grade levels, while declines in reading were less dramatic, and near zero in districts with the highest rates of in-person instruction.

In another large-scale American study, Curriculum Associates (2021) analyzed achievement data from 9 million students across the USA over the 2020–2021 school year. They found that while some students made notable progress despite facing a challenging academic year, fewer students reached grade-level achievement in reading and math compared to previous cohorts, particularly in schools in majority Black, Latino, and low-income neighbourhoods. Between 5% to 16% fewer students met grade level standards in Grades 1-8 by the spring of 2021 compared to previous cohorts, with the largest proportions found in Grades 1-3. Additionally, studies across a range of African nations found that elementary students lost between 57% and 81% of a year of learning; researchers projected that these shortfalls might compound annually as students struggle with new curricular challenges, eventually growing to 2.8 years of lost learning by high school (Angrist, et al., 2021; Ardington et al., 2021).

We believe that these international studies offer lessons for Canadian estimates of learning shortfalls during the spring 2020 school closures. Across a range of countries, students engaged in remote instruction appeared to have almost no learning gains on average during the spring 2020 school closures (Hammerstein et al, 2021). Thus, unless Canadian schools had far greater success with remote learning than those countries, and unless Canadian parents or guardians acted far differently than did their peers in other countries during that time period, these international studies cast doubt on our best-case scenario. Indeed, in a recent survey most Canadian teachers rated their students' learning as having fallen behind previous years (Chen et al., 2021). This research instead lends credence to our middle and worst-case scenarios that depicted Canadian students as enduring 3-month learning shortfalls, with gaps growing between the quartiles up to 1.5 years. While precise estimates of shortfalls vary considerably from study to study, our middle to worst estimates do broadly accord with international research.

Accordingly, we offer this impression of recent learning patterns among Canadian students. Although the effectiveness and consistency of schools' switch to remote instruction in the spring of 2020 is unknown, it is likely that most Canadian students struggled, as did students elsewhere in the world, gaining little ground and soon disengaging from schooling partially or fully. Then during the summer of 2020, parents and guardians likely acted as they did in typical summers, adopting a "vacation" mindset in which they did not pressure their children to engage in academic activities, and as a result, similar patterns of summer slide likely emerged as in previous years. Students likely resumed normal paces of learning during the fall of 2020 and early winter of 2021 as they

returned to in-person learning and/or as schools greatly improved their online offerings, but it is also likely that learning stalled among many Canadian students into the spring of 2021 as they reached a threshold of ‘pandemic fatigue’ and grew tired of online learning. Since international studies provide no reason to believe that many Canadian students maintained normal rates of learning over more than a full year of disrupted schooling, we now endorse our predictions of sizeable learning shortfalls, since they accord with studies across a range of countries. Since our estimates do not include any additional shortfalls that likely accrued later during the 2020-21 school year, we urge policy makers to ponder some of their possible long-term consequences.



Discussion: Possible Long-Term Impacts of Learning Shortfalls

Research shows that long stretches of non-school time can generate learning shortfalls and exacerbate achievement gaps. The spring of 2020 created a stretch of non-school time unmatched in modern Canadian history. During normal times, families vary greatly in their resources and capacities to support children’s learning; the unique pressures of COVID-19 likely generated even more variation. We turn next to pondering possible

short-term and long-term consequences of learning shortfalls caused by COVID-era school disruptions in lieu of effective interventions.

A groundswell of international policy discussions of possible long-term impacts of learning shortfalls has emerged among international organizations like UNICEF (2021) and UNESCO (2021) and among researchers from nations in virtually every continent around the world. Domestically, advisories like the Fraser Mustard Institute (Sansone et al., 2021) and Ontario’s Science Table (Gallagher-Mackay et al., 2021) have similarly discussed possible long-term implications of the COVID-19 school disruptions. Below we highlight from this literature some possible impacts of achievement shortfalls in three realms: student mental health and well-being, future educational attainment, and labour markets.

Other chapters in this volume have documented the impacts of the COVID era on child mental health (Vaillancourt et al., 2021); we relate their concerns to academic achievement. While some may characterize any prioritizing of academic achievement as being in tension with priorities for children’s well-being (Heller-Sahlgren, 2018), research suggests there is a reciprocal relationship between the two (e.g., Clarke, 2020; Suldo et al., 2014). Poor mental health can obviously lessen student achievement, but the converse appears to be true as well—that students who feel they are not achieving will have their well-being compromised (see for example Vaillancourt et al.,

2013). As O’Shaughnessy (2015: 32) summarizes “The old dichotomy that you can have happy children or successful children is wrong. A true education provides not one or the other, but both.” Thus, tackling issues of children’s achievement, including any learning shortfalls, can also serve to address their broader well-being and provide more equal opportunities. We concur with Clarke (2020) who advises policymakers to avoid the ‘danger’ of pitting students’ achievement and well-being against each other.

In terms of future educational attainment, researchers worry that current learning shortfalls can eventually raise rates of dropping out of high school and thereby lower rates of attending college (Curriculum Associates, 2021; Fulton, 2021; McKinsey and Company (2021). Fulton (2021) cites American reports suggesting that COVID-19-induced distance learning has significantly increased failure rates, even among good students, since many were unprepared for online instruction in 2020. Many had to learn on the fly while lacking requisite computers, internet access and motivation. Some had to assume family chores during the pandemic, such as caring for younger siblings or doing housework, leaving less time for studies. As a result, many grew bored or confused, failed to complete class projects, received low grades and even lost credits. Fulton notes that many high school students are worrying that low grades will bar them from financial aid, or that college courses will mainly entail more uninspiring screen time at home.

Finally, in terms of labour market processes, an international report predicts that learning shortfalls can reduce student’s incomes over their lifetimes. Hanushek and Woessmann (2020) build on studies showing that academic achievement, typically measured by test scores, correlate significantly with long-run earnings, and likely have causal relationships as well (Watts, 2020). Hanushek and Woessmann predict that the days of instruction lost during the spring 2020 school closures might incur a 3% penalty on career earnings compared to earnings that would otherwise accrue to skills attained during typical school years. They also predict that disadvantaged students will see larger losses, and that the further disruptions that did occur later in 2021 would increase those penalties.

Taken together, international discussions suggest that the learning shortfalls induced by the COVID-19 school disruptions could trigger a series of negative consequences in the coming years. In tandem with many other chapters in this report, we next use our research to suggest a suite of policy recommendations aimed at promoting evidence-based interventions and building research capacity.

Recommendation: Summer Learning Programs in 2022 and Beyond

In this section we offer three groups of policy recommendations. Each aligns with the OECD’s (2021) urgent call to address shortcomings and gaps in children’s development, well-being *and* learning that have accrued from the COVID school closures. These recommendations stem from just one of our areas of expertise—supplemental education. We recognize that most learning recovery will take place in schools during their regular calendars and timetables and leave it to other experts to suggest effective interventions, which might include extra student supports, after school programs, tutoring and credit recovery programs. Our particular recommendations are aimed at supplementing school-year efforts with voluntary programs during the summer months to recover shortfalls in learning. Such supplements direct additional educational resources to vulnerable students and can be used to tailor evidence-based interventions to address particular academic skills. Further, we also recommend improvements to our research infrastructure aimed at better

tracking student achievement, identifying academic needs, and providing data to assess a variety of interventions.

(1) Supplemental Learning Recovery

Our main recommendation is that education authorities commit to supporting in-person summer learning programs in the summer of 2022 and in subsequent summers. When free and voluntary, summer programs

are viable vehicles for redressing skill shortfalls that do not place additional burdens on regular school time, and minimize disruptions on family lives, teachers' jobs, and school operations. If offered in-person, they can shift some of the load of children's learning from parents and guardians, many of whom may need to work extended hours in the coming summers in order to compensate for any family income losses due to COVID lockdowns.

We recommend summer programs with the following characteristics. First, to ensure equitable participation, they should be free of charge, voluntary, and officially open to all children within each board.³ Second, while being open to all students, teachers should actively recruit academically vulnerable students. The Ontario programs that we evaluated asked teachers to recruit children that they deemed could benefit from a summer intervention. Our evaluations confirmed that were indeed successful in their recruiting efforts, as summer attendees had prior grades and test scores that were lower on average than their classroom peers. Third, programs should provide highly quality and effective instruction in literacy and/or numeracy. Our quantitative evaluations showed that the Ontario summer programs tended to raise average levels of student numeracy and literacy, often reversing learning losses while narrowing achievement gaps, though sometimes only modestly (Aurini & Davies, 2021). We found that boards tailored their programs to the perceived needs of their local students and parents. Fourth, programs should have relatively small classes led by certified teachers accompanied by a teaching assistant and support staff. The Ontario programs that we evaluated had a maximum of 15 students overseen by one certified teacher and one teaching assistant. Ministry personnel provided workshops wherein board representatives could share best practices learned during previous summers. Fifth, programs should strive to create an enjoyable 'camp' atmosphere rather than have children sit at their desks all day doing drills. In addition to providing academic instruction, many Ontario programs partnered with community organizations to support recreational activities such as swimming at local pools, visiting libraries, partaking in sports ranging from soccer to Taekwondo to horseback riding, and engaging in crafts ranging from painting to making ice cream. Many programs also partnered with local businesses to provide healthy meals and snacks. Private programs of similar quality would be cost prohibitive for many families.



3 Sample programs include <https://twitter.com/campsail2019?lang=en>; <https://twitter.com/HWDSBCampPower>

The enjoyable nature of Ontario's summer programs was verified in the qualitative arm of our research project (Davies, Aurini and Milne, 2016). We interviewed 235 teachers, parents, and children, and also conducted field observations at several program sites across Ontario. Beyond formal interviews, we also got acquainted with many stakeholders by informally chatting while hanging around playgrounds for weeks at a time. In addition to boosting student literacy and numeracy, we found that the programs generated a series of secondary benefits. They were very popular among teachers, parents, and children. Children typically found the programs to be fun, so many gained long waiting lists as word spread among parents. They also helped build positive home-school relationships by providing opportunities for parents to interact daily with teachers and participate in various activities, boosting their confidence in their children's schools. They also deepened newer teachers' professional development, providing a venue to expand their repertoire of instructional strategies. For students, summer programs provided some needed structure to their days with nutritious meals and snacks and healthy physical activities while also offering some enriching experiences such as meeting athletics from professional sports teams, learning yoga, building and coding robots, and making donuts and pizzas with kits donated by local businesses. In interviews, summer program teachers and parents noted that many children would have otherwise lacked comparable opportunities during the summer.

The length of these programs can vary. The Ontario programs that we evaluated consisted of 3-4 weeks of full-day classes conducted in French or English. Those programs were popular in part because they managed to balance literacy and numeracy learning objectives and the preferences of a variety of stakeholders (Council of Directors of Education, 2020:8). Some U.S. research suggests that 6-8-week programs generate greater gains, at least in the short run and in high-need areas (McCombs et al., 2019; McCombs et al., 2020). Our own experience in Ontario suggests that fewer stakeholders would opt for lengthier programs, though we would encourage any individual schools or boards to pilot longer programs if they can find willing participants. The viability of longer programs depends on the amount of summer vacation time families, teachers and administrators are willing to devote to formal learning. Families understandably want their children to take some time off from academics. Many teachers prefer not to teach during the summer months, and those are willing to work often want at least a one-month break. Educational administrators commonly devote some portion of the summer to conduct building maintenance and want their schools to be mostly empty during those periods. And, particularly in rural areas, transportation to and from those programs can pose challenges to families.

The voluntary nature of summer programs can surmount these potential obstacles to participation. No child or teacher desiring full summer vacations would be compelled to participate, nor would any administrators who wanted the full summer to engage in physical plant maintenance. To deal with transportation issue, we witnessed some rural Ontario boards providing buses to families, taking advantage of the relative low-cost nature of summer programs in comparison to other kinds of educational initiatives. Regardless of their length, summer programs yield a variety of benefits, are relatively inexpensive, and yet are also popular with students and families.

(2) Institutionalize Summer Supplementary Education Programs:

We recommend Ministries and school boards have an infrastructure in place for summer programming that can be scaled up in the event of future school closures. Teachers encounter a wide range of student preparation and skills each fall and summer programs can help lessen that

variation by shoring up literacy and numeracy skill gaps. Currently, many jurisdictions offer summer programs, but they are not regular features of provincial or board delivery systems. Despite their strengths, many programs are vulnerable to shifting budgetary priorities at school board and Ministry levels. Predictable funding would allow them to develop a sustainable infrastructure on which staff, families and students could rely and plan. Institutionalizing supplemental summer programs would also ensure tested models are in place for recruitment, delivery, assessment, and staffing, thus allowing boards to respond readily to increased demand.

(3) Building Research Capacity to Study Seasonal Learning:

Finally, we recommend that an educational body in Canada support the ongoing creation of seasonal learning data in which sizeable numbers of students are tested biannually in fundamental literacy and numeracy skills, first in September and then again in June. These data could come from regular administrative testing of populations of students or from samples used mainly for research purposes. Both types of data already exist in several countries because they serve several research purposes: they allow educators to examine student achievement growth over each school year; they can be used to gauge the extent of summer slides; they can be used to assess the effectiveness of summer programs; and as we have recently seen, they can be used to accurately estimate learning shortfalls from any future school closures. Such data can be indispensable for assessing the short-term effectiveness of a variety of schoolyear and summer interventions and can empower educators by giving them a tool to gauge their students learning needs. Currently, we do not know of a Canadian jurisdiction that routinely uses seasonal learning designs to generate the kind of data that can assess interventions aimed at developing students' well-being and learning. Seasonal learning designs that test students at the end and beginning of consecutive school years can pinpoint the kinds of students that need extra support and the times the year in which they need those supports.

The COVID-19 school closures underscored the need for better achievement data for guiding evidence-based policy making in Canadian education. Over the past year we witnessed some disconnects between the views of some educational experts and parents and classroom teachers. Some of the former saw the closures as an opportunity to steer public education away from measuring learning and set expectations, sometimes denigrating the term 'learning loss' and even criticizing summer literacy and numeracy programs for being premised on measured learning. Some activists also claimed that wealthier parents were likelier to create their own home-based 'learning pods' (Bascaramurty & Alphonso, 2020; Boisvert, 2020). Yet, actual data from surveys, administrative sources and qualitative studies suggest otherwise. Surveys have captured parent and teacher concerns over erosions of children's skills and mental health (e.g., Alberta Teachers Association, 2020a, 2020b; Bendsadoun, 2021; Canadian Teachers Federation, 2020). Parents also expressed a desire for more synchronous learning opportunities during regular school hours (e.g., Clarke, 2020; Hamilton-Wentworth District School Board, 2020) and mostly choose in-person schooling unless they live in multigenerational households (Chmielewski and Khan, 2020). And we found that summer programs are very popular with all the stakeholders who actually have first-hand experience with them. These examples highlight the need for high quality and timely data that can guide educational policy while also speaking to stakeholders.

Overall, our three recommendations stem from evidence that supplementary programs can help students meet proficiency in foundational literacy and numeracy skills. We believe such

proficiencies are a necessary if not sufficient condition to meet broader equity and well-being priorities in education. They also speak to international warnings that today's short-term losses may amplify as children move up grade levels and fall farther behind their peers. And they speak to the need for better data that can track the challenges and successes of our students.

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Chapter 4: COVID-19 School Closures and Social Isolation in Children and Youth: Prioritizing Relationships in Education

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Abstract

We pursue an evidence-informed argument that interpersonal relationships in childhood and adolescence are central to achieving learning outcomes and that school closures across various parts of Canada during the COVID-19 pandemic have compromised these critical relationships, jeopardizing educational attainment. We highlight how the centrality of relationships with peers and educators in achieving learning goals is well established in the literature. So too is the importance of peers in creating stable mental health and wellness for children and youth. The pandemic context has drastically interfered with on-going wellness, exacerbating feelings of loneliness and social isolation, which takes a toll on what children and youth can achieve in the virtual classroom. In the interest of reducing harm, we call on provincial/territorial governments to think carefully and consult effectively before any further closure decisions are made. We understand that safety is paramount and as such offer a framework for planning a safe return where necessary (Appendix A; Comeau & Vaillancourt, 2021). Now more than ever there is a need to prioritize social-emotional learning opportunities to protect young people from the lasting effects of social isolation and threats to the fundamental need to belong that have been induced or exacerbated by the pandemic.

COVID-19 School Closures and Social Isolation in Children and Youth: Prioritizing Relationships in Education

According to the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) COVID-19 global monitoring of school closures, half of the world's students were still affected by partial or full school closures, impacting 198,613,483 learners as of June 2021 (UNESCO, 2021). As Canada entered its third wave of the COVID-19 pandemic, children and youth were yet again faced with school closures. Specifically, 5.7 million Canadian children and youth have been impacted by school closures to date (Statistics Canada, 2021). In Ontario, all schools were closed April 12, 2021 and remained closed for the rest of the academic year (see Figure 1). In Alberta, a province-wide closure began May 7, 2021 and lasted until May 25. On April 27, Nova Scotia also announced that all public schools would be closed to students at least until the end of the month. There, the government went on to say that schools would be closed until the end of the school year, however considering decreasing daily case counts, Nova Scotia was able to reverse this decision and schools reopened June 3. Only a few days after schools closed in Nova Scotia, Manitoba announced the Kindergarten to Grade 12 closures in its two largest cities, Winnipeg and Brandon. With the closure of schools across the



country, educators and students moved to on-line learning, with each jurisdiction implementing different models of remote instruction.

Figure 1. Ontario-Level School Closures and Reopening Policy Tracing, from March 2020 April 2021

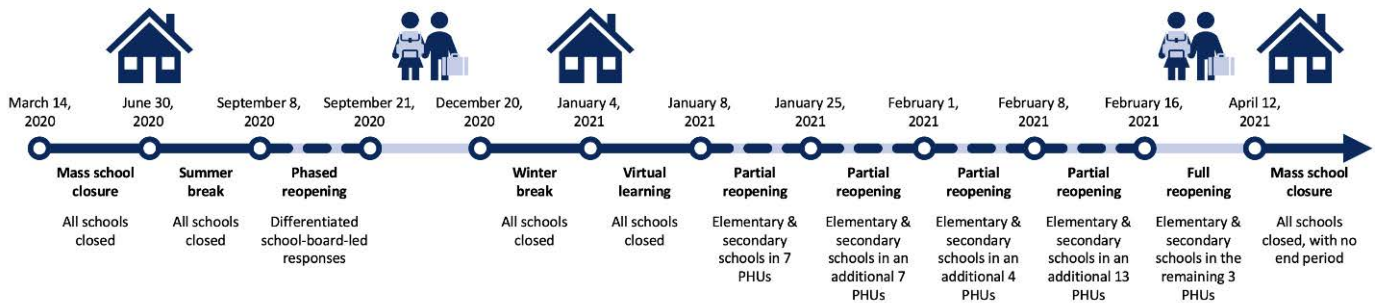


Figure 1. Ontario-Level School Closures and Reopening Policy Tracing, from March 2020 to April 2021

School closures are defined as the suspension of in-school, face-to-face instruction. Only public school closures are presented. Further localized municipal, regional, and board-level school closures are not presented. January 8, 2021: All schools in PHUs of Algoma, North Bay Parry Sound, Northwestern, Porcupine, Sudbury, Thunder Bay, Timiskaming. January 25, 2021: All schools in PHUs of Grey Bruce, Haliburton, Kawartha, Pine Ridge, Hastings and Prince Edward Counties, Kingston, Frontenac and Lennox & Addington, Leeds, Grenville and Lanark, Peterborough, Renfrew County. February 1, 2021: All schools in PHUs of Eastern Ontario, Middlesex-London, Ottawa, Southwestern. February 8, 2021: All schools in PHUs of: Brant County, Chatham-Kent, Durham, Haldimand-Norfolk, Halton, Hamilton, Huron Perth, Lambton, Niagara, Simcoe-Muskoka, Waterloo, Wellington-Dufferin-Guelph, Windsor-Essex. February 16, 2021: All schools in PHUs of Peel, Toronto, York. Data extracted from official provincial government announcements and verified on the ICES COVID-19 Dashboard. Srivastava P, Taylor PJ. (2021). COVID-19 school dashboard (1.1 May 2021). <http://covid19schooldashboard.com/>

Source: Gallagher-Mackay K, Srivastava P, Underwood K, Dhuey, E., McCreedy, L., Born, K. B., Maltsev, A., Perkhun, A., Steiner, R., Barrett, K., Sander, B. (2021). COVID-19 and education disruption in Ontario: Emerging evidence on impacts. *Science Briefs of the Ontario COVID-19 Science Advisory Table*, 2(34), 1-36. <https://doi.org/10.47326/ocsat.2021.02.34.1.0>

Despite differences in the length of school closures, professional consensus is emerging about the impact these shutdowns have on children and youth. The Canadian Paediatric Society has expressed its “serious concern over the extended school closures” to the provincial leadership of Ontario (Feldman et al., 2021). Their central argument is that education is a human right that “must be respected even under difficult circumstances”. They further voice worry over the “unintended consequences” these closures will have on children and youth who rely on schools for the provision of physical and mental health services, food, safety, security, and support. The Canadian Paediatric Society has urged the leadership of Ontario to take “every action to ensure the safe re-opening of all schools across Ontario without delay”. UNESCO (2021) has also implored governments to intervene, stating that governments must mitigate the impact of school closures and their impact on learning losses, especially for vulnerable and disadvantaged communities to “avoid a generational catastrophe”. On July 12, 2021, UNICEF and UNESCO issued a joint statement on the re-opening of schools stating emphatically that it “cannot wait”. They further stated that governments, in their attempt to limit the transmission of COVID-19, “have too often shut down schools and kept them closed for prolonged periods, even when the epidemiological situation didn’t warrant it. These actions were frequently taken as a first recourse rather than a last measure. In many cases, schools were closed while bars and restaurants remained open”. Their central concern was that the losses that children and youth experienced because of these closures “may never be recouped”. The Ontario Science Table acknowledged in their 2021-2022

school operation document that “school closures, and the various distance learning strategies deployed to ensure educational continuity, should be part of a pandemic control strategy in only the most catastrophic of circumstances” (Science et al., 2021). They also conceded that children and youth have been “deeply impacted by the COVID-19 pandemic and restrictions placed on schools”. Finally, in a departure from previous recommendations, the Centers for Disease Control and Prevention (CDC, 2021a) is now urging that schools be fully re-opened in the fall of 2021. This change in opinion was prompted in part by the recognition that children and youth “benefit from in-person learning”.

The accumulating evidence certainly supports these concerns. School closures have resulted in a plethora of negative consequences for children and youth that extend beyond the classroom. For example, a study of 254 middle to high income Canadian families revealed that the pandemic has had an impact on eating and meal routines (Carroll et al., 2020). Moreover, the authors posit that the extended school closures that took place in the spring of 2020 had an even greater detrimental impact on the financial situation and availability of food resources for families whose parents experienced a reduction or loss of employment because of COVID-19. Thus, food security quickly emerged as a significant, albeit unintended, consequence of school closures. Such recognition prompted some governments to take action to address food insecurity and support families. For example, in Spring 2020, the Quebec government established agreements with food banks across the province and instructed school districts to provide information to families about food assistance resources available in their area.

Educators (and school social workers) also play an important role in detecting and reporting child maltreatment and neglect. In the U.S., for example, educators are the primary reporters of child abuse and neglect (Children’s Bureau, 2020). With children and youth out of the purview of teachers because of school closures, this safeguard is no longer in place for many vulnerable students. This is problematic given that there has been a 10-50% increase in domestic violence helpline calls in some countries during the pandemic (WHO, 2020), coupled with an increase in child abuse-related factors and a decrease in police reports and referrals to child protective services (Cappa & Jijon, 2021). A recent study examined the hospital admissions for abusive head trauma (AHT) across 49 U.S. children’s hospitals during COVID-19 and found significant decreases in AHT admissions in children < 5 years of age (Maassel et al., 2021). The study period was however short (up to September 30, 2020). In a U.S. study initiated two weeks after the World Health Organization declared the coronavirus a pandemic, Lee et al. (2021) examined perceived social isolation and recent employment loss in parents. Results indicated that, controlling for parental depressive symptoms, income, and sociodemographic factors, both social isolation and employment loss were associated with self-report of physical and emotional neglect, as well as verbal aggression directed at their children. Social isolation was also associated with increased use of discipline and spanking. As the stressors of the pandemic accumulate, it will be important to re-evaluate this finding. Closer to home, the Children’s Hospital of Eastern Ontario (CHEO) stated that they had seen twice as many children under one year of age for maltreatment concerns related to fractures and head trauma during the pandemic when compared to previous years. Dr. Michelle Ward, the Medical Director for Child and Youth Protection at CHEO stated that in her 16 years working at CHEO she had “never seen this many infants with serious maltreatment injuries” (CHEO, 2021).

In a similar vein, school closures have contributed to widened inequalities and achievement gaps. Using data collected before the pandemic from 14 cohorts of Ontario primary-grade students to model plausible pandemic-related learning loss scenarios, Davies and Aurini (2021) argued that in the worst-case scenario, average students were expected to experience a 3-month learning shortfall due to COVID-19 school closures when compared to a regular school year, with gaps between the quartiles growing up to 1.5 years. Unfortunately, this worst-case projection is one that is emerging from the data coming from the U.S. and the Netherlands (Engzell et al., 2021; Kuhfeld et al., 2020), leading researchers to conclude that students have “made little or no progress while learning from home” (Engzell et al., 2021). In these studies, learning loss is most evident for children and youth from disadvantaged homes, as is typically the case, highlighting that the impact of the pandemic is far from random or equitable. The quality of education delivered virtually may be contributing to educational gaps. In a study of 6720 parents recruited from seven European countries (U.K., Sweden, Spain, Belgium, Netherlands, Germany, and Italy), many parents reported that their homeschooling was of poor quality and that they lacked necessary support from schools (Thorell et al., 2021). They also reported that homeschooling their children had a negative effect on them and their children.

School closures have also affected the mental health of children and youth (Vaillancourt et al., 2021a). As one example, 67-70% of Canadian children and youth “experienced deterioration in at least one mental health domain” because of the pandemic (Cost et al., 2021). Consistent with the notion of multiple risk factors converging, the levels of decline were greatest for those with a pre-existing psychiatric diagnosis and among children who perceived greater stress because of being socially isolated. Toronto Hospital for Sick Children and Holland Bloorview Kids Rehabilitation Hospital (2021) released preliminary data on the loss of in-person schooling and the mental health of children during the pandemic. Using data collected from over 1500 participants over four timepoints from wave 1 (April-June 2020) through to wave 2 (Dec 2020-March 2021), most children and youth were found to experience sustained mental health difficulties during the lockdowns. Moreover, the more time children and youth spent online learning, the more they experienced symptoms of depression and anxiety. In another recent study (N = 6,576), Duckworth et al. (2021) compared the social, emotional, and academic well-being of high school students who attended school remotely or in-person. Controlling for baseline measures of well-being assessed a month before the pandemic and demographics (gender, race/ethnicity, and socioeconomic status), results indicated that students who attended school remotely reported lower levels of social, emotional, and academic well-being than students who attended school in person. In a comprehensive review of the literature on children’s mental health during the pandemic, Vaillancourt et al. (2021a) concluded that “studies suggest a worsening of mental health in relation to the pandemic”.

While we concern ourselves with the implications of learning loss and the waning of children’s mental health in the context of school closures, it is equally important that we concern ourselves with the impact that these closures have on students’ sense of belonging and connection with others. It is important to emphasize that children and youth not only attend school to learn; they also attend school to form and maintain interpersonal relationships, and to learn valuable skills on how to sustain these relationships. Relationships with teachers and peers help children and youth meet their fundamental, biologically based drive to form emotional bonds and attachments with others (Baumeister & Leary, 1995). Thus, school closures, along with stay-at-home orders, quarantines, and social distancing recommendations intended to reduce COVID-19 cases are in fact thwarting this basic need to belong, resulting in greater social isolation and loneliness

(Okruszek et al., 2020), with added implications for academic achievement and well-being. These detrimental outcomes were preventable and foreseen by child and youth advocates, who repeatedly warned that school closures and other public health restrictions “would be devastating for kids, and that maintaining in-person school was critical to the health and development of an entire generation” (Korczak & Feldman, 2021). These predictions could be made with such precision because there is a well-established literature demonstrating how social isolation impacts all aspects of functioning, both in the immediate and in the long-term (McDougall & Vaillancourt, 2015). Indeed, this literature clearly demonstrates that social ties are not just a luxury but are essential for optimal development.

Social Isolation and Loneliness pre-COVID-19

Much has been written in the popular press about the impact of COVID-19 on rates of loneliness, the psychological embodiment of social isolation (Steptoe et al., 2013). For example, the Wall Street Journal ran a story titled “Loneliness, Anxiety and Loss: The Covid Pandemic’s Terrible Toll on Kids” (Petersen, 2021). The central thesis of this piece was on how school shutdowns and family trauma have led to social isolation, stress, and mental health problems in youth. But even before the pandemic, loneliness was a growing concern. In fact, it was so worrisome that the United Kingdom established a Ministry of Loneliness based on the recognition that loneliness was one of the “greatest public health challenges of our time” (Prime Minister’s Office, 2018). Even the Surgeon General of the United States opined about loneliness, stating that it was a “growing health epidemic” and that reducing isolation was “good for business” (Murthy, 2017). Reducing loneliness is good for business because in adults, loneliness reliably increases the risk for developing mental health problems (da Rocha et al., 2018; Erzen & Çikrikci, 2018), cardiovascular disease (Barth et al., 2010; Valtorta et al., 2016), infectious illness (Cohen et al., 1997), cognitive decline (Bassuk et al., 1999), and increased mortality (Alcaraz et al., 2019; Eng et al., 2002; Heffner et al., 2011; Steptoe et al., 2013). A meta-analysis of adults found that social isolation, loneliness, and living alone were associated with a 29%, 26%, and 32% increased likelihood of mortality, respectively (Holt-Lunstad et al., 2015). Reducing loneliness is also good for children, families, and society at large. Socially isolated children and youth also suffer considerably; they too have poorer physical (Gini & Pozzoli, 2013) and mental health (Moore et al., 2017; Mulvey et al., 2018). They also tend to have lower academic achievement (Samara et al., 2021; Wentzel et al., 2021) than children and youth who are more socially integrated. Thus, because relationships matter for health and learning, the COVID-19 school closures undertaken in certain provinces, are untenable, and are in fact, causing harm (Science et al., 2021).

Social Isolation and Loneliness During COVID-19

Loneliness, a distressing feeling that results from a discrepancy between actual and desired social connection (Perlman & Peplau, 1981), was a problem before the pandemic, and since disease containment measures have been implemented, the problem has only worsened. Indeed, the pandemic has turned loneliness into a reality lived by millions of children and youth worldwide. For example, a U.K. survey of adolescents with a history of mental health needs, conducted when schools were closed to most children, reported that the top coping concern for teens was “isolation/loneliness” (Youngminds, 2020). This is consistent with the worries of Canadian adolescents. Specifically, Ellis et al. (2020) found that while teens were very concerned about the COVID-19 crisis, they were particularly worried about their peer relationships. When asked the

question “To what extent are you worried about how COVID-19 will impact you feeling connected to your friends?” only 3.5% of adolescents responded, “not at all”. In this study, loneliness was correlated with depression, which is in keeping with meta-analytic findings (Erzen & Çikrikci, 2018). In a study of Belgian adolescents during COVID-19 lockdown, loneliness was found to have a greater negative impact on adolescents’ happiness than feelings of anxiety (Cauberghe et al., 2021). Results from a national poll found that 3 in 4 American parents said that the pandemic had affected their teens’ social interactions (C.S. Mott Children’s Hospital, 2021). A study of British adolescents found that loneliness was associated with symptoms of mental health difficulties during lockdown and that this link was more pronounced in teens who had a poor relationship with their parents (Cooper et al., 2021). In this study, texting with others did not improve mental health symptoms; rather adolescents who spent more time texting others were the most impaired. Ellis et al. (2020) also found that adolescents who spent more time connecting to friends virtually during the pandemic were the most depressed and lonely. These findings suggest that virtual contact is not a good substitute for in-person contact for adolescents during the pandemic. A longitudinal study conducted in Germany found decreased well-being in children and youth aged 9 to 18; specifically, the perception of social support was lower during the beginning of the pandemic than before the pandemic (Vogel et al., 2021). Finally, a rapid review of 63 studies examining the impact of social isolation and loneliness on the mental health of children and adolescents who were previously healthy (N = 51,576; mean age 15.3 years) indicated that social isolation and loneliness did increase the risk of depression (Loades et al., 2020). The duration of loneliness was also found to be more strongly correlated with poor mental health symptoms than the intensity of loneliness. These results are expected. Childhood, and in particular, adolescence, is a time of heightened motivation to affiliate with peers (Brown & Larson, 2009; Harris, 1995). Thus, when this need to affiliate is unmet, positive development often gets derailed.

The links between social isolation, loneliness, and mental health difficulties are concerning given the length (and number) of school closures Canadian children and youth have faced, along with all the other public health measures that have limited their social contact. Compounding the issue is that children and youth are not only isolated from their school peers; they are also experiencing lengthy isolation from their teachers, extended family, and community networks (Loades et al., 2020). Regarding community networks, in many provinces extracurricular activities like organized sports have been drastically curtailed, if not outright cancelled (Vaillancourt, 2021). Predictably, this loss has also negatively influenced children and youth. For example, in a survey of 18 soccer organizations in Ontario involving 3582 respondents, 2 in 5 parents stated that their child was experiencing anxiety, stress, or worry because of the pandemic (Ontario Soccer, 2021). Moreover, 86% of parents indicated that their child was lacking social connection in their lives due to the pandemic and when asked what their child missed most about participating with their club/academy team, the number one response was socializing. With this backdrop in mind, it is important to refocus our efforts at getting children and youth back to school (and back to the activities they enjoy). However, in transitioning children and youth back to face-to-face learning, it is important to be mindful that the status quo was never perfect. Specifically, the priority of relationships has not always been central in education even though learning is socially mediated—that is, all learning happens in relationships.

The First R of Education— Relationships

As the societal institution responsible for child and youth development, schools are mandated to focus on educating the whole child, which includes the capacities for healthy relationships (Vaillancourt et al., 2021b). Indeed, the primary tasks of childhood are (1) skill development related to physical, cognitive, and social-emotional domains and (2) social integration. Canadian



educators have done an excellent job with respect to cognition. In fact, Canada’s pre-pandemic academic performance levels have long been the exemplar of the world (OECD, 2016). However, when it comes to social-emotional learning and development, Canada’s performance has been far from excellent. In the latest UNICEF (2020) report card on the state of children and youth from 38 rich countries, Canada’s overall ranking was 30th, a low ranking driven in large part by our poor performance on indicators of child well-being, mental and physical health, and happiness. Regarding non-academic school-related factors, Canada ranked 15th on our youth’s sense of belonging at school and 28th on bullying. UNICEF has been monitoring children’s outcomes in rich countries for two decades, and during this time, the “relationships” indicators for Canada have never been in the top third (UNICEF, 2019, 2020).

Because children and youth are facing so many unprecedented and prolonged stressors, it is now more important than ever for them to feel that they matter and for them to have positive relationships with their teachers and their peers (Hargreaves, 2021; National Academies of Sciences, Engineering, and Medicine [NASEM], 2021; Rucinski et al., 2018). This has always been true, but it is particularly important right now and when children and youth return to pre-pandemic learning environments feeling stressed about school because of the pandemic (Challenge Success, 2021). Clues from research on previous disasters, childhood trauma (Palamarchuk & Vaillancourt, 2021), and the emerging research on the pandemic (Vaillancourt et al., 2021a; Whitley et al., 2021) point to the fact that for many children and youth, their ability to learn and relate positively to others is, or will be, negatively affected. One way to bolster their resilience is to ameliorate their interpersonal relationships at school and to invest in their social-emotional development (Cahill & Dadvand, 2020; Reyes et al., 2013) through school-based social-emotional learning programs (Taylor et al., 2017), as advocated by the NASEM (2021) in their new report on school-based strategies for addressing the mental health and well-being of children and youth in the wake of COVID-19. This is also true for educators who have been shown to benefit from such programs (NASEM, 2021; Schonert-Reichl, 2017). When children and youth face challenges, a caring and supportive classroom community that includes positive teacher-student relationships and healthy peer relationships consistently promotes resilience. These types of classrooms also encourage school enjoyment, a motivation to learn, better conflict resolution skills, and a more developed ethic of care (Ellerbrock, 2015).



Beyond caring classrooms, the quality and character of the entire school, which involves the social, emotional, and academic experiences of all children, their family, and school personnel (Cohen et al., 2009) is important for academic success, mental health, and positive relationships, especially in the context of the pandemic (NASEM, 2021). A positive school climate is consistently associated with better

academic achievement (Bryan et al., 2012; Catalano et al. 2004; Daily et al., 2019; Konold et al., 2018; Niehaus et al., 2012; Osher & Kendziora, 2010; Wang et al., 2014), better mental health (Aldridge & McChesney, 2018; Shochet et al., 2006; Somersalo et al., 2002; Suldo et al., 2012), and better peer relationships (Konishi et al., 2017; Low, & Van Ryzin, 2014). These associations are interconnected—poor school climate is related to higher rates of bullying victimization (Wang et al., 2014), which is associated with lower academic achievement (Samara et al., 2021), and is causally linked to poor mental health (Moore et al., 2017). Bullying in particular is a notable problem for children and youth world-wide. According to population-based studies, 10% of children and youth are bullied on a regular basis and another 30% are bullied occasionally (NASEM, 2016; Turner et al., 2018; UNICEF, 2019; Vaillancourt et al., 2010). Canadian prevalence rates are similarly high, and for close to three decades, Canada has had some of the highest rates of bullying within economically advanced countries (Molcho et al., 2009; UNICEF, 2019, 2020). These rates are worrisome because bullying victimization challenges children and youth in unhealthy ways, across all domains of functioning (McDougall & Vaillancourt, 2015; Vaillancourt & Palamarchuk, 2021).

Although the pandemic has been a notable threat to the well-being of children and youth worldwide, when it comes to bullying victimization rates, improvements have occurred (UNICEF, 2020; Yang et al., 2021; Yourtown, 2021). In the UNICEF Canadian Companion (2020), a 17% reduction in cyber bullying was noted during the pandemic for youth and young adults. Vaillancourt et al. (2021c) also found significant reductions in bullying in a sample of 6578 Canadian students in Grades 4 to 12. To account for school changes associated with the pandemic, Vaillancourt et al. randomized children and youth at the school level into two conditions: (1) the pre-COVID-19 condition, assessing bullying prevalence rates before the pandemic, and (2) the current condition, assessing rates during the pandemic. Results indicated striking differences with children and youth reporting far higher rates of bullying involvement before the pandemic than during the pandemic (35.3% pre-pandemic vs. 16.9% during the pandemic). These researchers suggested that the pandemic may have “mitigated bullying rates” and encouraged educators to consider retaining some of the educational reforms used to reduce the spread of the virus. Specifically, they argue that reducing class sizes and increasing supervision in the future could help foster more caring relationships and thus help maintain this impressive reduction. Because peers can be pivotal in destabilizing others’ mental health, the role of adults in promoting healthy relationships is critical. Moreover, for optimal learning and development to occur, schools need to be safe (McNamara, 2021). Toward this aim, bullying problems must be addressed “through systemic changes at

all levels within the education system and with proactive efforts to ensure that all students are safe and able to learn” (Vaillancourt et al., 2021c). Safe learning environments are ones in which children and youth feel valued, respected, and connected (Konishi & Wong, 2018). Safe learning environments also attend to the needs of the adults; after all, the working conditions of educators are the learning conditions of children and youth (NASEM, 2021; Westheimer & Schira Hagerman, 2021). This is particularly important in light of the findings from the Canadian Teachers’ Federation (2020) teacher mental health check-in survey, which found that the “mental health of teachers was “severely endangered” by stressors such as: excessive workload, lack of clear directions and planning, increased screen time, and social isolation” (p.2).

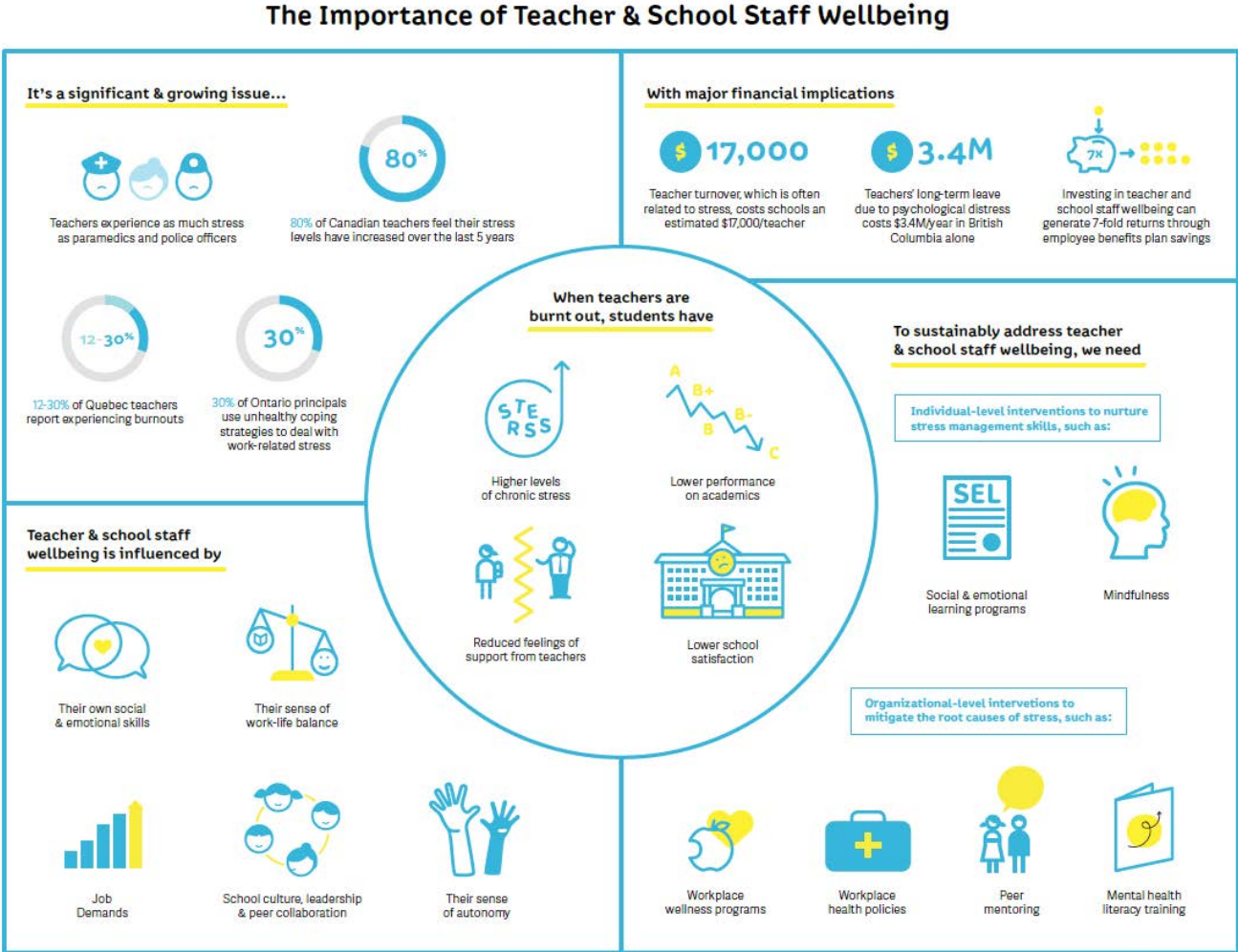
According to Canada’s Promoting Relationships and Eliminating Violence Network (PREVNet, 2021), “focusing on healthy relationships is one of the best ways to promote healthy development for youth”. The pandemic has highlighted that relationships are an essential part of high-quality education. Our worry, however, is that given the current learning gaps, schools may feel pressure to catch-up academically, at the expense of social-emotional learning. This is a central concern of the NASEM (2021), who recommend in their recent school-based strategies document that in the context of the pandemic, academic learning must be balanced with “social, emotional, and behavioural support”. Indeed, social-emotional learning cannot be divorced from the core curriculum because social-emotional learning helps children and youth develop the knowledge, attitudes, and skills needed to manage their emotions, build healthy relationships, set goals, and make decisions (Alberta Ministry of Education, 2021; Weissberg et al., 2015). These skills translate into better social adjustment, reduced levels of problem behaviour, including bullying and risk behaviour, and reduced levels of emotional distress (Durlak et al., 2011, 2015; Hawkins et al., 2008; Jones et al., 2015; Sklad et al., 2012). In sum, these skills are the very foundation of learning. This point is well illustrated in a meta-analysis involving 947,406 children and youth enrolled in Kindergarten to Grade 12. Specifically, social-emotional learning interventions were associated with an 11-percentile point gain in academic achievement (Taylor et al., 2017). In another meta-analysis spanning 50 years of research, social-emotional learning programs consistently produced positive effects on reading, mathematics, and science (Corcoran et al., 2018).

At the beginning of the pandemic, several educational leadership groups in the U.S. outlined how schools should restart and recover from COVID-19 (American Enterprise Institute, 2020; American Federation of Teachers, 2020; Aspen Institute, 2020; Centers for Disease Control and Prevention, 2021b; Chiefs for Change, 2020; Council of Chief State School Officers, 2020). Although approaches and goals varied, “student and adult social and emotional well-being and relationships [were] central to each decision point” (CASEL, 2020). The Canadian Teachers’ Federation also recognized early that “the mental health and well-being of many students, and teachers” would need to be prioritized (Morse, 2020). A pandemic recovery must therefore include a commitment to social-emotional learning (NASEM, 2021). Children and youth learn best when healthy relationships are prioritized and when social-emotional development is considered a core learning objective. The two are intricately connected. Because social-emotional learning forms “the basis of human interaction” (Elias, 2019) it will be central to helping children and youth recover academically as the pandemic subsides (Greenberg et al., 2003; Schonert-Reichl, 2019; Zins et al., 2004).

Part of this recovery effort must also involve the adults in schools who care for students (NASEM, 2021; Westheimer & Schira Hagerman, 2021). Children and youth are nested within classrooms, and thus, the well-being of teachers and other educators impacts students’ academic performance

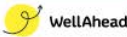
and well-being. The pandemic has been challenging for children and youth, but it has also been challenging for everyone in education who have been faced with quickly adapting their learning environments to be on-line, being vigilant around ever-changing public health directives, and worrying about their own health and safety, all while trying to keep children and youth engaged and motivated. For the most part, Canadian teachers showed growth in terms of their efficacy in classroom management and their sense of accomplishment during the pandemic. However, they have also experienced increases in exhaustion and cynicism (Sokal et al., 2020). Across Canada, teachers report feeling that they do not matter to governments, which is illustrated by the fact that they were not a priority group for the first vaccination phase despite calls for their recognition as essential workers (CBC News, 2021). If we are to prioritize the centrality of relationships within the learning process, it will be important to also attend to the needs of the adults who work in schools with children and youth and serve as role models, mentors, and caregivers (Hargreaves, 2021; NASEM, 2021; Westheimer & Schira Hagerman, 2021; see Figure 2 from WellAhead as one example).

Figure 2: The Importance of Teacher and School Staff Wellbeing



See reverse for references

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Source: WellAhead, a McConnell Foundation; <https://mcconnellfoundation.ca/report/teacher-school-staff-wellbeing/>

We have outlined how and why relationships matter for students' success in school and beyond. At the heart of all healthy relationships are feelings of trust, security, and safety. However, in order to get children and youth back to school full-time, a careful consideration of transmission patterns and their mitigation is needed. Infection Prevention and Control measures, adapted from the healthcare setting and devised in working with public health, should be employed in the setting of a global pandemic, such as COVID-19. Appendix A (Comeau & Vaillancourt, 2021) offers an approach and framework to follow in considering these important measures to keep both learners and staff safe. Ultimately, though, the most important measure will be ensuring that the community in general follows public health guidance thereby minimizing case numbers in all jurisdictions.

Conclusion and Recommendations

According to the Canadian Paediatric Society, "school doors should be the first to open and the last to close" (Feldman et al., 2021). We agree. Toward this goal, we echo their recommendations to help re-open schools and keep them open. Specifically, provincial and territorial governments must: (1a) prioritize the safe re-opening of all schools and work toward ensuring schools stay open; (1b) prioritize the safe resumption of all extra curricular activities like sports and work toward ensuring these activities remain available; (2) commit to "greater transparency in decision-making criteria used to justify school closures and ensuring appropriate consultation with child health and mental health experts" (Feldman et al., 2021); (3) prioritize educators, school staff, and support workers within the vaccine rollout plans; and (4) support and provide new funding to schools so they can effectively implement infection prevention measures. Moreover, because learning happens in relationships, and healthy relationships promote optimal development, COVID-19 education recovery should also include (5) a focus on healthy relationships, which includes prioritizing the reduction of bullying and investing in social-emotional learning programs for children and youth and (6) prioritizing and investing in the wellness and well-being of school and jurisdiction staff; our aforementioned goals cannot be achieved without also focusing on the healthy relationships of adults in schools.

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Chapter 5: School recess and pandemic recovery efforts: Ensuring a climate that supports positive social connection and meaningful play

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Abstract

As Canada's schools reopen, attention to healing the school community is essential. Given the considerable stressors of COVID-19 pandemic, it is unsurprising that recent studies find Canadian children's mental health in decline. As social connection is tightly entwined with children's mental health, supporting school-based spaces for quality social interactions and play will be an important post-pandemic recovery strategy. Children will need opportunities to re-establish positive social connections at school, and informal spaces such as recess and lunch are an ideal time to afford these opportunities. Yet many schoolyards have long been challenged by social conflict that can interfere with children's need to connect with peers. Therefore, efforts should be directed not only at mitigating the effects of social harm, but also toward ensuring social and physical landscapes that are meaningful, inclusive, and engaging for children and adolescents of all ages. Recommendations for post-pandemic recovery are provided.

School recess and pandemic recovery efforts: Ensuring a climate that supports positive social connection and meaningful play



Introduction

The sudden onset of the COVID-19 pandemic required immediate action to mitigate the spread of the virus. As a result, Canadian children experienced a variety of ever-changing disruptions to their school day including school closings, staggered schedules, smaller classes, online learning, postponed activities, canceled events, and a significant loss of social interactions. Moreover, many of these children also experienced family stressors related to food and housing insecurity, abuse, and neglect (Statistics Canada, 2020). Given the considerable

stressors, it is unsurprising that recent studies are finding that Canadian children's mental health is in decline (see review by Vaillancourt et al., 2021). For example, Cost et al (2021) found that the strongest predictor of this mental health decline was increased stress from social isolation. Supporting school-based spaces for quality social interactions and meaningful play, therefore, will be an important post-pandemic recovery strategy.

Though many educators and parents may be concerned about restoring pandemic-related learning loss, these and other studies remind us that schools are much more than schoolwork. They are communities where children spend a considerable amount of their waking hours across significant developmental years. Indeed, it is well-documented in the research literature that children's experiences in the school environment dynamically and cumulatively impact their health and well-being trajectories (World Health Organization, 2021). And importantly, health and well-being are foundational for optimal learning and school engagement (Goverova, 2020). Accordingly, the World Health Organization has long encouraged schools to extend beyond curricular instruction

to include a reconsideration and modification of the social and physical landscapes to better promote, protect, and nurture healthy lifestyles. And now, more than ever, this is a critical message.

There is a growing body of research to substantiate that informal school spaces—particularly the space of recess and lunch—are critically important social spaces for children and adolescents (Berggren et al., 2020; Massey et al., 2021; Lodewyk, et al. 2019; McNamara et al., 2018a; McNamara et al. 2015; Wilson et al., 2018). These spaces are typically the part of the school day that children and youth are afforded opportunities to connect freely with their peers and engage in a variety of activities such as play, recreation, conversation, or rest—activities that provide a number of cascading social, psychological, cognitive, and physical benefits that are foundational for learning and school engagement (Ramstetter et al., 2013; Ramstetter et al., 2010). As these informal spaces are often overlooked in board and school-improvement efforts, the purpose of this review is to bring the context of school recess into the conversation of pandemic recovery efforts, particularly from the lens of supporting social connections.

From the perspective of children and youth, what happens during recess (breaks) can hold immense social and emotional weight. They are spaces that represent much more than a break from academics, fresh air, physical activity, or freedom from class: they are a part of the day that reflects their fundamental social and emotional needs (Massey et al., 2021; Massey et al., 2020; McNamara & Walker, 2018; McNamara et al., 2014; McNamara, 2013; Stanley et al., 2012). Yet, given the variety of conditions and contexts across schools (London et al., 2015; McNamara & Walker, 2018; McNamara et al., 2018a; McNamara et al., 2015; McNamara, et al., 2014; McNamara, 2013), there is still some question as to whether the potential benefits of this time and space are valued and realized in schools across Canada, even before COVID-19 was declared a pandemic.

This is an important question because a sizable body of research on recess (in Canada and abroad) indicates that this space has long been associated with aggression, bullying, loneliness, boredom, and social exclusion (Anderson-Butcher et al., 2003; Craig & Pepler, 1997; Doll et al., 2003; McNamara, 2013; McNamara et al., 2018a; Vaillancourt et al., 2021b; Vaillancourt et al., 2010). Indeed, of all school spaces, a large Canadian study found that children felt most ‘unsafe’ outside during recess (Vaillancourt et al., 2010). Consequently, such a social landscape can not only undermine opportunities for social connection and meaningful play, but also can be a traumatic and fearful time of the school day (Astor et al., 2001; McNamara et al., 2018a; Vaillancourt et al., 2021b; Vaillancourt et al., 2010).

It is now well-established that social relationships are inextricably linked to overall-health, well-being, learning, and school engagement—for better or for worse (Eisenberger, 2013; Goverova, 2020; Lieberman, 2013; Umberson & Karas-Montez, 2011; Yang et al., 2016). Therefore, efforts should be directed not only at mitigating the effects of social harm, but also toward ensuring a social and physical landscape that is meaningful, inclusive, and engaging for all children and adolescents of all ages. Fortunately, there has been considerable research development in this setting, particularly in the last ten years, to help us better understand this setting and provide direction for our change efforts.

The potential of recess to benefit health, well-being, and learning

A converging body of international research highlights the potential cognitive, social, emotional, physical, and academic benefits of regularly scheduled breaks throughout the school day. These

benefits are thought to dynamically contribute to children's overall well-being, long-term health trajectories, and academic success.

Cognitive and academic benefits. It is understood that children, especially younger children, need regular breaks from focused instruction in order to reduce stress and return to class more with enhanced focus and attention, which, in turn, can cumulatively influence their overall academic performance (Centers for Disease Control, 2010; Ramstetter et al., 2013). Optimal cognitive processing is thought to require intervals of concentrated instruction followed by breaks (Chen et al., 2018; Godwin et al., 2016; Barros et al., 2009; Pellegrini, 2005). To alleviate stress and distractions that can interfere with cognitive processing, these breaks are thought to be best served by unstructured activities, as opposed to simply shifting from one cognitive task to another (Ramstetter et al., 2013; Jarrett, 2011; Barros et al., 2009; Sibley & Etnier, 2009; Bjorklund & Brown, 1998).

Opportunities for movement and physical activity. Recess is thought to provide regular outlets for movement and physical activity. It is well-established that regular physical activity contributes to both short- and long-term health benefits through a variety of physiological pathways, including boosting circulation, increasing energy, reducing stress, stimulating neurological activity, and enhancing feelings of well-being. Although not all children play vigorously at recess, even minor activity can be beneficial to offset time spent sitting at their desks (Bull et al., 2020; Tremblay et al., 2016; Saunders et al., 2016).

Time outdoors in nature. It is well-established in the research literature that outdoors- and nature-based play is associated with positive health impacts (Dankiwet et al., 2020; Tremblay et al., 2015). Even small amounts, time outdoors in nature has been shown to improve mood, focus, and physiological markers such as heart rate and blood pressure (Genevive et al., 2020). Notably, recent evidence indicates that children rate schoolyards with abundant natural elements more restorative than built environments, and subsequently experienced enhanced attention and focus (Bagot et al., 2015).

Opportunities for unstructured play. Unstructured play is so fundamental to human development that the United Nations Convention on the Rights of the Child (UNCRC, 1986) has long deemed it a fundamental human right. Although the definition of play continues to evolve, play is something children do because they want to, not because they have to (see Gray, 2013). Unstructured play means children are afforded the opportunity to follow their own instincts, ideas, and interests without an imposed or predetermined outcome (Canadian Public Health Association, 2019).

Unstructured play encompasses a range of play types that change as children grow and mature, including physical play, imaginative play, exploratory play, object and loose parts play, rough and tumble play, restorative play, risky play, and so on (Gibson et al., 2017; Loebach & Cox, 2021). Each form of play provides an array of contributions to overall well-being and many overlap—physically active play benefits children's motor skills, cardiovascular and musculoskeletal health; risky play allows children to calibrate their physical capabilities and emotional reactions to fear and uncertainty; social play affords opportunities for language development, social competence, self-awareness, and negotiation (CPHA, 2019).

All kinds of play activate the brain's reward circuitry and release endorphins that contribute to feelings of happiness and calm, which serves to mitigate the effects of anxiety and stress (Wang & Aamodt, 2012). And for many children, particularly those in urban and low-income neighbourhoods,

recess may be the only time of day that they have an opportunity for free, unstructured play (Barros et al., 2009; Dubroc, 2007; Jarrett, 2003)

Opportunities for social interactions. Recess provides opportunities for regular social interactions with peers. It is well-documented that early and regular social interactions with peers influence attitudes and behaviour that shape learning and engagement with school as well as mental and physical health-related behaviour across the



lifespan (Bagwell & Schmidt, 2011; Bagwell et al., 1998; Bukowski et al., 1993; Bukowski, et al., 2010; Doll et al., 2003; Durlak et al., 2011; Haapala et al., 2014; Hartup, 1996; Hoza, et al, 1995; Leiberman, 2013; Sullivan, 1953; Umberson & Karas-Montez, 2010; Wentzel et al., 2017).

And again, for many children, particularly those in urban areas and low-income neighbourhoods, recess may be the only chance in their day that they have a regular opportunity to meet up with peers in an unstructured setting (Barros et al., 2009; Dubroc, 2007; Jarrett, 2003). Regular social interactions provide children with opportunities to develop and maintain positive relationships. Relationships provide a context for laughter, joy, exploring, and play; they mediate cognitive development, influence psychosocial health, and facilitate the development of social and emotional competencies such as empathy, problem-solving, emotional regulation, and coping strategies (Bagwell & Schmidt, 2011; Umberson & Karas-Montez, 2010).

Furthermore, regular relationships provide children with acceptance and understanding that contributes to a sense of connectedness and belonging that has long been recognized as a powerful contributor to healthy development (Baumeister & Leary, 1995; DeWall & Bushman, 2011; Gere & MacDonald, 2010; Leary & Baumeister, 2000; Osterman, 2000).

The importance of considering recess from the lens of belonging

What happens during recess can have a powerful influence on children's overall health, well-being, and academic success. Importantly, children place a high priority on the social element of recess. What happens at recess *matters* to them; it holds considerable social and emotional weight. And this warrants our attention, both for understanding the setting more fully as well as providing direction for pandemic recovery and long-term change efforts.

The power of children's social bonds can be explained by the conceptual framework of the *need to belong* (Baumeister & Leary, 1995). Specifically, Baumeister & Leary (1995) claimed that "human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant personal relationships" (p. 497). The framework is intended to highlight why belonging is a *fundamental need* (not merely an optional desire or want) that drives human motivation and behaviour. They reviewed the empirical literature in search of evidence to support the belongingness hypothesis and subsequently linked the need to belong with a range of cognitive, emotional, biological, and behavioural processes. The framework is now well-established in the empirical literature (Gere & MacDonald, 2010).

The motivation to have lasting, positive relationships can be considered an evolutionary adaptation, as close relationships would have provided early humans with both survival and reproductive benefits. Belonging to a group provided protection, shared resources, and reproductive opportunities. Conversely, it would have been difficult to survive in isolation (DeWall & Bushman, 2011). An evolutionary perspective, therefore, explains why social interactions trigger an array of cognitive processes and emotional responses which are dynamically connected to the neural, endocrine, metabolic, and lymphatic systems: genetic selection would favor attachment and closeness behaviour that promote survival and reproduction.

For example, when our need to belong is fulfilled, we experience feelings of acceptance and inclusion that are associated with a variety of positive emotions such as happiness, elation, contentment,



and calm (Baumeister & Leary, 1995; Timmons et al., 2011). Conversely, when our need to belong is unfulfilled, our well-being is impacted in many ways. It is well-documented that social exclusion and isolation are associated with poor self-regulation, negative affect, self-doubt, loneliness, anxiety, depression, and suicide (Cacioppo, 2008; DeWall et al., 2011; Steger & Kashdan, 2009; Baumeister, 2005; Baumeister & Leary, 1995). This is the social and emotional weight of relationships.

Belonging and recess

Despite the range of potential benefits of recess, problematic social conflict is consistently documented in the research in Canada and abroad—specifically bullying, exclusion, hitting, altercations, cliques, and power struggles (Astor et al.,

2001; Doll et al., 2003; McDougall & Vaillancourt, 2015; McNamara, 2013; McNamara, Colley, & Franklin, 2015; McNamara & Walker, 2018a; McNamara et al., 2014; McNamara, 2013; McNamara et al., 2015; McNamara & Walker, 2018; Robert Wood Johnson Foundation, 2010; Nansel et al., 2001; Zumbunn, et al., 2013). Bullying among school-aged children, for example, is a chronic public health crisis in Canada (Inchley et al., 2018). UNESCO (2019) indicates that a third of students are affected worldwide.

A large Canadian study of school spaces (Vaillancourt et al., 2010) reported two notable findings: first, bullying has been found to occur most frequently during recess, and the second is that children felt most 'unsafe' outside during recess. Research on recess in Canadian schools indicates similar prevalence rates (Lodewyk et al., 2019; McNamara et al., 2018a; McNamara et al., 2018b; McNamara, Lodewyk, & Walker, 2019). As well, Lodewyk, et al. (2019) and McNamara et al. (2018b) found that children with disabilities had significantly higher rates of victimization and negative feelings toward recess. These rates are particularly concerning because of the potential cumulative

impact overall health and well-being (Bukowski et al., 2010; Hoza et al., 1995; Umberson & Karas-Montez, 2010).

Because children perceive recess as an important social space, this has important implications. In several recent Canadian studies, children indicated that one of the most enjoyable parts of recess is being with friends (McNamara, 2013; McNamara et al., 2014; McNamara & Walker, 2018). With friends they were more likely to engage in play, particularly physically active play. Conversely, not having friends in this space—even on a single day (if a friend was sick or chose to play with someone else, for example)—is problematic, as those without a friend are vulnerable to feeling bored, lonely, socially anxious, and fearful of being a target of bullying. Not surprisingly, research has found a significantly negative correlation between victimization and feelings of belonging during recess (Lodewyk et al., 2020; McNamara et al., 2018a) and victimization and enjoyment during recess (Boulton et al., 2009). As well, several studies have found a significant positive correlation between and peer belonging, physical activity, outdoor recess enjoyment, and positive affect (Hyndman & Lester, 2015; Lodewyk et al., 2020; McNamara et al., 2018a).

What is also interesting, but not terribly surprising, is that reports of bullying, victimization, and perpetration are considerably lower during the pandemic than before the pandemic (Vaillancourt et al., 2021b). This is likely due to decreased class sizes, increased supervision, and fewer opportunities to interact socially at school during the pandemic than before the pandemic. Consequently, these and other studies continue to highlight that social harm, in all forms, undermines children's opportunities to connect and engage meaningfully during recess. This is especially the case for children from some groups—such as lesbian, gay, bisexual, transgender, or questioning (LGBTQ), children and youth with disabilities, children from low-income neighbourhoods, and children from communities of colour—as they are disproportionately represented in the literature on victimization.

When social interactions are consistently difficult, it can be more challenging for children to engage in respectful, collaborative, and inclusive play—compromising all of the potential health benefits of recess. Negative social experiences such as isolation, exclusion, and victimization are linked to feelings of loneliness, sadness, anxiety, and anger. These negative feelings can then contribute to the progression of self-doubt and poor self-regulation as well as maladaptive coping strategies that further complicate attempts to connect positively with others. The result is often a negative feedback loop of intense stress and social disconnection (Baumeister, 2005; Baumeister & Leary, 1995; Korpershoek et al., 2020; Umberson & Karas-Montez, 2010).

As well, this has important implications for children who prefer to be alone and engage in creative, quiet activities that are restorative and energizing for them. At a time of increased concern about the mental and social health of young people, such a setting is problematic for children's mental health trajectories. As schools move forward, it will be critical to ensure that recess is a positive time for students where they can find acceptance and opportunities to connect and engage with their peers (or not) in a safe and supportive setting that is rich in play and activity options. Recent research on the setting of recess—most notably in the last ten years—provides considerable information that helps us better understand and appreciate many of the long-standing challenges of recess that contribute to a negative social climate. This information provides important direction for change efforts.

The challenges of recess: What's getting in the way of connection?

Although recess has the potential to support children's overall well-being, research indicates that there are several long-standing challenges inherent in traditional practices—challenges that often undermine the potential of recess to support children's physical, cognitive, social, and emotional development. Schools were, historically, designed to focus primarily on learning and instruction, and the traditional design of schools is reflective of this ideology—as are the daily organizational routines and practices. Arguably, the assumption is that schools provide time and space for recess, but there is little documentation as to recess practices and requirements across boards and schools in Canada. What follows, however, is a summary of key constraints that are consistently attributed to recess, broadly speaking, primarily from elementary and middle schools in Canada and abroad (see London, 2019; London et al., 2015; McNamara, 2013; McNamara et al., 2015; McNamara & Walker, 2018; McNamara et al., 2014).

Minimal training, planning, and supervision. Similar to our U.S. counterparts, recess and lunch in Canadian schools are often given minimal priority in board and school planning and improvement efforts—presumably because curricular needs tend to take precedence. Consequently, minimal training, planning, and supervision have been consistently documented as a key challenge, with problematic and cascading effects on social behaviour and engagement (Dubroc, 2007; Jarrett & Waite-Stupiansky, 2009; McNamara, 2013; McNamara et al., 2015; Pytel, 2009; Robert Wood Johnson Foundation, 2010; Stanley et al., 2012; Vaillancourt et al., 2010; Vaillancourt et al., 2021b).

In Canada, provincial collective agreements ensure that teachers have time allocated for their own breaks—which typically happen in tandem with recess and lunch times. As a result, staff schoolyard training, planning, and supervision hours are minimal (McNamara, 2013; McNamara et al., 2014). Consequently, the ratio of staff to children is inconsistent, ranging from one supervisor to anywhere from 50-220 students on the playground, including kindergarteners. The inconsistencies vary across school boards, schools, and even days—as principals have reported that the ratio of teachers to students can change very quickly if a supervisor is late or does not show up at all. Schools generally have the option of hiring part-time yard duty supervisors to fill this gap, yet the qualifications and experience required are very minimal (often a high school diploma).

As well, yard supervisors (both occasional and permanent staff) typically do not require any extensive training about their role and how best to support children during unstructured play. The challenge is not necessarily minimal supervision, rather minimal supervision combined with minimal planning, supervisors' uncertainty of their roles and responsibilities, and rotating shifts that prevent continuity and familiarity with practices and routines.

Minimal equipment. Research, in Canada and abroad, indicates that equipment is often withheld during recess for several reasons: concerns of safety and issues of liability, theft, arguments, breakage, and difficulty managing the equipment. Supervisors report that they are uncertain about what is 'safe' use and what isn't; they indicate that feel responsible for a large number of children and often err on the side of caution by withholding the equipment. Those schools who do provide some equipment often restrict the use of the equipment with various rules, designated locations, and forms of use—often to a degree that can greatly reduce the benefit to the students.

Moreover, when equipment is regularly missing or stolen, administrators report that they are reluctant to purchase new equipment (Dubroc, 2007; Jarrett & Waite-Stupiansky, 2009; McNamara, 2013; McNamara et al., 2014; Pytel, 2009; Robert Wood Johnson Foundation, 2010; Stanley et



al., 2012). Research indicates that equipment availability influences children’s engagement and activity levels (Centers for Disease Control, 2010; Escalante et al., 2013; Hatfield & Chomitz, 2015; Hyndman et al., 2016).

Minimal space. Many school playgrounds, particularly those in dense, urban neighbourhoods, do not have the capacity to provide ample space for children to run freely and engage in active play. Consequently, such a setting results in crowded conditions that contribute boredom, sedentary behaviour, and social conflict (D’Haese, et al., 2013; Huberty et al., 2012; Knowles et al., 2013; McNamara, 2013; McNamara et al., 2014; Stanley et al., 2012). Such conditions, when coupled with minimal equipment and minimal supervision, create tension and invite social dysfunction among the children and discipline challenges for the supervisors. Frustrated supervisors reportedly react by imposing strict rules such as ‘No Running’ (‘Walk-and-Talk Only’), withholding equipment, and assigning difficult or delinquent children to ‘The Wall’ for the duration of recess (McNamara et al., 2014; Turner et al., 2013).

Barren spaces. Although there is little scholarly documentation available with regards to the description of schoolyards across Canada, the traditional built environment of many schoolyards, particularly those in urban or low-income neighbourhoods, tends to be lacking in natural landscape elements such as trees, shrubs, grass, hills, logs, sand, and rocks. Schools were historically designed to focus primarily on learning and instruction, and the traditional design of schoolyards is reflective of this ideology. Efforts to address barren spaces can be reflected in the growth of organizations such as Evergreen and Green Schoolyards Canada.



It is not uncommon, particularly in low-income areas, to see “playgrounds” created from parking lots, sharing space with school dumpsters, and lacking any fixed equipment or ground markings (McNamara, Colley, & Franklin, 2015). Principals indicate that minimalist design of outdoor environments is necessary in order for supervisors to maintain clear sightlines across the schoolyard. In other words, they indicate that for safety reasons, children must be

visible at all times. This is consistent, for example, with the Ontario Principal’s Council (2007) recommendation that supervisors have continuous and direct sightlines to the students that they are supervising.

Minimal funding for schoolyard design. It is traditional practice that individual schools and their Parent Advisory Councils are tasked to raise the funds for structures and equipment to furnish the schoolyard*. This is a significant equity issue for schools in low-income neighbourhoods, as high mobility and community disengagement often influence parent attendance at parent council meetings. Moreover, it seems inconceivable that all parents would have the knowledge and wherewithal to create an outdoor space informed by universal design principles, knowledge of healthy outdoor play, child development, accessibility standards, and environment-behaviour relationships.

Outdated Education Acts. Education Acts provide direction to Canada’s provincial education system. Policies are generated based on the Education Acts, and practice generally follows policy. Furthermore, collective agreements are designed around the Education Acts and provincial/territorial policies. Although many Education Acts address the health and well-being of all students, currently, only two, Ontario and Quebec, explicitly mention recess in their Education Acts, and very minimally in that there is no mention or recommendations with respect to the setting. None of the other provincial Education Acts mention recess at all. Moreover, at this time, it appears that there are no publicly available provincial/territorial or board-level formal standards or policies explicitly created for recess. As a result, it is entirely possible that individual boards and schools may reduce or eliminate recess in favour of instructional demands. There is little evidence available as to whether there is consistency across provinces and school boards as to the practices, duration, and timing of recess in the school day.

When considered together, we can gain an appreciation of how traditional organizational routines and practices contribute to boredom, discipline issues, social conflict, disengagement, and sedentary behaviour—which, in turn, compromise the social environment, making it difficult for children to play and interact in ways that allow them to connect positively with one another. The children complain of boredom, teachers complain of loitering, and the combination of mixed ages, temperaments, social skills, and play/socialization preferences further contribute to a context that hinders meaningful interactions and play among the children (McNamara et al., 2014; Pellegrini, 2005; Doll et al., 2003). Further, such conditions trigger administrative concerns about safety,

liability, theft, and discipline issues (McNamara, 2013; McNamara et al., 2014; Robert Wood Johnson Foundation, 2010; Jarrett & Waite-Stupiansky, 2009).

Recommendations

As Canada's schools reopen after prolonged closures and restrictions due to COVID-19, attention to healing the school community is essential. Although there will likely be considerable variation in the timing and formats with which schools plan to reopen, it is clear that when students return, they will be looking forward to reconnecting with friends and teachers. Recess is an ideal time to support children's fundamental need for connection—and therefore ensuring rich and positive opportunities interaction and all forms of play should be a priority—at all ages. Efforts should be directed not only at mitigating the effects of social harm, but also toward creating social and physical environments that are meaningful, inclusive, and engaging for children and adolescents of all ages.

For children and youth, peers are important socialization agents who affect each other in a variety of ways. As Vygotsky (1978) suggested, children learn from each other and generate a shared understanding and their shared knowledge becomes internalized and subsequently influences their thoughts, choices, behaviour, and actions. Connecting with friends in school and feeling a subsequent sense of acceptance and belonging is associated with multiple factors including academic motivation, school engagement, attitudes, and health behaviour. Furthermore, the important work of Yonezawa et al. (2009) suggests that by changing the social settings that surround children, we can change how the children interact in those settings.

The following recommendations are carefully aligned with United Nations Convention on the Rights of the Child (UNCRC), particularly with Article 31, the right to healthy spaces for play, rest, and leisure and Article 29, the right to be protected from social harm.

Above all, a prevention approach is recommended to encourage meaningful and engaging spaces for socialization and play. Schools should include recess in their wider school improvement efforts. The overarching goal should be to change the playground culture to one that fosters friendships, inclusion, and meaningful interaction patterns. When approached proactively in this way, recess can be designed to promote the health and well-being of all students, inclusive of the differences in ages, stages, ability, and preference. Furthermore, a preventive approach ensures a focus on protective factors and developmental assets rather than remedying specific challenges as they arise.

Drawing on the UNCRC recommendations, setting research, social neuroscience, sociocultural theories, as well as the contemporary research and recommendations specific to recess (Lodewyk et al., 2018; Loebach & Cox, 2021; London et al., 2015; McNamara, 2013; McNamara et al., 2018a; McNamara et al., 2014; McNamara & Zakaria, 2020), a well-designed recess should, broadly, provide a continuum of opportunities for children to be active, engaged, and protected from the effects of bullying and social harm.

Therefore, school staff need the appropriate training to ensure they have the knowledge to balance children's need for independence, challenge, comfort, and support. Specific recommendations are as follows⁺⁺:

1. Provincial and board level direction for recess. Guidelines are needed to direct and empower change efforts at the school level. Strategic and coordinated efforts will ensure that recess is

prioritized and part of the overall board-wide and school-wide improvement efforts. Specific working guidelines for planning, monitoring, and reporting should be put in place to ensure continuity and equality across schools.

2. Invest in staff training and capacity building around recess. Specific training in best practices for recess should be a required and accountable part of staff training, professional learning, and formal teacher education programs. Resources and templates for recess planning and implementation should be accessible and abundant.
3. Invest in the built environment to support both indoor and outdoor spaces for recess. The built environment influences activity, behaviour, and social interaction patterns. Thoughtful planning and funding allocations need to be directed to spaces that can support social interaction, play, rest, recreation, and restorative activities—inclusive of ages, stages, preferences, genders, seasonal weather changes, and abilities. When thoughtfully designed, the built environment can encourage different play types, flow patterns, engagement, and social harmony, as well as providing variety, novelty, and sensory-rich experiences. Moreover, new spatial layouts can pave the way for new routines, expectations, and social behaviour that serve to reduce social anxiety, uncertainty, isolation, and loneliness as well as protect children from social harm.

a. *Invest in nature and natural materials.* School boards are stewards of a considerable

amount of land, yet asphalt is the typical default material of many schoolyards in Canada. Investments in natural and sustainable materials add to the collective well-being of children, communities, and the climate. As more and more schools invest in outdoor learning, ensure that recess is considered when planning for this space.



b. *Invest in indoor spaces for a variety of options for recess.* While children should be outside for recess whenever possible, there are parts of the country and times during the year where decisions are made to hold recess indoors. With limited building space, children have limited options and are often confined to their desks for the entire school day.

c. *Invest in an abundance equipment and materials that are specific to recess, and a system for managing it.* This includes not only traditional recreation equipment and playground

markings, but also loose-parts materials that support creative play (e.g., crates, pots, pans, sticks, buckets, and other random objects).

4. Invest in planning, staffing, and implementation for recess at both the board and school levels. Time and forethought are needed to assess, plan, implement, monitor, and sustain a routine of new practices. Establish permanent committees (or subcommittees) at the board and school level and ensure staff time allocations to dedicated to committee members. Establish and invest in a dedicated staff position such as Recess Coordinator. Such a role is needed to oversee schoolwide direction for planning, designing, purchasing, implementing, training, and monitoring efforts as well as informing and collaborating with parent advisory councils.
5. Establish and invest in a student leadership program for recess. Older students can play an important role in reshaping the social landscape of recess. Younger children look to their older peers for appropriate social conventions and routines. Therefore, when well-trained and supervised, peer leaders can be critical levers for change. Train and empower them to contribute their ideas, oversee activity areas, manage equipment, encourage inclusive play, and model effective conflict resolution.

Conclusion

As Canada's schools reopen, providing opportunities for positive social interactions and play will be an important post-pandemic recovery strategy, as feelings of belonging, acceptance, and social connection are tightly entwined with overall well-being. Recess, in particular, is the part of school day that allows children and youth the opportunity to connect with peers and engage in opportunities of their choice, free of instructional and curricular constraints.

Yet, the information presented this review indicates that the traditional context of recess can be challenging for children to navigate, and consequently may undermine opportunities for positive social connection, play, and physical activity—depriving children of the potential health benefits that are so needed at this time.

The setting of recess, therefore, must receive the same level of consideration, attention, and resources that are given to curriculum and instruction. The recommendations provided are intended to help direct provide guidance and direction for implementation efforts—efforts that should not only at mitigate the effects of social harm but ensure that the social and physical landscapes in this setting are continually meaningful, inclusive, and engaging for children and adolescents of all ages.

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+ Though scholarly data are unavailable to document this statement, the following news releases are reflective of this practice:

<https://www.cbc.ca/news/canada/london/london-ontario-neighbourhood-decision-making-schools-1.5353521>

<https://www.cbc.ca/news/canada/british-columbia/school-playgrounds-who-pays-and-how-expensive-are-they-1.2822828>

<https://ottawacitizen.com/news/local-news/playgrounds>

<https://nationalpost.com/news/canada/saskatchewan-parents-who-want-playgrounds-at-their-kids-schools-have-to-raise-funds-themselves>

** For specific resources, including COVID-19 disease mitigation strategies for recess, please visit <https://globalrecessalliance.org>

Chapter 6: After COVID: Lessons from a Pandemic for K-12 Education

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Abstract

At the time of this report's release, nearly 90 percent of the world's 1.7 billion students (along with their parents and teachers) have been impacted by school closures and shifts to hybrid and fully online models of teaching and learning. Depending on a student's socioeconomic background, access to technology, where they lived, and what resources they had at their disposal, the shift to online learning and periodic shutdowns during the COVID-19 pandemic may have resulted in learning gaps, increases in mental health crises, and diminished well-being. Although experts disagree on the measurement and magnitude of these impacts, most agree that they are substantial and enduring. The consequences of upheaval, however, need not be solely negative. This chapter examines the forced changes that have come to the education sector in light of their impacts and implications for the future of schooling. We focus in particular on curricular content expectations, testing, digital literacies, teacher autonomy, and equity and make recommendations for post-pandemic schooling.

After COVID: Seven Lessons from the Pandemic for K-12 Education

On January 11, 2020, a 61-year-old man in the central Chinese city of Wuhan succumbed to a new coronavirus that had sickened at least 41 people. "There is no evidence that the virus can be spread between humans," the *New York Times* reported at the time (Qin & Hernández, 2020, para. 4). By April 2, COVID-19 had sickened more than one million people in 171 countries across six continents and had killed more than 51,000. Over the following eighteen months, the pandemic has not only claimed the lives of millions but also upended nearly every public, private, and non-governmental institution around the globe.

After health care, the education sector has been hit especially hard. At the time of this report's release, nearly 90 percent of the world's 1.7 billion students (along with their parents and teachers) have been impacted. In Canada, by late March 2020, all provincial and territorial schools were closed (see Table 1). As these closures stretched to the end of the school year, educators, psychologists, and parents expressed increasing concern about missed educational opportunities, widening academic achievement gaps between privileged and underserved students (Davies & Aurini, 2021; Whitley et al., 2021), and the negative mental health impacts of social and emotional isolation (Vaillancourt et al., 2021a; Vaillancourt et al., 2021b). Depending on a student's socioeconomic background, access to technology, where in Canada they lived, their special education needs, and what resources they had at their disposal (see Whitley et al., 2021, in this volume), the shift to online learning and periodic shutdowns during the subsequent third wave of COVID-19 infections may have resulted in learning gaps, increases in mental health crises, and diminished well-being. Although experts disagree on the measurement and magnitude of these impacts, most concur that they are substantial and enduring.

For publicly funded systems of elementary, middle, and secondary schooling, the COVID-19 pandemic forced significant, destabilizing change. The consequences of upheaval, however, need not be solely negative. Crisis, as the old cliché suggests, also affords opportunity. The impossible becomes (perhaps briefly) possible. In the United States, before the pandemic, calls to find one trillion dollars for healthcare were deemed naïve and ridiculed by Democrats and Republicans alike (Barrow & Beaumont, 2019; Fang, 2017; Schroeder, 2016; Surowiecki, 2016; Young, 2018). Today, more than three trillion dollars are being spent for the social and economic benefit of ordinary citizens. Overnight, homeless people in many communities across North America were suddenly

sheltered in hotels and empty residential spaces. Prisoners were released from overcrowded jails and funneled into alternatives to incarceration. Commitments to social spending on criminal justice now compete with ideas about social spending on reducing inequalities, addressing mental health and well-being, and on infrastructure that benefits everyone.

In education, too, the impossible became possible. Teaching—under public scrutiny for years prior—suddenly became once again commendable as politicians clamored over one another to praise teachers’ devotion to students and their families. Destructive public preoccupation with standardization and accountability were curbed overnight as standardized tests were swiftly cancelled (e.g., CBC News, 2020; Education Quality and Accountability Office, 2020; Québec Ministère de l’Éducation, 2021). In some provinces, new resources emerged for schools that were deemed too expensive just months before. Anything is possible.

But opportunity is not the same as destiny. If we stand to make meaningful changes to education, we must use what we learned from this unprecedented worldwide disruption. The COVID educational experiment was not planned. But it was implemented at a scale that dwarfs virtually all other educational interventions. In this chapter, we describe and critically examine the forced changes that have come to the education sector in light of their impacts and implications for the future of K-12 education. Drawing on a broad set of studies from researchers, governments, think tanks, news organizations, and teachers’ associations, we suggest important lessons for public schooling in Canada and the opportunities that this moment presents. Most importantly, we consider what the pandemic has revealed about what truly matters for students, teachers, and communities, and why. Using what we have learned about education during this time of unprecedented disruption, we put forward seven recommendations that, in the short term, will make recovery possible, and, in the long term, make teaching and learning more effective, equitable, inclusive, and humane.

(1) Teach content, not coverage

Because of the COVID-19 pandemic, countless children may have missed some lessons about ancient lands situated between the Euphrates and Tigris rivers or the functions of some of the structures that make up cells. Others may have missed the opportunity to read the allegorical novel *The Alchemist* or factor certain complex polynomials. As a result, many may be asking whether students should attend summer school to learn these missed topics, or whether parents should school their children to fill in the gaps, or if teachers should double up on the curriculum for next year in a rush to cover the material students missed last year? Mostly, the answer to those questions is: no. Few adults (whose professions do not require specialized knowledge of ancient cultures or biology) know when the Assyrian empire’s reign over Mesopotamia ended or the roles that chloroplasts, vacuole, or mitochondria play in the basic functioning of cells. And even fewer face social, civic, or career setbacks as a result.

For more than three decades, the school curriculum has become increasingly consumed with all the things students should know before they graduate. That has resulted in an unhealthy fixation with micro-managing teachers’ work to ensure the right information is taught and with standardized testing to find out if they are succeeding. Yet research in teaching and child development tells us that learning how to think analytically is much more important than cramming in material that students will not remember weeks or years later (Kammerer et al., 2021; Kohnen & Mertens, 2019; Kuhn & Pease, 2008; Rouet, 2006). We live in an age of instantly accessible information in an infinite number of domains. Living well in the 21st century does not require more information but

rather the knowledge and skills needed to sift, understand, and assess the quality of information. Teaching content matters but covering every possible historical event and scientific or mathematical concept does not (for example, see Mant & Cutrura, 2021 on “curatorial thinking” or Kohn, 2004 on rethinking what it means to be well-educated). *The Alchemist* is an excellent and valuable book and many students learn valuable ways of thinking about the world from reading it. Yet others gain new perspectives from reading Khaled Hosseini’s *The Kite Runner* or Yann Martel’s *Life of Pi*. What matters is finding topics of local interest to both teachers and students, making the time to explore those topics in depth, and facilitating connections between subject matter and the outside world.

This is not a new idea. “Less is more” has been a common aphorism in curriculum development for more than thirty years (see, for example, Sizer’s 1984 text, *Horace’s Compromise*). Critics of a “less is more” approach point to the importance of cultural literacy and of scaffolding knowledge in the learning process (Gibb, 2017; Hirsch, 1983; Walberg & Meyer, 2004). Yet studies that seek to demonstrate the importance of coverage in the curriculum mostly use standardized measures of knowledge attainment to prove their point. This tautological approach fails to consider the shortcomings of a mile-wide-inch-deep approach (Kohn, 2004; Westheimer, 2004).

Provincial curriculum standards (the documents that outline what teachers must teach and evaluate) establish a common framework for instructional planning. But exploring in-depth topics of interest, learning to critically assess sources of information and solve complex problems using a range of disciplinary literacies is more important than covering the entire prescribed curriculum (Braasch, et al., 2018). The harms wrought by trying to meet curricular standards bursting at the seams were well documented before the pandemic (Au, 2016; Gardner, 2011; Kempf, 2011; Kohn, 1999). But during this past year and a half of historic disruption, as teachers and school boards across the country were forced to recognize the impossibility of covering the entire prescribed curriculum, the very idea of breadth versus depth came under increased scrutiny. Maryellen Weimer, in her book *Learner-Centered Teaching* (2002), notes that even the metaphor of coverage is flawed:

What exactly does the metaphor mean? We ‘cover’ content—like leaves on the forest floor? Like a bedspread covering the bed? Is that the relationship that ought to exist between the teacher and content when the goal is learning? (p. 46).

Demands on teachers to meet endlessly expanding content goals “inhibits involvement in and control over longer-term planning and fosters dependency on externally produced materials and expertise” (Hargreaves, 2000, p. 88). Such dependencies may benefit textbook and technology companies, but reduces teachers’ control over the curriculum, undermines their professional judgment, and limits student engagement.

Like most educators, we have nothing against learning factual content. But true learning requires more than students who are fact full. Being well-educated requires learning to think analytically, to critically evaluate multimodal information sources, and to leverage multiple frameworks for sensemaking in complex, globally networked digital cultures. These are all much more important today than cramming in material that students will not remember weeks or years later.

Coverage is an outmoded way to think about knowledge. As schools continue to adapt to the post-pandemic educational landscape, policymakers must recognize what teachers and the broader public already know: A deep-dive into a topic of great interest is worth more than a stress-filled endurance swim in the shallows.

Accordingly, we urge educators and policymakers to: (1) reduce “coverage” demands and revise curricular expectations accordingly so that students and teachers have time to focus on areas of mutual interest and study them in depth; (2) emphasize critical thinking, deep learning strategies, and dispositions that matter; and (3) give teachers autonomy to make curricular decisions in the best interests of students and their families.



(2) Focus on learning gained, not learning lost

Let us start with the obvious. Reports of research from around the world show that on balance, the COVID generation is not performing as well on standardized assessments of progress as previous cohorts of children at the same stage in their schooling (Davies & Aurini, 2021; Engzell, et al. 2021; Fry & Lei, 2020; Hanushek & Woessmann, 2020; Harris-Harb & Diamond, 2020; Jehangir Khan & Amed, 2021; Tomasik, et al., 2020). Framed by the notion of “learning loss” these studies provide important indicators of the impacts of interruptions to schooling caused by the pandemic and the heart-wrenching

circumstances that this global public health crisis has created for children, families, communities, and schools. At the same time, it is not hard to predict that having missed up to 60 percent or more of learning time between 2020 and 2021 (UNESCO, 2021; Wong, 2021), students’ scores on standardized measures of academic progress might decline.

The language of “loss” is challenging because falling “behind” or being “ahead” requires benchmarks that determine typical progression. In the wake of a global pandemic, those benchmarks may be best arbitrary and at worst injurious. Falling behind what? Behind whom? As we detailed in the previous section, covering every lesson in an entire prescribed curriculum is a predictor of neither future success nor future well-being even when everyone else is covering that material.¹ The unprecedented interruption in schooling wrought by the pandemic affected the learning progress of children, youth, and young adults across the globe. Rather than focusing on learning loss per se, it would be better to focus instead on experiences and learning opportunities that students gained during a time that the world was turned upside-down. Rachael Gabriel, associate professor of literacy education at the University of Connecticut, is one of an increasing number of educators and psychologists making the case that students were actually learning when schools closed. She argues that there is, in fact, no such thing as learning loss. What is lost is “a previously imagined trajectory leading to a previously imagined future” (Gabriel, 2020):

Students are learning how to reset the rhythms and structures of their days. They are learning different patterns and modes of communication. They may be taking on different roles in

¹ Given our focus on the Canadian context in this review, it is beyond our scope to synthesize the devastating impacts of COVID on education globally, and particularly in the Global South, where research by organizations such as PLAN International, the Malala Fund, the UN and UNICEF have identified that millions of students and girls, in particular, will never return to school after the pandemic. This will likely have a long-term, intergenerational impact on the health and economic recovery of many individuals, families, and nations globally. We strongly encourage a global commitment to the recommendations outlined by experts focused on recovery for the world’s most vulnerable students (Harris-Harb & Diamond, 2020; Fry & Lei, 2020).

their homes and learning how to complete new tasks, engage in new games and develop or sustain new and different activities. Some are learning from the outdoor world on walks that go slower and last longer than before. Others are watching nature change day-by-day out their window, in their gardens, and along trails and bodies of water. Some are spending more time in their imaginations because it's the only place to go, but this is not unimportant work (Gabriel, 2020, para. 8).

Valerie Strauss (2021, para. 1), writing in *The Washington Post* reinforces the importance of recognizing significant learning gains:

Students continue to learn about themselves and school when we tell them that their efforts to engage with school this year were simply not enough. They learn about inequality when they see some districts open in person and others not, some people vaccinated and others not. They learn that the world still assumes all children live with their parents, and that it is safe to do so. They learned to take gym class on YouTube, that people you have never met can be your greatest teachers, that the ability to go outside and play during the day makes every day brighter, and that their safety depends on the decisions of others.

The experiences we have all had during the pandemic have not necessarily been positive ones, but all of us, including children, learned from them.² It is beyond the scope of this report to make specific recommendations for individual teachers (many teachers are focusing on time children spent with family, cooking experiences, outdoor experiences, following the news, learning about global health crises more broadly, experiences of fear or trauma, and so on). But we can note that focusing on learning loss can accentuate the negative and distract from those experiences that can be mined for positive development in school (Berger, 2021; Eweing, 2020; Goldstein, 2021).

For certain basic skills such as numeracy or literacy, the language of learning loss is an understandable way of expressing concern over an achievement gap between high and low achieving students. Many low achieving children have been historically and systemically marginalized by schools at the same time that they have been affected disproportionately by COVID-19 (James, 2021; Jean-Pierre & Collins, 2021; Public Health Ontario, 2020). Davies and Aurini (2021) estimate that if standardized testing had been conducted during the pandemic, the learning gap (as measured by those tests) between students at the lower and upper quartiles might have increased between 6 and 20 months. Since students are likely to be evaluated in the future using similar assessments and since those evaluations continue to be used to sort students in ways that will affect their futures, concern over these gaps are wholly justified.

The discourse of loss (vs. gains) which includes the analogous notion of falling behind (vs. getting ahead), however, keeps us mired in a curriculum of accountability that ranks and measures students' worth as learners and future earners (Hanushek & Woessmann, 2020; McKinney de Royston & Vossoughi, 2021) using blunt instruments that tell us what we already know—that children living in and with the complex stresses and circumstances of poverty, racism, homelessness, incarceration, trauma, cultural transitions and/or the historic legacies of colonialism perform less well on these measures than children who feel safer, are wealthier, are better resourced and feel more connected to, and valued by, their communities (Ladson-Billings, 2006, 2021; Paris, 2012).

² See also Ioana Literat's (2021) study of the ways youth created thoughtful, informed, and reflective content on TikTok about their experiences of schooling and life during the pandemic.

The COVID generation already feels how much they have lost, and the most vulnerable among them, as examined closely by others in this report, have suffered the most. Children and youth have lost family members and friends. They have lost connections to communities. They have lost out on extra-curricular activities and important coming-of-age celebrations and their mental health has suffered. When we use the metrics of learning loss, many BIPOC youth, who have been historically and systemically kept out of the merit-based measures of schooling, but who have lived through a generational catastrophe (UNESCO, 2021) will, unhelpfully, be seen as “underperforming,” “behind” or “delayed” (see also Henry et al., 2021 on COVID and its impacts on racialized communities in Canada).

Every school-aged child has suffered, but educators have an opportunity to focus expectations on the learning goals that matter, to revise approaches to assessment in ways that are more connected to and supportive of learning (see below), and to reject economic models of gains and loss that reflect a market logic, rather than a human one. Rather than using labels that reinforce deficit ideologies and fail to accord with research on the relative importance of content over coverage, we can use words that focus on gains, assets, promise, and knowledge and experiences (both good and bad) gained. We urge educators and policymakers to: (1) minimize the language of learning loss; (2) refrain from comparing this “COVID” cohort to other cohorts of children; and (3) provide adequate resources to underserved communities to help close the achievement gap where needed.

(3) Reduce inequality

The COVID-19 pandemic has functioned like an x-ray, revealing already existing fault lines in our nation and the world: poverty and economic inequality, hunger and homelessness, racial and ethnic bias, unequal access to high-speed internet and computers, and inadequate resources for those most in need. None of these are new challenges, but they are newly spotlighted for all to see—“pinned” in the vernacular of the now ubiquitous video conferencing platforms, impossible to ignore. Online learning meant that educators were transported into students’ homes making them difficult to ignore. Some students had parents nearby with resources and enough education to demand their kids follow the curriculum, maybe even get ahead. Other parents were front-line workers, or holding down two jobs, or working at home with little time for other activities. Some students shared their computers or their rooms with siblings while others had quiet and spacious work areas. Some students were homeless or had no access to computers at all. And many students were unaccounted for during the pandemic (Wong, 2021).

Schooling has long been seen as a key lever for effecting socio-economic change and for ameliorating poverty and economic inequality (Hochschild & Scovronick, 2003). But the past year and a half has also elevated the possibility of policy choices that could further that increasingly urgent goal since wealth inequality in Canada has been rising at alarming rates (Freeland, 2012; Osberg, 2018). According to a report by the Parliamentary Budget Office (2020), the top 1 percent of earners in Canada now own about the same amount of wealth as the bottom 80 percent (25.6 percent and 26.5 percent, respectively). In 2019 alone, Canadian billionaires increased their wealth by \$20 billion at the same time that the wealth held by the poorest half of Canadians decreased or remained static (Oxfam, 2019).

These vast gaps in wealth have enormous consequences for people’s lives. Nations with greater levels of income inequality have higher incidence of mental health problems, stress, shorter life

expectancies and other indicators of well-being than economically egalitarian nations (Wilkinson & Pickett, 2010). In his 2017 book, *The Broken Ladder: How Inequality Affects How We Think, Live And Die*, social psychologist Keith Payne details the ways in which inequality now predicts outcomes previously associated only with poverty, including lower life expectancies, higher infant mortality rates, and higher rates of obesity.

Inequality can also lead to ineffective public policy and growing political inequality. For example, Nobel laureate Joseph Stiglitz (2012) argues that high levels of economic inequality create a collective action problem—the richest have little short-term incentive to invest in public infrastructure that would yield substantial collective returns over the longer term. In Canada, the Canadian Centre for Policy Alternatives (Block et al., 2019) points to legislative changes to Old Age Security (OAS) and Employment Insurance (EI) as evidence of disproportionate influence of corporations and the wealthiest citizens on the legislative process. Discredited economic austerity policies are another example of policies that contribute to greater inequality at the same time they are mobilized to target education funding (Giles, 2020; Hargreaves, 2021; Krugman, 2015; Leonard, 2015; Westheimer, 2018). Because greater inequality is associated with lower earnings, the gap between the politically influential and the politically invisible is reinforced in a vicious circle of escalating inequality.

When considered one by one, each category of negative impact described above can be ruinous to individuals and families. Yet for those most affected by economic inequality, these impacts frequently combine: poverty is tied to poor health; poorer health is tied to an inability to earn a livable wage which both limits access to food and shelter and diminishes political voice and access to power; at the same time, inadequate political voice leads to diminishing access to basic human services such as food, and shelter.

Most importantly for this report, inequality also undermines the work educators do. A robust body of research has illuminated the ways inequality shapes young people's learning opportunities, development, and educational achievement (Ali, 2021; Black & MacKinnon, 2012; Duncan & Murnane 2011; García & Weiss, 2017).

The good news is that economic inequality can be ameliorated through public policy intervention. As Christopher Jencks (2002) notes, social scientists may differ on what policies are needed to reduce economic inequality, but there is a broad consensus that policy matters. Timothy Smeeding (2005) demonstrates this point by comparing pre-tax and after-tax inequality across a wide range of countries; he finds that tax policies in some countries dramatically reduce the level of inequality produced by the market. That economic inequality is not an inevitable result of market forces, speaks both to the power of public policy and to the importance of civic action that produces these policies.

Issues that surround economic inequality and efforts to address it can also be actively taught in schools, and there is evidence that doing so can help to reduce its negative impact in both the short and longer term (Mistry et al., 2017; Oxfam, 2019; Rogers & Westheimer, 2017; Westheimer, 2020, 2021). Furthermore, resources for doing so are plentiful (see, for example: Educators for Social Change, 2021; Facing History and Ourselves, 2021; Greenstein, 2019; Kohl, 2012; OSSTF, 2021). Schools cannot solve all of society's problems, but they are a place where problems can be acknowledged. Most importantly, we must ensure that schools do not magnify existing inequalities, and that curriculum and assessment actively draw on, and reward, diverse

backgrounds and experiences. In attending to post-pandemic schooling, therefore, we urge educators and policymakers to: (1) adopt social and economic policies that reduce inequality; (2) reject policies such as economic austerity measures that have been shown to increase inequality; (3) implement curricular changes that consider the reality of inequality and its impact on students and their families and that teach students about economic inequality and efforts to ameliorate it.

(4) Teach digital literacies

The emergency pivot to online instruction in the spring of 2020, followed by waves of on-again/off-again remote learning as health authorities worked to control the spread of the virus and its variants over time, showed us that when school *becomes* the digital network, teachers and students need to know how to *make meaning* with, through, and in relation to the digital network (Hartman et al., 2018). We learned that digital skills such as typing, and knowing how to mute and unmute oneself during synchronous video conferencing meetings are essential, but that complex academic activities that involve planning, problem-solving and collaboration require deep understandings of digital systems and how they work, of the social practices associated with particular tools and platforms, and of the ways that these technical and sociotechnical systems determine the meanings we can both express and receive. On balance, educational systems in Canada were not prepared for the scale of this disruption or to support the deeper digital literacy needs of its front-line educators and students (Statistics Canada, 2020).

In one survey of teachers in Quebec (n=2628) conducted during the pandemic (Quebec Professional Association of Teachers, 2020), nearly one in five participants (18.65%) rated their ability to use information technologies for remote learning as “below average”. And yet, close to 30% of respondents also noted that they received zero hours of instruction on the use of the digital technologies they needed for remote teaching. Even worse, more than half of teachers in this survey (58.46%) reported receiving zero hours of training in the complex thinking required to plan for and teach using digital tools. This, despite evidence, gathered over many years, that to use digital tools strategically and in ways that support student learning, teachers need many opportunities to learn their technological and the pedagogical affordances with guided supports (e.g., Morsink et al., 2011; Mueller et al., 2008; Mouza, 2009).

It did not need to be like this.

For more than twenty-five years, digital literacies scholars and media literacy organizations such as Media Smarts, Canada’s Center for Media and Digital Literacy have been calling for K-12 curricula to include expanded definitions of literacy, and expanded sets of developmentally appropriate expectations that inscribe, as policy, the need to teach online reading and research, digital writing and composition, and digital participation practices (Leu & Kinzer, 2000; Leu, et al., 2013; MediaSmarts, 2019; New London Group, 1996; Turner et al., 2017). Others have called for the inclusion of digital literacies teaching practices as essential to the training of pre-service teachers entering the profession in a digital age (Baroud, 2020; Coiro, 2011; Hagerman & Coleman, 2017; Spires et al., 2012; Watt, 2019). Built on the technology of the book rather than the networked computer, however, K-12 schools and teacher education programs in Canada have struggled to settle on the place of digital texts and digital social practices in the curricular policies that frame what gets taught and how.

Often, as Pangrazio (2019) writes, digital literacies instruction in K-12 schools stops at cybersafety programs (p. 130). Pre-pandemic, opportunities for students to critique digital systems or to

practice using digital tools for diverse academic purposes with expert teacher support were more the exception than the rule in Canada (e.g., Hagerman, 2017; Lemieux & Rowsell, 2019). This curricular gap may be explained by the tendency in Canadian curricula to “go back to basics and to adopt more monomodal approaches to literacy with an overlay of twenty-first century ideologies” a move that McLean and Rowsell (2020) describe as putting “old wine in new bottles” (p.



179). So, although the use of digital technologies to support student learning was recommended by all provinces and territories before the emergency pivot to remote learning in 2020 (Hoechsmann & Dewaard, 2015), McLean and Rowsell also note that usually, digital literacies frameworks have been introduced as part of the models that frame subject-specific curriculum documents (e.g., Ontario, Newfoundland), or situated as supplements to the stated expectations for teaching and learning in the disciplines (e.g., British Columbia, Manitoba). The upshot of this approach means that digital technologies have been used in ad hoc ways that have likely exacerbated inequalities in digital literacies development across Canada (McLean & Rowsell, 2020; Hadziristic, 2018). Policy makers in every province and territory should, at this moment, be questioning the extent to which their digital literacies curricula as written did or did not prepare learners to think with, through and in relation to digital tools and systems on the scale required of them in 2020-2021. As one grade 4 teacher from Eastern Ontario expressed during an interview in May of 2020 about her digital literacies teaching practices and her students’ digital literacies learning needs,

...we make a lot of assumptions that kids know how to use tools and, you know, you’re a teacher and I’m a teacher [...] my best friend is a high school teacher and she has very similar complaints as I do. So we make assumptions that kids know—they *don’t* know. They actually should be explicitly taught technology courses. You know? What’s the expression—when people can, they will. *Kids don’t know how to do it.*” (Hagerman, Woods, Neisary & Cotnam-Kappel, 2021)

In the Canadian context, where digital literacies were situated as ancillary to more important priorities in school, it may have been easy to justify the assumptions about digital literacies learning that this Ontario teacher calls out. If we believed that students were developing digital literacies on their own, at home, or that they were somehow born just knowing how to use digital tools because they were born into digitally networked societies (see influential arguments by Prensky, 2001 and Tapscott, 1998), perhaps it was easier to ignore the digital inequalities that these assumptions served to overshadow, perpetuate, and exacerbate in the lives of students as well.

We cannot overstate the importance of a new approach to digital literacies curriculum in schools. The Organisation for Economic Co-operation and Development (OECD) has published data showing that globally, adults with better literacies, numeracies and information and communication technology (ICT) skills also tend to have better lifetime economic, social and health outcomes (OECD, 2016, pp.119-123). Unfortunately, however, research has continually demonstrated that

access to the Internet and opportunities to develop digital literacies skills and confidence in one's ability to participate online for a range of personal, professional, and academic purposes are not available to everyone (Hargittai, 2002; Hargittai, 2010; Stern, 2010). Studies conducted in Canada and around the world have clearly shown that before the pandemic, youth had varied levels of access to high-speed Internet, and varied access to digital tools and digital learning experiences in their homes and at school (van Deursen & van Dijk, 2018; Hargittai & Hinnant, 2008; Gallagher et al., 2019). Educators also knew that access and skills divides tended to fall along the lines of family income (Haight, et al., 2014), parents' educational levels (Livingstone et al., 2015), immigration status (Gallagher et al., 2019), and that these divides intersect with disability (Lussier-Desrochers et al., 2017), race (Hargittai, 2010), status as an Indigenous person living in Canada (Fiser, 2010; McMahan, 2014), and whether a person lives in an urban or a rural/remote community (Howard et al., 2010).

Before COVID-19 forced unprecedented digital schooling, it was understood that students who had had more, and more varied access to a broader range of digital tools over time, also tended to be better able to find and critically evaluate online information (e.g., Howard et al., 2010; Leu et al., 2014) and solve a range of digital dilemmas while navigating the Internet (Livingstone et al., 2018). These findings suggest that students who most needed systems of public schooling to support their digital literacies learning before the pandemic because they did not have access to as many devices or to as many opportunities to solve digital problems with guided supports at home, were at a distinct disadvantage when schooling went digital in the spring of 2020. Moreover, in light of digital divides research, it seems that the assumptions named by the Grade 4 teacher in Ontario may reflect the digital privileges that wealthier, whiter, more urban/suburban and highly educated families have been able to provide to their children. We assert that when curricula-as-written situate digital literacies teaching and learning as supplemental, these documents tacitly perpetuate and exacerbate very real digital divides along social, economic, and racialized lines in Canada.

So where do we go from here? Without question, there is a need for a national digital literacy strategy that includes "multiple academic, pedagogic and cultural lenses across Canada" (McLean & Rowsell, 2020, p. 191) and that centralizes equitable access to connectivity, to skills development, and to the learning of critical dispositions that enable people to participate in digital cultures with confidence and agency for personal, academic, economic, and professional purposes. As Brisson-Boivin and MacAleese (2021) write, "digital literacy is a fundamental right of all technology users" in part, because it is "a tool necessary for education, employment and economic participation, civic engagement, social inclusion, safety, empowerment, and health and wellness" (para. 13). Again, we need to re-write our K-12 curricula so that when they are lived in schools, all students benefit.

There is significant work to be done on this issue, however. Presently, there is little consensus across provincial and territorial systems of K-12 schooling about what digital literacies are (Hadziristic, 2018), which skills, strategies, and dispositions to prioritize, or how to evaluate digital literacies learning. This year of pandemic schooling has, however, enabled educators to gain new insights into what children at every level of K-12 schooling can do, like to do, and could possibly do, with support, in digitally networked environments. This is an opportunity. There has never been a more important time to mobilize a uniquely situated, Canadian definition for digital literacies that centralizes the strengths, the needs, the voices and perspectives of the students, families,

and front-line educators who have been most impacted by COVID-19, and who have engaged most deeply with the implications of digital networks as contexts for teaching, learning, and meaning making. This new definition, carefully constructed through broad consultation, would offer a new foundation for urgently needed revision to curricula and stand as evidence of our collective commitment to ensure that every student attending publicly funded schools in Canada will have material access and opportunities to develop all of the skills, strategies and dispositions they will need to thrive in this digital age. We urge policy makers to: (1) invest immediately in universal high-speed Internet access for everyone (see also Whitley et al., 2021); (2) convene a national roundtable of educators, community-members and researchers who can develop a multidimensional Canadian definition of digital literacies that reflects our diverse linguistic, cultural, and regional strengths; and (3) make digital literacies an integral part of every curriculum document at every grade level with clear expectations for teaching and assessment for learning.

(5) End over-testing

One of the most impactful changes to education wrought by the pandemic was the sudden and universal cancellation of standardized tests. Among school leaders, teachers, parents, and students, they were not missed. For decades, researchers, teachers' associations, and education advocates have been warning that standardized tests tend to correlate strongly with measures of family income and wealth (Au, 2016; Campbell et al., 2018; Dixon-Román, 2017; Kohn, 2000). Their results are often misused to rank schools, teachers, and students. And they have a tendency to narrow the curriculum to only the subjects measured by the tests thereby reducing or eliminating the pursuit of other important educational outcomes such as well-being, creativity, critical thinking, citizenship, and happiness (Brady, 2017; Kohn, 2015; Westheimer, 2015a).

Standardized tests are also subject to racial, class, and gender bias. For example, schools have long been criticized for not serving Black, Indigenous, and Persons of Colour in North America (Au, 2016; Hamilton-Hinch et al., 2021; Pashby, et al., 2014), in part, because the instruments used have been designed not to (Shahjahan, 2011; Urban, 2019). Rooted in ideas of meritocracy, these systems of evaluation overlook BIPOC students' social, cultural, and linguistic strengths and traditions, and ignore the ways that "merit" stands as a proxy for affluence, class, belonging, and all that these systemic advantages afford to those born into them (Au, 2016).

In Ontario, for example, research reveals that, on average, every \$10,000 increase in median family income results in a two per cent increase in a school's grade 6 scores on the mathematics portion of the standardized EQAO tests (Cooper, 2018). In Toronto, where income inequality is highest, high-scoring elementary schools are remarkably concentrated in high income neighbourhoods while low-scoring schools are found almost exclusively in low-income areas (Alphonso & Grant, 2013).

Curricular approaches driven by standardized testing tends to spoon-feed students to succeed on narrow academic measures and reduce a focus on broader critical thinking skills. What they learn tends to follow prescriptive formulas that match the standardized tests. In the process, more complex and difficult-to-measure learning outcomes get left behind (Kohn, 2015; Westheimer, 2015b). These include creativity and emotional and social development but also the kinds of thinking skills associated with robust civic engagement. When education reforms turn away from an emphasis on supporting positive conditions of practice and move toward technocratic strategies for "compliance," the profession suffers and so do students. The increasing pressures of

standardized testing on the curriculum have led numerous professional bodies to raise warnings. Midway through the current increase in standardized testing across the country, the Canadian Association of Principals went to the unusual step of issuing a “statement of concern” regarding student testing and its impact on thinking and learning. School-based administrators throughout Canada, they wrote, “are increasingly concerned that current policies and practices on student testing are leading to . . . a secretive or unintended shift of priorities to focus on a narrow range of student knowledge and literacy/numeracy skills” (2007).

Perhaps the most troubling outcome of a fixation on standardized measures of academic success is the toll on teachers and students’ mental health and relationship to schooling overall. As Valerie Strauss (2021, para. 12) from the Washington Post writes:

The legacy of the standards movement of the 1990s, and the high-stakes testing it inspired in the early 2000s, is a version of education that is assumed not to exist or matter unless or until it is predicted and measured. The pandemic has illustrated with searing definition how wrong that assumption is.

We are not calling for eliminating all standardized testing in the long term. But we urge policymakers to use sample testing (testing some children some of the time) rather than census testing (testing all children all of the time), consider suspending the tests altogether until 2022, and listen to teachers and students when considering the deleterious impact of over-testing on the curriculum, the learning process, and on the mental health and well-being of students.

The last 25 years has seen children over-tested and put under undue pressure to achieve more and more and play less and less. The result? Too many children and young adults who are stressed out, medicated, alienated, and depressed (Abeles, 2015; American Psychological Association, 2014; Dean, 2019; Flannery, 2018; Kohn, 2015; Paul, 2013; Phillip, et al., 2017; Pope et al., 2015; Segool et al., 2013; Strauss, 2017; Westheimer, 2015a). We have allowed a testing industry to dictate the contents of the curriculum. We have ignored teachers’ knowledge of individual students while standardizing delivery models of teaching and learning. We thus, urge policy makers to: (1) suspend standardized testing entirely until the pandemic is over; (2) re-design evaluations after a period of inclusive stakeholder consultation, and (3) use sample testing rather than census testing.

(6) Build relationships first, irrespective of the modality of instruction

Online learning, like schooling generally, depends on the broader context in which the student and the learning activities are situated. Technology-mediated learning has been a fixture of the Canadian K-12 educational landscape for decades (Barbour, 2008; Barbour et al., 2020). Studies have shown that fully online courses can meet the needs of some learners when they are well designed, when teachers are highly trained, and when students receive strong mentorship from dedicated educational professionals (Liu & Cavanaugh, 2011; Zheng, et al., 2020). Perhaps most importantly, though, online learning works best when it supports what Borup et al. (2013) describe as “technology-mediated caring” a term inspired by Noddings’ (2008, 2012) ethic of care in teaching. When online courses include intentional modelling, social dialogue, conversations that confirm and affirm students’ learning over time, one-on-one tutoring, and opportunities to practice with guided support, students and their teachers can thrive.

Teaching is first and foremost about relationships. The most important relationships are between and among teachers and students. These relationships are not easily replaced with technological

solutions. So, technological innovation must be guided by pedagogical expertise. Digital technology can support, strengthen, and further stimulate the great teaching and learning that is embedded in strong and caring relationships, in understanding how young people think and learn, and in connecting students' learning to the wider world. Technology can enrich good practice, but cannot substitute for the art, science, and craft of inspiring and effective teaching. As we consider the place of online schooling in the post-pandemic educational landscape, we must carefully consider the costs to student well-being, the communities in which the students live, and the relationships so important for healthy development.

Barbour and Labonte (2019) suggest that online learning can be effective when the right conditions are set. Importantly, however, online learning, like schooling generally, is influenced by the broader context in which the student and the learning activities are situated and on the capacity of the online learning system to ensure an ethic of care is both possible and present. The emergency pivot to unprecedented, at-scale, online learning for students across Canada created an entirely new context defined by crisis. And in crisis, we learned that online schooling is not an appropriate replacement for in-person school. During the pandemic, online learning may have created significant and enduring mental health impacts for children and teens (Magson et al., 2021; Newkirk, 2020). It also affected their teachers, who reported feeling stressed, overworked and drained of energy (BC Teachers' Federation, 2020).

Whether working online or in face-to-face classrooms, teachers themselves need to be supported by systems that recognize and mitigate the stresses of the emotional labour they do (Hargreaves, 1998; Koenig, et al., 2018). Even before the pandemic, teachers were at risk of burnout, compassion fatigue, and low levels of job satisfaction owing, in part, to classroom overload (Fernet et al., 2012), and stresses related to having many students with complex needs but not enough time, support, or resources to meet students' needs effectively (Johnson et al., 2012; Kidger et al., 2016; Koenig et al., 2018; Williams et al., 2019). These feelings are associated with teacher attrition and reduce teachers' capacity to create and even engage in the fundamental practice of care that students need for learning (Johnson et al., 2012). Evidence gathered in Canada and around the world suggest that teacher stresses have only been exaggerated during the pandemic (BC Teachers' Federation, 2020; Kaufman et al., 2020; Rabaglietti et al., 2021).

Although more research is urgently needed to understand the interactions of student and teacher mental health and online learning as mandated and delivered across jurisdictions in Canada, it is important to underline that the decision to move schooling online was not only a disruption to content-oriented learning; it was a profound disruption to the ethic of care that undergirds teaching and learning (Noddings, 2008; 2012). Recovery will require time for the rebuilding of trust and connection.

Many students living in rural and remote communities, for example, were left out of school altogether because the Internet does not yet reach their homes. Still others could not afford it, even though the infrastructure did exist in their neighbourhoods (Innovation, Science and Economic Development Canada, 2021). Plus, even for students and teachers who were able to connect via video-conferencing and asynchronous approaches, their interactions often seemed lacking. On balance, systems of schooling were not adequately prepared to provide the connection-focused learning experiences that can reduce the psychological impacts of the physical distance online learning introduces (Bonk, 2020).

During the pandemic, regular engagement with teachers and peers through remote learning provided some level of continuity for children and youth. However, compromised these connections were when compared with face-to-face schooling, some connection was better than none for most students. Moreover, some students reported a preference for fully online school because they could work at their own pace. Others preferred it because online school reduced feelings of social anxiety and protected them from negative social interactions such as bullying (Atter, 2021). Conversely, phases of fully online school, paired with versions of cohorted, quadmestered, in-school classes that limited contacts and required social distancing, were miserable for others (Ng & Badets, 2020). The version of online learning experienced by the COVID-19 generation was lived in crisis. This matters both in terms of what we can learn from their experiences, but also in terms of how we think about the design of online learning programs in the future for all stakeholders.

Despite our concerns, we recognize that online learning may continue to be an option for some students across Canada after the pandemic subsides. Any version of online learning that evolves to meet the post-pandemic learning needs of Canadian students must acknowledge its limitations. Already, the United Nations Educational Scientific and Cultural Organization (UNESCO) (2021) is warning of a generational catastrophe if we do not act now to prioritize the social, emotional, and relational learning needs of school-aged children and teens. Anyone involved with online learning at this moment must critically examine how this pandemic time has impacted young people as a precursor to any future design work.

New research is needed to understand the best way forward for students and teachers online. Good online pedagogy always centred relationships and social presence (Borup et al., 2013; Garrison, et al., 2000; Heintz et al., 2017); post-pandemic, we will need new research focused on building productive, pandemic-informed social supports in K-12 online learning environments. To this end, it will be essential to develop and study new models of locally developed online learning programs for K-12 students that begin with a careful analysis of their collective experiences during the pandemic. Too often, online learning is viewed as curriculum delivery or as a method to provide academic content without the “costly” expense of teachers. This view was always faulty but post-pandemic, any continued belief that K-12 students can truly learn in the absence of systems of human support is, to be blunt, negligent.

Many of the lessons learned during the pandemic about the importance of relationships for the learning process have policy implications beyond online learning. The role of relationships in teaching and learning has been central to educational research long before the pandemic, offering important evidence of the conditions that enable relationships to flourish. For example, while public health reports now call for smaller class sizes to facilitate social distancing (CDC, 2021; Science & Bitnum, 2020), researchers have long touted positive effects from smaller classes on relationships between and among teachers and students (see, for example, Jepsen & Rivkin, 2002; Word et al., 1990). In an extensive review of the literature on class size for the Canadian Education Association, Bascia (2010) found that in smaller classes, teachers “interact with individual students more frequently” and “use a greater variety of instructional strategies” and students “learn more academically and socially [and] are more engaged and less disruptive” (4). Other reviews of the research literature have found similar benefits (OECD, 2021; ETFO, 2021).

There has never been more evidence and field expertise about what works and what does not work for Canadian children online. We must act immediately to gather the learned perspectives

of educators who have worked with children, at every age and grade level, in every province and territory, in the development of new models of online learning that are developmentally appropriate, well-resourced, and pandemic-informed. We must also include students in this work. They know what has and has not worked for them.

Most importantly, when school returns, whether on-line or in-person, we must give teachers latitude in what, how, and when to teach particular subject matter. Their primary job should be to restore a sense of safety, nurture a sense of possibility and rebuild the community lost through extended social isolation. This will require a policy focus that emphasizes relationships by reducing the number of students for which any single teacher is responsible and increasing the time teachers can spend on building connections between and among themselves and their students. These are the conditions that will enable teachers to regain a sense of efficacy and connection so that they can do the essential work of caring that will, in turn, support student learning and student health (Koenig et al., 2018).

We urge educators and policy makers to: (1) fund new research focused on the impacts of online learning during the pandemic for students in all regions of Canada; (2) Invest in online learning programs that centre mentorship, the ethic of care and connections that can sustain students and teachers, and (3) reduce class sizes.

(7) Support teaching as essential work

One important outcome of this pandemic time may be that the parents of K-12 students have rediscovered the essential work that teachers do (Asbury & Kim, 2021; Hargreaves, 2021) and have come to appreciate how much they have depended on schools to care for their children's needs (Ewing & Vu, 2021). For working parents, and Canadian mothers, in particular who have shouldered most of the responsibility for homeschooling (Leclerc, 2020), managing the complexities of remote learning, while also trying to meet their employment obligations has been stressful (Igielnik, 2021). Despite the turmoil caused by uncertainty and the constant need to juggle multiple, complex responsibilities, parents have also pushed back against proposed policy changes that could compromise the quality of instruction provided to their children in future.

For example, when the Ontario Ministry of Education announced a proposed plan to make online schools a permanent, publicly funded option with development of course materials outsourced to a single provider -- TV Ontario -- parents said no. Representatives of 76 parent involvement committees, and in support of federations representing teachers and education workers across Ontario, submitted an open letter to the Education Minister rejecting changes to public schooling that, in their words, would "undermine the integrity of our education system" and "open the door to further privatization increasing commercially packaged programs for credits that do not have the necessary pedagogical rigor". Having navigated months of online schooling with their children and their children's teachers, parents have become deeply concerned about the health impacts of too much screen time, and the pedagogical compromises that online schooling has forced on teachers.

Time and again, surveys of teachers and school leaders across Canada revealed that the models put in place to deliver online, hybrid, and hyflex models of schooling were not sustainable and took a massive toll on mental health (Kraft et al., 2020; McMillan, 2021; Wong, 2021). The hyflex model—where students attended in person part time and attended remotely at other times but were taught by the same teacher (Irvine 2020)—were particularly problematic because teachers



were essentially being asked to teach a double curriculum (Canadian Teachers' Federation, 2020; Irvine, 2020). Systems relied on the goodwill and resilience of educators to give of themselves during this time of crisis and constant change, but the longer the pandemic lasted, and the more teachers and school leaders had to continue to make do with insufficient human and technical supports through phases of in-person and at-home learning, the more exhausted they became

(Alberta Teachers' Association, 2021). As one school principal expressed in a survey conducted in November, 2020 by the Alberta Teachers Association, "The current scenario is not sustainable. We don't have enough drivers for busses, teachers for classrooms, custodians for schools, administrative assistants to answer phones. I'm exhausted and hopeless" (p. 3).

In their survey study of COVID-19 and its impacts on Canadian teachers' perceptions of change, efficacy, resilience, and burnout, Sokal et al. (2020) explain that teachers were required to modify their pedagogy very quickly within a time of uncertainty for both themselves and their students. Initial optimism was displaced by significant worry as the COVID-19 pandemic continued. Despite evidence that teachers learned a great deal about how to use digital technologies and invested significant efforts to support students during phases of remote learning, teachers reported that their "stress exceeded their coping capacity" and "demonstrated progression on the pathway to burnout" (Sokal et al., 2020, p. 7). By April, during the pandemic's third wave, 61% of Alberta teachers (n = 2822) reported feeling extremely concerned about the conditions of their professional practice with comments focused on lack of balance, control, and overwhelming workload. Half of all respondents reported feeling hopeless.

Where does this leave us? When teachers describe their pandemic working conditions as "absolutely brutal" (Alberta Teachers' Association, 2020, p. 25) and evidence from multiple sources show that teachers are stressed and exhausted, how do we move forward? How can we ensure that the next months and years of educational recovery across Canada are focused on the wellness of the people who create the learning conditions for our children? Documented teacher shortages during the pandemic (Giesbrecht, 2021; Reid & Cranston, 2021) and reports of teachers taking early retirements (Chevalier, 2020) suggest that we are heading for a major crisis in education if teachers are not recognized by policy makers as absolutely essential to pandemic recovery. Critically, policies focused on building better working conditions for teachers must immediately prioritize the interests and needs of women.

In Canada, 68% of all teachers, and 84% of kindergarten and elementary teachers are women who are also paid less than their secondary school colleagues who are disproportionately men (Statistics Canada, 2014). Women, who continue to also serve as primary caregivers, have been disproportionately affected by this pandemic in Canada (Leclerc, 2020) and, as Linda Darling-Hammond has noted, women in teaching have "long been encouraged to see themselves as

subordinate, obedient, taking orders from on-high, doing the best you can under any circumstances, whether or not the design of schools is supportive or the professional research adequately integrated” (Martin & Mulvihill, 2017, p. 78). During the pandemic, the expectation to make the best under any circumstance was extreme. Teachers were risking their lives in poorly ventilated buildings. Teachers were not prioritized for vaccination. In Manitoba, a survey conducted by the CBC (von Stackleberg, 2021) found that nearly 85% of educators (n = 833) worried they would catch COVID-19 on the job. Some educators did get sick, and some teachers died of COVID-19 (Panza-Beltrandi, 2021; CBC News, 2021; Prest, 2020; Hennessey, 2021).

The troubling lack of supports for teachers during the pandemic fundamentally undermines our capacity as a nation to rebound once the virus is better controlled. What future do we imagine for ourselves if schools are not healthy, supportive environments that center the needs of the people who work and learn inside of them? Again, Darling-Hammond reminds us, “[...] the work of teaching is the work [...] on which all others depend. It is the bulwark of our democracy and preparing teachers with the tools they need to do that job well is so critically important: it cannot be taken lightly” (Martin & Mulihvill, 2017, p.82).

We recommend forming a national roundtable, in collaboration with Teachers’ Associations and the Council of Ministers of Education, Canada (CMEC) to research and develop a comprehensive framework to improve teachers’ working conditions (cf. Reid & Cranston, 2021). Given that teachers’ working conditions are students’ learning conditions, we also assert that every child and teacher should have the opportunity to be fully vaccinated so that in-person schooling can resume, permanently (see also Comeau & Vaillancourt 2021). Urgent investments must be made in teachers, in teacher preparation, and in the physical environments and systems where teaching and learning take place. Our collective emergence from this pandemic depends on it.

Students are going to come to school in September with a wide array of needs—educational, emotional, developmental, and economic. It will take all of us working in a concerted effort to address these issues effectively and equitably. The best thing those outside of classrooms (those of us not in direct contact with students on a daily basis) can do is this: come together to create the best possible working conditions for teachers to do their job and to make decisions based on what they know to be in the best interests of their students. We urge policy makers to: (1) recognize teachers and the work they do as essential, (2) convene and implement the recommendations of a national roundtable to identify the necessary and most urgently needed changes to teachers’ working conditions which are, of course, students’ learning conditions and (3) enact policies to equalize compensation afforded to secondary teachers and elementary teachers and pursue other legislative remedies to unequal status afforded to professions that disproportionately employ women.

Conclusion

The COVID-19 pandemic caused unprecedented and global disruption to education. We will be managing the fallout of missed school and social isolation for years to come. But this is also a moment of immense opportunity to re-think our priorities for education and schooling. We can rebuild schools and classrooms using the lessons learned from the unforgettable challenges. In this chapter, we detailed the challenges and possibilities for reforming schools, curriculum, and the conditions for teaching and learning. We recommend prioritizing curricular content over coverage; focusing on learning gained, not lost; reducing inequalities that negatively impact

students, teachers, families, and communities; teaching digital literacies; curbing the unintended and deleterious effects over testing; recognizing the pivotal role relationships play in education; and better supporting teachers in their work. These seven recommendations will help stakeholders focus on areas for change that are most likely to bring about a more robust, humane, and equitable education for all Canadians.

Summary of Recommendations

1. Teach content, not coverage. Research in teaching and child development tells us that learning how to think analytically is much more important than cramming in material that students will not remember weeks or years later. Living well in the 21st century does not require more information but rather the knowledge and skills needed to sift, understand and assess the quality of information. Teaching content matters, but covering every possible historical event and scientific or mathematical concept does not.

2. Focus on learning gained, not learning lost. Falling “behind” requires benchmarks for typical academic progress (of the students who are “ahead”). But nothing is typical during a global pandemic. Schools world-wide were shuttered rendering those benchmarks arbitrary at best and injurious at worst. Educators should focus instead on the unique experiences of this cohort of students while acknowledging and seeking to remedy inequalities that led to achievement gaps in basic skills between historically marginalized and underserved students and their peers.

3. Reduce inequality. Inequality undermines the work educators do: poverty and economic inequality, hunger and homelessness, unequal access to high speed internet and computers, racial and ethnic bias, and inadequate resources for those most in need. Schools cannot solve all of society’s problems, but they are a place where we can acknowledge them. Most importantly, we must ensure that schools do not magnify existing inequalities, and that curriculum and assessment actively draw on and reward diverse backgrounds and experiences.

4. Teach digital literacies. Built on the technology of the book rather than the networked computer, schools were unprepared for the digital literacies required by teachers, school leaders, and students during the transition to hybrid and online learning. To promote digital literacies teaching, Canada must develop a national strategy centered on equitable access to connectivity, to skills development, and to the learning of critical dispositions that enable people to participate in digital cultures with confidence and agency for personal, academic, economic and professional purposes.

5. End over-testing. One of the most impactful changes to education during the pandemic was the sudden and universal cancellation of standardized tests. For decades, researchers have warned that standardized tests correlate strongly with measures of family income and wealth and that results are often misused to rank schools, teachers, and students. They also detract from important educational goals such as critical thinking, civic engagement, and well-being. We urge policymakers to use sample testing rather than census testing and to suspend the tests altogether until at least 2022 to give maximum flexibility to teachers and to relieve undue pressure on students.

6. Build relationships first, irrespective of the modality of instruction. As we consider the place of online schooling in the post-pandemic educational landscape, we must carefully consider the adverse effects on relationships so important for healthy development. Although regular online

engagement with teachers and peers were better for children and teens than nothing, we also learned the importance of face-to-face relationships. When school returns to full swing, we must give teachers latitude in what, how and when to teach particular subject matter (see #1 and #7). Their primary job should be to restore a sense of safety, nurture a sense of possibility and rebuild the community lost through extended social isolation.

7. Support teaching as essential work. The troubling lack of support for educators during the pandemic may fundamentally undermine their capacity to rebound once the pandemic is better controlled. We recommend the formation of a national roundtable in collaboration with existing federations, unions, and affiliated associations including the Council of Ministers of Education, Canada to reconsider the professional status of education and work to improve the conditions under which educators and children and youth spend their days. Teachers working conditions are students’ learning conditions.

Table 1. Initial school closures and number of K-12 students affected during first wave of COVID-19 in Canada

Province/Territory (listed alphabetically)	Date of 2020 school closure announcement	Number of students affected (2019-2020 enrollments in public schools)
Alberta	March 15	742 930
British Columbia	March 17	545 805
Manitoba	March 13	210 524
New Brunswick	March 13	98 965
Newfoundland & Labrador	March 16	63 722
Northwest Territories	March 16	8 699
Nova Scotia	March 15	123 239
Nunavut	March 16	10 653*
Ontario	March 12	2 056 058
Prince Edward Island	March 16	19 690
Quebec	March 13	944 942*
Saskatchewan	March 16	186 386
Yukon	March 18	5 607
Total		5 017 720

Note. All data are hyperlinked to source documents. According to Statistics Canada data, there were 5 675 691 students enrolled in elementary and secondary schools in Canada in 2018-2019, a figure that includes independent school enrollments, suggesting that the number of students affected by school closures may have been even higher than the sum of reported provincial enrollment numbers in this table.

*In cases where 2019-2020 enrollment data were not published on a Ministry website, data from the 2018-2019 Statistics Canada report were used.

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Chapter 7: What the COVID-19 Pandemic Has Taught Us About Teachers and Teaching
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Abstract

The COVID-19 pandemic has demonstrated that although learning can and sometimes does occur without teaching, on any significant scale, and especially among the most marginalized and vulnerable children, a lot of learning does not occur when children are deprived of teachers and teaching. Any questions of learning loss in the short term and learning transformations in the long run cannot therefore be addressed in any meaningful way without examining the short and longer-term impacts of the pandemic on losses, gains and transformations in teachers and teaching. This article analyzes actual and likely pandemic consequences of and insights deriving from remote access, digitally based interactions, and physical distancing in relation to three core characteristics of teaching and teacher quality. These are the development of *teacher expertise*; the nature of teaching as an *emotional practice* in which the well-being of students and teachers is reciprocally interrelated; and the ways in which external changes either enrich or deplete teacher's *professional capital*, especially their *social capital*. Beyond post-pandemic narratives of educational doom on the one hand, and of jubilant celebrations of bright spots, and silver linings, on the other, the article concludes that the future of teaching after COVID-19 will be complex, uncertain, and contingent on the policy decisions and professional directions that are set out in the recommendations to this report.

What the COVID-19 Pandemic Has Taught Us About Teachers and Teaching

Introduction

The greatest pandemic in over 100 years has raised many questions about its direct and indirect effects on children and young people. One of the most prominent sets of concerns has focused on learning losses. These concerns have emerged because of the fact that most of the world's children have missed at least a few weeks of regular schooling, some young people have missed an entire year or more, remote learning alternatives have often proved problematic with access to them being unequal, on-site learning with physical distancing has sometimes diminished or disrupted the regular learning experience, and millions of young people fell off the educational radar altogether, perhaps never to return, when their schools shut down (UNESCO, 2020; OECD, 2020; Vegas, 2021; Dorn et al, 2020; Balingit, 2021).

Researchers, policy makers and media analysts have claimed that these losses are resulting or will result in serious shortfalls or losses in skill and competence in literacy and mathematics, depressed test scores, widened achievement gaps, gaps in knowledge needed for access to post-secondary education and employment, loss of lifelong income, increased social inequalities, and damage to the global economy (World Bank, 2021; Economist Leader, 2020)

Various consequences and policy recommendations are arising from these concerns. These include providing summer learning programs, extra school hours, cancellation of snow days, and additional tutoring and special education support to help students catch up and close achievement gaps. In some cases, these proposed measures are being accompanied by calls to institute or reinstate standardized testing to pinpoint the extent of the shortfalls or losses, and the existence of gaps (Tucker, 2020; Finn, 2020; Washington Post Editorial Board, 2020; Jimenez, 2020).

The learning loss narrative has a number of flaws, however (Matsuda & Russell, 2021). For example, some children have actually made gains in learning by having more opportunities to learn and

play outside, by being relieved of the replacement of learning time with standardized test and high school examination preparation, and by being shielded from threats and harms such as in-person bullying or classroom disruptions that distract from academic learning (Whitley, 2020; Mintz, 2020; Doyle & Sahlberg, 2020, Christakis, 2020). Previous school closures due to natural disasters like the Christchurch, New Zealand earthquake have sometimes revealed that learning losses ultimately did not occur as expected, and indeed some gains took place instead (Hattie, 2020).

Second, learning losses and catch -up requirements are typically calculated in relation to pre-pandemic benchmarks of mainly tested literacy and mathematics that are really somewhat arbitrary norms or averages of proficiency for their time rather than absolute standards that must be retrieved at all costs.

Third, learning gaps have widened, in part, because of learning *gains* among some children and young people in more privileged or affluent families, who have gained support, encouragement and even a bit of competitive nudging from on-hand family members during virtual school (Bielski, 2020; Braff, 2020). These gains may even persist if some of these children switch to home schooling, private schools, or other locally organized and (possibly) publicly funded alternatives once the pandemic is over (Hargreaves & Fullan, 2020a).

Fourth, the narrative of lost learning also tends to focus on losses in easily tested core skills that form part of students' learning experience, but that are far from including all of it. So, while allocating more time or testing requirements after the pandemic might help identify or rectify measured losses in literacy and mathematics, for example, such measures might reinforce or even incur greater losses in other valuable aspects of learning such as deeper learning, problem-solving, social and emotional learning, learning in nature, digital proficiency, and learning to be democratic citizens (Shirley & Hargreaves, 2021; Hargreaves & Shirley, in press; Westheimer, 2021). Such a shift might then drive frustrated affluent families into private and semi-private alternatives such as online learning options, and locally organized learning pods.

There is at least one other flaw in the learning loss narrative. Within schools at least, learning losses, gains and transformations will not occur without parallel losses, gains and transformations in teachers and teaching. While a lot of the post-pandemic debate has focused on adding learning time, increasing technology use, and retaining or reintroducing testing as ways to compensate for learning loss, far less attention has been paid to the short term and long term impact of the pandemic on teachers and teaching.

COVID-19 has underlined the inalienable importance of in-person schools and their teachers for student well-being, for students who have learning difficulties or emotional challenges, and as places of care and protection while parents and other caregivers are working, or out of the home for other reasons. Teachers matter. The most significant in-school factor affecting student achievement is the quality of the teacher (Rivkin, Hanushek & Kain, 1998; Carey, 2004; Hattie, 2009). Leaving learning to the home, and cutting it adrift from qualified teachers, increases inequities, as studies of homework and learning during long summer vacations have shown (Rothstein, 2020). Independent learning is inequitable learning. It's not testing or technology that holds out the greatest chance for increasing and equalizing student achievement. It's investment in the quality or in what Michael Fullan and I have called the *professional capital* of teaching. (Hargreaves & Fullan, 2012).

Teaching Losses and Gains

Studies of and reports on high performance across different countries point to systems in East and South-East Asia, Northern Europe and also Canada that have deliberately built strong teaching professions. In these systems, teaching has high status, is well paid, is founded on rigorous processes of professional preparation, and provides positive working environments for its members who feel trusted and valued and who are actively involved in collaborative decision-making (OECD, 2011). Canada ranks among those high performing systems, with its four highest achieving provinces—Ontario, Alberta, British Columbia and Quebec—often singled out for attention (Hargreaves & Shirley, 2012; Jensen et al, 2016; Campbell, 2020).

Given this association between a strong and capable teaching profession, and effective learning outcomes, along with Canada's positioning as an international high performer, then the short and long-term effects of the pandemic on teachers and teaching are of great importance. The clear links between conditions and cultures of teaching, and the quality of student outcomes call for inquiry into how the pandemic has influenced actual and potential losses, gains and transformations in teachers and teaching.

Four pandemic changes that have affected the nature of teaching

Among the many educational changes that have occurred during the pandemic, four have had significant implications for the nature and experience of teaching and for the work that teachers do.

First, across all parts of Canada, sooner or later, children were taken out of school to experience learning, in some form or another, from home. Until COVID 19, less than 1.5% of Canadian children were home-schooled (Van Pelt, 2017). Now, practically all young people have experienced at least several weeks of learning remotely for up to a year or more. For some children, this experience was sporadic, because schools opened and closed as the virus advanced and receded in successive waves. Parents and guardians of other students took up the virtual school option for the duration of the pandemic. Even when there was in-person learning, health and safety considerations regarding social distancing, and associated space requirements, often meant that blended arrangements were introduced with students being at home and then in school on alternate days, for example.



Remote learning is not identical to virtual learning. Remote learning may occur with or without digital access. Initially, some provinces discovered that around a third of their students had no devices or internet access and had to be provided with hard copy materials instead (ASCD 2020). A lot of digitally based learning can and does also occur within an in-person teaching environment,

with advice and support from teachers on how to access and process knowledge, information, and learning tasks. By contrast, digital learning in a remote environment provides uneven and uncertain levels of support from teachers, tutors and mentors. Remote learning also presents teachers with challenges of how to maintain relationships and establish emotional connections with students, and how to sustain student engagement with learning, especially among those who are most vulnerable (Hagerman & Kellam, 2020). At the same time, where school has been an unpleasant and unrewarding experience for some students, learning away from it might actually provide relief from harms and threats (Whitley, 2020). This can then translate into increased learning and well-being.

Second, as well as learning to teach remotely, all teachers had to switch much or all of their teaching to a virtual environment—at least during the worst periods of the pandemic. This meant having to acquire or increase their own digital proficiency which ranged from mastering technical tools to developing new pedagogies such as managing group work and assessments online. It also meant developing digital proficiency with learning among their students and trying to cultivate capacities for self-direction and self-determination among these learners so they could work independently, at home, while their teachers were working with other students, or while students themselves were working on asynchronous tasks.

Third, when students could return to school under conditions of physical distancing, this, too, called for profound changes in teachers' work. These included spending time enforcing mask wearing and sanitizing procedures; teaching students who were separated from each other by distances exceeding those in regular classes—often with the additional protections of Perspex shields; trying to sustain cooperative learning activities in physically distanced environments; learning to teach outdoors more where infection was less likely to spread; and endeavouring to sustain an emotionally supportive environment when physical contact and proximity were limited (Campbell et al. 2020).

Last, teaching today is a collaborative and social profession. The work of teaching draws on the social and moral support of colleagues in the school building. It also depends increasingly on moving ideas, knowledge, and teaching practices around in professional communities and networks of shared professional learning. Remote learning has typically translated into remote teaching too. It has cut teachers off from the routine conversations and interactions, and not just meetings, that make up regular school life. Yet, teaching in a remote and virtual environment also has the potential to extend and expand teachers' collegial interactions beyond the immediate school setting, through online networks, for example.

These changes in teachers' work during COVID-19 have not only led to losses, gains and transformations during the pandemic itself. Many commentators also expect and in some cases are advocating for some of these changes to continue in some form or other once the pandemic is over. Some of this is guided by the realization that climate change may make interruptions to regular schooling incurred by pandemics or other natural disasters more likely in the future—and that more flexible and responsive systems of teaching and learning may need to be established now for when those eventualities arise (World Health Organization, 2018; International Council of Educational Advisers, 2020). But particular changes during the pandemic have also drawn people's attention to longer-term opportunities that exist. These include possible increases in rates of home-schooling among children for whom in-person schooling had previously been unfulfilling or damaging; more use of virtual and digital learning within in-person school environments; shifts to

hybrid patterns of curriculum delivery, especially among high schools students, that mix learning in school with online learning at home; more use of outdoor learning spaces both on and off the school site; and new, virtual, forms of professional collaboration with educators in other schools, and/or at more convenient and flexible times in relation to teachers' own schools too.

At the same time, threats to learning and well-being of teachers as well as students during the pandemic have reminded educators, policymakers and the whole society, about the importance of teachers and teaching. Pandemic conditions have underlined the value of teachers' earned expertise that is not readily replaced by the improvised support of parents' and families when learning takes place at home; of the importance of emotions, relationships and identity and not just cognitive learning in the work and contributions of teaching; and of the value of social relations and in-person communication and collaboration among students and among the educators who teach and support them.

The rest of this article does not evaluate the overall pros and cons of these four pandemic changes that have affected teachers work. Rather, it looks at how these changes have led and, in the future, may lead to losses, gains and transformations in three core characteristics of teaching and its work culture. These are changes in teachers' professional and especially pedagogical *expertise*, changes in the *emotional dynamics* of teaching and learning, and either increases in or depletions of the *professional capital*, and especially *social capital* in teaching that is associated with students' learning outcomes.

The paper draws on research literature on these three core aspects of teaching in relation to the findings of surveys, policy commentaries and other testimonies that were collected and reviewed, as I compiled 12 opinion articles for major public and educational outlets in three countries, in real time, during the pandemic. As the ensuing analysis unfolds, it is as well to bear in mind that among these sources, analyses, surveys and commentaries that are produced by national and international policy specialists and by major thought leaders who also act as entrepreneurs and consultants, tend to be more optimistic about bright spots, silver linings and other educationally positive implications of the pandemic, than data collected and reported by teachers' organizations about their own members' experiences and perceptions.

Teacher expertise

Public school teachers in Canada are certified professionals who develop expertise over time that enables them to make effective and informed judgments about what to teach and how to teach it, in relation to the contexts in which they work and the students they serve. Expertise is developed through formal and informal learning, experience, and practice with the assistance of colleagues who provide ideas, advice, feedback, and support, through mentoring, coaching and teamwork (Berliner, 1995; 2001).

Teaching during the coronavirus pandemic presented teachers with at least three significant requirements for and challenges to expanding and deepening their professional expertise. These were developing their own and their students' *digital competence* for learning, enabling students to become self-directed and *self-determined learners* in remote learning environments, and knowing how to teach material in *outdoor environments* of physical distancing that had not been offered in that manner before.

Teaching Digitally

There is widespread recognition that post-pandemic education will involve more arrangements that draw on digital modes of access and delivery. Post-secondary institutions are already rethinking how they can move beyond full-time, in-residence students as the norm, to offering online and part-time alternatives for a more diverse range of students (Royal Society of Canada, 2021). These include students who live in remote locations, who want to study from overseas, who come from low-income families where combining study with paid work is the only option, or who have health or disability concerns that create challenges for conventional physical access.

Some, but not all school systems are already heading in the same direction. Ontario is one of many North American systems that has signaled an intention to provide more hybrid arrangements involving digital forms of delivery, once schools are back in session full-time (Alphonso, 2021). There are undoubtedly some advantages to be gained from such developments. Children who are seriously ill may no longer need to be separated from their peers or be dependent on visiting tutors for all their learning. Transnational students who retain deep family, cultural and educational attachments to their countries of origin as well as the countries that receive them, may be able to use technology not only to stay in touch with their families, as is already commonly the case, but also to connect up the schools and teachers who serve them in their different countries (Skerrett, 2015). The same technology will make it possible to connect up these students' teachers too. Politicians, philanthropists and Big Tech lobbyists have also become enthused about a post-pandemic educational world that may transform learning far beyond the physical environment of conventional schools (Strauss, 2020).

By contrast New York City and several U.S. states have already announced that all learning from September will take place in-person, that remote learning will only be provided in special cases, or that strict limits will be placed on the availability of remote learning because of risks to the mental health of children separated from their peers, because middle class parents working from home may benefit disproportionately from these arrangements, and because staffing provisions and projections would be unreasonably complicated to manage (Shapiro, 2021). Critics are also warning that we will still need physical schools and in-person teachers to care for young people, to build community, protect democracy, ensure equity, and help young people develop senses of identity. (Hargreaves & Shirley, in press; Barnardo's, 2020; OECD, 2020)

Bearing in mind these opportunities and threats, it is nonetheless clear that whether it's in school or out, a post-pandemic educational system will expect and assume that digital proficiency is an integral part of all teachers' pedagogical repertoire.

Digital learning and digital proficiency entail much more than mastering apps and tabs. They go far beyond knowing how to use digital tools like drop-down menus, chat-boxes, breakout rooms, methods of posting completed assignments etc. In *The Digital Classroom*, Michaelsen (2021) notes that when students are literally left to their own devices, they don't learn very much, they make less progress in reading than they do in books, and they end up distracting their peers around them. After reviewing the often confusing and contradictory research on digital learning, Michaelsen concludes that digital tools "are less important for students' learning than the ways teachers are able to use these tools". Yet, until now, newly qualified teachers typically had a limited repertoire related to digitally supported teaching. The topic was also accorded minimal

attention in teacher preparation and ongoing professional learning and development, Michaelsen notes.

Digital proficiency and ability to teach online as well as in-person should now be a mandatory part of teacher preparation, and something in which all existing teachers should become fully competent within three years. Before the pandemic, the teaching profession was scarcely a body of digital dinosaurs, however. Indeed, according to a 2019 OECD report, out of 48 countries and other systems, about a third indicated that 60% or more of teachers already allowed students to use digital technology for their projects (OECD, 2019). In Alberta's case, almost two thirds of students used technology in this way—placing it in the top 10 systems in the world.

Teachers' organizations and transnational policy organizations have reported that teachers rapidly developed their digital skills when the shift to at-home schooling occurred. An Australian journalist noted how, in time, "the tech worked more smoothly, teachers became more comfortable in front of the camera, and principals incorporated parent feedback" (Black, 2020). With help, teachers started to master even some of the more daunting challenges of online remote teaching, like managing emotions and building relationships. In their guide to online teaching, for example, Hagerman and Kellam listed simple strategies like using Gifs and memes as part of providing student feedback, initiating one-to-one interactions with students, inviting students to press links or other buttons with cheeky prompts like "you know you want to", and encouraging students to contact their teachers when they had problems (Hagerman & Kellam, 2020).

Yet, as teachers' digital proficiency expanded and deepened during COVID-19, there was less evidence of discussion about the risks involved in taking a sharp digital turn. The standout exception was concern about the harm incurred by excess screen time among children. During COVID-19, this more than doubled and even tripled (McGinn, 2020). Even before the pandemic, *Nature Canada* (2018) reported that 76% of preschoolers exceeded the recommended maximum of 1-hour daily advised by the Canadian Pediatric Society (2019). During the pandemic itself, children aged 5-11 were spending about 5 hours a day on screens in ways that experts declared were inflicting harm on their mental, emotional, physical, social health (Buck, 2020). These issues are discussed more fully in other parts of this report. The point here is that digital proficiency must incorporate a self-reflective and critical approach towards areas of considerable risk on the part of students and their teachers alike. These risks include but are not restricted to excess screen time, digital addiction, digital perfectionism among adolescent girls who enhance their own online images, and the ways that algorithms don't only reinforce consumer preferences, but also threaten democracy and diversity by amplifying prejudices and conspiracy theories through repetitions and reinforcement of in-group opinions (Chenine, 2020).

Before COVID-19, my Boston College research team and I interviewed 222 Ontario educators in 10 school boards about their implementation of various changes, including digitally related innovations (Hargreaves et al., 2018). Alongside great enthusiasm for the innovations were parallel concerns about premature introductions of very young children to screen-based activities, negative impact of an increasingly online environment to adolescents' mental health, rushed and chaotic introductions of digital tablet use across whole schools, and tendencies to equate the deep learning skills that digital innovation was meant to stimulate with skills in using digital technologies (Shirley and Hargreaves, 2021). After complaining about the impact on her children of "junk tech" packed with "digital 'snacks' that require no cognitive effort" including "insatiable checking for likes, comments and forms of approval that make us hungry for further validation,"

journalist Belinda Parmar (2020) argues that every school should have a tech officer who focuses not just on how children might misuse technology, but also on the deliberately addictive designs that are incorporated into the technology.

For these reasons, the Centre for Change, Engagement and Innovation in Education (CHENINE) at the University of Ottawa has set out a digital learning charter that challenges educators and educational systems to develop deeper digital proficiencies in a post-pandemic world. *The Chenine Charter* raises questions about the best ways to promote educational innovation both with and without digital technology, and about how to realize the innovative potential of digital learning technologies while developing clear strategies to manage and mitigate the risks for students such as digital addiction and excess screen-time (Chenine, 2020). These questions should be posed deliberately and persistently by professional learning communities of inquiry and action, within every school and system in Canada.

Teaching Naturally

In its *Screen Time versus Green Time* report, Nature Canada (2018) reviewed research on the impact on children of learning, playing, and simply being in nature. “Spending time in nature”, it found, benefits physical health through cardiovascular stimulation and improved sleep patterns; it improves mental health by reducing stress, anxiety and depression; it builds resilience and self-confidence through “risky” play in naturally rough environments; it enhances social development



by building sense of belonging and capacities to solve problems and resolve conflicts; and it also improves learning through increased memory, ability to concentrate, and greater creativity.

Richard Louv (2005) argues that urban living, over-testing, and excess screen time have trapped many children indoors for long periods of time, leading to *nature-deficit disorder*. The pandemic, of course, exaggerated all these tendencies. This trend has left young people with little sense of belonging to local physical space and has had adverse effects on their learning and their well-being.

The Netflix documentary *The Beginning of Life 2 (2020)* draws together Louv and other global experts, such as primatologist Jane Goodall, to show how children are calmer, fitter, and learn more when they spend time outdoors in nature. Children featured in the documentary report that they take more responsibility for nature and care about it more when they spend time in it. This establishes foundational commitments to environmental sustainability. Elsewhere, Goodall notes that “it is only when you care for nature that you protect it.” (Watts, 2021).

Learning outdoors also helps young people make a spiritual connection with their humanity as part of nature. Indigenous communities and traditions emphasize how it is important to realize that because we are part of nature, by understanding it, we also develop more insight into ourselves. Natalie St. Denis (2016), an Indigenous educator of Mohawk, Maliseet, and Mi'kmaq background, claims that schools must enable students to grow towards “adopting Indigenous ways of knowing, being, and doing.” As expressed in the First People’s Principles of Learning developed by the First Nations Education Steering Committee (2014) in British Columbia, “Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.” Nature and culture are interconnected. Nature is a spiritual entity, bound up with a sense of meaning and value in life. In this respect, what is essential for the learning and well-being of Indigenous students, is good for all students.

In their research on how teachers in a network of isolated rural schools in poor communities in the U.S. Pacific Northwest sought to increase student engagement, Shirley & Hargreaves (2021) have reported how these teachers realized that securing greater student engagement in learning also required increasing the depth of engagement with their local rural communities. Projects developed through the network included taking and sharing time-lapse videos of the local environment to strengthen senses of local pride and build awareness of communities elsewhere, investigating disputes between businesses and environmentalists over local land use, researching into the use of drones in local agriculture, and studying salmon fishing and performing salmon dissections in biology as ways to link to traditions of the local indigenous community, and also to attempts to regenerate the local economy.

Concerns about excess seat-time and screen time have, of course, already led to the widespread introduction of regular “body-breaks” and yoga stretches in class time, and to calls, as in one of this report’s accompanying chapters, for outdoor recess time to approach Scandinavian norms of occurring every 50 minutes or so in the school day. But the pandemic also brought the outdoors and nature to the forefront in another way—not just as a break from formal learning, but also as a means to pursue that learning more often and more effectively. Concerns about health risks for children and teachers of returning to in-person schooling during the pandemic led countries like Denmark that already valued outdoor activity and play as integral to the curriculum, to increase

the amount of time that students learned and that teachers taught in outdoor spaces, where the risks of infection would be reduced (Noack, 2020; BBC News, 2020).

In one example, *forest schools* that started in Denmark and that involve learning while getting dirty, wet, falling over, and climbing trees, embraced learning outdoors as a healthy option to virtual schooling (Child and Nature Alliance of Canada, 2021). In Scotland, which had already made outdoor play a significant part of the early childhood curriculum, the Shetland school district created ten *Nature Nudge* videos during the pandemic, one per week, to “nudge” pupils outdoors to learn in nature.” “The project connected all ages with their local landscape and wildlife, provided a sense of community and increased the chances of a good engagement with education.” (Education Scotland, 2021) Drawing on these experiences, in April 2021, Nova Scotia assigned \$7m for every elementary school to be able to construct a space for outdoor teaching and learning (not just a playground or space for recess) (Nova Scotia Education and Early Childhood Development, 2021)

Denmark has shown how it is possible for teachers not to oppose green against screen learning, but to balance and combine them productively. OECD (2019) data show that Danish teachers allow young people to use digital technology for their projects more than in any other country. At the same time, before and during the pandemic, Denmark has also been a global leader in outdoor learning. High quality teaching and learning can be more digital *and* more natural. Although many educators position virtual versus physical learning as opposites, in a pandemic, and as a whole, learning and teaching needs to involve both these things.

A December 2020 report by Scotland’s International Council of Education Advisers (2020) on a post-pandemic vision for education, advised that learning needed to be not only more digital where necessary, but also more physical and natural than at present. In terms of developing teachers’ expertise in this area, it recommended that “the capacity to teach one’s subject or curriculum in an outdoor environment should become part of all teachers’ training and certification”. It also recommended that: “outdoor learning options should be included in online curriculum guides” and that “school designs should be modified and enhanced to encompass greater possibilities for outdoor learning”—a provision that inspired Nova Scotia to introduce its outdoor learning space strategy. Moves are already being made to include online teaching as part of many teachers’ initial training qualifications. Similar requirements should be added in relation to teaching more of the curriculum outdoors where possible, necessary, or desirable.

Teachers and Self-Determined Learners

One aspect of digital proficiency is being able to be a responsible, self-directed, and self-regulating learner. A weakness of online and remote learning before and during the pandemic is that it typically offers less support than in-person teaching for vulnerable students with weaker skills who lack confidence, have learning difficulties, or who live in challenging family circumstances (Dynarski, 2018)

Some students do possess self-directed learning habits, but these are unevenly and unequally distributed and cannot be left to chance. They must be taught and developed among everyone. Hattie (2021) points out that many learners developed skills and habits of self-direction during the pandemic because necessity required them to, or because they had previously been prevented from being self-directed in their schools. But this hasn’t been true of all learners. We must now make deliberate efforts to make learning more self-directed among all of them.

Self-directed learning has many elements. These include time management, capacity for self-assessment, ability to screen out distractions, ability to judge when assistance is required, self-regulation, and self-motivation.

In an oncoming era of more blended and personalized learning, innovative and problem-based approaches in a digital environment echo long-standing traditions of project-based, topic-based and child-centred learning, by proposing that teachers become facilitators, rather than presenters of information. Self-directed learning environments are led by the student, and supported by their teachers, within scaffolded frameworks that enable the students to progress through advancing levels of expertise and mastery.

Arguably, this kind of teaching and learning is already well advanced within the policy frameworks of many Canadian provinces, and in a range of long-established networks of innovation in teaching and learning affecting thousands of schools, such as the Spirals of Inquiry network in British Columbia (Kaser & Halbert, 2017), the Alberta Initiative for School Improvement (Hargreaves et al., 2009), Ontario's Teacher Leadership and Learning Project (Lieberman, Campbell & Yashkina, 2017), and the New Pedagogies for Deep Learning project that includes schools in several provinces within a global network exceeding 1000 schools (Fullan, Quinn & McEachern, 2018). The more that Canadian schools and their teachers are able to support and embed self-directed learning and skills and habits system-wide, then the more protected and supported students will be when they have to work online in a pandemic, during other social crises, because of challenges in their own life, or out of personal choice or preference.

Deeper than the concept, skill and strategy of self-direction is the closely related one of self-determination. The theory of *self-determination* was created by Deci and Ryan (1985). Building on the 1940s research of Harry Harlow (1950), who invented the concept of intrinsic motivation, Deci and Ryan used experiments to study how people's motivations for doing inherently interesting tasks affected their performance. Although short-term performance could be boosted by external rewards, they found, intrinsic rewards mainly worked better, especially on tasks that were creative, complex or ambiguous. Self-determination happened when inherently interesting tasks were combined with high degrees of autonomy in completing them.

Self-determination is important and effective in many fields. Experts in sports coaching, for example, have successfully employed models that avoid win-at-all-costs mentalities, in favor of team-based strategies that favour "cooperative learning, improvement, decision/election, social relations, competence, autonomy, (and) self-determined motivation" (Cechinni et al, 2014). Zhao and colleagues also testify to the value of self-determination in the modern work environment (Wehmeyer & Zhao, 2020). "Gig work and side hustles afford people a high degree of self-determination and self-expression", they say, "even as they demand diligence, flexibility, creativity, tolerance for uncertainty, and self-confidence" (Zhao & McDiarmid, in press;)

Self-determination is ultimately about much more than the self-management that is entailed in being self-directed. It is about being empowered and having voice and choice in one's learning. These skills and dispositions can be especially valuable during a pandemic, and also after it.

Zhao and his colleagues recommend that teachers should leave at least 40% of school time for students to develop their own interests and abilities. Kieran Egan (2010) has proposed that true learning in depth can be achieved if students study one particular topic in great depth for a day each week for their entire educational careers. The late Sir Ken Robinson (2006) was one among

many who insisted that standardization, one-size-fits-all curricula, and high stakes testing crush children's creativity and fail to develop their unique talents.

Interviews with over 200 Ontario educators revealed that not only did the province's large-scale test create anxiety, contain cultural bias, and lead to curriculum narrowing and test preparation. It also drove teachers to avoid engaging in innovative projects during and even immediately before the years when children were tested (Hargreaves, 2020b). These research results justify why large-scale testing of whole cohorts of students should not be reintroduced after the pandemic. Such testing constrains both learning and teaching and undermines the higher-level competences of innovation and self-determination on which the economic and social future of Canada depends.

Coming out of the pandemic, every student, not just those with identified disabilities, could be provided with a negotiated individual learning plan, Zhao and colleagues argue, in which those students have a significant stake, so they can take self-determined ownership of their own learning. This will foster "creativity and entrepreneurial spirit". "Creating value for others, for the community, and for the world" will result from greater self-determination, they say (Zhao & McDiarmid, in press). Self-determined learning is also about pursuing learning that has meaning and purpose for one's present and future life, and for one's understanding of and wider contribution to the world.

Being a facilitator does not mean abandoning being a teacher. It doesn't and shouldn't put an end to direct instruction or give up on inspiring students through the use of brilliant storytelling or other intriguing forms of delivery when the moment calls for it. The fashionable switch to facilitation sometimes overstates its case. Square roots, the theory of relativity, great literature, the histories of our indigenous peoples, and necessary awareness of genocide or racism, for example, are not going to happen solely through self-directed or self-determined learning. The teacher doesn't have to and indeed shouldn't relinquish teaching in order to be a facilitator (Biesta, 2013). But especially in a more digitally infused learning environment, becoming a better facilitator of learning, and becoming a teacher who can let go of some of their own power in order to embolden greater self-determination among their students, will be an essential aspect of every teacher's expertise.



The emotional practice of teaching

Teaching is an emotional practice, not just a cognitive and intellectual one (Hargreaves, 1998). It arouses, inflects and engages with the emotions of others, and with teachers' own emotions too. The rewards that teachers find in their work include a significantly emotional dimension. They are what Dan Lortie (1975), in his highly cited book, *Schoolteacher*, called *psychic*.

Lortie found that teachers he studied in the greater Boston area gained rewards and satisfaction when they got feedback showing that they were having a positive

impact on their students. Teachers do not just pass on knowledge and information to students and help them make sense of it. Nor do they stop at guiding students through their own projects and

inquiries. They also care for young people's personal and social development. Working conditions that threaten these emotional rewards have damaging consequences for teachers and for their students in turn.

In his analysis of the psychiatry of leadership, Kets De Vries (2006) points out that people in organizations are unlikely to be well or stay well for long if their leaders are unwell. Teachers are leaders of children, and sometimes of other adults, like colleagues and parents too. Teachers as leaders can hardly pull other people together if they are falling apart themselves. If teachers or educational leaders are not well, it is unlikely their students will be well.

Teacher well-being and student learning and well-being are interconnected (Harding et al. 2019). Therefore, to uplift the people we serve, we also have to uplift the people who serve them. Even before the pandemic, though, the well-being of teachers and leaders all over the world was in jeopardy. For example, a survey report on over half of Ontario's principals in 2014 indicated that 86.5% of principals never seemed to have enough time to get their work done, and 72.1% felt pressured to work long hours (Pollock, Wang & Hauseman, 2014). Approximately 72% of Ontario vice-principals reported their work often or always put them in emotionally draining situations, and almost 30% of them said they self-medicated to deal with the stresses of the job.

In another survey in England, "69% of primary and 78% of secondary teachers feel their workload is not manageable" (Education Business News, 2018). In its 2018 report of the International Summit on the Teaching Profession on teacher well-being, the OECD reported that over 40% of teachers had high levels of stress in Australia and the United States, rising to over 80% among U.K. teachers who reported experiencing "anxiety, depression, and stress" (Schleicher, 2018). Conversely, the OECD's (2019) Teaching and Learning International Survey (TALIS) studies about teachers' working conditions (which include data on Alberta) show that teachers in higher performing countries are more satisfied with their jobs and experience better working conditions compared to lower performing systems.

COVID-19 cut deeply into the psychic rewards of teachers and teaching. The experience of COVID-19 has intensified many of the existing problems with educators' well-being. The combined effect of these stresses has been to make anxiety, depression and overall ill being among educators even worse.

Forty-four percent of a large sample of teachers surveyed in South Carolina said that they were not adjusted or only somewhat adjusted to the massive changes in their working lives and responsibilities (Berry et al, 2020). A May 2020 survey of over 2500 Alberta educators revealed that over 50% felt fatigued when they got out of bed and had to face distance learning in a morning, 57% felt depressed in general, and over 70% felt exhausted at the end of the day (Alberta Teachers Association, 2020). A repeat survey one year later with a slightly larger sample found that only 12% of respondents felt somewhat or very happy, over 90% were stressed, nearly two thirds were extremely concerned about their own mental health, over 87% were extremely or moderately concerned about their students' mental health, almost three quarters were extremely or moderately concerned about catching COVID, and over 93% reported feeling exhausted at the end of each day (Alberta Teachers Association, 2021).

Another survey of almost 7500 teachers in England and Wales reported high or very high levels of stress among 77% of the sample (NASUWT, 2020). A study of child-care teachers in Louisiana found that the incidence of depressive symptoms had doubled during the coronavirus pandemic

(Markowitz et al, 2020). A Canadian Teachers Federation (2020) study of over 1300 members found that the percentage of teachers concerned about their mental health and well-being increased from 44% in June to 69% by October of 2020. Thirty seven percent of the teachers were “barely coping” or “not coping at all.”

Principals were also severely affected by the pandemic. In Ireland, 78% of a sample of 600 primary school principals felt “drained at the end of the work-day due to challenges on a daily basis” (O’Brien, 2020). The U.S. National Association of Secondary School Principals (2021) discovered that principals’ experiences of leading in a pandemic had prompted 45% of them to think about leaving the job for the first time, or as soon as possible, or earlier than they had previously planned. Meanwhile, forty-three percent of teachers who responded to a Canadian Principals’ Association survey, complained that they “didn’t get overall support” for themselves during the pandemic (Schroeter & Youmans, 2020). In response to these kinds of trends globally, Harris and Jones (2020) recommend that: “self-care and consideration must be the main priority and prime concern for all school leaders”.

A unique challenge of COVID for teachers was working from home, often in the midst of competing family demands, including having to supervise children of their own. Teachers were concerned about “lack of time to respond to remote learning” properly (Berry et al, 2020). More than half the teachers surveyed in Alberta said they did not feel “invigorated” working online (Alberta Teachers Association, 2020). A third of teachers in the Canadian Teachers Federation (2020) survey found working on digital devices all day to be “very” or “severely” draining. Almost 40% of teachers in the Canadian Teachers Federation (2020) study reported that opportunities to be physically active were “infrequent” and that these became even scarcer as the pandemic progressed. It was also hard to “turn off” when students were contacting them at all hours for individual help. Overall, then, not only have children and families been victims of a secondary pandemic of mental health. Educators have been too.

In their report on the sustainability and non-sustainability of educators’ well-being in ten Ontario school districts before the pandemic, Shirley, Hargreaves and Washington (2020) found that in addition to the commonly cited challenges of excessive workload, educators’ well-being was also threatened by being required to teach in ways they didn’t approve of or believe in, feeling that their professional judgment and discretion were being undermined by standardization and top-down micromanagement, and being left to solve problems alone rather than with colleagues. We will now examine these factors affecting the emotions of teachers’ well-being in terms of teachers’ purposes, teachers’ judgments, and teachers’ professional cultures, respectively. We address the first two of these factors in this section, and professional cultures of teacher collaboration in the final section.

Purpose and Accomplishment

There are fewer glaring examples of teachers finding themselves having to teach in ways that feel alien to them and that they regard as reducing their effectiveness than enforced remote teaching. During COVID-19, it was exceedingly difficult to engage students online who were stuck at home, often with little support, especially in poorer, overworked and overcrowded families. The survey of a stratified random sample of almost 2600 Alberta teachers in May 2020, recorded that more than 75% of respondents disagreed with the statement that they felt the same emotional connection to their students as they did before COVID-19. One teacher reported “feeling unmotivated to teach

through a distance when more than 50% of my class is not participating and parents are taking out their frustrations on me” (Alberta Teachers Association, 2020). By May 2021, 76% of Alberta educators who had been surveyed were concerned that students in their classes were struggling with learning (Alberta Teachers Association, 2021). In the first week of May 2020, in a survey of 908 teachers and district leaders, the U.S. magazine, *Education Week* reported that forty-two percent of teachers felt that levels of student engagement had dropped compared to before the coronavirus—worse than a month previously (Herold & Kurtz, 2020).

Teachers who care about their students and about making a difference in their lives grieve the loss of their ability to connect with them emotionally, online, because, as we saw earlier, reading emotional cues in a digital environment is difficult. Even worse was just losing touch with vulnerable students altogether. Seventy-five percent of the teachers in the Alberta Teachers Association (2020) survey felt they had lost that connection. One of the teachers in a Southern California study described this grieving in terms of “various levels of loss” (Bintliff, 2020). One commented that: “Some, just ‘boom’ checked out, and some I’ve no idea what happened.” Students just “turned into ghosts.”



The psychic rewards of teaching come from taking responsibility for all children’s learning and well-being. When they could not do this in the COVID-19 environment, teachers started to feel like failures as professionals who, despite their best efforts, could no longer meet their own standards for teaching and care. Over a third of the teachers in the Canadian Teachers’ Federation (2020) study felt that being unable to uphold their own professional standards “greatly affected” their emotional health. The authors of the study concluded that: “maintaining a positive and energetic attitude while teaching, managing student behaviour and juggling multiple responsibilities, as well as providing emotional support for students were indicated to *greatly affect* over 30% of teachers’ emotional health.”

In a study of how teachers in under-resourced California school districts were coping during the pandemic, psychological trauma specialist, Bintliff (2020) concluded that many of the teachers in their sample were actually experiencing “secondary trauma” as a result of witnessing trauma among their students yet feeling powerless to do much about it.

Even as teachers despaired over their own capacity to fulfill the basic moral and emotional purposes of their work due to the pandemic and to the ways in which it was being managed, they also often felt that parents and the public just did not understand what they were going through. The U.K. *Guardian* newspaper interviewed 200 teachers who reported how it was hard enough to deal with young people’s anxieties and disillusionment every day, without also having to cope with parents’ frustrations (Weale, 2020). More than two-thirds of the teachers sampled by the Canadian Teachers’ Federation (2020), for example, felt that “negative public perceptions”

of their job during the pandemic had been “very” or “severely” frustrating. Teachers’ work was becoming visible to parents in the worst possible way. Teachers had to teach in ways they did not especially value, that they felt were far less than optimal, and in which it was hard to be successful or to experience the basic psychic rewards that normally defined the job. Yet, they were also under everyone else’s microscope, all the time.

This is why, after the pandemic, there needs to be caution about ramping up online learning, not just because of the students, but because of the teachers too. Instead, those elements of teaching and learning that provide teachers as well as students with positive senses of accomplishment, that honor teaching and learning as emotional practices and not just cognitive ones, and that grasp how important in-person relationships in schools are as a foundation for learning and well-being, must be strengthened. We need to build our teachers back better as well as our students.

Professional Judgment

For professional work to feel fulfilling, people need to feel trusted and able to exercise judgments on behalf of those they serve. This is especially important when local circumstances and needs vary, and when professionals have to draw on their expertise to provide unique responses to each group or situation. Judgments are emotional as well rational in nature. If judgments were purely cognitive, they could be made by algorithms. But human judgment is inherently emotional. Emotional attachments and preferences narrow down the mathematically infinite scope of decision-making into a manageable set of options (Damasio, 1994).

During COVID-19, however, Bintliff (2020) noted how “in some cases, districts did not allow teachers to exercise their judgment to connect with students in real-time online due to concerns with legal privacy issues.” This was extremely frustrating for the teachers, who wanted to be the trusted first responders for their vulnerable students.

Much of the success of policy strategies in education during COVID-19 depended on the capacity of governments to value and harness educators’ professional judgments as part of the decision-making process. In their report of the *International Summit on the Teaching Profession*, the OECD noted from their TALIS studies of teachers’ working patterns that “when teachers reported more ... collaborative relationships with other teachers, they also reported significantly higher levels of self-efficacy” (teachers’ self-efficacy is, in turn, a predictor of student achievement) (Schleicher, 2018). In addition, “the extent to which teachers can participate in decision-making has a strong, positive association with the likelihood of reporting that teaching is valued by society.”

After several months of educational turmoil due to the pandemic, the OECD published a policy review of how countries were managing COVID-19 in education with different degrees of effectiveness. Many of the systems that seemed to have had the greatest success had established collaborative teams, working groups or committees, including with teachers’ and principals’ associations, and then collected and analyzed data together, at the highest levels of policy, to determine and lead the response. Less effective systems, by implication, issued what often seemed like arbitrary, shifting, and contradictory edicts from governments to which the teaching profession and school districts then had to respond (OECD, 2020).

In the 2021 Alberta Teachers’ Association survey, for example, teachers referred to a political environment that one of them described as “demoralizing”. To take one instance, over 90% of the sample were moderately or very concerned about the provincial government’s introduction of a

controversial draft new curriculum in the midst of an unprecedented and already deeply disruptive pandemic.

It is essential, the authors of the report remark: “to recognize and build on teachers’ expertise and professionalism, by drawing on their feedback, practices, and beliefs, to shape an adapted response to the crisis.” This, they continue, “will foster ownership, and ultimately determine teachers’ and school principals’ willingness to assume responsibilities, risks, and personal sacrifice.” (Alberta Teachers Association, 2021)

In some cases, though, at a time when teachers returning to schools were afraid of catching COVID themselves and passing it onto their families, political decisions insisting on returns to school that were not properly informed by health expertise, or that had not been developed in collaboration with education professionals, made educators feel afraid, alone, and out of control.

In England, for example, teachers were forced back into schools under threat of government sanction, when they believed schools had not been properly resourced to meet all the necessary health requirements for children. Teachers feared for their lives. The 200 teachers who had been contacted by the *Guardian* newspaper graphically described what it felt like to work in constant fear of catching the virus. “We really have been thrown to the lions,” said one (Weale, 2020). Teaching in the midst of a raging pandemic felt like “a slow walk to madness or death,” another one said. A third conjured up an image of a work environment that was both frantic and dangerous—“like a hamster on a wheel with a sharp sword poised above me,” she remarked. In the Canadian Teachers’ Federation’s (2020) survey, many teachers reported being immuno-compromised, having family members who were immuno-compromised, or living with essential workers who returned home from high-risk environments. Around half the educators in the Alberta Teachers Association (2021) survey knew a friend or a family member who had become seriously ill with Covid, or died as a result of it.

By contrast, just North of the border from England, Scotland established a *COVID-19 Education Recovery Group* (CERG), that met weekly, online, and was chaired by the Deputy First Minister (equivalent to Deputy Prime Minister) who was also the Education Minister. Over several years, after an OECD (2015) review of Scotland’s *Curriculum for Excellence*, and with the assistance of ten international advisers, there had been a systematic effort to strengthen collaboration at all levels throughout the Scottish education system. When COVID-19 hit, this prior commitment to collaborative ways of working paid dividends.

The Executive Director of one local authority (school district), for example, remarked how they had been “fortunate” to “enjoy good relationships with staff groups and key partners such as trade unions and the National Health Service” (Education Scotland, 2021). “Dealing with the pandemic pulled the council together,” he added. “We are clearly one team.” University of Glasgow Professor Christopher Chapman, noticed how “practice in these (local) settings evolved very quickly” that was “faster than national policy because of the need to respond on the ground in real time.” Power and judgment were moved as close to those responsible for decision-making as possible. “It is really important that school communities are empowered to work together to support each other,” said the head of the government’s Learning Directorate.

The 30 local authorities in Scotland capitalized on the existing capacity of schools to work together and share strategies (Education Scotland, 2021). In another district, programs were launched to support school principals and their deputies by providing regular meetings where they could

share problems as well as strategies. “It was good to know that my worries are not mine alone,” one of the participants said. “I did leave the session knowing that I was doing a good job, that I had ideas about further improvement in my practice and I could contact other head teachers if I had any other questions.” From the beginning of 2021, leadership coaches were offered to any principal or system leader who wanted or needed them.

The report including all the preceding data on Scotland’s response to the crisis concluded that: “key parts of building back better are strong collaborative relationships, robust communication, connectedness and compassion.” Especially in a pandemic, but also in ordinary circumstances, these dispositions that nurture empowered judgment, do not happen by chance. They are promoted by deliberate policy actions, developed over many years, before, during and after crises like COVID-19.

It is hard to have self-determined learners without self-determined and empowered teachers, who are able to use their expertise and use their professional judgment together, in high-trust environments, on behalf of the children they know best. These judgments must consider and include other stakeholders too, of course, which systems like Scotland have attended to exceptionally well during and even before COVID-19. Professional judgments should be neither individually autonomous nor administratively ignored, but they should be shared among colleagues and with other partners.

However, while remote learning increased many people’s overall respect for and commitment to public education (OECD, 2020), the unprecedented phenomenon of teachers having to perform their work in difficult circumstances while the world’s parents were often watching, also created tensions and undermined rather than enhanced teachers’ psychic rewards. The post-pandemic era should, in this respect, not be a time for educators to retreat to the “psychic kingdom” of the classroom, punctuated only by report cards and periodic parent-teacher meetings (Hargreaves & Fullan, 2020a). It should be a time to make more teaching and learning truly visible by sharing school artefacts online, sending pictures back and forth of students’ work, and presenting some in-person lessons simultaneously online so that parents can be invited to watch.

Professional capital

A third area in which changing conditions of work due to COVID-19 provided insights into and had implications for the organization of teaching after the pandemic was in relation to teachers’ professional capital. Professional capital is defined as a group’s professional worth that enables it to achieve its goals (Hargreaves & Fullan, 2012). The professional capital that accrues in teaching comes from investment of human and material resources in teaching. There are few professional returns in teaching without proper investment.

Professional capital has three components: human capital, decision-making (or decisional) capital, and social capital. Human capital comprises the knowledge, talents and capabilities of individual teachers. It is accrued by selecting and recruiting highly qualified and dedicated teachers, providing them with sufficient monetary rewards and status in the society, and expecting them to engage in continuous professional learning and development throughout their careers. Human capital becomes depleted when low status and diminished rewards fail to attract the best talent, when resources that are essential to high quality work are withheld, and when self-determined professional learning and development is replaced by mandated compliance with government directives.

Decisional or decision-making capital consists of the professional judgment and expertise that teachers develop over time, through repeated yet also varied experience, continuous professional learning and development, and effective coaching and mentoring. Decisional capital is depleted when teachers' judgments are not trusted, when they are excluded from important decision-making processes, and when their expertise is not valued.

During COVID-19, some areas of teachers' human and decision-making capital have been enriched. Preceding evidence indicated that most teachers developed new digital proficiencies. Some acquired new capabilities for teaching their classes or their subjects in outdoor environments. The suspension of examinations and testing in some systems has also enabled teachers during the spring months to replace usual test-preparation periods with lessons and learning that are more interesting and engaging.

At the same time, considerable quantities of human and decisional capital have been squandered. Only some provinces incorporated and included the professional judgment and expertise of their teachers when decisions were made to close or re-open schools, conditions for opening were decided, and particular arrangements for remote learning were set up. The sheer novelty, difficulty and complexity of working in online learning environments where students' digital resources were scarce, home circumstances were un conducive to student engagement and self-determination, and virtual communication robbed teachers of their capacity to connect fully with all their students depleted, suspended or wasted the stockpiles of human and decisional capital within the teacher workforce.

In the third and final component of professional capital, though, experiences during the pandemic were initially more promising and positive. This component—social capital—is about the professional capital that is circulated among teachers and shared by them (Leana, 2011; Bryk & Schneider, 2002; Day et al. 2007). It is about relationships of trust that speed up and strengthen decision making, about the effectiveness of judgments that are made collectively rather than individually, and about knowledge and ideas in teaching that are disseminated throughout the profession via collaborative cultures and professional networks.

From the early 1990s onwards, research has demonstrated a clear connection between teacher collaboration and improved student outcomes (Rosenholtz, 1989; Hargreaves, 2019). In this respect, collective social capital adds value to human capital. Some elements of collaboration have a more positive impact than others, but the overall benefits are consistent. OECD (2019) data on high performing systems show that these systems are characterized not only by high trust for the teaching profession, but also within it. Collective efficacy—the shared belief that all students in a school can succeed with the right support—has one of the highest effect sizes in relation to student achievement (Donohoo, 2017). Teachers are more likely to sustain their commitment to teaching if they feel valued by each other and by their leaders as trusted colleagues (Sahlberg & Walker, 2021). Collaboration also builds resilience to adversity when teachers work with students in challenging family circumstances of poverty, for example (Gu & Day, 2013).

Collaborative cultures in teaching are deeply embedded in Canada, and Canadian researchers and consultants are among the world's leaders in this field of study. In 2016, the Ontario Ministry of Education enshrined the importance of collaboration in an agreement between the government and the professional associations that defined what it called *collaborative professionalism* as:

Professionals—at all levels of the education system—working together, sharing knowledge, skills and experience to improve student achievement, and the well-being of both students and staff. Collaborative professionalism values the voices of all and reflects an approach in support of our shared responsibility to provide equitable access to learning for all (Ontario Ministry of Education, 2016).

Canadian researchers have noted that collaborative professionalism, as defined in Ontario, is flourishing (Campbell, 2016; Sharratt, 2016). Indeed, it has progressed beyond this official definition to encompass professional learning communities that are teacher-led, and extensive adoption of rigorous processes of collaborative inquiry that identify and resolve students' problems with learning and well-being (Hargreaves & O'Connor, 2018). Through collaboration, educators' well-being becomes embedded in the job, rather than being a relief from it, through individual yoga or mindfulness exercises, for example. But collaboration that is enforced, imposed, or contrived can lead to negative and counter-productive consequences. Collaborative professionalism ultimately has to be self-determined wherever possible, in relation to an agreed common purpose, within an empowered system of people working together.

We have already seen how some systems built collaborative decision-making among teachers and other partners in order to implement educational responses to COVID-19. Some systems, like South Korea, created national networks involving one nominated teacher from every school, to design curriculum implementation for remote learning (South Korea Ministry of Education, 2020).

Elsewhere, teachers have turned to each other for help, support, and ideas. The Alberta Teachers Association (2020) survey referred to earlier, for example, reported that 57.7% of respondents felt that "my teaching, resourcing and planning have become much more collaborative with my colleagues." Reports by other professional associations, the OECD (2020), and others (e.g., Fullan et al, 2020) have also found that, at first, teacher collaboration increased almost everywhere in relation to pre-existing levels within their system.

However, after a year, 80% of the educators surveyed in Alberta were worried about the loss of professional community once the immediate urgency had passed, due to isolation and social distancing (Alberta Teachers Association, 2021). Teaching at home, online, alone all day is not at all conducive to the impromptu initiation of yet more interaction to try and develop ideas and strategies once the instructional day is over. Social capital does not just emerge as a collective act of professional will. Working conditions of time, support, sustainable work demands, and overall leadership need to be right for the social side of professional capital to thrive and be sustainable over time.

Teachers' clear readiness to collaborate on their terms, for the needs of their students and themselves, especially when top-down solutions are insufficiently agile or responsive to local and rapidly changing conditions, is an immense asset of teachers' professional capital that must be saved with accruing interest once this pandemic is over. Given the clear association between social capital and student outcomes, this can and should be a policy priority across all provinces and territories once the pandemic has passed.

Conclusion

When COVID-19 is mainly behind us, there will be many competing proposals about what to do next. Testing companies, and some governments, will want to retain large-scale testing of whole

student cohorts as a way to calculate and pinpoint learning losses, despite the well-documented negative side effects on student engagement, motivation and mental health. Technology companies, and more governments will almost certainly campaign for a surge in online learning, hybrid learning, and other digital options but will mainly ignore the risks. Mental health specialists and health scientists will urge that well-being should be the first priority, partly for its own sake, and also because little lasting learning will occur without it—but important though well-being is as the paramount priority, it still provides no guarantee that learning will occur as a consequence.

Who, then, will speak for the teachers and their teaching, other than teachers themselves? This chapter has shown that we cannot serve our students by sacrificing our teachers. We must serve teachers well too. We must stimulate expansions in teachers' expertise that are a bit (but not excessively) more digital, and considerably more outdoor-oriented and natural. We must be more inclusive of teachers' professional judgments in every facet of policy making. We must be mindful of the psychic rewards that teachers, like other professionals, need to accrue from their work if they are to do it successfully and sustainably. We must rethink relations between teachers and parents or other caregivers so that they become more transparent and enriching for all parties without leaving teachers feeling professionally naked and afraid in awkward online environments. And we must not squander the appetite for collaborative professionalism that teachers everywhere demonstrated when they faced the greatest crisis of their careers. Against policy inclinations to impose austerity, we must indeed invest in the professional capital of our teachers and leaders so they can promote prosperity of well-being and success for all our students (Hargreaves, 2020).

My mother, Doris, was named after the nurse who risked her life to spare that of my grandfather over many months of hospitalization during the 1918 pandemic. She risked her life not just for my grandfather, but also, ultimately, of course, for his unborn daughter, and then her three sons, including me, and our children and grandchildren too. Sparing some people also means serving others. That is the essence of sustainability—to support everyone in the educational eco-system, including our teachers, so that they can all thrive together, and so they can leave a legacy of learning and well-being, for generations to come.

Recommendations

Twelve recommendations follow from this analysis of how COVID-19 has impacted the work of teachers and teaching; and how it has posed new and lasting challenges for the teaching profession and for teacher policies in Canada and elsewhere. The recommendations are presented in no particular order of priority.

1. Improve digital expertise by including digital competence in all teacher preparation programs. Develop a clear plan and strategy so that all Canadian teachers will have full digital proficiency within 3 years. Digital expertise should not only include knowledge of apps, tabs, platforms, and other technical resources, but also ability to determine when digitally-based resources do and do not provide unique added value for effective learning compared to other resources. Digital expertise should also include knowledge of how to identify, minimize and manage the risks that often accompany digitally based learning.

2. Create and fund a national resource bank of digitally based curriculum materials on a federal platform, to be available, as required, by teachers and schools in all provinces and territories. This will supplement existing provincial curricula and be available whenever crises such as pandemics or other natural disasters interrupt in-person schooling.

3. Make all access to digital learning platforms, internet access, and digital devices for learning, public, universal, and free of charge, in both English and French (see also Whitley et al., 2021).
4. Establish a committee for ethical technology use in every school, school board, and provincial educational Ministry, and also make it a contractual requirement of every technology company that provides services to the public education sector. This committee should identify and explore digital opportunities for learning, innovation, and inclusion, and should identify and implement clear and evidence-informed strategies regarding digital risks. Risks include excess screen-time, digital addiction, online bullying, image perfectionism on social media, and algorithmic reinforcement of in-group preferences and prejudices that can undermine democracy and diversity.
5. Expand outdoor and nature-based teaching and learning opportunities that improve learning and enhance young people's well-being (see also McNamara, 2021). Shift some of the balance of resources and support from digitally based to nature-based innovation and improvement. Include capacity to teach in outdoor learning environments within teacher preparation programs and within ongoing additional qualifications and professional learning opportunities. Ensure every school has a suitable space for outdoor learning. The evidence indicates that a shift of this kind will improve learning and achievement, engage with indigenous culture and heritage, enhance well-being, enrich play, and foster environmental responsibility and sustainability.
6. Manage crises such as COVID-19 by establishing collaborative policy working groups that meet regularly to make evidence-informed and expertise-based decisions together in a publicly transparent way. In addition to the government of the day, these groups in education should include leaders of professional associations, representatives of school boards, educational researchers, health and mental health professionals, members of parents and community groups, student representatives, members of especially vulnerable or marginalized communities, and other relevant experts depending on the nature of the crisis.
7. Provide all school leaders and system leaders with confidential executive coaching support from outside their own systems, to help improve their own judgment and capacities by managing their own stress, health, and well-being at times of crisis and disruption.
8. Make education systems less bureaucratic and more agile in their ability to respond to crises, complexity and uncertainty such as natural disasters or sudden arrivals of large numbers of refugees, by moving as much decision-making power as possible to local districts, schools and communities. Lead more from the middle by leading differently at the top.
9. Initiate or enhance in-person and/or virtual professional networks to leverage the professional capital developed collaboratively among teachers during the pandemic. This will promote innovation and improvement by circulating knowledge and expertise in a swift and agile way.
10. Continue to understand and insist that in-person schooling is the overwhelming public priority for the vast majority of students in schools in order to provide care and protection for all students, to build community, inclusion and democracy among them, and to address the non-cognitive as well as the strictly cognitive aspects of learning effectively.
11. Make engagement and re-engagement with learning the pathway to achievement. Do not use large-scale standardized testing of whole cohorts of students as the driver. The negative side effects will only distract from and jeopardize students' engagement.

12. Rethink and redesign relationships between teachers and parents and other caregivers, using digital technologies and images as well as words to increase the flow of communication, without exposing teachers to the kind of intrusive and unfair scrutiny of online teaching that sometimes occurred during the pandemic.

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Chapter 8: Agility: An Essential Element of Leadership for an Evolving Educational Landscape

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Abstract

Defined as the ability to think and move quickly and easily, the importance of agility as an essential element in the move forward for leaders of schools and systems, post-pandemic, as a result of the impact of COVID-19 on children is examined. The smartness of a leader's continuous interactions with the multi-faceted features of their environment, the very nature of the ever-evolving educational landscape of today, is of tremendous value for the leadership of tomorrow. Through the prioritization of strategic objectives in balanced measure, connectivity through relationships and partnership building, proactivity for effective change management, ingenuity in the optimization of resources over time, and the cultivation of systemness throughout the organization—as aspects of agility—educational leaders have the bona fide chance of a lifetime to transform school systems in the pursuit of achievement, equity, and well-being for the benefit of all students, staff, and school communities. Additional considerations, including barriers to agility, are also addressed, as are recommendations for leaders of schools and systems as they navigate the shifts in organizational terrain caused by the disruption.

Key Words: Pandemic; Education; Leadership; Agility

Agility: An Essential Element of Leadership for an Evolving Educational Landscape

Introduction

So much has changed in regard to everyday life on earth over the past year and a half. In society broadly, and the education sector specifically, the nature of the landscape has definitely shifted. With respect to leadership in schools and systems—provincially, nationally, and internationally—the organizational terrain has evolved as a result of the extraordinary experiences of the pandemic period and is not likely to return to the well-worn physical features of the past. Moreover, it is conceivable that changes to the features of institutions of public education have only just begun because of the impact of COVID-19 on children and school systems. As Harris and Jones (2020) describe, the coronavirus has exacerbated issues related to well-being and highlighted how inequalities in public education profoundly affect those in society who have the least. They note that deliberations to date regarding the closing, or indeed, the re-opening of schools is contentious and largely inconclusive. Further, they claim that leadership in disruptive times such as these means being able to navigate a different course—creating new pathways along the lay of the land of schools and systems—through the disruption.

Inspired by the wisdom of the late Dr. Robert (Bobby) Moore, an esteemed colleague and friend, Dr. Peter Gamwell, speaks to the remarkable nature of periods of uncertainty—much like the one taking place at this very point in time. He emphasizes the actuality of living in a world of 'inbetweenity'—a time between times—where one era is ending and the next has not yet fully emerged. Gamwell and Daly (2017) point out that, during these very times, the status quo no longer works, and yet, there is no clear path ahead. Moreover, they signal, emerging eras of today and tomorrow are much less likely to wait patiently for the previous era to exit graciously, creating a state of complexity in the now—a time when there are no longer beginnings and endings of eras, but rather, a continuous confluence of changes. The realities of the past year and a half have placed an exclamation point on the truths of this statement.

The pandemic period has altered the cycle and rhythm of public education that stakeholders of the sector—students, staff, parents/guardians, trustees, federation/union partners, government officials, partner agencies/organizations, as well as members of broader communities—had all become accustomed to over time. A number of these changes, such as the widespread closure of schools and central buildings early last spring and the pivot to remote (synchronous and asynchronous) learning environments system-wide shortly thereafter, were abrupt and almost unbelievable, even as they unfolded. Other changes since that time, though, have been much less sudden and yet impactful nonetheless. These transformations include the provision of online learning as an alternative, full-time mode of delivery for the foreseeable future, an entire rethink of ‘work from home’ policies and/or procedures in school systems, as well as a reflective analysis of missed learning opportunities during occasions that were once called “snow days”!

In many ways, both within and across jurisdictions, these reformations of the educational landscape represent a seismic shift in the state of affairs. The continuous transition to online learning at home, in person learning at school, or a hybrid of both has created more variation than ever before in school systems. This reality has the potential to widen existing inequities, but also make qualitative and quantitative comparisons—already a challenge—much more difficult to do.

In a recent study regarding the impact of the pandemic on student learning, specifically, Dorn et al. (2020) share that school shutdowns caused by COVID-19 have exacerbated existing achievement gaps. They state that the learning loss during school closures—described as the effectiveness of novel remote learning relative to traditional classroom instruction—varies significantly by access to remote learning, the quality of remote instruction, support from parents/guardians and/or others at home, as well as the degree of engagement on the part of students themselves. The results of their study confirm, however, the troubling reality that the greatest gaps in learning have taken place with historically underserved students and communities.

In their review of homeschooling during the pandemic, Wistoft et al. (2020) confirm, as one might expect, that different clusters of students experienced teaching and learning in significantly different ways through school lockdown periods. More specifically, their report revealed stark age-related differences. In particular, they indicate that a number of younger students (in elementary grades) had difficulties with the schooling from home situation and that the teaching and learning environment of school lockdowns challenged their well-being and mental health. Furthermore, feedback from surveys provided to parents/guardians of younger learners demonstrated that they too found it much more difficult to balance work, their child(ren), and family life more so than parents/guardians of older students (in secondary grades), for instance. Despite everyone’s best efforts, they surmise that many students felt lost at home.

These studies and similar accounts from across the globe highlight that the “timing is right” for an entirely new model—a comprehensive solution for the dated school system—that avoids a ‘loss of learning’ mindset that further perpetuates a system that did not serve all students and was not without its shortcomings, anyways (Fullan, 2020). As Fullan posits, the “pandemic phenomenon” may serve to accelerate the search for solutions (as ‘right drivers’ for whole system success) precisely because of the growing dissatisfaction with the status quo and the new perspectives that the COVID-19 predicament provides. The right drivers, working with one another in combination, include: the importance of learning, equity, and well-being as an integrated endeavour as opposed to separate goals to strive for; the further development of the social intelligence of educators—the propensity to work with others to achieve common goals; and, the establishment of ‘systemness’—a

sense that all stakeholders, at all levels of the school system, play an active part in the solution—with the responsibility for system change, through the achievement of established goals, placed equally at each of the three levels of the system—local (district level), middle (regional level) and central (policy level).

In reality, school systems in place pre-pandemic were somewhat antiquated and clearly not serving the needs of all their clientele. The situation may actually be worse now, in many respects, especially for underserved and/or vulnerable students and their families. The uncertainty of the times represents both a challenge and an opportunity as educators continue to navigate the shifts in organizational terrain caused by the disruption. It is precisely for these reasons that agility—the ability to think and move quickly and easily—serves as an essential element in the move forward for leaders of schools and systems. The smartness of a leader’s continuous interactions with the multi-faceted features of their environment, the very nature of the ever-evolving educational landscape of today, is of tremendous value for the leadership of tomorrow.



Aspects of Agility

If agility is what is required to navigate the current state of complexity, how can educational leaders respond? There are five interrelated factors that are worthy of consideration in the context of leading through the pandemic disruption. They are as follows.

(1) Prioritization of strategic objectives in balanced measure

McMullen (2021) builds upon the importance of the merger of learning, equity, and well-being in the move forward as educational leaders by stating that the collective priority, above all else, is to facilitate emotional regulation before academic education. He emphasizes that it is entirely unwise to focus the narrative on helping students “catch up” on their “lost learning” as this approach has the potential to place unnecessary (and possibly damaging) psychological pressure on children and young adults. In its place, he suggests an intentional focus on play, creativity and innovation, while also supporting the development of literacy and numeracy in an integrated manner. In addition, Klinger (2020) contributes that navigating schools and systems in a post-pandemic world will necessitate flexibility and innovation on the part of educational leaders. She purports that in order to support the critical academic, social-emotional, and custodial functions of schools, leaders must acquire and apply new knowledge, skills, and capacities in their planning and decision making. In short, leaders of school systems today must be prepared to “plan for the unplanned”, pivoting as needed based upon evolving circumstances by altering duties, expectations, procedures, calendars, schedules, and operational practices, for example.

It is the sensible, sound perspective of educational leaders that ensures the prioritization of strategic objectives related to achievement, equity, and well-being in balanced measure, especially during these uncertain times, that is needed now across schools and systems. That is, the integration of these fundamental goals is crucial for all students, staff, and school communities served, moving

forward, so that any one of these key pillars is not neglected at the expense of the others. Their integration—in a reasonable, timely manner that is differentiated from school to school and system to system—will provide stability for institutions of public education in both the short-term and long-term.

(2) Connectivity through relationships and partnership building

Love (2020) argues that leaders can play a significant role in abating the disconnect and loneliness that may be felt within organizations as a result of the pandemic period. In order to reinforce interpersonal and organizational connectedness amongst stakeholders and reduce stress and anxiety for employees in particular, important practices that leaders can put into place include: acknowledging the current reality; creating scheduled opportunities for check-ins and face-to-face time; maximizing training opportunities appropriate to the current context; and, leveraging mindfulness and meditation practices. Beyond the strengthening of relationships amongst stakeholders, internal and external to the organization, these practices have the potential to increase productivity, especially in times of uncertainty. These times call forth the grace in all of us, especially those of us who lead, Love (2020) concludes, in a centred and respectful manner in order to navigate the uncharted territory together.

In her review of two phases of education reform strategies in Ontario over the past two decades, Campbell (2021) delineates the importance of working partnerships in the approaches to educational system reform developed and implemented, province-wide. Specifically, she clarifies that partnership working between the government, the education sector, and related stakeholders in schools and systems has been a mainstay of policy development and implementation and is one of the key reasons the jurisdiction is recognized globally as a high-performing education system with below-average inequities for students from lower socio-economic status backgrounds and for immigrant students. Interestingly, Campbell shares that the initial focus on working in partnership amongst stakeholders with priority goals to improve student achievement (period from 2003-2013) has been followed by a shift to a new collaborative professionalism with a widening priority focus on equity and well-being as well (period from 2014-2018). The steadfast attention of educational leaders in schools and systems on the importance of productive working relationships and partnership building speaks to the merit of connectivity and genuine collaboration, particularly in times of anxiety and instability. The co-establishment of priorities and co-construction of initiatives, including the development of shared understandings and the implementation of common strategies amongst all stakeholders, creates synergies that ensure the conditions for healthy, vibrant organizations emerge.

(3) Proactivity for effective change management

Leithwood (2013) identifies proactivity as a practice that is especially important for leaders of schools and systems in his review of strong districts and their leadership. Defined as the ability to stimulate and effectively manage change on a large scale and under complex circumstances, showing initiative and perseverance in bringing about meaningful change, this personal leadership resource is indispensable. As he describes it, because of the context in which they lead, educational leaders need to anticipate future demands that might require significant organizational adaptation. Leithwood confirms that this is particularly the case for system-level leaders as they manage entities that have larger organizational size, greater operational complexity, and greater interaction with a wider environment. Lynch (2020) also believes that effective educational leaders

are proactive in nature because they have a “do-it-yourself” mindset and approach challenging situations with enthusiasm. Keys to proactivity, he specifies, include being able to find and isolate potential issues before they become full-fledged problems. For an educational leader, this ability requires a thorough understanding of the organization, as well as the internal and external forces and pressures that surround it. This allows schools and systems to avoid major crises and operate with disruptions minimized to the greatest extent possible.

The management of an effective change process—including the procurement of knowledge and skills through capacity building of staff, incentives and resources to make meaningful change take place, as well as detailed elements of a plan of action to see it through to fruition—requires careful consideration and forethought, in addition to initiative and perseverance, as mentioned above. With respect to the volatility of the times, their unpredictability and uncertainty, proactivity as a leadership practice is as vital as ever. School and system leaders will undoubtedly need to mobilize adeptly the resources required to manage complex change in an increasingly effective and efficient manner in order to avoid the confusion, resistance and frustration that has commonly ailed education-related change processes in the past.

(4) Ingenuity in optimization of resources over time

There are a number of changes that will persist in schools and systems, post-pandemic, to be sure. Arundel (2020) proclaims that the acquisition of technological devices that move school systems closer towards a 1:1 ratio of devices to students is but one consideration for educational leaders, especially if emergency closures become increasingly routine. Human resource practices, particularly for teacher recruitment and retention, is another area that she specifies will require the use of creative and innovative approaches, including new staffing redesigns and supports to meet the versatile teaching and learning environments of the times. Teräs et al. (2020) also urge educational leaders to think carefully about the decisions they make regarding the technologization of their systems, in light of the unprecedented push to online learning, to be sure that digital learning solutions remain driven by best pedagogical practices, first and foremost.

Financially, Hargreaves (2021) believes that educational policy beyond the coronavirus pandemic will advance in one of two possible scenarios: an onrush of austerity that makes deep cuts to public education leading to more inequity, or alternatively, education investment to pursue prosperity that establishes better quality of life for all. He insists that inequality can be reduced instead of increased, that the digital divide COVID-19 has exposed can be closed instead of opened further, and that technology can be utilized to enhance effective instructional practices as opposed to replacing it through blended or hybrid technology. Through prosperity, Hargreaves explains, primacy is given to quality of life alongside or even ahead of economic growth. This approach, which includes investment in public education, will support the most vulnerable learners and protect disadvantaged students’ opportunities for upward mobility.

The optimization of resources (human, material and/or fiscal) will require inventiveness and resourcefulness on the part of educational leaders in the future. The pressures that institutions of public education will face, whether through externally-imposed austerity measures or internally-driven challenges that result from the provision of increasingly adapted modes of delivery (such as online learning options through virtual schools, for instance), will require ingenuity in the optimization of resources to serve the ever-expanding needs of learners over time. The clever

handling of resources will surely be essential to the strategic accomplishment of the objectives set out for the achievement, equity and well-being of students and staff in school communities.

(5) Cultivation of systemness throughout the organization

Returning to the right drivers for whole system reform, as Fullan (2021) envisions, systemness is defined as the sense that stakeholders have of the importance of their contribution at all levels of the system; indeed, that they are the system. Stakeholders—as individuals and/or groups—interact within the system, learning from and contributing to it, as the system itself evolves. These stakeholders, ultimately, have both independent and interdependent responsibility for changing the system.



Through coherence making, Fullan and Quinn (2016) describe how educational leaders achieve shared understandings about the work in schools and systems. More aptly, they explain that the intent of coherence zeroes in on pedagogy and examines the impact and the causal pathways that result in measurable progress for all students. The coherence framework that Fullan and Quinn propose consists of four essential components: focusing direction (which builds collective purpose); cultivating collaborative cultures (which develops capacity); deepening learning (which accelerates improvement and

innovation); and, securing accountability based upon capacity built from the inside out. Alignment, conversely, refers to the consistent and complimentary arrangement of policies and procedures, practices, and protocols as infrastructural elements of schools and systems.

The development of shared mindsets through coherence and the implementation of policies and procedures, practices and protocols in a complimentary manner via alignment of infrastructure facilitates the cultivation of systemness in schools and systems. During uncertain and unpredictable times, educational leaders can leverage systemness to ensure stability in order to manage the move forward.

Additional Considerations

Of note, the move forward will also need to rely on fundamental principles of the past that remain of value such as integrative thinking—a decision-making process or methodology that frames and solves real-world problems by balancing the tensions between opposing (or seemingly opposing) variables as a new approach to tackling challenges of the day. Martin and Austen (1999) explain that viewing problems holistically, rather than piecing out their constituent parts, creates new possibilities—without making costly trade-offs or forcing the choice of one good idea at the expense of another—by rethinking and recombining elements of the issue to reach

a better solution in the end. The practice of systems thinking, identified by Leithwood (2013) as especially important for leaders of schools and systems in his review of strong districts and their leadership, along with proactivity, supports an integrative thinking model. Defined as the ability to understand the dense, complex, and often reciprocal connections between different elements of the organization, and the foresight to engage the organization in likely futures and consequences for action, this personal leadership resource is equally invaluable for educational leaders. The coordination of programs and/or services offered to students and their families, for instance, will need to be increasingly seamless in order for institutions of public education to navigate their futures adeptly. The provision of supports for positive mental health and well-being is also an area that will most certainly require thoughtful consideration and careful integration so that the needs of students, staff and school communities are addressed adequately.

As Leithwood and McCullough (2016) affirm, leadership development programs that build the capacity of the leadership cadre within schools and systems—including principals and vice-principals, managers and teacher leaders, as well as supervisory officers and directors—is one of the most influential and impactful investments that institutions of public education trying to manage complex change can make. For professionals in both pre-service and in-service contexts, leadership development will need to be sustained, and most likely enhanced, in the post-pandemic reality. Knowledge, skills, and expertise that educational leaders develop for their own capacities—individually and collectively—will be increasingly vital in preparing leaders of schools and systems for the volatile, uncertain, complex and ambiguous times they will assuredly experience. Leadership for equity, diversity and inclusivity is a pertinent and timely example of a lens of leadership that will require individual and collective commitment over time. It is essential that educational leaders continue to learn about bias awareness and critical consciousness, for example, in the move forward as reflective practitioners.

Barriers to Agility

There are a number of barriers to agility that educational leaders may encounter in school systems. Cross (2017) highlights a lack of urgency as one of the most significant hurdles an organization might experience. Described as a struggle in short-term planning and/or the communication of priorities within the plan, leaders of institutions of public education that lack agility do not have a clear vision of the activities to be completed over the next twelve months that will address the needs of the day and also lay the foundation for success in the long term (three to five years ahead). Often coupled with a lack of urgency is the obstacle of unclear timelines. Systems that are unable to prioritize the array of initiatives or projects underway will undoubtedly err in the timelines designated to execute these tasks effectively and efficiently.

Other barriers to agility include a deficit-oriented culture, where leaders within these systems have become accustomed to a legacy of failure which breeds overly cautious, risk-averse behaviour. In these organizations, “no” is often a typical response to promising ideas that emerge from within, as Cross (2017) explains, making true innovation a rarity.

Furthermore, the notion of endless debate amongst senior leaders of school systems—without accompanying action—can summarily squelch attempts at thinking and moving quickly and easily, as can a lack (or misuse) of resources and skills as they undermine the organization’s ability to be agile.

Conclusion

It has often been said that vision matters most when clarity is missing. With respect to the leadership of schools and systems—provincially, nationally and internationally—the terrain of organizations has most definitely changed as a result of the global pandemic. The ability to navigate a different course of action through the disruption, creating new pathways along the lay of the land that represent school systems, requires agility on the part of educational leaders—an ability to think and understand quickly, and to move smartly through the ever-evolving educational landscape. With respect to a leader's continuous interactions with their multi-faceted environment, agility is especially valuable as time itself is often a scarce resource, politically and pedagogically.

Interestingly, Gamwell and Daly (2017) disclose that the realities of the current state of complexity are further confused by the fact that, during these uncertain times, changes push and pull in a multitude of directions all at once, making consensus building a daunting task to accomplish. This state of complexity makes future trends all the more difficult (if not impossible) to predict—yet another veritable challenge for educational leaders looking to lead their schools and systems. To add, Chen et al. (2021) acknowledge that COVID-19 has induced the largest remote learning experiment in history over the past twelve months. Their examination of the remote experience on student learning, from the perspective of practicing teachers on the front lines, leaves many wonderings as to how the sector deciphers the long-term impact of this protracted learning experiment. Chen et al. (2021) are convinced that the long-term implications of the pandemic will depend on the steps that school system leaders take now to mitigate and address the damage that has already been done. They suggest the offering of high-density tutoring or more personalized mastery-based programs, for example, as supports for students who may have fallen behind. A return to the status quo, they state definitively, is a much less compelling option as educators have the opportunity now to reimagine a more equitable and resilient school system for all children. Further, Zewde et al. (2020) proclaim that decisions made today in the context of COVID-19 will have long-term consequences for the future of education. And, they state, although COVID-19 has revealed vulnerabilities across the globe, it has also surfaced extraordinary human resourcefulness and potential. Zewde et al. (2020) urge that this is a time for pragmatism and quick action and that the choices ahead cannot abandon scientific evidence, nor can they be made without principled judgement. These choices must be based on a humanistic vision of education and development and human rights frameworks, through notions that include the advancement of global solidarity to end current levels of inequality.

As the dust begins to settle on the newly-created pathways through the terrain of our institutions of public education, next steps in the move forward for educational leaders will begin to take shape. Through a flexible yet focused approach that integrates the five interrelated factors outlined above, as aspects of agility, educational leaders will surely find their own way through the disruption. Harris and Jones (2020) identify the importance of context-responsive leadership, as well as crisis and change management as essential skills, in order to navigate the paths ahead. Hargreaves and Fullan (2020) add that despite the chaos the pandemic has created, it has also unleashed energies of innovation and collaboration, as well as a spirit of problem resolution through open professionalism and the utilization of digital opportunities to enhance existing professional capital and community, that all have the potential for significant positive impact.

Undoubtedly, the road before us will also require dedication and discipline on the part of educational leaders themselves. Interactions with the multi-faceted environments of schools and systems will

need to be growth-oriented and opportunistic. In the current context, Quinn et al. (2021) confirm an “asset lens” that recognizes strengths and invests belief in stakeholders, including student voice and staff expertise, will acknowledge learning gains as opposed to gaps solely. These interactions will build upon existing strengths in education, as well as in society more broadly, and appreciate all that has been acquired through the coronavirus era in order to resist the temptation to “snap back” into the old normal. This is an especially important point for consideration as life pre-pandemic was not smooth for all stakeholders, particularly underserved and vulnerable populations, as previously noted. A growth-oriented and opportunistic perspective will ensure that public education does not fall back into the “ruts” of past terrains—that new pathways are truly created for the complex and diversified roads to be travelled. The resilience shown by students, staff, and school communities in persevering with respect to both learning and well-being, to the greatest extent possible over the past year, represents but one example of a strength to celebrate—a true reflection of the robustness of our school systems prior to the disruption, imperfect as these systems may have been.



Recommendations

In order to navigate a bold, new course of action through the disruption—one that is value-added for all students, staff and school communities—the following recommendations are suggested for educational leaders of schools and systems either to be continued if already in place or started anew in the move forward:

1. strategic integration of key aspects of learning, equity and wellness in balanced measure in improvement planning processes at the school and system levels;
2. thoughtful establishment of a strengths-based relationship approach to the interaction between students, staff and school communities;
3. competent coordination of effective change management processes—including the proactive mobilization of knowledge and skills, motivators and incentives, as well as resources and plans of action—required to respond aptly to the ever-evolving educational landscape;
4. continuous reflection upon and refinement of the allocation of resources (human, material and/or fiscal) in an increasingly differentiated and equitable manner for students and staff in schools; and,
5. careful creation of places and spaces for individuals and/or groups within school systems to provide their unique contributions as an integral part of ‘systemness’ throughout the organization.

The extraordinary experiences of the pandemic period have created the bona fide chance of a lifetime to transform school systems in the pursuit of achievement, equity, and well-being for the benefit of all students, staff, and school communities. Through the agility of educational leadership, a remarkable opportunity exists to make it happen.

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Chapter 9: Navigating a Defining Moment: COVID-19 and Curatorial Thinking

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Abstract

The COVID-19 pandemic has engendered a critical moment in education. Questions of equity, engagement, and interaction have been brought into sharper focus as students' homes became their classrooms. There is a demonstrated need for interdisciplinary thinking, enabling students to work with the resources they have at hand, and helping learners orient themselves in place and time. Defining Moments Canada/Moments Déterminant Canada, using the interdisciplinary framework of curatorial thinking, encourages students to make sense of information, more effectively create a meaningful story, and build a stronger sense of social responsibility and awareness. This framework is operationalized using the S.A.S.S. pedagogy: Selecting, Archiving, Sense-Making, and Sharing, through which students find their personal way into a research question and demonstrate their learning while considering narrative intent, evidence limitations, and their own role as a historical actor. This integrative, critical, and interdisciplinary focus is an approach to a (post)pandemic world that prioritizes creative student responsiveness to upcoming challenges.

Navigating a Defining Moment: COVID-19 and Curatorial Thinking

Spring 2020's abrupt pivot to remote instruction forced new ways of approaching and delivering content, making every aspect of teaching and learning decisions more pronounced. Teachers examined what they were doing and how they were going to do it remotely, which often then forced thinking about *why* they were doing what they were doing. What does content delivery look like online? What do engagement and interaction look like online? How can we support students' navigation of new and contentious current events when much of their lives has gone digital? What do students have access to when their homes have become their classrooms? How might I, as a teacher, respond to the different, and perhaps unequal, ways students are able to access content or class?



Discussions with educators and historians during the spring of 2020 highlighted underlying themes that have emerged about teaching and learning because of COVID-19 (Cutrara, 2020a). Historians, history teachers, archivists, and community organizers, among others, were interviewed for a video series on what history education may look like post-pandemic, discussing how the pandemic helped them better see and discuss the inequitable structures that surround educational spaces. Those directly involved with

teaching history saw the pandemic as a way to help students understand the historical record and themselves as historical actors: How do we teach about the strength of individual and collective actions? How can historical records and fragments from the past help us navigate these actions? A further theme emerging from these discussions involved the shift to online teaching and what this means for the content and skills that students learn. If the medium is the message, drawing on

Marshall McLuhan (1964), how does remote instruction shift our conceptualization and delivery of curriculum? This question will continue to unravel and be explored as we move into (post)pandemic times.¹ These conversations demonstrated the importance of avoiding a *transmissive* model of education, wherein a teacher lectures to blank slates (or blank screens) without any context of their own. Further, these conversations continued to demonstrate the need for *transactional* or *transformational* approaches to education in which learners are in conversation with the educator and the material in interactive, integrative, and critical ways.

A common thread throughout this report is clear: we will not be returning to the pre-pandemic status quo. It is possible to harness the present moment and see it as the chance for revolutionary change. Preceding chapters engage with the concept of agility, in which students are able to move and problem solve with swiftness (Buffone, 2021) and focus upon both the maintenance and building of relationships (Vaillancourt et al., 2021a), as student mental health (Vaillancourt et al., 2021b) and individual differences (Whitley et al., 2021) are championed both in the classroom and on the playground (McNamara, 2021). These discussions have also emphasized the critical need for interdisciplinary thinking, enabling students to work with the resources they have at hand, and to help learners orient themselves in place and time when thinking about their work.

Through curatorial thinking, Defining Moments Canada/Moments Déterminant Canada (DMC) already approaches learning in this way. Curatorial thinking is an interdisciplinary, student-led, explanatory framework, helping students think about the past to understand the present. This interdisciplinary framework, developed by Garfield Gini-Newman, Laura Gini-Newman, and Neil Orford, building upon their work in sustained critical inquiry, aims to help students make sense of information, more effectively create a meaningful story, and build a stronger sense of social responsibility and awareness (DMC, 2020a; Gini-Newman & Gini-Newman, 2008, 2016; 2020; Gini-Newman & Restoule, 2019). Life during a global pandemic has emphasized how important it is to consider varied factors across disciplines when approaching problem solving, and curatorial thinking can create opportunities for teachers and students to engage in critical inquiry via multiple entry points. When using this approach, K-12 and postsecondary educators: (1) select which activities/topics are most likely to spark interest and creativity from students; (2) encourage students to determine which entry points will allow for the best meaning-making; and (3) help students review and acknowledge their own position in time and space. The framework encourages un-siloed thinking and empowers students to make choices in their learning. Curatorial thinking can be used to help students uncover embedded social realities and examine how we interpret them in the present. In history education, we help model for students how to be empowered as historical agents, though curatorial thinking can be harnessed in educational settings more broadly.

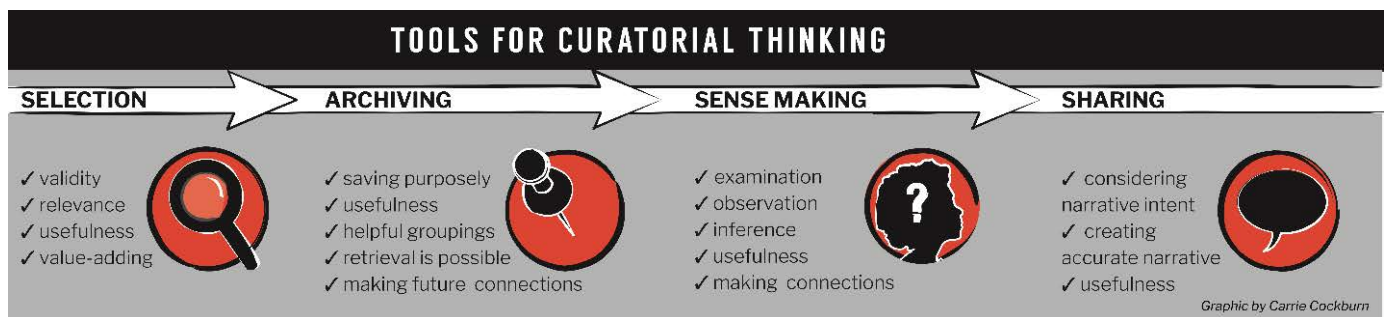
While curatorial thinking was developed through a combined exploration of best practices from museology, professional and public history, and K-12 history teaching, the framework has been easily integrated into K-12 history curriculum because of the national curricular emphasis on inquiry and historical skill development in Canadian history and social studies courses. Drawing on the Benchmarks of Historical Thinking (Seixas & Morton, 2012), many Canadian history and social

¹ For more on the Pandemic Pedagogy video series see Cutrara, S. (2020b, April 27, 2020). *How do we teach history after this? Thoughts from the "Pandemic Pedagogy" series*. ActiveHistory.ca. <http://activehistory.ca/2020/04/how-do-we-teach-history-after-this-thoughts-from-the-pandemic-pedagogy-series/> and Cutrara, S. (2021). Beyond pandemic pedagogy: Thoughts on deconstruction, structure, and justice post-pandemic. *The Councilor: A Journal of the Social Studies*, 82(1), 1.

studies courses have been revised to emphasize students' active and interpretive learning with primary sources from the past. When taken at face value elements of the Benchmarks may prevent certain non-Western explorations of the past (Cutrara, 2010, 2018); however, these curricular elements have allowed for more transactional opportunities to teach and learn history, which DMC has found useful for operationalizing curatorial thinking.

Thus, aligning with K-12 curriculum, curatorial thinking is operationalized by DMC using the iterative S.A.S.S. framework (Figure 1): Selecting, Archiving, Sense-Making, and Sharing (DMC, 2020b; Mant, 2020). While *Selecting*, students sift through the wealth of historical evidence available, asking themselves: what is relevant? What adds value to my research question or approach? What is valid or useful? Once the evidence is gathered students are challenged to *Archive*, to think about why certain pieces of evidence have been saved. They might challenge why certain gaps appear in the record, that is: whose stories are easy to access? And whose are difficult to find? At this stage students are encouraged to think of broad groupings that may aid in organizing their evidence. While *Sense-Making*, students dig into the analysis of their evidence, seeking to make connections and answer their research questions. Finally, while *Sharing* students construct and share narratives based upon their research to demonstrate their learning. They are encouraged to consider the intent of their narrative and to clarify the limitations of their evidence.

Figure 1. S.A.S.S. framework for curatorial thinking (Image copyright: Defining Moments Canada).



Prior to the paradigm shift caused by COVID-19, DMC had used curatorial thinking to consider the legacy of 1918 influenza. When teachers and students applied the curatorial thinking methodology to their lessons, they were able to explore how diseases shape history due to the biocultural interactions that take place within people's bodies and more broadly within their communities. This led them, and DMC, to explore the concept of syndemics in education. Syndemics, a term coined by medical anthropologist Merrill Singer (2009), is used to understand both how diseases interact synergistically within someone's body and how the effects of disease may be influenced and exacerbated by an individual's socioeconomic and sociocultural context. When we consider health through time, we draw upon both biological and cultural factors to understand health outcomes. Time and place therefore play equally important roles in thinking through questions of historical and contemporary health. Using curatorial thinking methodology in history learning, students can cross institutional disciplinary boundaries between health and humanities, draw connections about how public health crises happen and are responded to, and thus develop and explore research questions from multiple angles.

The learning from the 1918 influenza defining moment not only helped many make sense of COVID-19 when it started, it actively shaped the importance of using syndemics and curatorial thinking to help teachers and students contextualize public health crises. Collaborative projects

such as *Finding Hazel*, a partnership between a grade 5/6 class at Dundas Central Elementary School, the Dundas Museum and Archives, and McMaster Child and Youth University, investigated biological and sociocultural effects of the 1918 influenza (Laux, 2019). Focusing upon the life and death of 15-year-old Hazel Layden, who attended Dundas Central before dying during the 1918 pandemic, students learned about the biology and epidemiology of the flu, while tracking down artifacts from Hazel's life, finding her name in the school register, and visiting her grave.

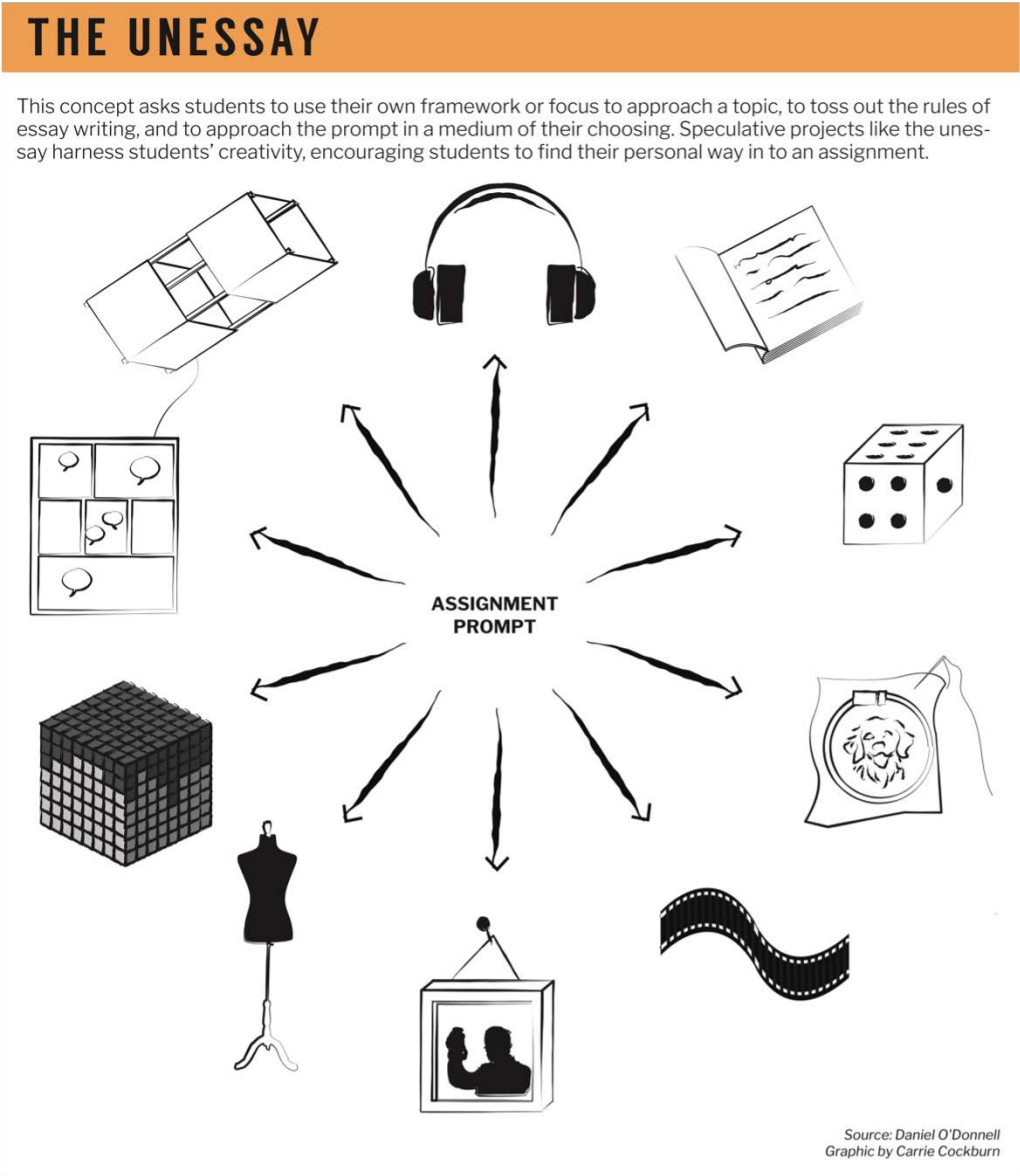


Another curatorial thinking project arising from this partnership, *The Fatal Five*, investigated the top five causes of death for children in the Dundas community during the late 19th century (Bell, 2020). Students at Dundas Central identified the “fatal five” (diarrhea, consumption, bronchitis, scarlet fever, and whooping cough) by touring the local cemetery and consulting death records curated at the Dundas Museum and Archives. Determining that children's respiratory systems were most affected by these five conditions influenced the focus of the Science program's human organ systems learning unit. Reaching out to McMaster University yielded opportunities to dissect lungs alongside a biomedical scientist and better understand paths of disease communication through McMaster Children and Youth University workshops. This project demonstrates the iterative nature of curatorial thinking using the S.A.S.S. framework: students selected which diseases to study based upon the available evidence, grouped the data to understand which bodily systems were most affected, then worked on sense-making and sharing projects guided by their choices. Other successful projects have included digital storytelling focused upon varied stakeholders (e.g., healthcare workers, volunteers, and politicians) and their perspectives on the 1918 influenza experience in Toronto, Ontario (Whitfield, 2019). These projects revealed how students could focus upon their own interests and skills as ways to approach defining historical moments. Students identified themselves as curators as they took ownership of the projects. DMC extended this synergistic work to the scheduled centennial defining moment on the discovery of insulin, which required a reimagination from a series of in-person workshops and commemorative events into entirely digital output.

With the current work on insulin, DMC has challenged students to use curatorial thinking in speculative projects. Through free lesson plans available on the DMC website, our organization advocates for the unessay, a term coined by Daniel O'Donnell (2012), which asks students to think outside the boundaries imposed by the traditional academic paper and develop their own way in to developing a research question (Figure 2). The unessay was employed in an undergraduate course on the anthropology of health taught by Chair of DMC's Academic Advisory Board, and co-author of this conclusion, Dr. Madeleine Mant at the University of Toronto Mississauga (Mant, 2021). Students were asked to consider the history of insulin, the individuals involved, and the history of diabetes prior to and after the discovery by selecting three individuals/events/objects that they determined best illustrated/celebrated/explained the discovery of insulin. Through

scouring the primary and secondary resources online, students selected the evidence they felt best represented entry points for their consideration of this revolutionary event. Through the archiving step, learners considered what was available to them (what has survived, what has been written, and what was available to them digitally) and why. Creative and sensitive sense-making resulted in a range of fantastic output, including comic strips, stop-motion animations, live-action skits, paintings, poetry, rap songs, embroidery, children’s educational toys, infographics, and a horror story. Finally, the work was shared with an accompanying reflective write-up, explaining the chosen medium. This type of lightning-in-a-bottle brand of creative expression, using the tools available to the students at home, is possible in future blended/in-person learning. Thinking across media and across disciplinary boundaries helps lessen the educational distance imposed by the digital divide.

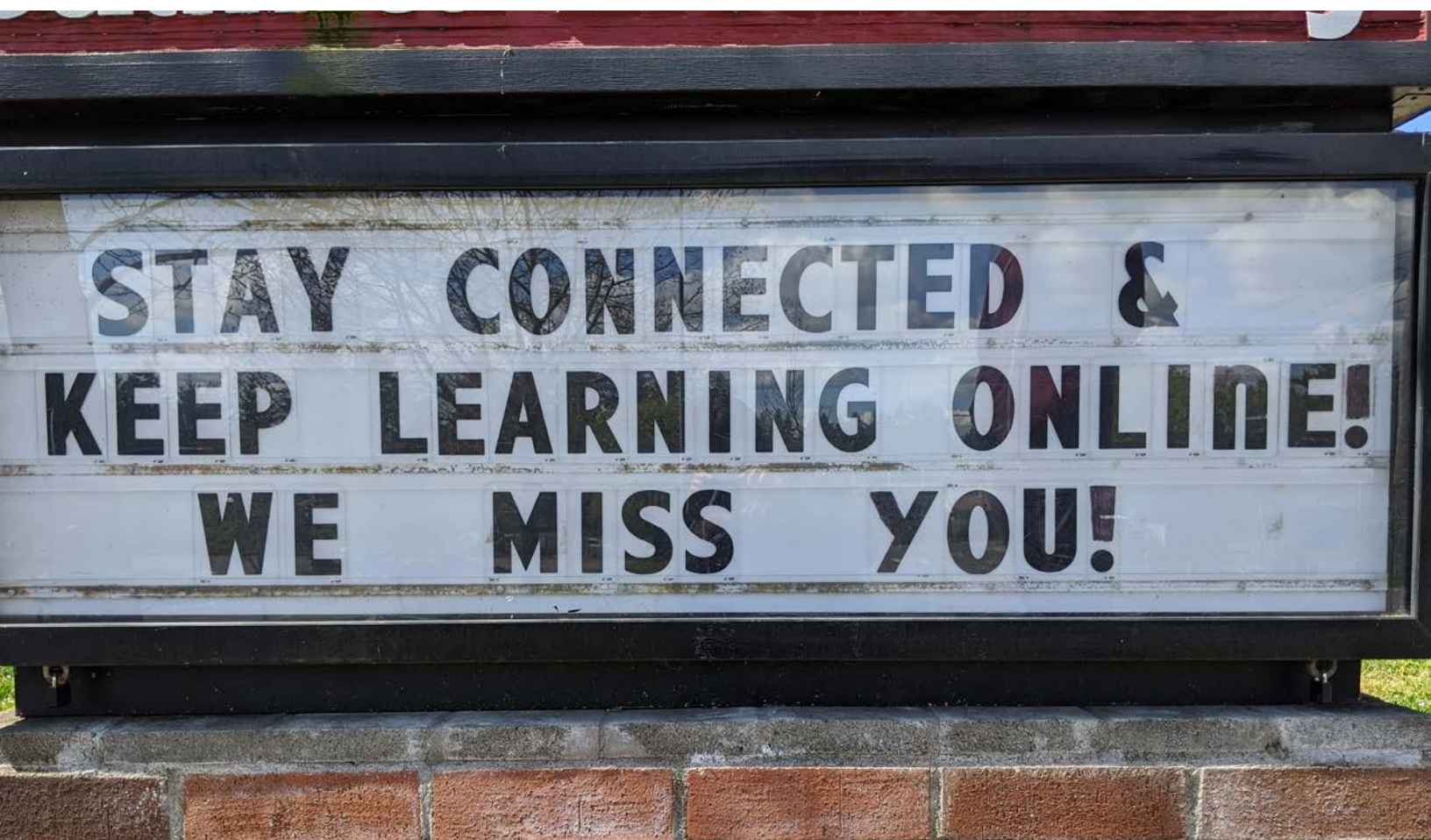
Figure 2. The unessay concept yields projects based upon students’ creative choices (Image copyright: Defining Moments Canada).



To move forward in a (post)pandemic world, education has to be (re)configured in ways that ensure the learner is able to actively construct meaning. Thankfully, much of the history and social

studies curriculum in Canada invites this active construction of meaning aligning with the North American trend of skills-based history education found in the C3 framework or the Historical Thinking Benchmarks. However, as *Historica Canada's Canadian history report card* (2021) has shown, these curricula do not provide sufficient opportunities for students to integrate personal and community histories into their understanding of the Canadian past. Moving into a (post) pandemic world, students' homes and contexts must be taken into consideration so that students are actively invited to understand these perspectives in both time and place.

A key component of this work is ensuring that students are not siloed in their thinking or limited by disciplinary boundaries. Students can readily understand impacts and effects across bodies, lives, and experiences, which is why teaching with the concept of syndemics has been such a valuable tool for DMC's work over the last three years. *Defining Moments Canada*, with an emphasis on intersections and curatorial thinking, has been able to eschew "pedagogical compartmentalization" (Hackett et al., 2020) and develop more integrated ways of thinking about the world: past, present, and future. This integrative, critical, and interdisciplinary focus is an approach to a (post)pandemic world that prioritizes a creative student responsiveness to upcoming challenges. DMC believes that curatorial thinking meets the challenges that educators will have to grapple with in the coming years and looks forward to further collaborative opportunities to expand this vision.



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Appendix A: Getting Children and Youth Back to School—Infection Prevention and Control

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Getting Children and Youth Back to School—Infection Prevention and Control

COVID-19 in children and youth

Children and youth are less likely than adults to become seriously ill from COVID-19 (SARS-CoV-2) and many have only mild symptoms for the duration of illness (Viner et al., 2020). The prevalence of long-term symptoms after SARS-CoV-2 infection in children and youth is also low (Radtke et al., 2021). As of May 14, 2021, 18.7% of Canadian cases were in children and youth <19 years of age, however only 1.7% (1 144 of 243 377 individuals) required hospitalization, with 147 requiring Intensive Care Unit (ICU) admission and 12 deaths (Government of Canada, 2021a). By contrast, death occurred in 66.5% of individuals >80 years of age. Initial symptomatology in children and youth is similar to that in adults with 48-59% having fever and 38-56% having cough (Rubens et al., 2021; Viner et al., 2020). Asymptomatic infection has been reported in 16-19% of children and youth. An uncommon but important complication in children and youth is Multisystem Inflammatory Syndrome in Children (MIS-C) or Pediatric Inflammatory Multisystem Syndrome (PIMS), a systemic inflammatory illness that can occur approximately 4 weeks following acute COVID-19 infection. A recent study in the U.S. reported a cumulative incidence of 2.1 cases per 100,000 persons younger than 21 years from March 2020—January 2021 (Belay et al., 2021). The most common symptom on arrival to hospital was abdominal pain, occurring in 66.5% of children. Just over 50% of children were hypotensive with 58.2% requiring admission to ICU. Cardiac dysfunction was common, occurring in 31% of children in whom an echocardiogram was performed. Mortality was 1.4%. In a more recent national study of children and youth from England, SARS-CoV-2 was found to rarely be fatal (2 per million), even among children and youth who had underlying comorbidities (Smith et al., 2021).

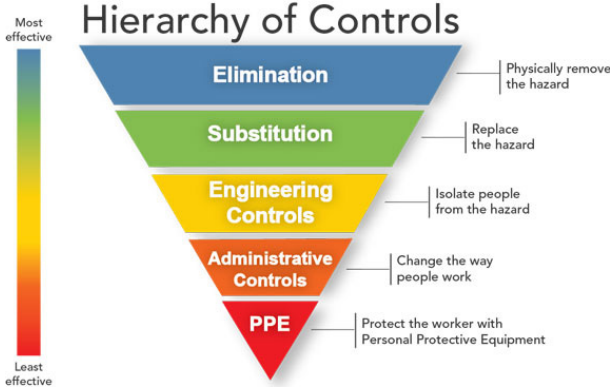
Transmission of SARS-CoV-2 occurs via the respiratory route—particles of varying sizes are usually inhaled, often in settings of close contact either in the home or at community gatherings (Centres for Disease Control and Prevention; CDC, 2021a, May 7; Damania et al., 2021; Government of Canada, 2021b). Studies tend to suggest that transmission is less likely to occur at daycare or school (Heavey et al., 2020; Kriemler et al., 2021; Lakha et al., 2021; Powell et al., 2021; Thompson et al., 2021; Zimmerman et al., 2021). In British Columbia, the incidence of COVID-19 in schools was found to be lower than that of the general population (55 per 10,000 vs. 73 per 10,000) and that secondary transmission in school was rare (Bark et al., 2021). SARS-CoV-2 seroprevalence was examined in Vancouver public school staff in British Columbia, Canada who were enrolled in the study from February 3 to April 23, 2021 (Goldfarb et al., 2021). Results, communicated in a pre-print (non-peer reviewed), indicated that there was “no detectable increase in seroprevalence among school staff above the community seroprevalence”. Studies looking at transmission within the community or households also suggest that children and youth in fact are less likely to transmit

to adults (Galow et al, 2021; Goldstein et al., 2021; Soriano-Arandes et al., 2021), possibly due the fact that they tend to have only mild illness and are potentially therefore less infectious. Additionally, a U.S. study conducted when >90,000 students and teachers were in school, had a total of 773 community-acquired cases of COVID-19, secondary transmission in 32 individuals but there was no secondary transmission from children to adults (Zimmerman et al., 2021). Nasopharyngeal swabs from children (aged <10 years) who tested positive by RT-PCR have been further evaluated in the laboratory setting where viral culture was less likely to grow, had higher cycle thresholds and lower viral concentrations (Bullard et al., 2021) suggesting that children and youth are not the main transmitters of this pandemic.

When transmission of SARS-CoV-2 does occur in schools, spread appears to be more limited in elementary schools as opposed to secondary schools (Hershow et al., 2021), however without mitigating measures, transmission has been documented in the elementary school setting. Therefore, it is important to implement additional measures within the school environment to ensure that children and staff are kept safe. Indeed, during a period of high community transmission in Switzerland, by using a layered approach of mitigating strategies, in keeping with those outlined below, viral spread within schools was very low (Kriemler et al., 2021).

Over the past year, the general public has become familiar with some of the important Infection Prevention and Control (IPAC) principles used in hospitals to keep patients and staff safe. These include the importance of masking and hand hygiene. However, IPAC principles extend beyond personal protective equipment (PPE)—of which masks are a component—entailing a layered approach to preventing transmission of infection. The Hierarchy of Controls (NIOSH, 2021), in order of effectiveness (and also importance) are:

- Elimination of Exposure
- Substitution of Activities
- Engineering Controls
- Administrative Controls
- Personal Protective Equipment (PPE)



Exploring each of these elements further can lend itself to a safe reopening plan for the school environment in the context of a global pandemic, such as COVID-19. In addition to these in-school measures, public health measures must be observed outside the school setting; keeping community transmission as low as possible remains the most effective way to keep COVID-19 from entering schools.

Elimination of Exposure and Substitution of Activities

The most effective measures in the hierarchy of controls are those that contribute to the elimination of the infectious agent. Reflecting on the COVID-19 pandemic measures, community or province-wide lockdown and/or school closure fall into this category. Although school closure should remain the last resort, it is important that remote learning strategies be developed such that high-risk children and youth can learn during times that they cannot attend in person.

Engineering Controls

Facilitating outdoor learning and play should be encouraged whenever possible. The outdoor environment provides rapid dilution of inhalable particles in addition to space for physical distancing. Contact tracing tends to demonstrate that while indoors, close contact for prolonged periods of time is the predominant feature when considering transmission of SARS-CoV-2, however, improved air quality and ensuring that the heating, ventilation, and air conditioning (HVAC) system is updated can also play a role in mitigation of transmission. Therefore, efforts should be made to ensure that the HVAC system is well-functioning, and in the event that it is not, schools should work with their facilities managers to make enhancements where possible. In older buildings without other options, natural ventilation through opening of windows (weather permitting) can be employed. Detailed approaches with room-specific HVAC considerations are outlined by Li et al. (2021) in their chapter on *Reopening Schools After a Novel Coronavirus Surge*. Moreover, the Lancet COVID-19 Commission Task Force on Safe Work, Safe School, and Safe Travel (Corsi et al., 2021) has outlined how to design infectious disease resilience into school buildings by improving ventilation (see also John Hopkins Centre for Health Security; Olsiewski et al., 2021).

Any new school construction should carefully evaluate these recommendations and the standards with respect to HVAC systems, ensuring that they are state of the art. In a statewide observational study in Georgia, Gettings et al. (2021) showed that compared to no masks or ventilation changes, the incidence of COVID-19 was 37% lower in Kindergarten to Grade 5 schools that required teachers and staff members to wear masks, and a further 2% reduction was observed in schools that made efforts to improve ventilation. In this study, the ventilation strategies that were “associated with lower school incidence included dilution methods alone (35% lower incidence) or in combination with filtration methods (48% lower incidence)” (p.779). Although this is one study and needs to be replicated, it did show that ventilation could be improved by either dilution methods (opening windows or doors) or filtration methods (use of high-efficiency particulate air filters).

The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) has outlined the industry standard for ventilation for acceptable indoor air quality. The building codes in Canada have adopted ASHRAE Standard 62.1 for new construction and major retrofits. However, the prescribed minimum ventilation rates in ASHRAE Standard 62.1 do not address the airborne transmission of viruses, bacteria, and other infectious contagions. Rather, prescriptive ventilation rates in Standard 62.1 are based on the room type and have values for volume of air moved per time for two factors: per person and per floor area. Health care facilities have ACH (air changes per hour) rates instead of per person ventilation rates to address contaminant removal. ACH is the number of times per hour the room volume is exchanged with outdoor air. After three air changes, 5% of the original air remains; or conversely any contaminant present at the start has been reduced in concentration by 95%. Because ASHRAE Standard 62.1 uses per person amounts, every room will have different ACH rates depending on the shape. A classroom with high ceilings will have a lower air change rate than one with low ceilings, even though it could have the same amount of fresh air delivered. Standard 62.1 results in approximately 3 to 4 ACH depending on the room dimensions. To accommodate for future pandemics (Corsi et al., 2021; Li et al., 2021; Olsiewski et al., 2021), and an anticipated update to ventilation building standards in light of the COVID-19 pandemic, any new school construction or major school renovation should be designed with principles of air changes in mind for consistent control of indoor air contaminants including infectious particles.

Administrative Controls

Carefully documented policies and procedures should be employed with the ultimate goal of minimizing exposure and subsequent transmission of SARS CoV-2. Policies should include strategies to avoid having the virus enter the school, minimize contacts amongst those at school, minimize the overall density of individuals at school, and ensure cleaning is performed diligently (see CDC 2021b; Science et al., 2021). These may include but are not limited to:

1. Promote and prioritize immunization of teachers and education workers (Canadian Teachers' Federation, 2020), and for eligible students when available. Ensure that time off is allowed for all individuals who chose to get immunized and work with public health to provide information about the COVID-19 vaccine.
2. Implementing and enforcing the policy that students and staff do not attend school if they are unwell or have a known exposure to an individual with COVID-19. This can be employed by a digital or app-based symptom checklist that is completed each day.
3. Clear policies pertaining to management of someone who becomes ill while at school should be developed, including designating a room for students to be in while they wait for their parent/guardian. Ensure staff are available to replace an unwell teacher and promote testing of unwell faculty; this can be supported by the school in the event that testing is performed onsite.
4. Cohorting on the bus (if needed), during before/after school programs, and while in class. Ideally cohorts remain small and are conserved, and when this is not possible, lists of groups of children and youth should be maintained such that it would be easy to identify who a given child or youth had contact with in the event of an inadvertent exposure. Staggered breaks and/or recess can also be implemented to avoid mixing of both student cohorts and staff.
5. Physical distancing should be maintained whenever possible. Specifically, desks should be separated by 2 metres, lining up or crowding together should be avoided, in person staff meetings should be kept to a minimum, and special attention to physical distancing in break and lunchrooms should be made. Smaller class sizes should be instituted.
6. A visitor policy should be developed, thereby minimizing additional people in the school who are not required; in the event visitors must enter, they should be recorded and masks should be worn.
7. Cleaning and disinfection of the school environment. While the relative contribution of fomite (touching inanimate objects) spread to transmission is lower than originally thought (Mondelli et al., 2020), high touch surfaces (e.g., doorknobs and railings) and high traffic areas (e.g., washrooms) should be cleaned regularly.
8. Encouraging good hand hygiene, especially before and after eating, after using the toilet, after coughing or sneezing (using a tissue), or if hands become soiled for any other reason. Hand hygiene sinks should be in eating areas and washrooms, and installation of hand sanitizer (alcohol-based hand rub) dispensers should be considered.
9. Establish random testing of students and staff if schools are in neighbourhoods with high rates of COVID-19, as defined by local public health authorities.
10. Establish framework that provides guidance on community risk (e.g., low, moderate, and high). The Ontario Science Table (Science et al., 2021) recently developed such a framework

that should be considered (see Table 1). It also includes special considerations for schools in rural, remote, and Indigenous Communities, as well as for children and youth with medical, physical, and/or developmental complexities.

Table 1. Community Epidemiologic Situations and Implications for School-Based Health and Safety Measures

Assumptions / Criteria	Community Context ^a		
	Low SARS-CoV-2 Risk	Moderate SARS-CoV-2 Risk	High SARS-CoV-2 Risk
Severe Disease ^b	Limited and sporadic cases of severe disease requiring hospitalization	Early evidence of an upward trajectory in number of cases with severe disease requiring hospitalization	High rates and continued upward trajectory in number of cases with severe disease requiring hospitalization
Community Transmission ^c	Rt <1	Rt 1.0 – 1.2 (sustained) ^d	Rt ≥1.3 (sustained) ^d
Implications for School Setting	Low SARS-CoV-2 Risk	Moderate SARS-CoV-2 Risk	High SARS-CoV-2 Risk
Introduction of Cases into School Environment (Anticipated Based on Rt)	Occasional introduction of cases	Increasing introductions; geographic heterogeneity reflecting community prevalence and immunization levels	Frequent introductions with high case rates increase in community
Recommended Permanent Measures	Vaccination (encourage and ensure ease of access), screen and exclude from school if symptoms/exposure, improve indoor air quality, hand hygiene, environmental cleaning, low barrier testing ^e		
Recommended Temporary Measures	Permissive masking and distancing	Masking, distancing and cohorting indoors as appropriate based on age	Masking, distancing and cohorting as appropriate based on age
Suggested Community-Based Measures	Low-barrier testing Backwards + forwards tracing Targeted vaccination in under-immunized communities	Restrictions in the community as recommended by CMOH Testing + tracing + targeted vaccination in under-immunized communities	Further restrictions in the community as recommended by CMOH Schools stay open with prioritized testing + tracing + vaccination

Source: Science, M., Thampi, N., Bitnun, A., Allen, U., Birken, C., Blackman, N., Cohen, E., Dubey, V., Dye, L., Gallagher-Mackay, K., Greer, A., Katz, G. M., Khan, S., Kim, J., Korczak, D., Leifso, K., Macdonal, L. M., Maltsev, A., McCreedy, J., ... Barrett, K. (2021). School operation for the 2021-2022 academic year in the context of the COVID-19 pandemic. *Science Briefs of the Ontario COVID-19 Science Advisory Table*, 2(38), 1-40. <https://doi.org/10.47326/ocsat.2021.02.38.1.0>

^aIf in the low SARS-CoV-2 risk scenario based on metrics, some jurisdictions/schools may choose to maintain measures that can still afford layers of prevention that are less disruptive to the education and well-being (e.g., masking indoors) at the start of the September 2021 school year and reassess the ongoing need once in-person education has been resumed. ^bSevere disease can be assessed using the following metrics: COVID-19 hospitalizations, ICU admissions, and deaths. ^cPublic health tracing capacity is also an important consideration that may be impacted as case counts increase. ^dSustained SARS-CoV-2 transmission: 14 days or more. ^eRobust case and contact management with low-barrier testing (see Testing section) is important in all risk scenarios to identify and promptly isolate individuals with SARS-CoV-2 infection.

Personal Protective Equipment (PPE)

In a medical setting, PPE is designed to protect the wearer, and individual users put on and take off their PPE (such as masks, face shields, gowns, and gloves) when encountering a potentially

contagious patient. It is essential that this is done properly to avoid the possibility of self-contamination. In the context of the pandemic, masking has become an important measure employed to protect others from one's own respiratory secretion (Benjamin & Zimmerman, 2021). The Public Health Agency of Canada has developed masking guidance, including recommendations for non-medical masks (Government of Canada, 2021c), as has the CDC (2021c) and the American Academy of Pediatrics (2021). A masking policy should be developed with local public health and may involve masking of teachers and/or children and youth depending on age and ability to wear a mask. Exceptions to masking are infrequent but may include children/youth who cannot wear a mask due to anxiety, developmental delay, or the physical inability to remove their mask. Masks generally should be worn in settings where physical distancing is not possible; this may include on the bus and in the classroom. Generally, masks should not be required outdoors. At lunchtime, if eating indoors, physical distancing should be maintained while masks are off. Additional PPE, such as a face shield, may be considered in times of higher community transmission in working with local public health.

Conclusion

Each of the five components of the IPAC Hierarchy of Controls; Elimination of Exposure, Substitution of Activities, Engineering Controls, Administrative Controls, and PPE forms an important framework with the overarching goal to interrupt disease introduction and transmission into the school setting. It is important to highlight that while these measures and considerations will offer a layered approach to protection in the school setting, ultimately the most important way to keep schools safe is to limit and ultimately eliminate community transmission (Fontanet et al., 2021). This is of utmost importance in the unfortunate event that a school must close to ensure that in-classroom learning can resume with the least time away possible. Adherence to jurisdictional public health measures must be employed by all and should be updated based on local health guidance and measures as they change and evolve over time. We appreciate that school jurisdictions and schools may have questions about how to implement this guidance and that different provinces/territories have used different indices around school closures, which can challenge the public's confidence in recommendations. The Ontario Science Table (Science et al., 2021) recently published a comprehensive document to provide "guidance to policymakers on COVID-19 mitigation measures for kindergarten-to-grade 12 schools for September 2021". Consultation of this detailed guidance document is recommended (see also CDC, 2021b).

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