



Schoolyards Count

How Ontario's schoolyards measure up for health, physical activity and environmental learning

By Kelly Gallagher-Mackay, Wilfrid Laurier University
Christine Corso, Ontario Institute for Studies in Education
Tammy Shubat, Ophea

Copyright 2021 Authors and Ophea

Citation: Gallagher-Mackay, K., Corso, C. & Shubat, T. (2021).
*Schoolyards count: How Ontario's schoolyards measure up for health,
physical activity and environmental learning.* Toronto: Ophea.

www.ophea.net



Table of Contents

Schoolyards count – Quick facts	1
Citizen Science to Understand Ontario Schoolyard Quality	2
Why do schoolyards matter?	3
The state of student health and well-being	3
The research on schoolyard quality	4
Standardized measures relate playground quality to levels of physical activity	5
Summary of methods	6
Why citizen science?	6
Findings:	
How Ontario schoolyards “measure up”	7
Opportunities for sport and play	7
Safe, active transportation:	
Strong relationship with physical activity	10
Access to “everyday nature” and environmental learning	12
Beauty and maintenance	14
The schoolyard wealth gap	16
Recommendations	19
Appendix – Methods	21
Data sources	21
Data cleaning and analysis	21
Validity checks	22
References	25
Partners	29
Acknowledgements	29

Schoolyards count

Quick Facts

Schoolyards Count is based on data collection by citizen scientists using a validated, reliable audit tool. Auditors assessed schoolyards across four domains: provision for sport and play, active transportation, environmental opportunities and aesthetics and maintenance.

Overall schoolyard quality in Ontario 'needs improvement'

73% of Ontario schoolyards had an overall Schoolyard Quality Score that was less than half of the optimal score. There is wide variation between schools – scores range from a mere 14 to a high of 61 on a scale with a possible top score of 88. This represents major gaps in opportunities for well-being for students, depending on which school they attend.

Sports and play

A quarter of schoolyards across Ontario were assessed as being “unsuitable” for play or games and one in five were assessed as being “unsuitable” for sports.

- 10% of schools had no fields;
- 16% of schools had no courts for games like basketball;
- 13% of elementary schools had no play equipment – neither single-use structures like a tetherball pole or simple monkey bars (24% of elementary schools had none), nor multi-component structures (26% of elementary schools had none.)
- 47% of secondary schools had no track (and only 29% of elementary schools had them)

Active transportation

Higher speed limits are associated with more accidents and more severe injuries. 37% of schools have at least one adjacent road with a speed limit above 40 km/hour. More than one-third of schools do not have marked traffic crossings; 67% of schools do not have traffic-calming measures. Only 21% of schools have bike paths leading to the school. 33% of schoolyards had no bike racks. 55% of schools reported either congested traffic or no place to drop off students.

Environmental opportunities

This was the domain with the lowest average scores – thus, the greatest room for improvement. Schools are more likely to have decorative flower beds (69%) than learning gardens (39%) or low-maintenance biodiversity-promoting areas (56%). In a third of schoolyards, 50% or more of the surface area is paved, contributing to injuries and heat islands. 13% of schools had no shade at all from tree cover; only 20% of schools had “a lot” of shade.

Maintenance and aesthetics

74% of schools were rated as being well-maintained; 81% of schools are generally free of vandalism. Only 22% of schools had murals or art in the schoolyard.

Inequality and schools

There is a small but statistically significant association between family income and schoolyard quality. In schools where the median family income is \$40,000 a year, overall Schoolyard Quality Scores are, on average, ten points lower than schools where the median family income is \$175,000.

There are significant differences between communities in terms of schoolyard quality; community income levels appear to be a factor but there are other drivers including the age of school facilities, advocacy, and board and municipal policies.

Results are based on 232 mostly complete audits, representing 5% of Ontario schoolyards. Schoolyards audited are broadly representative of Ontario's different regions, median income levels, and the distribution of public, Catholic and French school boards in the province.

Citizen Science to Understand Ontario Schoolyard Quality

Research demonstrates schoolyards can contribute to students' health and learning. Schoolyard quality makes a difference to physical activity levels and learning opportunities. And, as children return to school after eighteen months of education disruption, the importance of outdoor spaces at school has never been clearer.

We wanted to know, overall, what is the state of schoolyard quality in Ontario – an important driver of healthy school communities.

We invited members of school communities – school councils, health and physical education classes, healthy-schools or eco-schools committees, or individuals – asking them to use a standardized “audit tool” to assess the quality of their own schoolyard.

Our goal was to use the work of these schoolyard “citizen scientists” to create a picture of schoolyard quality across Ontario: do school grounds do all they can to promote physical activity, environmental learning and play? Is quality consistent between communities and neighbourhoods – or does where students live make a difference to their opportunities for physical activity and environmental learning at school?

This project is part of a partnership between Ophea – a leading healthy schools organization in Ontario – and researchers at Wilfrid Laurier University. It was funded by the Social Sciences and Humanities Research Council.

Ultimately, our hope is that this research will use the collective work of citizens get data that goes beyond anecdotes about differences in schoolyard quality, to inform policy and funding decisions around playground planning, public funding, and fundraising and philanthropy in this area, a core component of comprehensive school health.



Why do schoolyards matter?

The state of student health and well-being

There are plenty of reasons why young people's health, physical inactivity and access to nature needs to be a priority right now:

- North American children are at risk of being the first generation with a life expectancy shorter than that of their parents.¹
- Only 35% of school-age children and youth get the recommended one hour of moderate to vigorous physical activity.²
- Mental health issues in children and youth are very common, with 44% of grade 7-12 students experiencing moderate-to-serious levels of psychological distress (symptoms of depression and anxiety) and one in five students experiencing serious levels of psychological distress.³
- Almost a third of Canadian 5- to 17-year-olds are overweight (19.8%) or obese (11.7%).⁴
- Just 37% of children between the ages of 11 and 15 play outside for more than two hours each day.⁵

Measures required to prevent the spread of COVID-19 have, if anything, accelerated concerns about physical health and activity in young people. In spring 2020, when Canadians were first living through the COVID pandemic lockdowns, only 24% of children (5-11 years) and 13% of youth (12-17 years) were getting their recommended daily physical activity of 60 mins/day. On average, children had more than 5 hours of screen time each day and youth had more than 6 hrs/day. *Less than 5% of children, and only 0.6% of youth, were meeting movement behaviour guidelines overall during early stages of the pandemic.*⁶ Parents from Ontario reported the greatest reduction in outdoor play and time spent outdoors during the pandemic, compared to other regions across Canada.⁷

Schools are – or should be – a great place to make a difference in these statistics. Both achievement and *well-being* are core purposes of the Ontario education system.⁸ Overall well-being includes cognitive, emotional, social, and physical elements. During the school week, children and youth spend half their waking hours at school – so schools share responsibility for getting them outside and active on those days.



The research on schoolyard quality

Decades of research demonstrate that school playgrounds are an important part of students' learning, social development, physical and mental health, sense of connection to school, and environmental knowledge and attitudes.⁹

Students use playgrounds for unstructured activities at recess and lunch, and during health and physical education and other classes, extracurricular sports or arts, and 80% of Ontario schools that offer childcare.¹⁰ Because it is built into their day, many children are likely to have a significant part of their outdoor play time in a schoolyard relative even to local parks, sporting facilities or backyards if they have one.

Remembering that the average Ontario elementary school has 363 students, and the average secondary school has 840 students,¹¹ it is no understatement to say that most playgrounds serve literally hundreds of children on a daily basis.

One of the most important contributions of schoolyards to children's well-being is that they can provide routine opportunities for the active outdoor play – ideally, in nature. In 2015, an expert panel position statement described active outdoor play as “essential for healthy child development.”¹² Key findings from the underlying systematic evidence reviews on the risks and benefits of active outdoor play were that “children who are outdoors move more, sit less and play longer.” These behaviours are associated with an array of health benefits. Further, they found that “outdoor play is less risky than you think.”¹³ Even since then, there are still more findings that show children who spend more time outdoors are more likely to sleep better, have less sedentary screen time, have healthy weight, and meet physical activity guidelines.¹⁴

Unstructured play may contribute particularly to developmental and social-emotional outcomes such as problem-solving and creativity – while supervision and organized activities may bolster activity levels and curricular learning,¹⁵ suggesting that both forms of activity matter. When integrated, Universal Design and thoughtful accessibility contribute to greater opportunities for social inclusion and physical activities for children, educators and caregivers of differing abilities.

Outdoor play is more important than ever as school leaders and policymakers develop COVID-19 recovery plans. In a joint statement released in May 2021, Native Child and Family Services Toronto, SickKids, and researchers from the University of Toronto called for Ontarians to prioritize outdoor play and activity in the recovery from the pandemic.¹⁶ Schoolyards are the most obvious place where the education system – as part of its shared responsibility for child well-being – can make sure outdoor play happens for all kids.

Teaching and learning, strong curriculum, policies and practices supporting equity and inclusion, and positive relationships all matter a great deal in promoting healthy childhoods at school. This report focuses on just one key factor to boosting long-term health and learning – the built environment, and particularly, outdoor spaces.¹⁷ Schoolyards support effective implementation of comprehensive school health.

Standardized measures relate playground quality to levels of physical activity

Public health research shows that observable differences in playground quality – particularly, the number of health-promoting features such as basketball hoops, painted hopscotch markings, or playing fields – is associated with levels of physical activity in children.¹⁸ A team of experts in paediatric neuroscience and exercise science recently affirmed that “in addition to physical health benefits, physical activity also improves cognition, brain function and mental health.”¹⁹

Audit tools have been established as an appropriate way to measure the built environment. These tools can be used to collect data beyond what would be available in databases or satellite images, including presence of individual pieces of equipment or markings, standards of maintenance and overall “feel” of environments.²⁰ There are a number of standardized audit tools that have been created to assess the quality and condition of parks and schoolyards, with demonstrated impact on levels of physical activity, typically measured with accelerometers or structured observations.²¹

Data on school playground quality for *Schoolyards Count* was collected using the SPEEDY schoolyard audit instrument, a validated audit tool with established reliability.²² SPEEDY is an audit tool that was specifically designed for schoolyard quality assessment, and perhaps the simplest tool we considered, which made it a good choice for auditors who would not have extensive training. The SPEEDY Tool has been used in both elementary and secondary settings. Other researchers have used adapted versions to include questions about learning environments such as gardens²³ and it has been adapted as a basis for international comparisons.²⁴ It provides a structured way to assess opportunities for physical activity in schoolyards. Every tool has strengths and weaknesses - this tool was highly useable, but did not show the strongest correlation with physical activity of all tools, and was not designed with a focus on accessible playgrounds -- leaving important room for future research.



Summary of methods

This project drew on citizen science to collect data using the adapted SPEEDY Audit tool. The tool, and supporting materials, including an instructional video was hosted on the Ophea website (<https://www.ophea.net/node/7240>).

In total, after a media blitz that included coverage on television and newspapers, we were able to engage 110 citizen scientists to audit their own schoolyards. We did second round of data collection, using student auditors, in four targeted municipalities representing distinct Ontario regions: the Greater Toronto Area (Toronto), Northern Ontario (Sudbury), Southwestern Ontario (Brantford), and Eastern Ontario (Ottawa). In total, after eliminating duplicates and incomplete surveys we had 232 completed audits, representing approximately 5% of Ontario schools. Our sample was representative of the distribution of average family incomes in Ontario schools

A detailed discussion of methods is included at the end of the report.

Why citizen science?

Citizen-science is an increasingly well-established approach to collecting data at a level of scale and detail unavailable to regular research teams. It would be prohibitive for a research team to criss-cross Ontario assessing the quality of schoolyards! By engaging communities to assess their own schoolyards, then upload the data, we can create a comprehensive picture of unparalleled detail.

Citizen science contributes to stronger communities by engaging citizens as data collectors, intervention-planners, monitors of the work of public institutions, and effective knowledge mobilizers.²⁵ Citizen-scientists can communicate what they've learned in a way that gets more attention from decision-makers and media. As one researcher noticed, citizen science research often compels action in a way that a straight "facts and figures" report simply cannot.²⁶



Findings: How do Ontario schoolyards “measure up”?

Overall, our findings suggest that the quality of Ontario schoolyards is middling at best, and that there is substantial variation in schoolyards across the province.

The audit tool we used examined four domains of schoolyard quality:

- provision for sport and play,
- provision for active transportation,
- provision of environmental opportunities, and
- aesthetics and maintenance.

For each school, we also calculated an *overall* Schoolyard Quality Score (SQS), based on the data provided by auditors. The score is based on a mix of objective factors (e.g., how many pieces of play equipment exist) and subjective ratings (e.g., is the condition of the equipment poor, adequate or good). An analysis showed that objective and subjective scores were equally distributed.

73% of schoolyards had an overall Schoolyard Quality Score of 40 or lower – less than half the optimal score.

The Schoolyard Quality Score is the total rating of the schoolyard, with a total range of possible scores that ran from -8 to 88 points. No schoolyard in our sample came close to the optimal score of 88: the highest score was 61. More worryingly, 73% of schoolyards had an overall School Quality Score of 40 or lower – less than half the optimal score; the mean, or average, score was 35.3. This suggests that across all four domains, there is considerable room for improvement in Ontario’s public schoolyards.

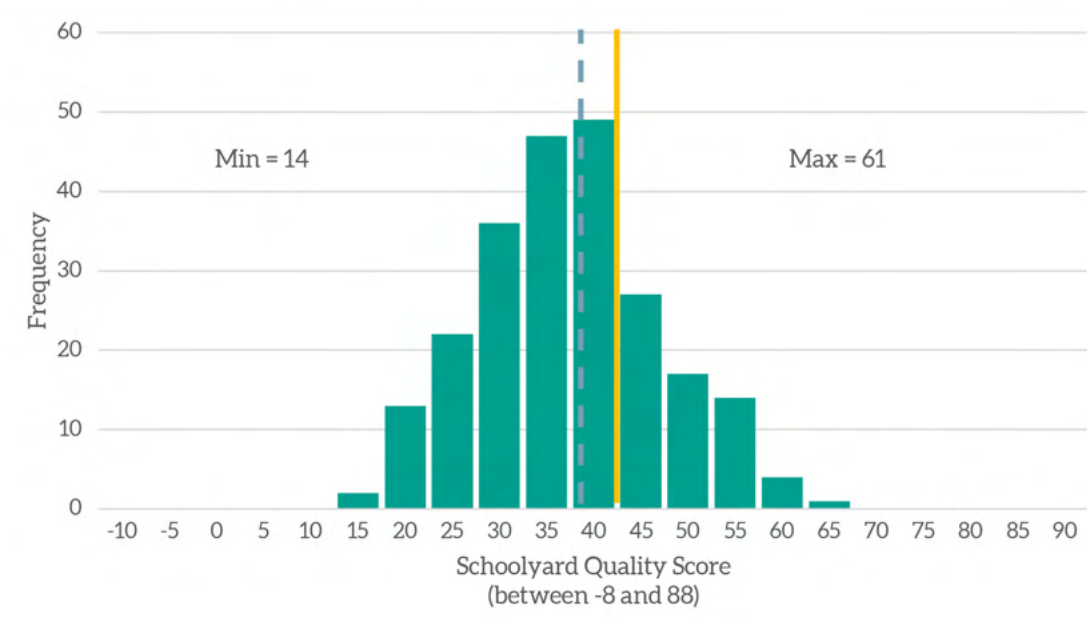
The other major concern is the *variation* in scores across Ontario. The highest-scoring school earned a 61; by contrast, the lowest-scoring school in Ontario rated a 14. Most schools had schoolyard quality scores within 10 points of the mean (the standard deviation is 9.9); 16% of schools had *extremely* low scores, below 25. These disparities exist despite a provincial funding formula which is intended to provide equitable per-student funding. It reflects a lack of overall guidelines or policies around schoolyard quality.

Opportunities for sport and play

Our audits show that the provision for sport and play in Ontario schoolyards is not very strong (a mean of 16, out of a possible 40 points), with 74% of schools scoring below the midpoint of 19.5. The maximum score achieved by any school in this domain was 30. The score was based on the availability and condition of key facilities, including playground equipment, fields, tracks, water fountains, and play surfaces.

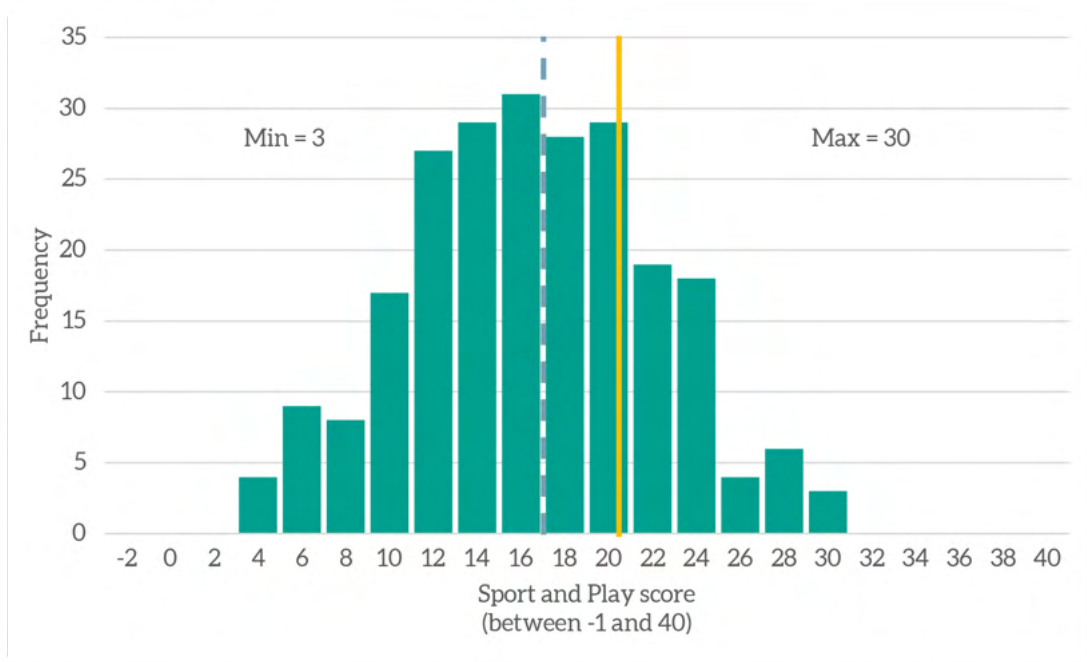


Figure 1: Distribution of overall Schoolyard Quality Scores



Histogram of Schoolyard Quality Score (SQS). The blue dashed line shows the mean at 35.3 and yellow line shows the midpoint of the scale at 40. The range of scores in the sample was between 14 and 61 out a possible range of scores from -8 to 88.

Figure 2: Distribution of Sport and Play scores



Histogram of Sport and Play scores. The blue dashed line shows the mean at 16 and yellow line shows the midpoint of the scale at 19.5. The range of scores in the sample was between 3 and 30, out of a possible range of scores from -1 to 40.

Again, however, quality of play provision is highly variable, and in an important minority of cases, shockingly inadequate. Notably:

- 10% of the schools in our sample had no fields;
- 16% of the schools in our sample had no courts for games like basketball or tennis;
- 13% of elementary schools had no play equipment – neither single-use structures like a tetherball poll or simple monkey bars (24% of elementary schools had none), nor more complex multi-component structures (26% of elementary schools had none.)
- 47% of secondary schools had no track (and only 29% of elementary schools had them)

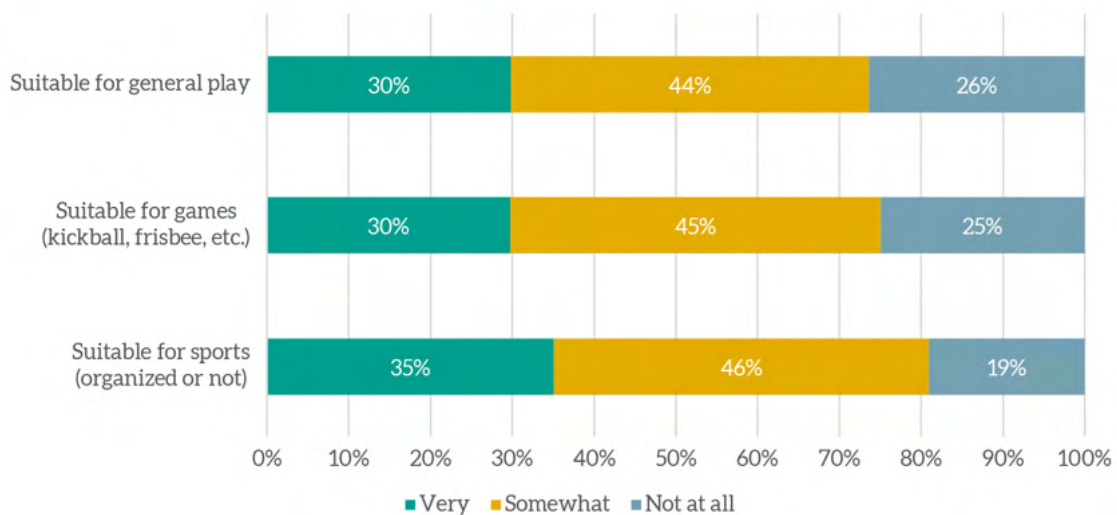
Some of the schools with no fields were adjacent to parks – but a number of informal interviews suggested students were only able to use the park space under formal supervision (i.e., for a physical education class, but not for recess).

Many schools lacked relatively inexpensive features that are associated with play. For example, only 45% of schools had any kind of naturalized play space where students might be more likely to climb or balance on logs or stumps (or engage in imaginative play). 21% of elementary schools didn't have markings on the ground to encourage kids to play hopscotch or foursquare.

Auditors were asked to rate the condition of play provision such as fields, courts, markings and equipment. For a large majority of schoolyards, auditors rated the condition of existing facilities as good or adequate (74% rated multiple part equipment structures and 76% rated their single equipment structures as good or adequate).

However, asked to rate the suitability of schoolyards for general play, auditors rated fully a quarter of schoolyards (26%) as not suitable for play. When asked about sports (organized or not), 19% of schoolyards were unsuitable for sport, and 25% were unsuitable for games (kickball, frisbee, etc.).

Figure 3: Suitability of schoolyards for general play, games, and sports



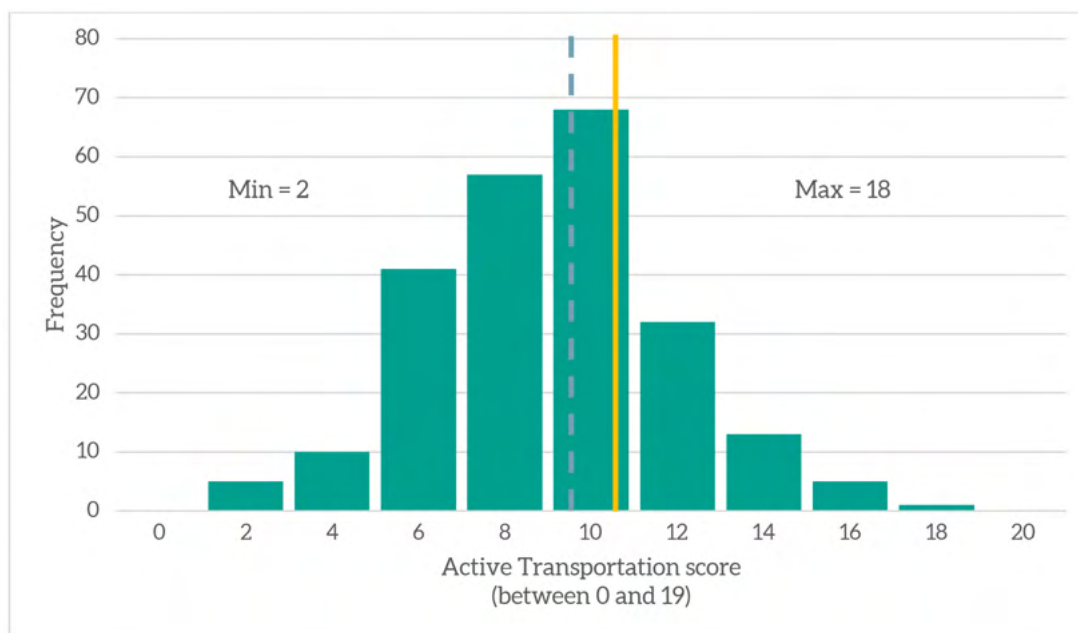
We note, again, that the built environment is a *necessary but not a sufficient contributor to active play in our schoolyards*. Schools do not currently have funding to provide the human resources – on a routine basis – to support students in being more active and pro-social during breaks.²⁷ There have been a number of promising initiatives that add people and planned activities to promote active play and social-emotional learning in schoolyards, but they are exceptional and rare.²⁸

Auditors rated fully a quarter of schoolyards (26%) as not suitable for play, and 19% of schoolyards were rated unsuitable for sport.

**Safe, active transportation:
Strong relationship with physical activity**

One of the most important ways that schoolyards can contribute to helping students achieve higher levels of physical activity is through creating an environment that supports active transportation: safely getting to school on foot or on human-powered wheels. In the original validation study for the SPEEDY audit tool, accelerometer data showed that students whose schools scored well in the Active Transport domain were significantly more active during commuting hours (8-9am and 3-4pm) than students from lower-scoring schools.²⁹

Figure 4: Distribution of Active Transportation scores



Histogram of Active Transport scores. The blue dashed line shows the mean at 8.5 and yellow line shows the midpoint of the scale at 9.5. The range of scores in the sample was between 2 and 18, out of a possible range of scores from 0 to 19.

There are many reasons parents hesitate to send their kids to school on foot. The built environment can address some important risks. Active transportation scores were based

on road safety factors – including speed limits, traffic calming, sidewalks and signage – as well as the presence of bus stops, bike facilities, and facilities for parking and stopping cars.

Schools scored relatively well on this domain compared to the others. Out of a maximum potential 19 points, school scores ranged from 2 to 18 with a mean of 8.5.

Traffic risks are real near schools.

Vehicle speed is the key variable in terms of severity of traffic-related injuries.³⁰ 37% of the schools audited had at least one adjacent road with a speed limit above 40 km/hour. Areas with speed limits above 40km/h were associated with significantly increased risk of child motor vehicle collisions³¹ - and higher speed limits are associated with more accidents and more severe injuries.

More than one third of schools had no marked traffic crossing on the adjacent roads; 35% of schools had sidewalks on only one side of the road (an additional 5% had no sidewalks), and 67% of schools had no forms of traffic calming (speedbumps, islands) near the school. Most schools had signs indicating to drivers that they were entering a school zone (73%).

Bicycles welcome?

Only 21% of schools had a bicycle route, and only 10% of schools had signage warning students to watch out for cyclists. On school grounds, 33% of schools had no bike racks. Anecdotally, many schools had obsolete bike racks to which it is difficult to securely lock a bicycle.

The parking conundrum

Parents drive students to school for a variety of reasons, including perceived safety and convenience in packed days juggling work and home life. However, those cars – and parking and stopping associated with driving to school – create risks to pedestrians, especially, smaller people who are less visible. In one study, higher traffic congestion was correlated with riskier driving behaviour such as dangerous reversing and double parking, while the presence of designated drop-off zones was correlated with less risky driving.³²

Auditors reported that traffic was congested or very congested and/or that there was no place to drop off children in 55% of schools in our study.

Schools with designated parent drop-off zones appear to be associated with less risky driving behaviour³³ – but are a challenge in space-constrained urban schools, and may actually encourage parents to drive, which is suboptimal from both a physical activity and environmental perspective.

Provision for active transportation depends on more than just school boards. There is a significant role for municipal governments in ensuring that kids have the opportunity to get to school under their own power. Ensuring that students can walk to school is a part of many municipal planning agendas³⁴ – although not necessarily a priority. School communities have a significant role to play in lobbying for safer conditions for active transportation if we want to promote physical activity and community building.

Access to “everyday nature” and environmental learning

Outdoor time in “everyday nature” like parks or schoolyards, not just remote wilderness areas, has been shown to relate to more positive environmental attitudes and values³⁵ as well as improved socio-emotional outcomes, better attention, and more positive peer relationships³⁶ – key aspects of well-being and learning.

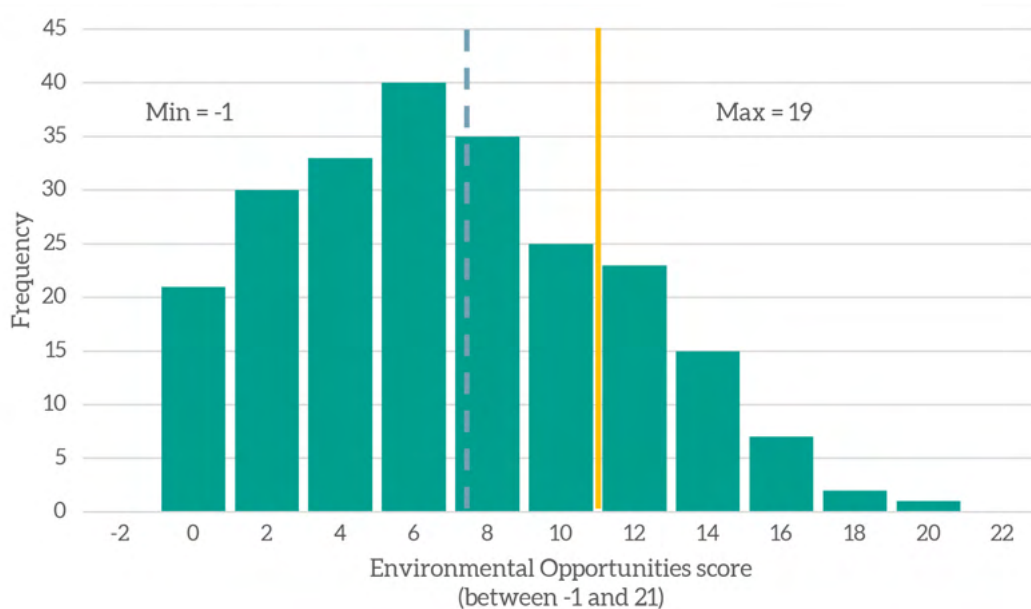
Schoolyards can also be classrooms that contribute to experiential learning in science or the arts.

At the same time – at least in theory – schoolyards as public space are an important environmental resource for our province as we tackle climate change and its consequences. Environmental conditions in schools – particularly, contribution to the tree canopy and pavement levels – can significantly contribute to the province’s green footprint.

Unfortunately, many schoolyards do not capitalize on these opportunities for students to get access to nature and learning. Environmental opportunity was the domain where schoolyards received the worst overall ratings in our audits. The mean score for environmental opportunities in schools was 6.5 out of a maximum of 21 points.

There were numerous areas of concern in terms of environmental opportunities.

Figure 5: Distribution of Environmental Opportunities scores



Histogram of Environmental Opportunity scores. The blue dashed line shows the mean at 6.5 and yellow line shows the midpoint of the scale at 10. The range of scores in the sample was between -1 and 19 out of a possible range between -1 and 21.

In addition to informal learning through play at recess, and sports, schoolyards are – or could be – an important site for organized learning activities at school. Outdoor

learning has been a key recommendation to help students stay safe during COVID.³⁷ The roll-out of full day kindergarten saw considerable investments in outdoor classrooms and many schools were able to build out play and learning spaces for younger kids. Nonetheless, most schoolyards offer underdeveloped outdoor learning environments.

In our study, only 37% of schools had a dedicated outdoor classroom space – often formed by a circle of rocks or stumps that allows students be relatively close to a teacher and each other for a formal lesson of some kind.

Gardens represent an important learning opportunity, and can be tied to science curriculum at every level of school. Some garden projects can be challenging because they require major upkeep, particularly over summers where teachers aren't present – but others may be more flexible and demand less of educators and staff. We asked about three types of planted areas:

- 39% of schools have (high-maintenance) themed gardens (e.g. a garden for growing vegetables or indigenous healing plants)
- 56% have (low-maintenance) wildlife / biodiversity promoting spaces such as a pollinator garden or a no-mow area
- 69% of schools have decorative flower beds, which may or may not be used for learning.

These figures suggest there are considerable opportunities – not all high maintenance – to expand student learning in schoolyards, especially through the use of wildlife-and biodiversity-promoting spaces. Since 80% of schools now include at least some onsite childcare,³⁸ in schools with year-round programming, summertime maintenance may also allow for more ambitious gardening.

Too much pavement

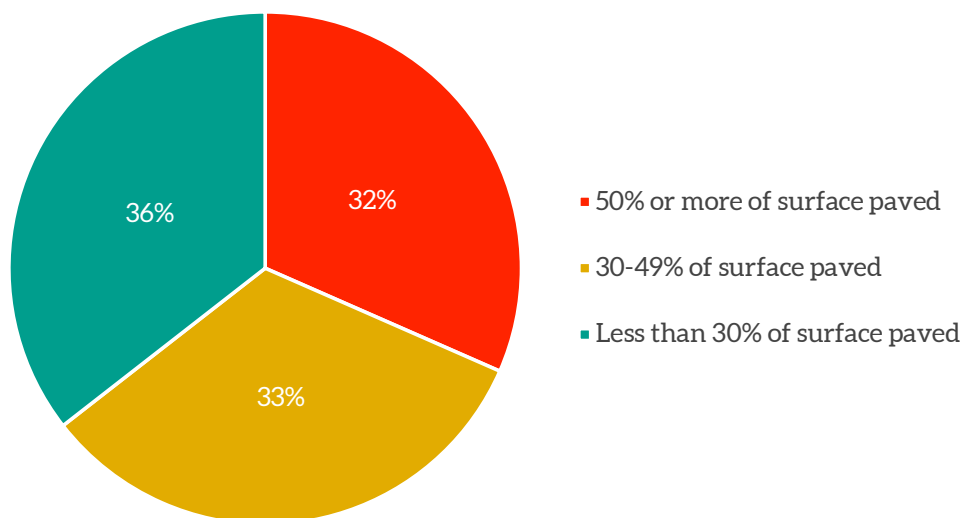
Decades ago, many schoolyards – especially in cities – used pavement because it experienced less wear and tear in packed schoolyards. It can be cheaper to maintain. Unfortunately, paved expanses are a contributor to climate change, potentially contributing to “heat islands” in cities.³⁹ They can also worsen impacts of extreme weather because they worsen flooding and stormwater management challenges.⁴⁰

From a student well-being point of view, some research suggests that more green space contributes to greater levels of moderate to vigorous physical activity in children,⁴¹ and certainly, lower risks of injury.⁴²

Our audit showed that pavement is pervasive in Ontario schoolyards. In 32% of the schoolyards we audited, 50% or more of available surfaces were paved. Another 33% of schools had pavement covering between 30-49% of available area. Safety surfaces contribute to lower injuries and more inclusive play spaces. Only 40% of schools surveyed had safety surfaces covering at least 5% of the schoolyard.



Figure 6: Proportion of schools with paved surfaces



Where is the shade? The missing tree canopy in Ontario schoolyards

Trees in schoolyards contribute to students' safety and comfort outside by allowing shade and contribute to opportunities for imaginative play through natural components such as fallen leaves and pinecones, which can make recess much more enjoyable and creative. They improve air quality and have been shown to contribute to positive mental health. They also help mitigate climate change by naturally absorbing carbon and contributing to stormwater control. The ecological, social and economic benefits of trees in cities are recognized when municipal governments set targets for the urban forest. For example, in Toronto, the urban forestry strategy calls for the percentage of the city to be covered by tree canopy to rise from 26.6% to 40% by 2022.⁴³

We asked auditors to estimate what percentage of the schoolyard was shaded by trees. In 13% of schoolyards, there was no shade at all. Only 20% of schools had "a lot" of shade from trees.

Most municipalities have tree planting programs in place. Planting trees is an important – and cheap – opportunity for schools to contribute to the greening of our cities and climate change mitigation while contributing to a more hospitable schoolyard for children's play and learning. Minimum standards for percentage of tree coverage should be considered.

In 13% of schoolyards, there was no shade at all. Only 20% of schools had "a lot" of shade from trees.

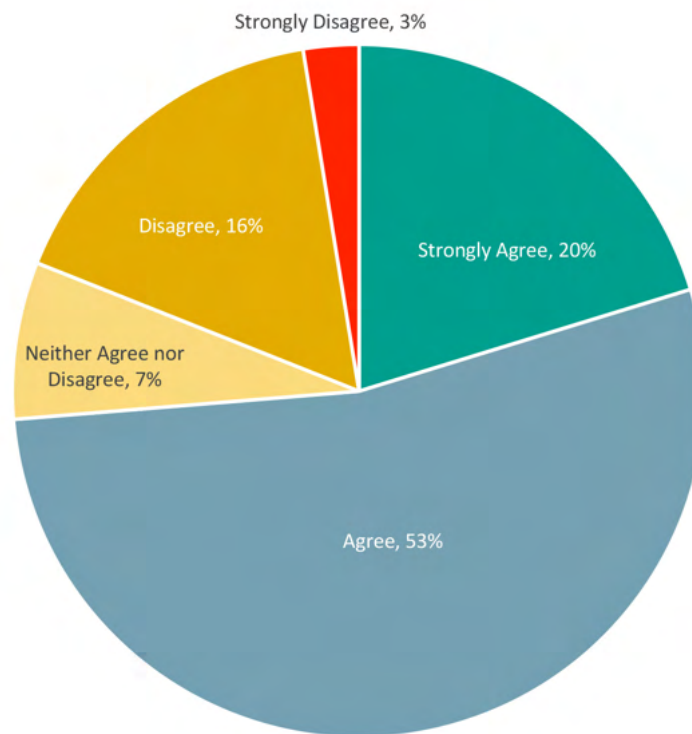
Beauty and maintenance

Schoolyards can contribute to students' well-being through being attractive spaces that are clean and well-maintained. Maintaining schoolyards is important, often undervalued, work – and because schoolyards are open to the public in evenings and weekends, maintenance funded by schoolboards is a public service for the whole community.

Auditors were generally positive about the condition of Ontario schoolyards.

- In 74% of schoolyards, auditors agreed or strongly agreed that the grounds were well maintained (only 19% disagreed or strongly disagreed).
- Auditors in 81% of schoolyards agreed or strongly agreed that the grounds were generally free of vandalism.
- 74% of schools reported that grounds were shielded from the surrounding areas by hedges, trees or fences.

Figure 7: Proportion of auditors that agree that the grounds are generally well maintained



Most audits were conducted in springtime – often, not the prettiest time of year as winter recedes. Still, only

- 19% of schools reported dog mess where children play.
- 10% of schools reported “a lot” of litter on school grounds.

Relatively few schools took advantage of artists in their student bodies – or local communities – to adorn the outside of their schools. Only 22% of schools had murals or other art visible in the schoolyards.

Relatively few schools took advantage of artists in their student bodies – or local communities – to adorn the outside of their schools. Only 22% of schools had murals or other art visible in the schoolyards.

The schoolyard wealth gap

There is a growing concern that rising inequality in family incomes and wealth, may contribute to unequal school environments, even within a system of public education that is intended to correct for inequalities in local resources.⁴⁴ In particular, recent research has identified a yawning – and expanding – “fundraising gap” between rich and poor schools: a 2019 study showed the 10% of Ontario elementary schools that fundraised the most raised 33 times what the 10% that raised the least did.⁴⁵ In 2008, the ratio was 25:1.⁴⁶

Current fundraising guidelines permit virtually unlimited fundraising for items that “complement, but do not replace” public funding.⁴⁷ This broad definition of what can be funded by enthusiastic families with resources means that playground quality may reflect schools’ fundraising capacity even more directly than classroom learning resources do.

Ontario research has identified many points of inequality in learning opportunities and resources,⁴⁸ even within a public school system committed to “ensuring equity.”⁴⁹ To date, however, the research on inequality in schools in Ontario has focused on the more academic aspects of schooling, rather than issues of the physical environment or well-being. This study was designed, in part, to help answer a recurring question that has garnered considerable media attention: *Is there a gap in playground quality between high and low-income schools?*⁵⁰

To answer this question, we obtained data from the Ministry of Education that included the median family income of every school, based on 2016 census data. In the cities where we conducted additional audits, we intentionally sampled to ensure that we had a representative distribution of schools at different income levels. Median family income in Ontario schools ranges from \$27,000 to \$284,000.

Figure 8: Relationship between school median income and Schoolyard Quality Score



We linked our audit data to the Ministry’s dataset and conducted a regression analysis to compare our Schoolyard Quality Scores with median family income. As the chart above shows, we found a statistically significant – but relatively small – association between average family income and schoolyard quality ($b = .073$, $t(225) = 2.90$, $p = .004$).

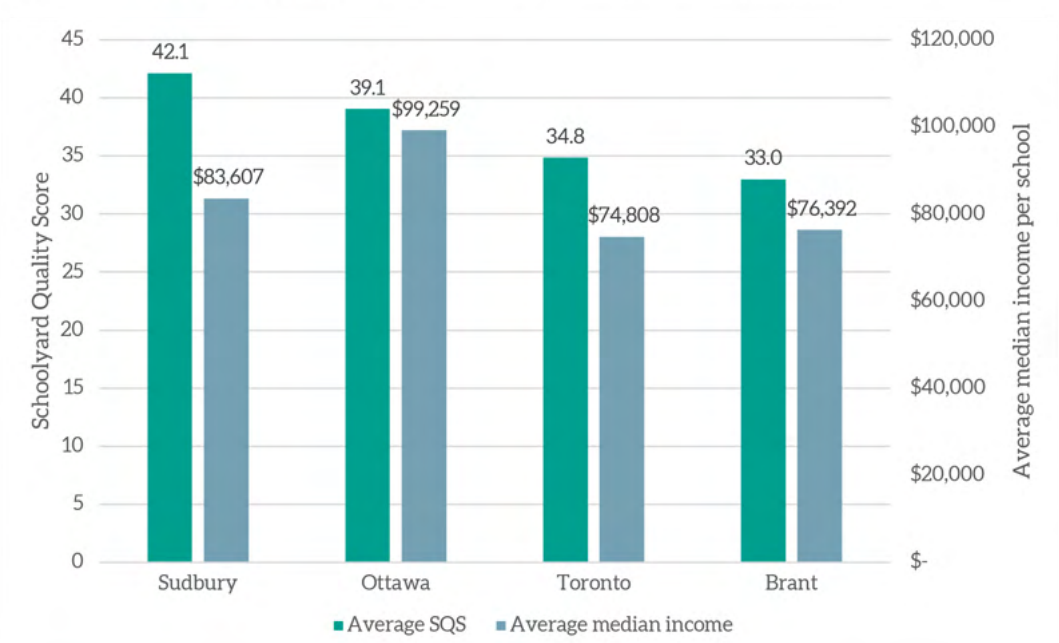
A \$10,000 increase in family income is associated with a School Quality Score increase of less than one point (0.73 points) on our 96-point scale (remember, the range of possible scores is from -8 to 88). On average, low-income schools, with a median family income of \$40,000 per year or less have schoolyards which are 9.9 points lower in quality than those with very high incomes of \$175,000 – a full standard deviation. As the figure shows, however, the very highest scoring schools have median family incomes falling between \$75,000 and \$125,000.

The limited association between family income and schoolyard quality may reflect a strength of our public school system, with its goal of ensuring relatively equal opportunities for all students regardless of income. Where some schools can raise \$100,000 for schoolyard improvement with no limits or requirements that these funds be allocated according to need, fundraising is an important factor, but it is not determinative at the system level.

Where some schools can raise \$100,000 for schoolyard improvement with no limits or requirements that these funds be allocated according to need, fundraising is an important factor, but it is not determinative at the system level.

We observed meaningful differences between communities, which was partly, but not completely, explained by differences in median family income in those schools. We obtained a representative sample of schools in Brantford, Toronto, Ottawa and Sudbury – cities where the mean family income differs quite considerably.

Figure 9: Schoolyard Quality Score and average median income in selected cities



As this figure shows, while generally, wealthier communities have higher Schoolyard Quality Scores, the highest scores were *not* in the wealthiest community (Ottawa), but rather, in Sudbury. It is notable that Sudbury has had an active campaign under the auspices of the City Council Advisory Panel on Regreening over the past decade, including the rather memorable “ugliest schoolyard award” to provide an infusion of planning support and funding to create greener and healthier spaces where urgent needs are identified.⁵¹

These inter-community differences (and, similarly, the significant and substantial gap between schoolyard quality in Catholic vs. public schools, despite higher median family incomes in Catholic schools) underline the fact that schoolyard quality differences are a product of multiple factors – particularly, municipal and school board policies, the historical building/real estate stock of different schools (i.e., schools in Toronto are much older than those in Sudbury), and school community expectations, advocacy and action.



Recommendations

Policy

The provincial government should work with partners – including school boards and municipalities – to establish minimum provincial standards for schoolyard quality.

- Standards should encompass play provision, active transportation, and greening.
- Every school in Ontario should have at least some courts (e.g. for basketball), and play equipment.
- Additional solutions need to be found to ensure students in schools without a field have safe and easy access to community lands, including at recess.
- The principles of inclusive, accessible, and Universal Design should be utilized for play spaces.⁵²

There should be serious consideration of reducing speed limits adjacent to schools to 50 km/h or below, and to creation of marked bike paths.

School boards should commit to greening schoolyards, with board-determined tree canopy targets, movement towards reduced paving, shaded outdoor classroom areas, and at least some garden spaces to promote environmental learning.

The focus of this report is the built environment, which is necessary but not sufficient to get kids moving and engaged in active play and learning. Our schools face chronic challenges with a lack of dedicated personnel to provide supervision and activation in the schoolyard – yet they remain one of the best places to access a wide array of children to promote these important social goods. *If we are serious about improving children’s health, we must further explore ways to bring skilled, caring people into schools to help support active play and games during breaks.*

If we are serious about improving children’s health, we must further explore ways to bring skilled, caring people into schools to help support active play and games during breaks.

Research

- *It would be extremely useful for those with appropriate expertise to develop and test an audit tool that was both simple to use and more robust in terms of showing the connection between the built environment and physical activity (and other desired playground behaviours). The SPEEDY tool provided a systematic way to collect information, and it is relatively simple for use by the general public but does not have the most robust association with physical activity. Other audit tools show much stronger relationships between physical activity and playground provision, but are difficult to use and so limited for purposes of community action. The next version of the audit tool should also include an explicit focus on playground features that promote accessibility and inclusion.*

- Further exploration of factors that explain differences in schoolyard quality is required.
- From a monitoring and advocacy perspective, it would be useful to track change in schoolyard quality over time.

For school communities

- This report constitutes a first step to support Ontario school communities advocating locally to ensure that every schoolyard is well-maintained, suitable for play and sport, conducive to active transportation, and an environmental asset in the community.

Appendix – Methods

Data sources

The SPEEDY audit tool

For this study, citizen scientists used an adapted version of the SPEEDY audit tool to assess schoolyard quality across Ontario. The audit tool included 53 items (minimum score of -8, maximum score of 88) across four domains (Sport and Play, Active Transportation, Environmental Opportunities, Aesthetics and Maintenance) with some items contributing to multiple domains.

As mentioned above, the audit was carried out by citizen scientists who were trained through a brief online tutorial. This campaign resulted in 110 audits. A second round of data collection was then completed in targeted municipalities (Sudbury, Ottawa, Toronto, and Brant) using a stratified sampling method by school median income to ensure the sample was representative.

Other provincial data sources

The Ontario Ministry of Education provided the Weighted Average Median Income for each publicly funded school in Ontario. This measure uses the postal codes and enrolment data from each school, matched to 2016 Canadian Census data to estimate the average family income in each school based on where the enrolled students live. We also downloaded open-source data about all publicly funded schools in Ontario from the Ontario School Information Finder database. We matched the three datasets based on school identifiers (Mident, or if Mident was missing, school name, board, and location) so that for each school we had SPEEDY audit information, a Weighted Average Median Income, and administrative data (e.g., Elementary vs. Secondary, English language vs. French language, and address).

Data cleaning and analysis

After two rounds of data collection, there were 298 responses. A cut-off point of 75% completion was set and 45 responses were deleted for low response. An additional 19 duplicate, and 2 non-school site responses were deleted. In all, there were 232 responses across Ontario, representing 4.8% of Ontario's publicly funded schools.

Raw item responses were coded as suggested by the authors of the SPEEDY audit tool to come to the domain subtotals as well as the Schoolyard Quality Score (SQS) as an overall indicator of schoolyard quality. Yes/No items were coded 1/0, except for some negative items, which were coded using the inverse. Raw amounts were coded as “none” = 0; any amount up to the mean plus one standard deviation = 1; anything greater than one standard deviation above the mean = 2. Rating questions using a 3-point scale (e.g., Poor/Good/Adequate, None/Some/A lot, or Not at all/Somewhat/Very) were coded as 0/1/2. Likert rating questions on a 5-point scale from Strongly Disagree to Strongly Agree were coded as -2 to 2. The paved surface item was coded as: 50% or more of the surface paved = -1; 30-49% paved = 0; less than 30% paved = 1. The safety surface item was coded as: 5% or more safety surface = 1; less than 5% = 0.

Coding was completed in Microsoft Excel. All data analyses were completed in Stata/SE 16.1.

Validity checks

Subjective and objective measures

Just over half of the items (28 items with a maximum total score of 40) recorded the presence or number of a resource (e.g., Is a bus stop visible from any school entrance? Yes/No; Please indicate the number of athletic tracks—grass or hard surface—that are present). The other 25 items (maximum total score of 48) relied on subjective measures of quality or suitability (e.g., Are the grounds generally suitable for sports—organized or not? Very/Somewhat/Not at all; The grounds are generally free from vandalism: Strongly Agree/Agree/Neither Agree nor Disagree/Disagree/Strongly Disagree). Both subjective and objective measures were relatively normally distributed and moderately correlated ($r = 0.57, p < 0.01$) and therefore there was no concern that the subjective measures may have skewed the findings.

Representativeness

After cleaning, there were 232 responses representing 4.8% of Ontario's publicly funded schools. These schools were relatively representative of Ontario's schools generally: the median incomes of schools seem similarly distributed (see Figure 10); the sample included a relatively representative proportion of schools from Elementary vs. Secondary panels, English language vs. French language systems, and Catholic vs. non-Catholic schools (see Table 1); and the sample was relatively geographically representative of Ontario's schools (Figure 11), though likely under-representing rural schools.

Figure 10 a) the distribution of median incomes of Ontario's schools

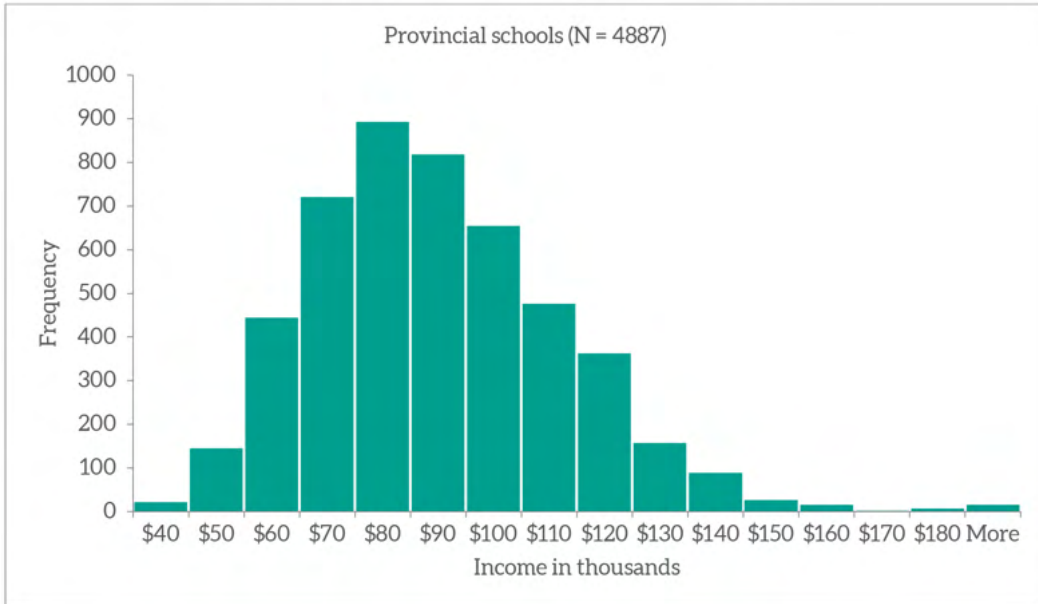


Figure 10 b) the distribution of median incomes of the sample of schools

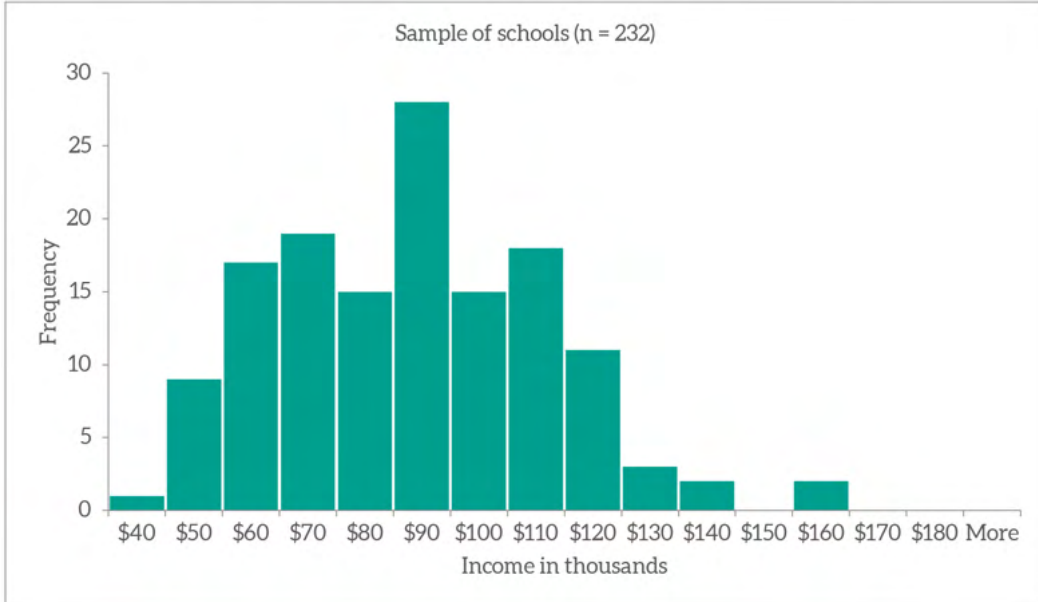
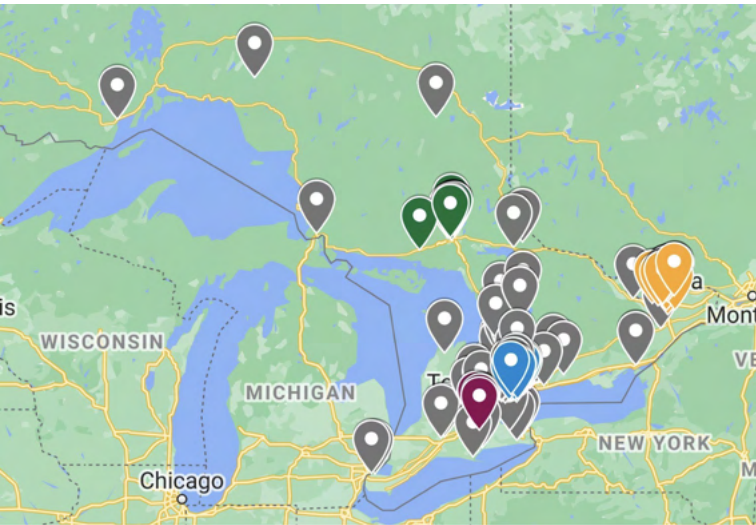


Table 1: Proportion of Ontario’s schools and sample of schools with various characteristics

	Sample	Ontario
Secondary	17%	18%
French language	7%	10%
Catholic	28%	34%

Figure 11: Map of sample schools



Note:
 Green = Sudbury
 Yellow = Ottawa
 Blue = Toronto
 Purple = Brantford

For more information about the methods, please contact the authors directly.

References

- 1 Ho, J.Y. & Hendi, A.S. (2018). Recent trends in life expectancy across high income countries: retrospective observational study. *BMJ*, 362, k2562 <https://doi.org/10.1136/bmj.k2562>; S. J. Olshansky, D. J. Passaro, R.C. Hershov, Layden, J., Carnes, B.A., Brody, J., Hayflick, L., Butler, R.N., Allison, D.B., and Ludwig, D.S. (2005). A potential decline in life expectancy in the 21st century. *New England Journal of Medicine*, 352(11): 1138-1145.
- 2 Participaction. (2018). ParticipACTION Report Card on Physical Activity for Children and Youth. Retrieved from <https://www.activehealthykids.org/wp-content/uploads/2018/11/canada-report-card-short-form-2018.pdf>, p. 2. The guidelines are available at: Canadian Society for Exercise Physiology (CSEP) <https://csepguidelines.ca/>;
- 3 Boak, A., Elton-Marshall, T., Mann, R. E., Henderson, J. L., & Hamilton, H. A. (2020). *The mental health and well-being of Ontario students, 1991-2019: Detailed findings from the Ontario Student Drug Use and Health Survey (OSDUHS)*. Centre for Addiction and Mental Health.
- 4 Freeman, J.G., King, M., Pickett, W., Craig, W., Elgar, F., Janssen, I., and Klinger, D. (2011). *The health of Canada's young people: A mental health focus*. Ottawa: Public Health Agency of Canada.
- 5 ParticipACTION Report Card, p. 9.
- 6 Moore, S. A., Faulkner, G., Rhodes, R. E., Brussoni, M., Chulak-Bozzer, T., Ferguson, L. J., Mitra, R., O'Reilly, N., Spence, J. C., Vanderloo, L. M., & Tremblay, M. S. (2020). Impact of the COVID-19 virus outbreak on movement and play behaviours of Canadian children and youth: A national survey. *International Journal of Behavioral Nutrition and Physical Activity*, 17(1), 85. <https://doi.org/10.1186/s12966-020-00987-8>. See also Chaffee, B. W., Cheng, J., Couch, E. T., Hoeft, K. S., & Halpern-Felsher, B. (2021). Adolescents' substance use and physical activity before and during the COVID-19 pandemic. *JAMA Pediatrics*. <https://doi.org/10.1001/jamapediatrics.2021.0541>.
- 7 de Lannoy, L., Rhodes, R. E., Moore, S. A., Faulkner, G., & Tremblay, M. S. (2020). Regional differences in access to the outdoors and outdoor play of Canadian children and youth during the COVID-19 outbreak. *Canadian Journal of Public Health*, 111(6), 988-994. <https://doi.org/10.17269/s41997-020-00412-4>
- 8 Education Act, R.S.O. 1990, as am., s.0.1, Purpose.
- 9 Dymont, J. (2005). Green school grounds as sites for outdoor learning: Barriers and opportunities. *International Research in Geographical and Environmental Education*, 14(1), 24-41; Hyndman, B. (2017). School Playgrounds as a Place of Learning. In B. Hyndman (Ed.), *Contemporary School Playground Strategies for Healthy Students* (pp. 13-22). Singapore: Springer; Malone, K., & Tranter, P. J. (2010). School grounds as sites for learning: Making the most of environmental opportunities. *Environmental Education Research*, 9(3), 283-303; World Health Organization. (2003). *The physical school environment: An essential component of a health-promoting school*. Geneva: World Health Organization.
- 10 People for Education. (2018). *Annual Report on Ontario's Publicly Funded Schools*. Toronto: author. Retrieved from https://peopleforeducation.ca/wp-content/uploads/2018/06/AnnualReport18_Web.pdf.
- 11 People for Education. (2019). *Annual Report on Ontario's Publicly Funded Schools*. Toronto: author. Retrieved from <https://peopleforeducation.ca/report/2019-annual-report-on-schools-what-makes-a-school/#chapter2>.
- 12 Tremblay, M. S., et al. (2015). Position statement on active outdoor play. *International Journal of Environmental Research and Public Health*, 12(6), 6475-6505. DOI: 10.3390/ijerph120606475 (Available at: <http://www.mdpi.com/1660-4601/12/6/6475>)
- 13 M. Brussoni, et al., (2015). What is the relationship between risky outdoor play and health in children: A systematic review. *International Journal of Environmental Research and Public Health*, 12(6). 6423-6454; C. Gray, et al., (2015). What is the relationship between outdoor time and physical activity, sedentary behaviour, and physical fitness in children? A systematic review. *International Journal of Environmental Research and Public Health*, 12(6). 6455-6474.
- 14 Sampasa-Kanyinga, H., Colman, I., Hamilton, H. A., & Chaput, J.-P. (2020). Outdoor physical activity, compliance with the physical activity, screen time, and sleep duration recommendations, and excess weight among adolescents. *Obesity Science & Practice*, 6(2), 196-206. <https://doi.org/10.1002/osp4.389>
- 15 Gill, (2014). The Benefits of Children's Engagement with Nature: A Systematic Literature Review. *Children, Youth and Environments*, Vol. 24, No. 2, p.10-34; Nichol, M., Pickett, W., & Janssen, I. (2009). Associations between school recreational environments and physical activity. *Journal of School Health*, 79(6), 247-254; Sallis, J. F., Conway, T. L., Prochaska, J. J., McKenzie, T. L., Marshall, S. J., & Brown, M. (2001). The association of school environments with youth physical activity. *American Journal of Public Health*, 91(4), 618-620
- 16 SickKids, Native Child and Family Services Toronto, & Factor-Inwentash Faculty of Social Work, University of Toronto. (2021). *Let the children play: Getting children and youth outdoors now for an active recovery*. SickKids. <https://www.sickkids.ca/en/news/archive/2021/let-children-play>.

- 17 Comprehensive School Health includes four pillars: Social and Physical Environment, Teaching and Learning, Healthy School Policy (including curriculum), and Partnerships and Services. See e.g. the Pan-Canadian Joint Consortium on School Health. (2012) <http://www.jcsh-cces.ca/upload/csh-eng-2012.pdf>; Healthy Schools Framework, or World Health Organization. (1986) Ottawa Charter on Health Promotion <http://www.phac-aspc.gc.ca/ph-sp/docs/charter-chartre/pdf/charter.pdf>; Stewart-Brown, S. (2006). *What is the evidence on school health promotion in improving health or preventing disease and, specifically, what is the effectiveness of the health promoting schools approach?* Copenhagen, WHO Regional Office for Europe (Health Evidence Network report; <http://www.euro.who.int/document/e88185.pdf>, accessed 16 Sep. 2008); Murray, N.D., Low, B.J., Hollis, C., Cross, A. Davis, S. (2007). Coordinated school health programs and academic achievement: a systematic review of the literature. *Journal of School Health, 77*(9), 589-599.
- 18 Davison, K.K., & Lawson, C.T. (2006). Do attributes in the physical environment influence children's physical activity? A review of the literature. *International Journal of Behavioural Nutrition and Physical Activity, 3*(19) 1-17; Haug, E., Torsheim, T., Sallis, J.F., & Samdal, O. (2010). The characteristics of the outdoor school environment associated with physical activity. *Journal of Health Education, 25*(2), 248-256; Martin, K., Bremner, A., Salmon, J., Rosenberg, M. & Giles-Corti, B. (2012). School and individual level characteristics are associated with children's moderate to vigorous-intensity physical activity during school recess. *Australian and New Zealand Journal of Public Health, 36*(5), 469-477; Neilsen, G., Bugge, A. & Hermansen, B. (2012). School playground facilities as a determinant of children's daily activity: A cross-sectional study of Danish primary school children. *Journal of Physical Activity and Health, 9*, 104-114; Nichol, M., Pickett, W. & Janssen, I. (2009). Associations between school recreational environments and physical activity. *Journal of School Health, 79*(6), 247-254; Ozdemir, A. & Yilmaz, O. (2008). Assessment of outdoor school environments and physical activity in Ankara's primary schools. *Journal of Environmental Psychology, 28*(3), 257-300; Ridgers, N.D., Fairclough, S.J. & Stratton, G. (2010). Variables associated with children's physical activity levels during recess: The A-CLASS project. *International Journal of Behavioural Nutrition and Physical Activity, 7*(1); Cradock, A.S.M., Allen, J., Morris, J. & Gortmaker, S. (2007) Characteristics of school campuses and physical activity among youth. *American Journal of Preventative Medicine, 33*(2), 106-113; Sallis, J.F., Conway, T.L., Prochaska, J.J., McKenzie, T.L., Marshall, S.J. and Brown, M. (2001). The association of school environment with youth physical activity. *American Journal of Public Health, 91*(4), 618-620.
- 19 Participaction 2018 Report Card, *ibid.* p.9.
- 20 Brownson, Hoehner, Day, Forsyth, & Sallis, Brownson, R. C., Hoehner, C. M., Day, K., Forsyth, A., & Sallis, J. F. (2009). Measuring the physical environment for physical activity: State of the Science. *American Journal of Preventive Medicine, 36*, S99-S123.
- 21 For a collection of such tools, plus the supporting research, see <https://activelivingresearch.org/toolsandresources/toolsandmeasures>.
- 22 Jones, N. R., Jones, A., Sluijs, E. v., Panter, J., Harrison, F., & Griffin, S. J. (2010). School environments and physical activity: The development and testing of an audit tool. *Place and Health, 16*, 776-783.
- 23 Harrison, F., Sluijs, E. M. F. v., Corder, K., & Jones, A. (2016). School grounds and physical activity: Associations at secondary schools and over the transition from primary to secondary school. *Health and Place, 39*, 34-42.
- 24 Broyles, S. T., Drazba, K. T., Church, T. S., Chaput, J.-P., & al, M. F. e. (2015). Development and reliability of an audit tool to assess school physical activity environment across 12 countries. *International Journal of Obesity Supplements 5*, S36-S42.
- 25 Bonney R. C. C., Dickinson J, et al. (2009). Citizen science: a developing tool for expanding science knowledge and scientific literacy. *BioScience, 59*(11), 977-984; Bonney, R., Shirk, J. L., Phillips, T. B., Wiggins, A., Ballard, H. L., Miller-Rushing, A. J., & Parrish, J. K. (2014). Next steps for Citizen Science. *Science, 343*(6178), 1436-1437; Naci, H., & Ioannidis, J. P. (2015). Evaluation of wellness determinants and interventions by citizen scientists. *Journal of American Medical Association, 314*(2), 121-122; Samuel, J., & Frisancho, A. (2016). Rights-based citizen monitoring in Peru: Evidence of impact from the field. *Health and Human Rights, 17*(2), E123-E134.
- 26 King, A. C., Winter, S. J., Sheats, J. L., Rosas, L. G., Buman, M. P., Salvo, D., . . . Dommarco, J. R. (2016). Leveraging Citizen Science and Information Technology for Population Physical Activity Promotion. *Translational Journal of the American College of Sports Medicine, 1*(4), 30-44.
- 27 L. McNamara. (2013). What's getting in the way of play? An analysis of the contextual factors than hinder recess in schools. *Canadian Journal of Action Research, 14*(2).
- 28 See e.g., C. Pelopidas, F. Propa, R. Mitra. (2020). *Outdoor Play and Learning (OPAL) in School Communities: Results from the Pilot Programming in Toronto*. Toronto: Ryerson TransformLab. Retrieved from: <http://transformlab.ryerson.ca/portfolio-item/opal2020/>, and a discussion of Right to Play's Play Leader program in Toronto Model Schools in K. Gallagher-Mackay & N. Steinhauer. (2017). *Pushing the Limits: How schools today can prepare our children for the challenges of tomorrow*. Toronto: Doubleday.

- 29 Jones et al., see note 22.
- 30 Rothman, L., Fridman, L., Cloutier, M.-S., Manaugh, K., & Howard, A. (2020). Impact of road traffic and speed on children: Injuries, social inequities, and active transport. In E.O.D. Waywood, M. Friman, L.E. Olsson, and R. Mitra (Eds.) *Transportation and Children's Well-Being* (pp. 103-117). Elsevier. <https://doi.org/10.1016/B978-0-12-814694-1.00006-3>
- 31 Roberts, I., Norton, R., Jackson, R., Dunn, R., & Hassall, I. (1995). Effect of environmental factors on risk of injury of child pedestrians by motor vehicles: A case-control study. *BMJ*, *310*(6972), 91-94. <https://doi.org/10.1136/bmj.310.6972.91>. More recent reviews (e.g., see Rothman, et al., 2020 in note 30; Jamshidi, E., Moradi, A. & Majzadeh, R. (2017). Environmental risk factors contributing to traffic accidents in children: a case-control study. *International Journal of Injury Control and Safety Promotion*, *24*(3), 338-344) show significantly greater severity of injuries for roads with speeds over 50 km/h.
- 32 Rothman, L., Buliung, R., Howard, A., Macarthur, C., & Macpherson, A. (2017). The school environment and student car drop-off at elementary schools. *Travel Behaviour and Society*, *9*, 50-57. <https://doi.org/10.1016/j.tbs.2017.03.001>
- 33 Ibid.
- 34 See e.g., Metrolinx. (2013). *School Travel Planning in Action in Ontario: Successes and Lessons in Active and Sustainable School Transportation*.
- 35 See Gill, 2014 at note 15.
- 36 Larouche, R., Garriguet, D., Gunnell, K.E., Goldfield, G.S. & Tremblay, M.S. (2016). Outdoor time, physical activity, sedentary time, and health indicators at ages 7 to 14. *Health Reports*, *27*(9), 3-13. Statistics Canada, Catalogue no. 82-003.
- 37 Science, M., Thampi, N., Bitmun, A., et al. 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). <https://doi.org/10.47326/ocsat.2021.02.38.1.0>.
- 38 See People for Education, 2019 at note 11.
- 39 See e.g. <https://www.epa.gov/heatislands>
- 40 See e.g., Blakelock, C. (2019). *Ready, set, rain: Urban flood resilience in Ontario*. Ottawa: Green Communities Canada/ Ontario Trillium Foundation. Retrieved from <http://raincommunitysolutions.ca/wp-content/uploads/2019/05/ReadySetRainApril2019.pdf>
- 41 Bell, A. C., & Dymont, J. E. (2006). *Grounds for Action: Promoting Physical Activity through School Ground Greening in Canada*. Evergreen. <https://www.evergreen.ca/downloads/pdfs/Grounds-For-Action.pdf>; Bikomeye, J., Balza, J., & Beyer, K. (2021). The impact of schoolyard greening on children's physical activity and socioemotional health: A systematic review of experimental studies. *International Journal of Environmental Research and Public Health*, *18*(2), 535. <https://doi.org/10.3390/ijerph18020535>; Dymont, J. E., Bell, A. C., & Lucas, A. J. (2009). The relationship between school ground design and intensity of physical activity. *Children's Geographies*, *7*(3), 261-276. <https://doi.org/10.1080/14733280903024423>; Raney, M. A., Hendry, C. F., & Yee, S. A. (2019). Physical activity and social behaviors of urban children in green playgrounds. *American Journal of Preventive Medicine*, *56*(4), 522-529. <https://doi.org/10.1016/j.amepre.2018.11.004>
- 42 Canadian Standards Association. (2007). *Children's Playspaces and Equipment: A National Standard of Canada*. Mississauga, Ontario. CAN/CSA-Z614-07; Sosin, D.M., Keller, P., Sacks, J.J., Kresnow, M., van Dyck, P.C. (1993). Surface-specific fall injury rates on Utah school playgrounds. *American Journal of Public Health*, *83*, 733-5.
- 43 Toronto Parks and Recreation. (2012). *Sustaining and Extending the Urban Forest, 2012-22*. Toronto: City of Toronto. Retrieved from <https://www.toronto.ca/data/parks/pdf/trees/sustaining-expanding-urban-forest-management-plan.pdf>.
- 44 Block, S. (2017). *Losing Ground: Income Inequality in Ontario, 2000-15*. Toronto: Canadian Centre for Policy Alternatives; Statistics Canada. (2017). *Household Income in Canada: Key results from the 2016 Census*. Ottawa: Statscan. Retrieved from: <https://www.statcan.gc.ca/daily-quotidien/170913/dq170913a-eng.htm>.
- 45 See People for Education, 2019 at note 11.
- 46 People for Education. (2017). *Annual Report on Ontario's Publicly Funded Schools*. Toronto: Author. Retrieved from: <https://peopleforeducation.ca/report/annual-report-2017/>.
- 47 Ontario Ministry of Education. (2012). *Fundraising Guideline*. Queen's Printer for Ontario. Retrieved from <http://www.edu.gov.on.ca/eng/parents/fund2012guideline.pdf>.

- 48 e.g., Clandfield, D., Curtis, B., Galabuzi, G.E., Gaymes san Vincente, A., Livingstone, D.W. & Smaller, H. (2014). Restacking the deck: Streaming by class, race and gender in ontario schools. *Our Schools/Out Selves Special Issue, Winter 2014*; Gaztambide-Fernandez, R., VanderDussen, E. & Cairns, K. (2014). "The Mall" and "the Plant": Choice and the classed construction of possible futures in two specialized arts programs. *Education and Urban Society*, 46(1), 109-134; James, C. (2012). Students "at risk": Stereotypes and the schooling of Black boys. *Urban Education*, 47(2), 464-494; People for Education. (2013). *The Trouble with Course Choices in Ontario High Schools*. Toronto: author. Retrieved from <https://peopleforeducation.ca/wp-content/uploads/2020/07/People-for-Education-report-on-Applied-and-Academic-streaming.pdf>
- 49 Ontario Ministry of Education. (2014). *Achieving Excellence: A Renewed Vision for Education in Ontario*. Queen's Printer for Ontario.
- 50 E.g., Gordon, A. (March 1, 2018). Fundraising widens gap between have and have not students, report finds. *The Toronto Star*. Retrieved from <https://www.thestar.com/news/gta/2018/03/01/fundraising-widens-gap-between-have-and-have-not-students-report-finds.html>; Farooqui, S. (Nov. 10, 2017). Play equity: Should parent fundraising determine the quality of Toronto schoolyards? *The Globe and Mail*. Retrieved from <https://www.theglobeandmail.com/news/toronto/play-equity-should-parent-fundraising-determine-the-quality-of-torontos-schoolyards/article36923987/>
- 51 <https://www.greatersudbury.ca/live/environment-and-sustainability1/regreening-program/ugliest-school-yard-contest/>
- 52 See, e.g., Canadian Public Health Association. (n.d.) *Accessibility and Usability of Play Spaces*. <https://www.cpha.ca/accessibility-and-usability-play-spaces> and Mahmood, I., et al. (n.d.) *Inclusive Playgrounds and Surrounding Environments: Strategies and Considerations*. Toronto: Holland Bloorview. <https://hollandbloorview.ca/sites/default/files/2020-07/7-Iqra%20Mahmood%20%28Poster%20%237%29.pdf>.

Partners

Ophea is a not-for-profit organization, led by the vision that all children and youth value and enjoy the lifelong benefits of healthy, active living. Since 1921, Ophea has been working to support the health and learning of children and youth in schools and communities across Ontario, through partnerships, education and advocacy.

Dr. Kelly Gallagher-Mackay is an Assistant Professor at Wilfrid Laurier. Before joining Laurier, she worked as Research Director for People for Education and Director of Research and Evaluation for the Future Skills Centre. Her younger daughter attends a great public school, and her son is a recent grad. She is the author of *Pushing the Limits: How Schools Today Can Prepare Our Children for the Challenges of Tomorrow* and another book, as well as numerous articles and reports, about inequality in educational opportunities.

Christine Corso is a former teacher and Research Manager at People for Education, and currently completing her Ph.D. at the Ontario Institute for Studies in Education in Educational Leadership and Policy.

Tammy Shubat has a background in kinesiology and is the Director of Partnerships and Public Affairs at Ophea.

For more information about the study, please contact Kelly Gallagher-Mackay at kgallaghermackay@wlu.ca or go the Ophea website at www.ophea.net.

Acknowledgements

Our sincere gratitude to the many individuals who contributed to this research project. In particular, Taylor Hill's research assistance in the early stages of this project was invaluable. Early discussions with Jennifer Roberston-Wilson and Mark Eys in the Wilfrid Laurier Department of Kinesiology and Karen Acton of the Ontario Institute for Studies in Education were very helpful with research design. Support from the team at Ophea – Chris Markham above all – made this a very easy research partnership. The contribution from colleagues at Laurier (particularly Research Services and the fabulous staff at the Brantford campus) was much appreciated, particularly, Shane Dixon, Nicole Morgan, Alicia Schiassi, Bruce Gillespie, Beth Gurney and Melissa Huszscó. George Culley, Xin Law-Gallagher, Callum Brown, Kai Samuel-Szablowski, Carley Raine and Miranda Drapeau were efficient and good-humoured in the second round of data collection. Kelsey Blackwell and Flavia López of Studio Blackwell made this work beautiful. David Crichton, Alorani van Hahn and students at Rose Avenue Public School and Kathy Dykstra and her students at Kortright Hill PS in Guelph were key parts of the process. Support and advice from Samuel Law, Nuan Law-Gallagher, Rosemary Gallagher, Jeannie Samuel and Joe Flessa were, as always, essential.

We thank all the citizen scientists who took the time to be part of this project. We hope you enjoy the report that you helped create – and find in it tools for action.

This research would not have been possible without the support of the Social Sciences and Humanities Research Council.