Theme: Access to Technology and the Digital Divide in Racialized Under-Resourced Communities

In a relatively short period, COVID-19 disrupted all levels of education and supplementary programming locally and nationally (Gallagher-Mackay et al., 2021; Royal Society of Canada, 2021; Toronto Foundation, 2021; United Nations, 2020). Approximately 1.6 billion learners across the world experienced some sort of disruption because of closures to school or not being able to access learning spaces and/or technologies to enable learning (United Nations, 2020). In Canada, public health measures implemented in schools across the provinces and territories have repeatedly adjusted over time in response to COVID-19, leaving very young children and those from marginalized groups (e.g., immigrants, racialized minorities) most affected (Gallagher-Mackay et al., 2021; Royal Society of Canada, 2021; Toronto Foundation, 2021; Silverman et al., 2020). The Toronto District School Board, for example, one of the largest school boards in North America, experienced ongoing closures and multiple transitions to online, remote learning since March 2020 (COVID-19 Pandemic Recovery Plan, 2021). In some cases, the switch to distant learning may have been so sudden that it came with added negative impacts, such as increases in reported hunger as many students previously relied on nutritional supports that were delivered through in-person school programs (Royal Society of Canada, 2021; Toronto Foundation, 2021). Critically, low-income and racialized students in Toronto were more likely to switch to remote learning, as these neighbourhoods had the most severe COVID-19 outbreaks. These students were also more likely to struggle with access to high-speed internet and adequate space to focus on schoolwork. During the pandemic, approximately 50% of Black and Indigenous parents said that they were not able to complete schoolwork because of inadequate access to a computer at home (Toronto Foundation, 2021). With the growing mental health needs

and lack of community supports, the vast majority of students in primary and secondary schools strongly agreed that they learn better in-person compared to remotely (approximately 84%).

In particular, the shift from in-person to remote learning revealed that elementary and secondary schools within the Toronto District School Board were differentially equipped to minimize the disruptions caused by COVID-19, with technology either previously embedded into the curriculum (e.g., use of smart boards, applications such as Moodle and My Learning Space, and student designated worksite for homework) or with technology readily available for distribution for students for distant learning. Schools in the Jane-Finch neighbourhood in particular experienced added challenges with COVID-19 due to historical pre-existing disparities and social issues. Schools in Jane-Finch did not have sufficient and consistent access to resources and technologies for distance learning. As it concerns youth and adolescents in particular, schools in the Jane-Finch community have the highest ranking on the Toronto District School Board's Learning Opportunity Index (LOI), which means they face the greatest systemic challenges in their community as it relates to educational achievement (Eizadirad, 2019). For example, 3 of the top 5 schools most in need of additional resources are located in the Jane-Finch community. Such a condition has posed extra challenges to schools in these communities. Families of these schools have a lower median income, a greater percentage of adults have lower education, fewer adults have university degrees, and there are more lone-parent families in this community than in other communities across Toronto. Thus, already vulnerable students continued to grapple with a difficult education experience amid COVID-19, highlighting pandemic-disrupted schooling and learning loss.

In a report by the United Nations (2020), learning losses may be so large in some cases that they "threaten to extend beyond this generation and erase decades of progress." (p. 2)

Broadly, learning loss refers to the loss of knowledge and/or skills that students experience when they are not regularly engaging in school. Before the pandemic, learning loss was widely studied in summer months, when most student typically go on a 2-month break from school after finishing the year (Borman et al., 2005). Learning loss can be affected by demographic factors, with it being up to 60% larger among students from less-educated homes, confirming worries about the growing disparities in educational achievements and outcomes for children and families from marginalized backgrounds during the pandemic (Engzell et al., 2021; Gallagher-Mackay et al., 2021; Royal Society of Canada, 2021; Toronto Foundation, 2021). However, data on learning loss during lockdown have been slow to emerge, and parents, educators, and policymakers lack knowledge on what these learning losses look like to begin filling in the gap with intentional programming. A big contributor of learning loss during the pandemic and switch to remote learning is that schools and educators have been struggling to adopt online-based solutions for instruction (Kuhfeld et al., 2020). In sum, research on the impact of COVID-19 and supplementary education suggests that learning loss disproportionately affects lower socio-economic status(SES) areas mostly due to their limited ability and means to seek out resources to the same degree as higher SES areas. This in turn has contributed to students to progress at a statistically significant lower rate compared to students from higher SES areas in math (Bacher-Hicks et al., 2020).

There is a dearth of research on the impact of lack of technology access for Black students from inner-city neighbourhoods in Canada. Still, given the longstanding trends on the structural inequities disproportionately impacting Black and other racialized groups (Chakraborty & Bosman, 2005), it can be assumed that COVID-19 has exacerbated these challenges and made it more difficult to transition to distant learning for academic success

(Codjoe, 2001). The term digital divide refers to the gap between people who can access and use information and communication technologies (e.g., computers, tablets, the internet) in their daily lives and people who cannot (Van Dijk, 2006). A person affected by the digital divide may experience low-quality and unreliable internet service, inability to pay the cost of a device, and/or limited types of connections depending on geographical region (Park et al., 2019). The digital divide is particularly concerning with COVID-19 effectively transforming the delivery of education and requiring households to have access to technology to support distant learning. Students from low-income, rural, and First Nations households experienced more challenges with competing needs for devices and connectivity (Gallagher-Mackay et al., 2021; Royal Society of Canada, 2021; Toronto Foundation, 2021). In addition to affecting student achievement outcomes, the digital divide affects students' mental health through increasing feelings of boredom, frustration, and isolation while physical distancing measures were in place, suggesting that connection to community and society was deeply important during this period, which was facilitated primarily through technological means (Bennett et al., 2020; Gabbiadini et al., 2020). Limited access to technology has a negative impact on Black, Indigenous, and people of colour (BIPOC) children' educational progress and development, as well as the support they receive from educators and other school personnel who have the opportunity to make a positive difference in their lives, through self-perception, attitudes, and intrinsic motivation (Codjoe, 2006). These issues can affect psychosocial aspects that contribute to academic success and a student's feeling of community and/or connectedness, which in turn also has an influence on wellbeing and health in general.

Youth and children in the Jane-Finch community experience more obstacles in their path than young people in other Toronto communities due to historic poor city planning and ongoing

discrimination and media depictions that reinforce negative stereotypes (Eizadirad, 2020). For example, children who live in Jane-Finch are not afforded access to opportunities on a consistent basis at an affordable price needed to overcome the spectrum of systemic barriers to community and societal participation. In this way, there is an opportunity gap that the community members and partnerships have been working to mitigate (Eizadirad, 2020). Thus, without access to adequate tools that facilitate effective distant learning, the transition has been particularly challenging for schools from both fronts contributing to intensification and widening of the opportunity gap.

In 2007, a community organization was founded by a local teacher Devon Jones called Youth Association for Academics Athletics, and Character Education (YAAACE). He decided to create a program to help mitigate the inequality of opportunity that was prohibiting student success given the plethora of systemic barriers facing the Jane-Finch community. The objective of YAAACE is to help marginalized, racialized, and poor children and youth from under resourced communities through comprehensive programming and activities (Eizadirad, 2020). YAAACE strives to close the achievement gap by focusing on minimizing the opportunity gap through a strategy its developed known as the Social Inclusion Strategy. YAAACE's social inclusion strategy was co-constructed by key stakeholders from the community with the interests of children and youth. Some of the programs offered by YAAACE includes academics, athletics, recreation, technology and the arts. One of the pillars of the Social Inclusion Strategy, academic intervention and support (the Weekend Academy and Summer Institute), was especially impacted when education delivery switched to online delivery.

The use of alternative digital technologies and supplementary programming have become increasingly accepted in the classroom to enhance students' learning experience, creating

meaningful pathways for students to construct and engage with complex educational material, particularly in mathematics (Collins & Halverson, 2018; Olive at al., 2009). When alternative technologies are combined with appropriate pedagogy, there is potential to facilitate learning and engagement and improve communication and collaboration between teachers, students, and parents. As such, the use of technology is becoming increasingly prioritized in curricula and educational policy. Students with adequate infrastructure at large may still experience challenges with home learning, in general, because distant learning is not part of the learning culture in Ontario. The challenges to students extend to undergraduate students in STEM-fields. For example, Means (2020) found that racialized students were more likely to face internet issues than white students (20% vs 12% respectively). Students noted in open-ended questions where they tried to communicate in English as a second language over email was also problematic at times. Further, problems associated with online learning were more present with women, students in lower-income households, and students identifying as a race/ethnicity group minoritized in STEM (Means, 2020). A survey was administered to explore the nature of college courses as they were taught after the COVID-19 outbreak, with a focus on the pervasiveness of various challenges undergraduates faced after the transition to remote instruction, and course features associated with higher levels of student satisfaction. Data analyses compared experiences of students from low-income, under-represented race/ethnicity and gender groups, or rural backgrounds to those of students without these characteristics. Despite this, the college students were more likely to rate the quality of their experience with STEM courses as good or better compared to other students, who rated them worse 18% vs 13% (Means, 2020).

Factors associated with policies associated with resource allocation, lack of access to technologies, and digital literacy significantly affect racialized, low-income inner-city schools. A

2021 policy brief titled "*Children and Schools during COVID-19 and Beyond: Engagement and Connection through Opportunity*" written by 15 educators and scholars across Ontario as part of the Royal Society of Canada outlines how mitigating learning loss and educational gaps requires a significant intentional investment. The report emphasizes that there is an urgent need to take steps now to reduce inequities that are affecting racialized students, families, and communities. The result of these educational inequalities negatively affects the academic pursuits of students, thereby generating lifelong impacts on the academic and career pathways of students, their families, and the broader community. Educational policies typically regulate school learning resources, and thus greatly influence outcomes related to education, including health and wellbeing. Without intentional targeted policies to mitigate on-going inequities that have intensified due to COVID-19, there may be an unintended shift of priorities that focus on a narrow range of student knowledge and literacy and/or numeracy, placing more students in danger of academic regression. It is essential to understand the technological barriers and challenges associated with remote learning to increase engagement and online participation in distant learning, particularly for students from racialized and under-resourced communities.

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