

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

Lauren McNamara^{ab*}

^aDiversity Institute, Ted Rogers School of Management, Ryerson University, 350 Victoria Street, Toronto, ON M5B 2K3, Canada; ^bRoyal Society of Canada, Working Group on Children and Schools

*lauren.mcnamara@ryerson.ca

Abstract

As Canada's schools reopen, attention to healing the school community is essential. Given the considerable stressors of the 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 postpandemic 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 postpandemic recovery are provided.

Key words: peer relationships, recess, schoolyard, bullying, school climate, healthy schools

OPEN ACCESS

Citation: McNamara L. 2021. School recess and pandemic recovery efforts: ensuring a climate that supports positive social connection and meaningful play. FACETS 6: 1814–1830. doi:[10.1139/facets-2021-0081](https://doi.org/10.1139/facets-2021-0081)

Handling Editor: Jules M. Blais

Received: June 21, 2021

Accepted: September 22, 2021

Published: November 4, 2021

Note: This paper is the fifth chapter in the report on Children and Schools. The report comes from the Children and Schools working group that is part of the RSC Task Force on COVID-19

Copyright: © 2021 McNamara. This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

Published by: Canadian Science Publishing

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 n.d](#)). 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. 2021a](#)). 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 postpandemic 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 (Govorova 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 (McNamara et al. 2018a, 2015; Wilson et al. 2018; Lodewyk et al. 2020; Berggren et al. 2020; Massey et al. 2021a, 2021b). 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. 2010; Ramstetter et al. 2013). 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 (Stanley et al. 2012; McNamara 2013; McNamara et al. 2014; McNamara 2018; Massey et al. 2021a, 2021b). Yet, given the variety of conditions and contexts across schools (McNamara 2013; McNamara et al. 2014; McNamara et al. 2015; London et al. 2015; McNamara 2018; McNamara et al. 2018a), 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 (Craig and Pepler 1997; Doll et al. 2003; Anderson-Butcher 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; Vaillancourt et al. 2010; McNamara et al. 2018a; Vaillancourt et al. 2021b).

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 (Umberson and Karas-Montez 2010; Eisenberger 2013; Lieberman 2013; Govorova 2020; 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 10 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 to reduce stress and return to class more with enhanced focus and attention that, in turn, can cumulatively influence their overall academic performance (Ramstetter et al. 2013). Optimal cognitive processing is thought to require intervals of concentrated instruction followed by breaks (Pellegrini and Bohn 2005; Barros et al. 2009; Godwin et al. 2016; Chen et al. 2018). 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 (Bjorklund and Brown 1998; Sibley and Etnier 2003; Barros et al. 2009; Jarrett 2011; Ramstetter et al. 2013).

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 (Tremblay et al. 2016; Saunders et al. 2016; Bull et al. 2020).

Time outdoors in nature

It is well-established in the research literature that outdoors- and nature-based play is associated with positive health impacts (Tremblay et al. 2015; Dankiw et al. 2020). Even in 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. 2019). 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 2013) 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 2011). 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 and 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 and 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 and 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 (Jarrett 2003; Dubroc 2007; Barros et al. 2009)

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 (Sullivan 1953; Bukowski et al. 1993; Bagwell et al. 1998; Hoza et al. 1995; Hartup 1996; Doll et al. 2003; Bukowski et al. 2010; Umberson and Karas-Montez 2010; Bagwell and Schmidt 2011; Durlak et al. 2011; Leiberman 2013; Wentzel et al. 2018).

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 (Jarrett 2003; Dubroc 2007; Barros et al. 2009). 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 (Umberson and Karas-Montez 2010; Bagwell and Schmidt 2011).

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 and Leary 1995; Leary and Baumeister 2000; Osterman 2000; Gere and MacDonald 2010; DeWall and Bushman 2011).

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. 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 and Leary 1995). Specifically, Baumeister and 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 and 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 and Bushman 2011). An evolutionary perspective, therefore, explains why social interactions trigger an array of cognitive processes and emotional responses that 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 and 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 (Baumeister and Leary 1995; Cacioppo and Hawkley 2003; Baumeister 2005; Steger and Kashdan 2009; DeWall et al. 2011). 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; Nansel et al. 2001; Doll et al. 2003; Robert Wood Johnson Foundation 2010; McNamara 2013; Zumbunn et al. 2013; McNamara et al. 2014; McDougall and Vaillancourt 2015; McNamara et al. 2015; McNamara et al. 2018a; McNamara 2018).

Bullying among school-aged children, for example, is a chronic public health crisis in Canada (Inchley et al. 2018). Attawell (2019) indicates that one-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 (McNamara et al. 2018a, 2018b, 2020; Lodewyk et al. 2019). As well, Lodewyk et al. (2020) 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 and 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 et al. 2018c). 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. 2019, 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 among peer belonging, physical activity, outdoor recess enjoyment, and positive affect (Hyndman et al. 2016; McNamara et al. 2018a; Lodewyk et al. 2019, 2020).

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 disproportionally 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 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 and Leary 1995; Baumeister 2005; Umberson and Karas-Montez 2010; Korpershoek et al. 2020).

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 10 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 McNamara 2013; McNamara et al. 2014; McNamara et al. 2015; London et al. 2015; McNamara et al. 2018b; London 2019).

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 and Waite-Stupiansky 2009; Pytel 2009; Robert Wood Johnson Foundation 2010; Vaillancourt et al. 2010; Stanley et al. 2012; McNamara 2013; McNamara et al. 2015; 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 many 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 and Waite-Stupiansky 2009; Pytel 2009; Robert Wood Johnson Foundation 2010; Stanley et al. 2012; McNamara 2013; McNamara et al. 2014). Research indicates that equipment availability influences children's engagement and activity levels (Escalante et al. 2013; Hatfield and 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 (Knowles and Gardner 2008; Huberty et al. 2012; Stanley et al. 2012; D'Haese et al. 2013; McNamara 2013; McNamara et al. 2014). 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 (Turner et al. 2013; McNamara et al. 2014).

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 et al. 2015). Principals indicate that minimalist design of outdoor environments is necessary 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 schoolyard¹. 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 mentions 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 (Doll et al. 2003; Pellegrini and Bohn 2005; McNamara et al. 2014). Further, such conditions trigger administrative concerns about safety, liability, theft, and discipline issues (Jarrett and Waite-Stupiansky 2009; Robert Wood Johnson Foundation 2010; McNamara 2013; McNamara et al. 2014).

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—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.

¹Though scholarly data are unavailable to document this statement, the following news releases are reflective of this practice: [cbc.ca/news/canada/london/london-ontario-neighbourhood-decision-making-schools-1.5353521](https://www.cbc.ca/news/canada/london/london-ontario-neighbourhood-decision-making-schools-1.5353521), [cbc.ca/news/canada/british-columbia/school-playgrounds-who-pays-and-how-expensive-are-they-1.2822828](https://www.cbc.ca/news/canada/british-columbia/school-playgrounds-who-pays-and-how-expensive-are-they-1.2822828), ottawacitizen.com/news/local-news/playgrounds, nationalpost.com/news/canada/saskatchewan-parents-who-want-playgrounds-at-their-kids-schools-have-to-raise-funds-themselves.

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 2013](#)), 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 remediating 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 ([McNamara, 2013](#); [McNamara et al. 2014](#); [London et al. 2015](#); [McNamara et al. 2018a](#); [Lodewyk et al. 2019, 2020](#); [McNamara and Zakaria 2020](#); [Loebach and Cox 2021](#)), 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 follows².

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

²For specific resources, including COVID-19 disease mitigation strategies for recess, please visit globalrecessalliance.org.

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 postpandemic 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.

Author contributions

LM conceived and designed the study. LM performed the experiments/collected the data. LM analyzed and interpreted the data. LM contributed resources. LM drafted or revised the manuscript.

Competing interests

The authors declare no known conflicts of interest.

Data availability statement

All relevant data are within the paper.

References

- Anderson-Butcher D, Newsome WS, and Nay S. 2003. Social skills intervention during elementary school recess: A visual analysis. *Children and Schools*, 25(3): 135–146. DOI: [10.1093/cs/25.3.135](https://doi.org/10.1093/cs/25.3.135)
- Astor RA, Meyer HM, and Pitner RO. 2001. Elementary and middle school students' perceptions of violence-prone school subcon- texts. *Elementary School Journal*, 101: 511–528. DOI: [10.1086/499685](https://doi.org/10.1086/499685)
- Attawell, K. 2019. Behind the numbers: Ending school violence and bullying. United Nations Educational, Scientific and Cultural Organization.
- Bagot KL, Allen FCL, and Toukhsati S. 2015. Perceived restorativeness of children's school playground environments: Nature, playground features and play period experiences. *Journal of Environmental Psychology*, 41: 1–9. DOI: [10.1016/j.jenvp.2014.11.005](https://doi.org/10.1016/j.jenvp.2014.11.005)
- Bagwell CL, and Schmidt ME. 2011. Guilford series on social and emotional development: Friendships in childhood and adolescence. Guilford Press.
- Bagwell CL, Newcomb A F, and Bukowski WM. 1998. Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child Development*, 69: 140–153. PMID: [9499563](https://pubmed.ncbi.nlm.nih.gov/9499563/) DOI: [10.1111/j.1467-8624.1998.tb06139.x](https://doi.org/10.1111/j.1467-8624.1998.tb06139.x)
- Barros RM, Silver EJ, and Stein REK. 2009. School recess and group classroom behavior. *Pediatrics*, 123(2): 431–436. PMID: [19171606](https://pubmed.ncbi.nlm.nih.gov/19171606/) DOI: [10.1542/peds.2007-2825](https://doi.org/10.1542/peds.2007-2825)
- Baumeister RF. 2005. *The Cultural Animal: Human Nature, Meaning, and Social Life*. Oxford University Press, New York.
- Baumeister RF, and Leary MR. 1995. The need to belong: Desire of interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3): 497–529. PMID: [7777651](https://pubmed.ncbi.nlm.nih.gov/7777651/) DOI: [10.1037/0033-2909.117.3.497](https://doi.org/10.1037/0033-2909.117.3.497)
- Berggren L, Olsson C, Talvia S, Hörnell A, Rönnlund M, and Waling M. 2020. The lived experiences of school lunch: An empathy-based study with children in Sweden. *Children's Geographies*, 18(3): 339–350. DOI: [10.1080/14733285.2019.1642447](https://doi.org/10.1080/14733285.2019.1642447)
- Bjorklund D, and Brown R. 1998. Physical play and cognitive development: Integrating activity, cognition, and education. *Child Development*, 69(3): 604–606. DOI: [10.1111/j.1467-8624.1998.tb06229.x](https://doi.org/10.1111/j.1467-8624.1998.tb06229.x)
- Boulton MJ, Chau C, Whitehand C, Amataya K, and Murray L. 2009. Concurrent and short-term longitudinal associations between peer victimization and school and recess liking during middle childhood. *British Journal of Educational Psychology*, 79: 207–221. DOI: [10.1348/000709908X336131](https://doi.org/10.1348/000709908X336131)

- Bukowski WM, Hoza B, and Boivin M. 1993. Popularity, friendship, and emotional adjustment during early adolescence. *New Directions for Child Development*, 1993: 23–37. DOI: [10.1002/cd.23219936004](https://doi.org/10.1002/cd.23219936004)
- Bukowski WM, Laursen B, and Hoza B. 2010. The snowball effect: Friendship moderates escalations in depressed affect among avoidant and excluded children. *Development and Psychopathology*, 22(4): 749–757. PMID: [20883579](https://pubmed.ncbi.nlm.nih.gov/20883579/) DOI: [10.1017/S095457941000043X](https://doi.org/10.1017/S095457941000043X)
- Bull F, Al-Ansari SS, Biddle S, Borodulin K, Buman MP, Cardon G. 2020. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine*, 54: 1451–1462. PMID: [33239350](https://pubmed.ncbi.nlm.nih.gov/33239350/) DOI: [10.1136/bjsports-2020-102955](https://doi.org/10.1136/bjsports-2020-102955)
- Cacioppo JT and Hawkley LC. 2003. Social Isolation and Health, with an Emphasis on Underlying Mechanisms. *Perspectives in Biology and Medicine*, 46: S39–S52. PMID: [14563073](https://pubmed.ncbi.nlm.nih.gov/14563073/) DOI: [10.1353/pbm.2003.0049](https://doi.org/10.1353/pbm.2003.0049)
- Canadian Public Health Association. 2019. Position statement: Children’s unstructured play [Online]: Available from cpha.ca/childrens-unstructured-play.
- Chen, O., Castro-Alonso, J.C., Paas, F, Sweller J. 2018. Extending cognitive load theory to incorporate working memory resource depletion: Evidence from the spacing effect. *Educational Psychology Review*, 30: 483–501. DOI: [10.1007/s10648-017-9426-2](https://doi.org/10.1007/s10648-017-9426-2)
- Craig WM, and Pepler DJ. 1997. Observations of bullying and victimization in the schoolyard. *Canadian Journal of School Psychology*, 13: 41–59. DOI: [10.1177/082957359801300205](https://doi.org/10.1177/082957359801300205)
- Cost KT, Crosbie J, Anagnostou E, Birken CS, Charach A, Monga S. et al. 2021. Mostly worse, occasionally better: Impact of COVID-19 pandemic on the mental health of Canadian children and adolescents. *Eur Child Adolesc Psychiatry*, 1–14. DOI: [10.1007/s00787-021-01744-3](https://doi.org/10.1007/s00787-021-01744-3)
- Dankiw K, Tsiros M, Baldock K, and Kumar S. 2020. The impacts of unstructured nature play on health in early childhood development: A systematic review. *PLoS ONE*. 15: e0229006. PMID: [32053683](https://pubmed.ncbi.nlm.nih.gov/32053683/) DOI: [10.1371/journal.pone.0229006](https://doi.org/10.1371/journal.pone.0229006)
- DeWall CN, and Bushman BJ. 2011. Social acceptance and rejection: The sweet and the bitter. *Current Directions in Psychological Sciences*, 20(4): 256–260. DOI: [10.1177/0963721411417545](https://doi.org/10.1177/0963721411417545)
- DeWall C, Deckman T, Pond RS, and Bonser I. 2011. Belongingness as a Core Personality Trait: How Social Exclusion Influences Social Functioning and Personality Expression. *Journal of Personality*, 79(6): 1281–1314. PMID: [22092142](https://pubmed.ncbi.nlm.nih.gov/22092142/) DOI: [10.1111/j.1467-6494.2010.00695.x](https://doi.org/10.1111/j.1467-6494.2010.00695.x)
- D’Haese S, Van Dyck D, De Bourdeaudhuij I, and Cardon G. 2013. Effectiveness and feasibility of lowering playground density during recess to promote physical activity and decrease sedentary time at primary school. *BMC Public Health*, 13(1): 1–19.
- Doll B, Murphy P, and Song SY. 2003. The relationship between children’s self- reported recess problems, and peer acceptance and friendships. *Journal of School Psychology*, 41(2): 113–130. DOI: [10.1016/S0022-4405\(03\)00029-3](https://doi.org/10.1016/S0022-4405(03)00029-3)
- Dubroc AM. 2007. Is the elimination of recess in school a violation of a child’s basic human rights? [Online]: Available from files.eric.ed.gov/fulltext/ED495814.pdf.

Durlak JA, Weissberg RP, Dymnicki AB, Taylor RD, and Schellinger KB. 2011. The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1): 405–432. PMID: [21291449](#) DOI: [10.1111/j.1467-8624.2010.01564.x](#)

Eisenberger N. 2013. Social neuroscience and health: Neurophysiological mechanisms linking social ties with physical health. *Nature Neuroscience*, 15(5): 669–674. DOI: [10.1038/nn.3086](#)

Escalante Y, García-Hermoso A, Backx K, and Jose S. 2013. Playground designs to increase physical activity levels during school recess: A systematic review. *Health Education & Behavior*. 41(2): 138–144. PMID: [23836828](#) DOI: [10.1177/1090198113490725](#)

Genevive R, Meredith DA, Rakow ERB, Eldermire CG, Madsen SP, and Shelley NA. 2019. Minimum time dose in nature to positively impact the mental health of college-aged students, and how to measure it: A scoping review. *Frontiers in Psychology*, 2020: 10 DOI: [10.3389/fpsyg.2019.02942](#)

Gere J, and MacDonald G. 2010. An update of the empirical case for the need to belong. *Journal of Individual Psychology*. 66(1): 93–115.

Gibson JL, Cornell M, and Gill T. 2017. A systematic review of research into the impact of loose parts play on children's cognitive, social and emotional development. *School Mental Health*, 9: 295–309. PMID: [29170683](#) DOI: [10.1007/s12310-017-9220-9](#)

Godwin KV, Almeda M, Seltman H, Kai S, Skerbetz M, Baker R, et al. 2016. Off-task behavior in elementary school children. *Learning and Instruction*, 44: 128–143. DOI: [10.1016/j.learninstruc.2016.04.003](#)

Govorova E, Benítez I, and Muñoz J. 2020. How schools affect student well-being: a cross-cultural approach in 35 OECD Countries. *Frontiers in Psychology*, 11: 431. PMID: [32269538](#) DOI: [10.3389/fpsyg.2020.00431](#)

Gray P. 2011. The decline of play and the rise of psychopathology in children. *American Journal of Play*, 3(4).

Hartup WW. 1996. The company they keep: friendships and their developmental significance. *Child Development*, 67: 1–13. PMID: [8605821](#) DOI: [10.2307/1131681](#)

Hatfield DP, and Chomitz VR. 2015. Increasing Children's Physical Activity During the School Day. *Current Obesity Reports*, 4(2): 147–156. PMID: [26627212](#) DOI: [10.1007/s13679-015-0159-6](#)

Hoza B, Molina BSG, Bukowski WM, and Sippola LK. 1995. Peer variables as predictors of later adjustment. *Development and Psychopathology*, 7(4): 787–802. DOI: [10.1017/S0954579400006842](#)

Huberty J, Dinkel D, Coleman J, Beighle A, and Apenteng B. 2012. The role of schools in children's physical activity participation: Staff perceptions. *Health Education Research*, 27(6): 986–995. PMID: [22717940](#) DOI: [10.1093/her/cys071](#)

Hyndman B, Benson A, and Teleford A. 2016. Active Play: exploring the influences on children's school playground activities. *American Journal of Play*, 8(3): 325–344.

Inchley J, Currie D, Budisavljevic S, Torsheim T, Jästad A, Cosma A. et al. eds 2018. Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behaviour in School-aged Children (HBSC) survey in Europe and Canada. International report. Vol. 1. Key findings. WHO Regional Office for Europe, Copenhagen.

- Jarrett OS. 2003. Recess in elementary school: What does the research say? ERIC Digest [Online]. Available from ericdigets.org/2003-2/recess.html.
- Jarrett OS, and Waite-Stupiansky S. 2009. Recess—It's indispensable! *Young Children*, 64(5): 66–69.
- Knowles ML, and Gardner WL. 2008. Benefits of membership: The activation and amplification of group identities in response to social rejection. *Personality and Social Psychology Bulletin*, 34: 1200–1213. PMID: [18577600](#) DOI: [10.1177/0146167208320062](#)
- Korpershoek H, Canrinus E, Fokkens-Bruinsma M, and de Boer H. 2020. The relationships between school belonging and students' motivational, social-emotional, behavioural, and academic outcomes in secondary education: a meta-analytic review. *Research Papers in Education*, 35(6): 641–680. DOI: [10.1080/02671522.2019.1615116](#)
- Leary MR, and Baumeister RF. 2000. The nature and function of self-esteem: Sociometer theory. *In* *Advances in experimental social psychology*. Edited by MP Zanna. Vol. 32. Academic Press, San Diego, CA. pp. 1–62.
- Lieberman MD 2013. *Social: Why our brains are wired to connect*. Crown, New York.
- Lodewyk K, McNamara L, and Sullivan P. 2019. Associations between elementary students' victimization, peer belonging, affect, physical activity, and enjoyment by gender during recess. *Canadian Journal of School Psychology*, 35(2): 154–170. DOI: [10.1177/0829573519856814](#).
- Lodewyk K, McNamara L, and Walker M. 2020. Victimization, physical activity, and affective outcomes during recess in students with and without disabilities. *Alberta Journal of Educational Research*, 66(1): 17–31.
- Loebach J, and Cox A. 2021. Tool for observing play outdoors (TOPO): A New Typology for Capturing Children's Play Behaviors in Outdoor Environments. *International Journal of Environmental Research and Public Health*, 17(5): 5611. DOI: [10.3390/ijerph17155611](#)
- London R. 2019. *Rethinking Recess: Creating Safe and Inclusive Playtime for All Children in School*, Harvard Education Press.
- London RA, Westrich L, Stokes-Guinan K, and McLaughlin M. 2015. Playing fair: The contribution of high-functioning recess to overall school climate in low-income elementary schools. *Journal of School Health*, 85: 53–60. DOI: [10.1111/josh.12216](#)
- Massey WV, Perez D, Neilson L, Thalken J, and Szarabajko A. 2021a. Observations from the playground: Common problems and potential solutions for school-based recess. *Health Education Journal*, 80(3): 313–326. DOI: [10.1177/0017896920973691](#)
- Massey WV, Szarabajko A, Thalken J, Perez D, and Mullen S. 2021b. Memories of school recess predict physical activity enjoyment and social-emotional well-being in adults, *Psychology of Sport and Exercise*, 55: 101948. DOI: [10.1016/j.psychsport.2021.101948](#)
- McDougall P, and Vaillancourt T. 2015. Long-term adult outcomes of peer victimization in childhood and adolescence: Pathways to adjustment and maladjustment. *American Psychologist*, 70(4): 300–310. DOI: [10.1037/a0039174](#)
- McNamara L. 2013. What's getting in the way of play? An analysis of the contextual factors that hinder recess in elementary schools. *Canadian Journal of Action Research*, 14(2): 3–21.

- McNamara, L. 2018. Recess: Supporting a Culture of Meaningful Play at School. *In* The Cambridge Handbook of Play: Developmental and Disciplinary Perspectives (Cambridge Handbooks in Psychology). Edited by P. Smith and J Roopnarine. Cambridge University Press, Cambridge. DOI: [10.1017/9781108131384](https://doi.org/10.1017/9781108131384)
- McNamara L, Vantaaja E, Dunseith A, and Franklin N. 2014. Tales from the playground: Transforming the context of recess through participatory action research. *International Journal of Play*, 4(1): 49–68. DOI: [10.1080/21594937.2014.932504](https://doi.org/10.1080/21594937.2014.932504)
- McNamara L, Franklin N, and Colley P. 2015. School recess, social connectedness and health: a Canadian perspective. *Health Promotion International*, 32(2): 392–402. DOI: [10.1093/heapro/dav102](https://doi.org/10.1093/heapro/dav102)
- McNamara L, Lodewyk K, and Franklin N. 2018a. Recess in elementary school: A study of belongingness, affect, and victimization on the playground. *Children and Schools*, 40(2): 114–121.
- McNamara L, Lakman Y, Spadafora N, Lodewyk K, and Walker M. 2018b. Recess and children with disabilities: A mixed-methods pilot study. *Disability and Health Journal*, 11(4): 637–643. DOI: [10.1016/j.dhjo.2018.03.005](https://doi.org/10.1016/j.dhjo.2018.03.005)
- McNamara L, Gibson J, Lodewyk K, Spadafora N, and Lakman Y. 2018c. Enjoyment and belonging at recess: A mixed-methods study of children's views of recess and responses to a recess intervention. *Journal of Contemporary Issues in Education*, 13(2): 37–54. DOI: [10.20355/jcie29343](https://doi.org/10.20355/jcie29343)
- McNamara L. and Zakaria T. 2020. Canadian national position paper on recess. Physical and Health Education Canada. [online]: Available from phecanada.ca/sites/default/files/content/docs/Program/Recess/Role%20of%20Recess_Position%20Paper_EN.pdf.
- McNamara L, London R, Ramstetter C, Baines E, Beresin A, Classen J, et al. 2020. School reopening? Make sure children have time for recess. Global Recess Alliance. [online]: Available from globalrecessalliance.org/recess-statement/.
- Nansel T, Overpeck M, Pilla RS, Ruan WJ, Simmons-Morton B, Schmidt P. et al. 2001. Bullying behaviors among US youth. *Journal of American Medical Association*, 285: 2094–2100. DOI: [10.1001/jama.285.16.2094](https://doi.org/10.1001/jama.285.16.2094)
- Ontario Principals Council. 2007. People for education: Cuts to supervision time [online]: Available from principals.ca/Print.aspx?cid=7865.
- Osterman KF. 2000. Students' need for belonging in the school community. *Review of Educational Research*, 70(3): 323–367. DOI: [10.3102/00346543070003323](https://doi.org/10.3102/00346543070003323)
- Pellegrini A, and Bohn C. 2005. The role of recess in children's cognitive performance and school adjustment. *Educational Researcher*, 34(1): 13–19. DOI: [10.3102/0013189X034001013](https://doi.org/10.3102/0013189X034001013).
- Pytel, B. 2009. Pros and cons of recess time in schools: Is recess a mere tradition or a vital piece in education? [online]: Available from isbe.state.il.us/IRTF/pdf/recess_pros_cons.pdf.
- Ramstetter CL, Murray R, and Garner AS. 2010. The crucial role of recess in schools. *The Journal of School Health*, 80(11): 517–526. PMID: [21039550](https://pubmed.ncbi.nlm.nih.gov/21039550/) DOI: [10.1111/j.1746-1561.2010.00537.x](https://doi.org/10.1111/j.1746-1561.2010.00537.x)
- Ramstetter CL, Murray R, and Garner AS. 2013. The crucial role of recess in schools. *American Academy of Pediatrics, Council of School Health*, 131(1): 183–188. DOI: [10.1542/peds.2012-2993](https://doi.org/10.1542/peds.2012-2993)

Robert Wood Johnson Foundation. 2010. The state of play: Gallup survey of principals on school recess. Princeton, NJ. [online]: Available from rjwf.org.

Saunders TJ, Gray CE, Poitras V, Chaput JP, Janssen I, Katzmarzyk PT, et al. 2016. Combinations of physical activity, sedentary behaviour and sleep: relationships with health indicators in school-aged children and youth. *Applied Physiology, Nutrition, and Metabolism*, 41(6): S283–S293. DOI: [10.1139/apnm-2015-0626](https://doi.org/10.1139/apnm-2015-0626)

Sibley B, and Etnier J. 2003. The relationship between physical activity and cognition in children: a meta-analysis. *Pediatric Exercise Science*, 15: 243–256. DOI: [10.1123/pes.15.3.243](https://doi.org/10.1123/pes.15.3.243)

Stanley RM, Boshoff K, and Dollman J. 2012. Voices in the playground: A qualitative exploration of the barriers and facilitators of lunchtime play. *Journal of Science and Medicine*, 15(1): 44–51.

Statistics Canada n.d. School closures and COVID-19: interactive tool [online]: Available from www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2021009-eng.htm#a4.

Steger MF, and Kashdan TB. 2009. Depression and everyday social activity, belonging, and well-being. *Journal of Counseling Psychology*, 56(2): 289–300. PMID: [20428460](https://pubmed.ncbi.nlm.nih.gov/20428460/) DOI: [10.1037/a0015416](https://doi.org/10.1037/a0015416)

Sullivan HS. 1953. The interpersonal theory of psychiatry.

Timmons KA, Selby EA, Lewinsohn PM, and Joiner TE. 2011. Parental Displacement and Adolescent Suicidality: Exploring the Role of Failed Belonging. *Journal of Clinical Child & Adolescent Psychology*, 40(6): 807–817. PMID: [22023272](https://pubmed.ncbi.nlm.nih.gov/22023272/) DOI: [10.1080/15374416.2011.614584](https://doi.org/10.1080/15374416.2011.614584)

Tremblay MS, Gray C, Babcock S, Barnes J, Bradstreet CC, Carr D, et al. 2015. Position Statement on Active Outdoor Play. *International Journal of Environmental Research and Public Health*. 12(6): 6475–6505. PMID: [26062040](https://pubmed.ncbi.nlm.nih.gov/26062040/) DOI: [10.3390/ijerph120606475](https://doi.org/10.3390/ijerph120606475)

Tremblay M, Carson V, Chaput JP, Connor Gorber S, Dinh T, Duggan M, et al. 2016. Canadian 24-hour Movement Guidelines for Children and Youth: An Integration of Physical Activity, Sedentary Behaviour, and Sleep. *Applied Physiology, Nutrition, and Metabolism* 41(6 suppl.3): S311–S327. PMID: [27306437](https://pubmed.ncbi.nlm.nih.gov/27306437/) DOI: [10.1139/apnm-2016-0151](https://doi.org/10.1139/apnm-2016-0151)

Turner L, Chriqui JF, and Chaloupka FJ. 2013. Withholding recess from elementary school students: Policies matter. *Journal of School Health*, 83(8): 533–541. DOI: [10.1111/josh.12062](https://doi.org/10.1111/josh.12062)

Umberson D, and Karas-Montez J. 2010. Social relationships and health: A flashpoint for health policy. *Journal of Health and Social Behavior*, 51(1_suppl.): S54–S66. DOI: [10.1177/0022146510383501](https://doi.org/10.1177/0022146510383501)

United Nations Convention on the Rights of the Child. 2013. General Comment No. 17 on Article 31, the right to play, rest and leisure. Paris. [online]: Available from refworld.org/docid/51ef9bcc4.html.

United Nations Educational, Scientific, and Cultural Organization 2017. A guide for ensuring inclusion and equity in education. Paris. [online]: Available from unesdoc.unesco.org/images/0024/002482/248254e.pdf.

Vaillancourt T, Brittain H, Bennett L, Arnocky S, McDougall P, Hymel S, et al. 2010. Places to avoid: Population-based study of student reports of unsafe and high bullying areas at school. *Canadian Journal of School Psychology*, 25(1): 40–54. DOI: [10.1177/0829573509358686](https://doi.org/10.1177/0829573509358686)

Vaillancourt T, Szartmari P, Geogiades K, and Krygsman A. 2021a. The impact of COVID-19 on the mental health of Canadian children and youth. *FACETS*, 6(1): 1628–1648. DOI: [10.1139/facets-2021-0078](https://doi.org/10.1139/facets-2021-0078)

Vaillancourt T, Brittain H, Krygsman A, Farrell AH, Landon S, Pepler D. et al. 2021b. School Bullying Before and During COVID-19: Results from a Population-Based Randomized Design. *Aggressive Behaviour*. In Press.

Vygotsky L. 1978. *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wang S, and Aamodt S. 2012. Play, stress, and the learning brain. *Cerebrum*, 2012: 12. PMID: [23447798](https://pubmed.ncbi.nlm.nih.gov/23447798/)

Wentzel KR, Jablansky S, and Scalise NR. 2018. Do friendships afford academic benefits? a meta-analytic study. *Educ Psychol Rev*, 30: 1241–1267. DOI: [10.1007/s10648-018-9447-5](https://doi.org/10.1007/s10648-018-9447-5)

Wilson R, Morieson L, Murray G, Clarke B, and Lukas K. 2018. Belonging in Space: Informal Learning Spaces and the Student Experience. *Journal of Learning Spaces*, 7: 21586195.

World Health Organization. 2021. *Making every school a health-promoting school: Global standards and indicators*. UNESCO. Paris.

Yang C, Boen C, Gerken K, Li T, Schorpp K, and Mullan Harris K. 2016. Social relationships and physiological functioning. *Proceedings of the National Academy of Sciences*, 113(3): 578–583. DOI: [10.1073/pnas.1511085112](https://doi.org/10.1073/pnas.1511085112)

Yonezawa S, Jones M, and Joselowsky F. 2009. Youth engagement in high schools: Developing a multidimensional, critical approach to improving engagement for all students. *Journal of Educational Change*, 10: 191–209. DOI: [10.1007/s10833-009-9106-1](https://doi.org/10.1007/s10833-009-9106-1)

Zumbrunn S, Doll B, Dooley K, LeClair C, and Wimmer C. 2013. Assessing student perceptions of positive and negative social interactions in specific school settings. *International Journal of School and Educational Psychology*, 1(2): 82–93. DOI: [10.1080/21683603.2013.803001](https://doi.org/10.1080/21683603.2013.803001)