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Policy Paper

Missing In Action

SCHOOL STORM DAYS, STUDENT ABSENTEEISM AND THE WORKPLACE

By Paul W. Bennett, Ed.D.

Halifax, Nova Scotia,

May 31, 2019

The Atlantic Institute for Market Studies (AIMS)

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Dr. Bennett wears many hats as a Halifax author, education consultant, policy researcher, and news commentator. Prior to completing his doctorate at the University of Toronto, Paul earned a Hons. B.A. in history and political science (York), a M.A. in history (York), and a B.Ed. from the University of Toronto. Over a career spanning four decades, Paul has taught high school history, authored three national textbooks, headed two leading independent schools, produced many policy papers and written or co-authored eight books. His three most recent books are *The Grammar School: Striving for Excellence in a Public School World* (2009); *Vanishing Schools, Threatened Communities: The Contested Schoolhouse in Maritime Canada, 1850-2010* (2011); and *The Last Stand: Schools, Communities and the Future of Rural Nova Scotia* (2013).

Today Paul provides expert commentary and regular columns for *The Chronicle Herald, The Globe and Mail, The National Post,* and a variety of other publications. His most recent academic articles have appeared in *The Journal of Sports History, Historical Studies in Education, Acadiensis, Canadian Issues,* and the *Royal Nova Scotia Historical Society Journal.*

Dr. Bennett specializes in K-12 educational policy, education history, evidence-based teaching practice, educational standards, school governance, teacher education, and special education services. In November 2017, he chaired the first Canadian conference of research education, a global community of teachers committed to advancing evidence-based teaching practice.

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Introduction – School storm days: Tackling the unanswered questions

School storm days dominated the news in Nova Scotia and Atlantic Canada during the harsh winter of 2016-2017. Repeated school cancellations in the P-12 education system set new records. From November 2016 to early January 2017, approximately 159 centimetres of snow fell on the Halifax area, double the average of 81 centimetres. Before the winter was over, school boards had cancelled between 9.5 and 17 days of classes, averaging more than two full weeks (12 days) across the province. Many ascribed the phenomenon to the strange quirks of Mother Nature, but close observers expressed alarm that whole weeks of school were cancelled and simply written off, leaving it up to teachers to compress their coursework.

A teacher contract dispute and work-to-rule job action by the Nova Scotia Teachers Union, which lasted through the winter, compounded the massive disruption. While the winters of 2017-2018 and 2018-2019 were relatively light in terms of snowfall and storm activity, the pattern of multiple repeated full-day closures was set. The number of school days cancelled over the past five years has far exceeded the average over the past decade (Figure 1). It seems this problem will not go away.

For the past 10 years, particularly during winter, the number of school days lost to so-called storm days in Atlantic Canada has remained a contentious and much-debated education policy issue (Donham 2010; Pottie 2014; Thomson 2016, 2017; Panacci 2017). It also generates periodic debate in neighbouring Maritime provinces, which exhibit markedly similar trajectories (New Brunswick DEECD 2015; Fraser 2018; CBC News PEI 2019).

In Nova Scotia, two policy research papers framed much of the public discussion. James Gunn's 2009 discussion paper, *School Storm Days in Nova Scotia,* documented the problem. My 2010 AIMS research commentary, *School's Out, Again,* provided a pan-Canadian perspective, demonstrating how the lost days impacted students, specifically their mathematics achievement results. Since then, virtually every year, the AIMS report's findings are cited in demonstrating the Maritime provinces are out of line in cancelling school for all sorts of reasons, mainly adverse weather conditions (Bennett 2019; Bundale 2019).

Cancelling school during rare occurrences of adverse weather is not only sensible, but defensible. The critical question is at what point the practice impacts student learning and affects productivity in the workforce. Goodman (2012, 2014) based his research on 2003-2010 data from Massachusetts, which averages three snow days a year. He demonstrated that planned school interruptions were less damaging

than student absenteeism, and therefore students were not losing out as a result of closures. However, few commentators examined the magnitude of the difference in storm day cancellations between Massachusetts and Nova Scotia. Nor did they examine conflicting U.S. studies that demonstrated the adverse impact on student progress (Marcotte and Hansen 2010) and the damaging effect of many cancellations on mathematics and reading performance (Gershenson, Jacknowitz, and Brannegan 2015). Assessing the ripple effect upon the workplace is more challenging but needs to be tracked and evaluated when it becomes endemic in a regional economy such as Atlantic Canada.

School day cancellations can be extremely disruptive to families and, when they affect tens of thousands of families, cause strains and disruptions in the workplace. We know from Conference Board of Canada research that absenteeism contributes to a substantial amount of lost productivity and potential revenue for business organizations and the wider economy (Stewart 2013). It manifests itself in many forms, from short-term illnesses to repeated absences, to longer-term leaves of absence. In a 2011 Statistics Canada report, Nova Scotia, New Brunswick, and Quebec had the second highest rates of absenteeism at 10.8 days per year, behind Saskatchewan, but well over the average of 9.3 days across Canada (Stewart 2013). Since then, the pattern has been repeated and we are learning more about the causes.

Public-sector organizations such as school boards tend to have higher rates of absenteeism. The Statistics Canada Labour Force Survey for 2017 reported that women missed 13.1 days of work in Nova Scotia – above the 10.7-day average – which can be attributed to bearing more family responsibilities (Statistics Canada 2018). Not every organization tracks absenteeism, so it's difficult to assess specifically the reasons or to report on how school storm days are recorded in employee records. However, it is safe to assume that one member of the family is covering off when school is out, especially when it involves younger school-age children. A closer analysis of the data may yield more insights into the ripple effect on parents of school-age children and their places of employment.

Storm day cancellations during 2016-2017 set new records in Nova Scotia, ranging from 9.5 days in the Halifax Regional School Board to 17 in the Cape Breton-Victoria Regional School Board (Figure 1). The record of lost days in New Brunswick and Prince Edward Island was not much different. Ten days of school cancellations is far more than in other Canadian provinces and double the allowable number in neighbouring American states.

Nine years after the initial AIMS study, this paper broadens the investigation to assess the impact of storm days upon the workplace and labour productivity in the region. It concludes the time has come to address the issue with a clear provincial policy and a comprehensive action plan.

Figure 1: School Storm Days – Selected School Boards, Nova Scotia
Ten-Year Period, 1998-1999 to 2007-2008

School Year	AVRSB	CBVRSB	CCRSB	HRSB
1998-1999	6	1	2	2
1999-2000	5	1	6	3
2000-2001	8	6	8	2
2001-2002	10	5	10	4
2002-2003	11	5	8	3
2003-2004	9	7	9	2
2004-2005	8	7	7	5
2005-2006	4	5	5	1
2006-2007	9	4	5	2
2007-2008	9	5.5	9	6
Average	7.9	4.7	6.9	3.0

Sources: Jim Gunn, School Storm Days in Nova Scotia (2009), 2; and Paul W. Bennett, School's Out, Again (AIMS 2010), 4.

Ten-Year Period, 1998-1999 to 2007-2008

School Year	AVRSB	CBVRSB	CCRSB	HRSB
2008-2009	11 (9)	9.5	12	8
2009-2010	6 (2)	6.5	2	1
2010-2011	5	7.5 (12.5*)	7	4.5
2011-2012	3	4.5 (7.5*)	5	1
2012-2013	6	8 (12*)	5.5	4
2013-2014	14 (10)	15 (18*)	14	4
2014-2015	11.5 (8)	10.5 (13.5*)	10	5.5
2015-2016	13 (7.5)	11 (6.5*)	5	5
2016-2017	16 (14)	15 (17*)	12	9.5
2017-2018	9.5	8.5	7	3
Average	9.5	9.6	8	4.6

Key to Table: Brackets (Official), Asterisk* (CB North of Smokey).
Sources: CBC Storm Centre, Nova Scotia; school board reports and FOIPOP requests, April-May 2018.

Comparative data on school storm days in New Brunswick and Prince Edward Island may be harder to find, but the trends run in the same direction. A New Brunswick report released in October 2015 documented rising numbers of storm closures from 2010-2011 to 2014-2015, when schools were closed for between nine and 16 days (NB DEECD 2015, Appendix 2). On P.E.I., CBC News reported that the highest numbers of province-wide cancellations were 13 in 2014-2015, and 12 in 2013-2014. Since 2017-2018, New Brunswick has closed schools regularly from nine to 14 times a year (CBC PEI 2018; Fraser 2018; Bennett 2019). Since the election of the Blaine Higgs Progressive Conservative government in September 2018, it is once again a live issue in New Brunswick.

Moving from storm days talk to corrective action

After investigating and analyzing the chronic issue of excessive numbers of storm day cancellations, this AIMS research paper recommends taking immediate and long-term corrective action. It calls upon the Nova Scotia Department of Education and Early Childhood Development, working with the Nova Scotia Teachers Union and through the new regional centres of education, to preserve and protect instructional time while ensuring the safety of students in the P-12 system.

A new province-wide policy should include:

- A provincial guarantee to students and parents of a minimum number of instructional days (i.e., 180 days of actual instruction) each school year;
- The establishment of a flexible school year calendar with provision for make-up instructional days, including the substitution for professional development (PD) days and the option of adding days at the end of the year;
- Completion of the rural broadband expansion and introduction of e-learning days for periods of severe weather and dangerous roads;
- A clear policy requiring the provision of student homework bags when storms are forecast, to bridge the gaps and ensure continuity in learning;
- A thorough study of the cumulative effect of school interruptions, planned and unplanned, on labour productivity in the workplace.

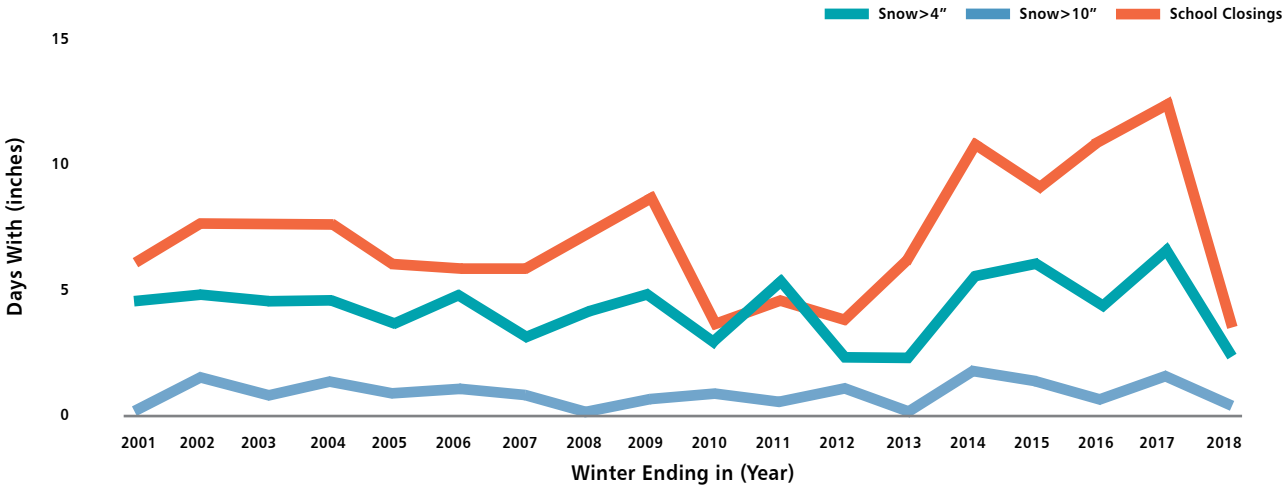
School storm days – What's the problem?

On Tuesday, March 28, 2017 Halifax region parents were greeted at 6 a.m. with the announcement: "All schools in HRSB will be closed today." They looked outside to see not a sign of snow.

It brought the total number of full system cancellations for 48,000 students to two weeks of school (9.5 days), more than twice the average for that mainly urban school district. The public outcry reached school board member Cindy Littlefair, who wrote in The Coast that the announcement struck "fear and loathing and more than a little disbelief" in increasing numbers of parents, forcing working parents to scramble, and sending a mixed message to kids about the value of a school day. That day also proved to be the last straw, as the Halifax board reacted in April 2017 by tightening up its school and bus cancellation policy (Corfu 2017), but there was no discernible change anywhere else in the province.

School boards tend to under-report the number of snow days, and the winter of 2016-2017 was no exception. Compilation of the totals from CBC Nova Scotia Storm Centre notifications revealed that school boards cancelled school between 9.5 and 18 days, or 12.5 days on average across the English school boards (Bennett 2017). After seven lost days in February 2015, then-education minister Karen Casey was prepared to bring teachers back on Saturdays to make up the lost days. However, an 18-month-long NSTU contract dispute tended to cool her ardour for bringing in make-up days in any form.

Figure 2: School Closings and Snowfall Average in Nova Scotia, 2000 to 2016



Source: AIMS Research - Data analysis and graphs prepared by Patrick Duplessis, Dalhousie University.

The winter of 2016-2017 raised public awareness (Panacci 2017) and produced calls for corrective action to bring Nova Scotia and the Maritime region more into line with other school jurisdictions across Canada and the northern United States (d'Entremont 2017).

Collective memories in education are remarkably short. During the winter of 2008-2009, storm day cancellations precipitated a very public, full-blown crisis.

That year, Nova Scotia students missed on average nine full days of school, fewer than today. Gunn's study took an initial stab at the problem by recommending fewer system-wide cancellations, using storm days for teacher professional development, and other practical measures. My AIMS commentary expressed alarm over the impact on student achievement of throwing away whole school days, reflected in the abysmal June 2010 Grade 12 mathematics exam results.

School boards made some initial noises about clamping down, but their responses turned out to be pretty anemic. Former superintendents in Halifax, Chignecto-Central, and the South Shore experimented in 2010-2011 and 2011-2013 with closing – in only the worst affected areas – by families of schools. Yet, keeping schools open more was a non-starter with the teachers' unions. With the NSTU's support, educators trotted out the same old rationale that, back in the 1970s, they were "guaranteed" five days in a contract adding five days to the annual schedule. However, Nova Scotia then had fewer school days than other provinces and today has a schedule virtually identical to provinces which average fewer than three days lost a year. The bogus claim, it seems, lives on.

While Nova Scotia has vacillated and postponed action, American states have introduced measures to preserve and protect student learning time. Former president Barack Obama added more days to the school year and state after state adopted policies to replace every school day lost beyond certain thresholds. In Massachusetts, up to five days are made up in June of every year. More than six U.S. states in the American snowbelt, from Illinois to New England, have required teachers to provide pre-prepared online modules and lesson activities during the worst blizzard days (Bennett 2014, 2015). Today, most students have access to home computers or mobile devices, so the so-called digital divide is slowly disappearing. The alternative – preparing homework assignments in advance – should take care of anyone without internet access.

Inclement weather can play havoc with school schedules and student attendance. School systems, as Harvard researcher Joshua Goodman has shown in Massachusetts, are more effective in responding to planned school closures than to unplanned weather events accompanied by high rates of absenteeism. This is because teaching is more effective when delivered in a school-wide, systematic fashion (Goodman 2012, 2014).

Other studies indicate that the frequency of cancellations in Nova Scotia and the Maritimes affects student learning and achievement (Marcotte 2010). In Massachusetts and several other states, cancelling more than five days is prohibited by law. The 2015 Three R's Education Reform agenda promised Nova Scotians more rigour in the school system, but so far, clamping down on throw-away school days does not appear to figure in the plan.

Unplanned school closures announced in the early morning have unintended consequences. Families must scramble to rearrange their day and, where both parents work outside the home, to find safe and reliable daycare for younger children. Working parents employed on contract or in the hourly wage service sector can suffer lost pay by missing work and cannot stay home repeatedly, particularly in small enterprises or non-union workplaces.

Over the past decade, two major studies have documented the impact upon student achievement, particularly on examinations (Marcotte and Hemelt 2007; Gershenson, Jacknowitz, and Brannegan 2015). School day cancellations compound the problem of chronic student absenteeism, affecting one in four Nova Scotia students (Nova Scotia 2016). In a province like Nova Scotia, where 37 percent of middle school and 32 percent of high school students in 2014-2015 missed more than 16 days of school, the impact of extraordinary numbers of storm days can be detrimental to their academic and social progress. It is difficult enough for many students to get to school, even without the regular interruption of storm days.

Public policy research on storm days has grown significantly in North America since the two initial Nova Scotia studies in 2009 and 2010. Two studies (Marcotte and Hansen 2010; Goodman 2012) have tackled the impact of storm day closures on instructional time and student performance, reaching opposite conclusions. Leading researcher Dave E. Marcotte and his collaborators documented the detrimental effect of weather-related school closures on math and reading results in Maryland elementary schools (Marcotte and Hemelt 2008). Meanwhile, Goodman has compared storm days with other forms of disruptions in instructional time. He contends that planned disruptions like storm day cancellations have less impact than the disruptive effects of student absences during periods of heavy snowfall. His detailed analysis (2012) is particularly effective in assessing the impact (effect size) of student absenteeism on mathematics scores. However, Bloomberg News analyst Tom Moroney challenges Goodman's argument that storm days' impacts have been exaggerated. Moroney (2014) claims that the real problem is the repeated and cumulative impact of cancellations.

Adverse weather events represent the leading cause of full-day school closures in Canada and the U.S. One U.S. study (Wong 2014), conducted from 2011 to 2013, found that 79 percent of all "unplanned K-12 closures" were attributable to adverse weather events, covering a wide geographic area. Like all types of student absences,

storm days disrupt learning, weaken the school's and class's sense of community, and deprive learners of needed instruction, especially in literacy and mathematics. Using data from North Carolina public primary schools, Gershenson, Jacknowitz, and Brannegan (2015) demonstrated how unscheduled absences also contribute to the achievement gap by adversely affecting children from disadvantaged households. While only one percent of the achievement gap was directly attributable to differential rates of absenteeism, reducing low-income student absences by 10 per year relative to better-off students would reduce the achievement gap by five to 10 percent. Cancelling school may contribute to those inequities.

Cancelling school days – The growing prevalence of storm days, 2008-2018

The number of days lost to storm days is endemic in school districts outside the Halifax Regional Municipality. The Annapolis Valley School Board (AVRSB) and Cape Breton Victoria Regional School Board (CBVRSB) regularly exceed 10 days lost per year, even in light snow years such as 2017-2018. System-wide school closures have escalated over the past two decades right across Nova Scotia, and particularly in the AVRSB and the CBVRSB districts. From 1998-1999 to 2007-2008, the average for AVRSB was 7.9 days, and for CBVRSB it was 4.7 days (Gunn 2009). Yet over the 10-year period from 2008-2009 to 2017-2018, the average number of days lost in AVRSB rose to 9.5 and to 9.6 for CBVRSB (See Figure 1, page 7).

Gunn's report had little or no impact on curtailing school system shutdowns. While he proposed a few pragmatic operational measures to curb lost instructional time, he identified the cultural factors contributing to cancellations, including the priority given to family life. However, his report stopped well short of tackling the bigger issues. He did not assess the potential impact on student learning and performance. Instead, Gunn touched lightly on the politically sensitive matter of constraints imposed by teacher contracts and he sidestepped any investigation of the inadequacies of provincial and municipal snow clearance and plowing operations. I addressed all of those questions in my 2010 AIMS paper.

With the possible exception of the HRSB, board commitments to contain the numbers of days cancelled never materialized. School consolidation continued apace and more students were bused to school, a major factor in closure decisions (Bennett and Gillis 2014).

Missing a major chunk of the school year because of storm day closures is unique to Nova Scotia and much of Atlantic Canada (Thomson 2017). System-wide shutdowns two or three times a year are considered normal in northern climes, but multiples of that number are relatively rare across North America, even in primarily rural school districts. A new comparative analysis of school days lost to storm closures in Canada from 2008-2009 to 2017-2018 (See Figure 3, next page) confirms snow days are far more prevalent in Nova Scotia and the Maritimes than anywhere else. A recent cross-Canada review conducted for the Canadian Press demonstrated that the vast majority of urban school boards outside the Maritimes rarely, if ever, close their schools. When closures occur, the number of days amounts to fewer than three per school year (Bundale 2019).

Most urban and regional Canadian boards tend to keep their schools open during adverse weather and leave the decision to parents' discretion. School superintendents and senior staff responsible for such decisions prioritize student safety, while weighing

the impact of such unplanned closures on families and students. For high school students, cancelling more than five days begins to erode valuable class time, break continuity, disrupt testing, and create anxiety over examinations.

Figure 3: School Storm Days Lost – Comparative Analysis, Selected Canadian School Districts, 2008-2009 to 2017-2018

School District	Days Lost 2008-2009	Days Lost 10-Yr. Avg.
Annapolis Valley Regional School Board Nova Scotia/Rural/ 41 schools/ 13,000 students	11	9.5
Calgary Board of Education Alberta/ Large Urban/ 245 schools/ 121,000 students	0	0
Durham Region District School Board Ontario/Suburban & Rural/ 131 schools/ 70,172 students	0	1.5
Eastern Township School Board Quebec/ Rural/ 26 schools /6,000 students	0	1.0
Edmonton Public Schools Alberta/ Large Urban/ 223 schools/ 100,185 students	0	0
Fredericton Public Schools (District 18/ Anglo West) New Brunswick/Urban Regional/70 schools/24,000 students	6	9.0
Halifax Regional School Board Nova Scotia/ Large Urban/ 134 schools/ 48,500 students	8	4.6
Hamilton-Wentworth District School Board Ontario/ Large Urban/ 103 schools/ 50,000 students	0	1.6
Moncton Public Schools (District 2/ Anglo East) New Brunswick/Urban Regional/37 schools/33,100 students	9	8.0
Quebec City Schools (CS de la Capitale) Quebec/ Medium Urban/ 66 schools/ 28,723 students	0	1.75
Regina Public Schools Saskatchewan/ Small Urban/ 44 schools/ 24,000 students	0	0
Western School Board/District Prince Edward Island/Rural/ 23 schools/ 6,244 students	13	9.0
Winnipeg School Division Manitoba/ Urban Regional/ 78 schools/ 33,100 students	0	0
York Region District School Board Ontario/ Large Suburban/ 208 schools/ 127,000 students	0	1.75

Sources: AIMS Research Survey, Feb. 8-March 15, 2010; CBC Storm Centre Report Analysis, 2013-2018; and Brett Bundale, Canadian Press, *The Chronicle Herald,* March 1, 2019. (Bennett 2010).

Storm day closures tend to exacerbate tensions between unionized teachers excused from duty and support staff who are, in some cases, left behind in empty schools (Gunn 2009). Today, the majority of Canadian school districts outside the Maritimes, even in severe winter zones like Calgary, Winnipeg, Ontario's Durham Region, and Quebec's Eastern Townships, seek to minimize school storm days, to preserve teaching time, and to resist the temptation to give kids the day off at the first sign of inclement weather (Bennett 2010; Bundale 2019).

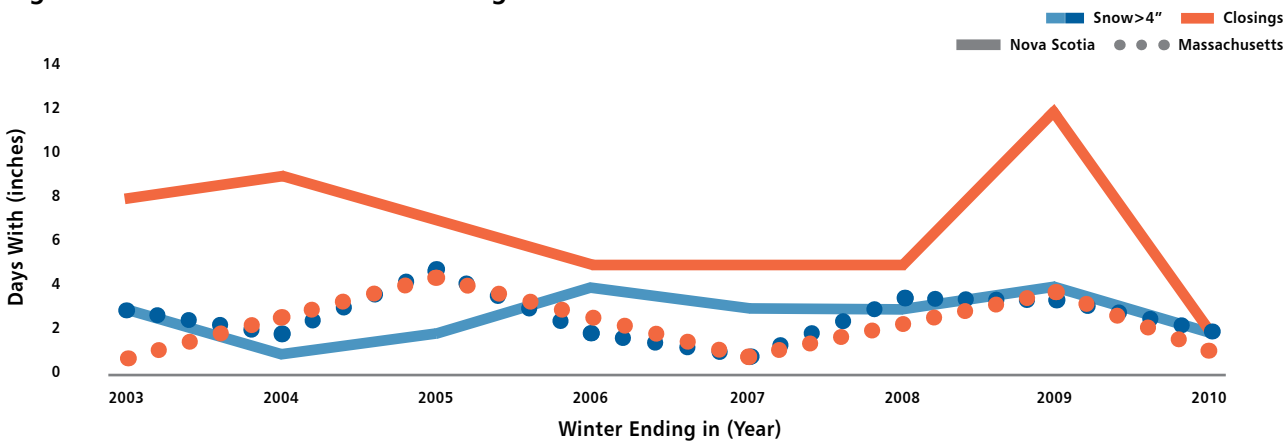
Comparative Study – Nova Scotia and Massachusetts

The average student in Nova Scotia is absent for personal reasons more than two weeks out of every scheduled school year (NSDEECD 2016). He or she also misses an average of 10 days more through storm day cancellations. American studies show that lost instructional time due to school closures, averaging three a year, has little effect on student achievement. School closures in Massachusetts are also quite consistent with snowfalls, as snowfalls of four inches or more normally trigger school closures (Goodman 2012). Comparing the relationship between snowfalls and school closures in Nova Scotia with Massachusetts is equally revealing because, in Nova Scotia, the pattern of school closures is much less consistent with the amounts of snowfall.

The clear differences are illustrated in two graphs tracking snowfall levels and school closures over roughly parallel periods of time (Figure 4). Drawing such comparisons provides further evidence that Nova Scotia schools are closed for inclement weather far more and when snowfall levels are far lighter than in Massachusetts, the state subjected to the most serious and authoritative study. Comparative data for system wide absenteeism for Massachusetts formed a part of the American research study. Days lost through student absences hovered around 8 per year in Massachusetts. While reliable Nova Scotia absenteeism data is not publicly available, we do know that rates of chronic absenteeism are far higher than in comparable U.S. states, including Massachusetts (NSDEECD 2016).

While winter school closures hit new heights from 2012-2013 to 2016-2017, provincial standards in Grade 3 reading dropped from 76 percent of students meeting provincial expectations to 68 percent. Provincial results

Figure 4: Snowfall and School Closings 2003 to 2010



Source: AIMS Research - Data analysis and graphs prepared by Patrick Duplessis, Dalhousie University. Based upon AIMS research for Nova Scotia (Chignecto-Central RSB and Halifax Airport) and comparative research for Massachusetts by Joshua Goodman, "Flaking Out: Snowfall, Disruptions of Instructional Time, and Student Achievement," Presentation, Georgetown University, April 30, 2012, 16.

in Grade 8 mathematics continued to languish in mediocrity, with only 56 to 64 percent meeting acceptable standards (Nova Scotia PLANS 2012-2013 to 2016-2017).

Educational surveys are a peculiar species and far too many tend to be designed to produce pre-determined results. A prime example occurred during 2016-2017 in the Annapolis Valley Regional School Board. The superintendent and elected board went to considerable lengths to justify cancelling school at the first sign of impending storms, high winds, or inclement weather. Some 11,000 of the 12,900 students – about 85 percent of the district – ride buses, so if buses are cancelled, few schools can operate effectively. After cancelling school for 16 days during 2016-2017, the AVRSB faced some public criticism (Golberg 2017; Desveaux 2018).

The Annapolis Valley board responded in December 2017 with a brief online survey that narrowed the whole issue down to two operational alternatives to full-day closures – two-hour delayed openings and/or the announcement of early dismissals. The AVRSB survey provided no background data on the extent of the problem and no space for respondents to provide comments at the end of the survey (Desveaux 2018; Ericsson 2018). When 70 percent of respondents and 82 percent of students rejected two-hour delayed openings and only 53 percent opted for announcement of early dismissals, AVRSB interpreted it as an endorsement of existing school cancellation policy and practice (Ericsson 2018). Since then, the AVRSB and its successor, AVRCE, has cancelled school more frequently and, during 2018-2019, recorded double the number of closures of any other district (Bennett 2019).

Defenders of current policy and practice repeat the familiar dictum that "student safety comes first." When the number of snow days reaches double digits, it becomes a hot topic of public conversation and exposes underlying divisions over the sanctity of classroom instructional time.

Yet, public opinion on school storm days can be hard to gauge in Nova Scotia. One recent Halifax Regional Municipality opinion poll, conducted for AIMS during April and May 2018, revealed that some 44 percent of participants felt snow day cancellations "negatively affect student achievement" and 47 percent favoured adding "make-up days" to the annual school schedule.

The ripple effect on the workplace of cancelling school

Working parents in Nova Scotia tend to respond to repeated school day cancellations with quiet resignation. When the number of lost days mounts, the most vocal parents complain that enough is enough. One Annapolis Valley parent, Jaclyn Fredericks, whose son attended Kings County Academy, reached that point in 2016-2017 and went to the media. "Parents still have to go to work when snowstorms happen," she said, and then asked: "Why can't we look at making (buses) safer so our kids can get to school?"

Parent Michelle Young, a paramedic who was raised in Ontario where winter closures are rare, spoke up for "keeping schools open and cancelling (buses) as an easy solution" (Ericsson 2018). Such parents find unscheduled school closures disruptive for families, especially those without child sitters. For them, the stress mounts with each day cancelled and difficult choices must be made about whether to prevail upon family and friends, again, to cover for them at home, to pay for reliable child care, or to take another sick day.

System-wide school closures affect the parents of Nova Scotia's 118,000 students, amounting to one of every four to five Nova Scotians. Many of those households depend on two-income earners, especially those considered average middle class or low-income families. A 2013 study for the Conference Board of Canada identified parents of young children as one of the groups with the highest rates of absenteeism and noted that those living in the Atlantic Provinces were particularly prone to high absenteeism. Among the critical factors contributing to absenteeism, the Conference Board report listed organizational culture and unionization, and societal factors like a lack of community supports or access to resources (Stewart 2013).

Morneau Shepell, Canada's leading human resources management firm, fleshed out the context that gives rise to high rates of absenteeism. Incidental absences, such as those related to school closures, account for some absenteeism, especially among mothers in the workforce. Family reasons and personal issues are as important as job dissatisfaction in the equation. Some 52 percent of incidental absences, according to Morneau Shepell, are not due to illness and are particularly common in smaller enterprises or places where the employer does not recognize or support mental wellness (Allen and Bourgeois 2015; HANS 2017).

Incidental absence from work caused by family responsibility pressures can be difficult to assess, since Morneau Shepell reports that some 64 percent of employers do not track such absences or assess the cost to business operations.

Since 2011, women have higher rates of absences compared with men across nearly every age category. Studies by Statistics Canada, the United States Bureau of Labor Statistics, and European agencies confirm this finding. There is, however, some debate around the reasons for which women are away from work more often than men. In many cases, it is clear that women still carry a larger share of the workload at home and most of the child care responsibilities. However, recent research tends to call into question that general assumption. According to Statistics Canada Labour Force Survey data, whether or not an employee has children may not be a decisive factor in driving up days lost per worker. Those with children younger than age five take almost double the number of days off for personal/family responsibilities than those without children, but make up for this by taking fewer days off due to illness or disability (Stewart 2013; Statistics Canada 2018). None of these data factor in the impact of covering off nine to 12 additional days when younger children are not in school because of storm day closures.

Workplace absenteeism already runs high in Nova Scotia, largely due to the structure of the economy, the predominant occupations, and the lack of community-based supports for working parents. In the most recent Statistics Canada Labour Force Survey, 2013 to 2017, Nova Scotia was reported as losing 10 to 11.4 days per worker for absences, more than one day higher than the national average. Women workers in Nova Scotia average between 12.5 and 13.9 total days lost for absences, amounting to an inactivity rate of five hours per week out of the normal work week for full-time employees (Statistics Canada 2018). In Nova Scotia and the Maritimes, being compelled to remain home during repeated snow day cancellations of more than five days likely represents a further run on workplace absences, but more research is required.

Assessing the hidden cost – Impact on labour productivity

Employee absences cost the Canadian economy an estimated $16.6 billion each year and, according to Morneau Shepell (2014), about half of all incidental absences are non-illness related. Based upon the survey of 1,205 employees, employers and physicians, the main drivers of absenteeism were identified, as well as the effectiveness of common absence-tracking practices. Since almost two out of three employers do not track the costs of incidental absences, the survey filled in the missing pieces. More than half (53 percent) of the employers surveyed agreed that absenteeism was a serious issue; so did 43 percent of all employee respondents. Some 90 percent of employers reported that absenteeism was costly for their organization and negatively impacted productivity.

One of the most interesting findings was the identification of a unique condition known as "presentism", the technical term for "the time employees spend at work while not productively engaged in work" (Allen and Bourgeois 2015). Parents' work-related stress is compounded by anxieties over family responsibilities and is very likely a major contributor to workplace fatigue manifested in presentism – being at work in body, if not in mind.

Nova Scotia has a well-recognized and documented labour productivity problem. In May 2014, the Conference Board of Canada delivered a blunt message by awarding Nova Scotia a "D" grade for ranking 23rd out of 26 jurisdictions (10 provinces and 16 advanced countries) in its economic performance. Then-senior vice-president and chief economist Glen Hodgson reported that the province ranked ahead of only New Brunswick with an economic performance comparable to struggling European economies. While there were signs of improved labour productivity growth, it still ranked third last among Canada's provinces, trailing New Brunswick and P.E.I. In February 2017, the Conference Board downgraded the Nova Scotia economic outlook for 2017 and 2018, ranking the province second last in forecasted GDP growth, marginally ahead of Newfoundland and Labrador (Risdon 2017). A Treasury Board snapshot of Nova Scotia labour productivity in 2016 confirmed that business sector labour productivity grew by a sluggish 1.5 percent, driven by mining, oil, and gas, but recorded offsetting losses in the information, cultural, and arts industries. In terms of productivity levels, Nova Scotia generated $34.8 (benchmarked to 2007) of GDP per hour of work, ahead of only P.E.I., and well below the Canadian mean of $50 of GDP per hour of work (Steele 2018).

Public policy has a bearing upon productivity performance everywhere. Labour productivity analysts Andrew Sharpe and Ricardo de Avillez tackled the question in

their 2012 paper assessing Nova Scotia's productivity performance from 1997 to 2010. While public policy may not be a critical factor in productivity growth, it is relevant in helping to explain the gap in labour productivity between Nova Scotia and other provinces. Given that Nova Scotia's productivity level is consistently 25 percent below the Canadian national average, Sharpe and de Avillez claim a connection between provincial policy and the productivity level: "One area where provincial public policy could have potentially contributed to (the) poor productivity gap," they noted, "is an emphasis on job creation over productivity advance." Reducing unemployment rates, they added, took precedence over other provincial policy priorities. While treading carefully, the two analysts did make this telling observation: "The provincial government controls the education sector so it could have a negative impact on productivity through inappropriate policies in this area" (Sharpe and de Avillez 2012). Condoning or looking the other way when school boards routinely cancel nine to 12 days of school a year likely perpetuates throw-away school day culture with ripple effects on working families and on long-term labour productivity.

Summary and Recommendations

No other region of Canada, urban or rural, comes close to the Maritimes in closing schools for weather-related reasons. Storm day cancellation numbers may go up and down, but the trend from 2013-2014 to 2017-2018 is clear – school is cancelled almost twice as often as it was 20 years ago.

Good public policy is based upon a careful assessment of chronic issues and a grasp of the ripple effect of unintended issues originating in one sector, but with long-term consequences in another. Already high rates of student absenteeism in Nova Scotia's P-12 schools (Bennett 2016; Nova Scotia 2016) are compounded by cancelling record numbers of days for weather-related reasons. Based upon the research, it is clear that, as Sharpe and de Avillez (2012) observed, "inappropriate" education policies and practices exert "a negative impact" on productivity in Nova Scotia.

Key recommendations

Strategy One – Curbing the number of school storm days

Preserving and protecting instructional time should be a provincial education priority, along with ensuring students' safety during severe winter weather. Apply evidence-based decision-making in limiting the number of days lost through school closures to five days per school year.

Recommendation 1:

Provide students and parents with a guaranteed minimum number of teaching or instructional days a year, regardless of, and adjusting in relation to, storms or adverse weather conditions.

Recommendation 2:

Establish the principle that school days lost to storm day closures will normally be made up over the course of that school year, preferably by repurposing scheduled professional development days.

Recommendation 3:

Establish the policy that Nova Scotia P-12 schools will remain open except in the most extreme adverse weather conditions and parents will have the option of sending their children to school except in rare cases. In the absence of regional boards, provide clear provincial criteria for triggering school closures.

Strategy Two – Establishment of a flexible, adaptable school year calendar

The Nova Scotia Department of Education and Early Childhood Development should be charged with establishing a more flexible, adaptable annual school calendar, preferably in collaboration with the Nova Scotia Teachers Union and other education bargaining units.

Recommendation 4:

Establish a minimum number of actual teaching or instructional days (such as 180 days out of 195 scheduled days) and limit the number of storm closure days to five a year, with provision to make up lost days through repurposing PD days and, as a last resort, up to five at the end of the school year.

Recommendation 5:

Plan professional development days based upon the assumption that they are portable and can be substituted for instructional days, repositioned to dates later in the year, or cancelled until the following year.

Strategy Three – Improved student transportation access and safety

Student transportation is critical in the Nova Scotia school system, where two-thirds of all students depend upon daily busing. School transportation zones deserve to be recognized as high-priority routes for snow plowing and road clearance. Collaboration should be better between the Nova Scotia Department of Transportation and Infrastructure Renewal (DOTIR), municipalities, and school districts to clear the roads, and ensure the safe transportation of students on buses and in personal family vehicles.

Recommendation 6:

Mandate DOTIR to develop (in collaboration with the provincial Pupil Transportation Advisory Committee) a co-ordinated province-wide strategy for snow clearance and highway plowing, assigning higher priority to heavy daily student transportation zones, particularly along secondary roadways and working more closely with municipalities to improve services on dirt roads.

Recommendation 7:

Ask DOTIR to conduct a full investigation into school bus safety under winter conditions with a mandate to explore such issues as the merits of requiring upgraded winter or studded tires and equipping buses with seatbelts.

Strategy Four – Classroom Contingency Plans

Making a commitment to addressing and reducing lost instructional time begins and ends with principals and teachers. Cancelling school repeatedly disrupts unit and lesson planning, interrupts testing routines, and compels teachers to drop subject content, double up on homework, or cram in material at the end of a course. E-learning makes it easier to use online learning to bridge gaps caused by storm day school cancellations (Chilibeck 2018).

A viable alternative to cancelling school days is slowly emerging south of the border. Since August 2011, Ohio has authorized school districts to develop "e-Day plans" for storm days, implementing them once five days have been lost in the school year. In dozens of U.S. school districts in the snowbelt states, "snow days" or "calamity days" are being turned into "cyber-learning days" using e-learning software programs and internet links connecting the school with students' homes (Bennett 2014; Guerra 2014; Morones 2014). In cases where students or families lack access to reliable internet connections, teachers prepare homework assignments for "blizzard bags" sent home in anticipation of coming storms (Gartner 2011; Bennett 2015). A little pro-active educational leadership can make it happen in Nova Scotia.

Recommendation 8:

Complete the rural broadband expansion plan and introduce e-learning days in Nova Scotia, to meet the provincial requirement of 180 instructional days per school year. These e-days would be used to avoid adding days at the end of the school year.

Recommendation 9:

Allocate one professional development day in October or November each year to provide teachers with the resource support and time to develop and field test e-learning modules using the existing or re-engineered school-home software programs with online learning capabilities.

Recommendation 10:

Support teachers with incentives to develop homework assignments specifically for elementary school homework bags in case of a weather-related interruption in school attendance.

Strategy Five – Assess the Wider Impact

Repeated school day cancellations directly affect families, hourly wage workers, and employers. Little or no research has been conducted to assess the short- and long-term impacts.

Recommendation 11:

Conduct a more comprehensive and detailed study of the cumulative effect of planned and unplanned school interruptions on labour productivity and consider taking remedial action.

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