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"Snow days are the best days." Exploring Teachers' and Administrators' Perceptions of Weather-Related School Disruptions

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Extreme weather events are becoming increasingly common and have the potential to impact the school day. This study aimed to explore teachers' and administrators' perspectives on weather-related school closures. Semi-structured interviews were conducted with ten key informants and analyzed using content analysis. Informants took a strengths-based approach and discussed the benefits of weather-related disruptions for student mental health and planning time. However, informants did mention that if these days continued to rise, it might be a cause for concern. School boards need to begin monitoring the impact of weather events.

Les phénomènes météorologiques extrêmes sont de plus en plus fréquents et peuvent avoir une incidence sur la journée scolaire. Cette étude visait à explorer les perspectives des enseignants et des administrateurs sur les fermetures d'écoles liées aux conditions météorologiques. Des entrevues semi-structurées ont été menées avec dix informateurs clés et analysés à l'aide d'une analyse de contenu. Les informateurs ont adopté une approche fondée sur les points forts et ont discuté des avantages des perturbations liées aux conditions météorologiques pour la santé mentale des élèves et le temps de planification. Cependant, les informateurs ont mentionné que si ces jours continuaient à augmenter, cela pourrait être une source d'inquiétude. Les conseils scolaires doivent commencer à surveiller l'incidence des événements météorologiques.

In December 2022, Buffalo, New York was impacted by "the blizzard of the century" (Deliso, 2022). This snowstorm shuttered businesses, schools, and government institutions. Extreme heat in April 2024 forced school closures across much of Asia, where millions of students missed classes or were moved to online learning (Aggarwal, 2024). Although these events are extreme examples, weather-related events have consistently impacted schools (Button & Martin, 2023; Call & Coleman, 2014; Hyndman & Vanos, 2023; Miller & Hui, 2022; Ouellette et al., 2024; Wong et al., 2014). During extreme weather, schools may be closed entirely, moved online, or transportation to schools will be cancelled (Wong et al., 2014). For example, one division in Canada will close if weather reaches -350 Celsius or colder, or a windchill of -450 Celsius or colder at a certain time of day at a specific weather monitoring station. Schools in this division will also close when weather and road conditions make travel not advisable (Hanover School Division, 2024). With the well-documented importance of schools and education for sustainable development (Phan Hoang & Kato, 2016), health and academic achievement (Centeio et al., 2021), and preparing children for the modern job market (United Nations Children's Fund, 2019) it is

imperative to understand the impact of extreme weather on schools.

Schools may be closed during extreme weather events to protect students and staff from hazardous weather conditions, such as high winds, flooding, or lightning strikes. Similarly, extreme cold or heat, such as blizzards or heat waves, can result in school closures due to the risk of cold or heat-related illnesses. Between 2011 and 2013 there were 19,314 school closures due to weather- or weather-related occurrences in the United States of America. This accounted for 93% of all school closures (Wong et al., 2014). In a study from the state of California from the 2002/03 school year to the 2018/19 school year 29,812 school days were lost to wildfires, weather, and natural disasters. This accounts for approximately 87% of school closure days (Miller & Hui, 2022).

Current research on weather and school closures suggests that academic losses are insignificant (Miller & Hui, 2022); yet, there are still potential concerns that weather-related school closures have impacts beyond academic losses, such as on social, emotional, or physical health. Additionally, temporarily moving online through a class learning management system could exacerbate educational inequalities, as students from low-income families or those with limited access to technology may experience greater challenges in accessing remote learning resources during school closures (Sen & Tucker, 2020). Closures and extreme-weather related disruptions can also have social-emotional effects on students, particularly their mental health and well-being. Studies on school closures during COVID-19 found that closures had a negative effect on mental health (Rimpelä et al., 2023; Viner et al., 2022), and a study on students after a wildfire event also found a negative impact on mental health (although school closures were not examined specifically; Brown et al., 2019) Finally, school closures may disrupt students' daily routines, resulting in decreased physical activity, and therefore impacting their overall health and well-being. One study found that on days when students missed school, their screen time was 13% higher (de Jesus et al., 2022), and during summer holidays, children's physical activity decreased by 18% (Volmut et al., 2021).

School closures or weather-related declines in student attendance may also have positive impacts. Teacher well-being is becoming an increasingly important area of research (Hascher & Waber, 2021) as some research is finding that teachers have high levels of stress (Herman et al., 2018) and worse well-being compared to the general public (Doan et al., 2023). During a school closure or weather-related decline in student attendance, teachers may reap some positive benefits. A study on stress and coping strategies of approximately 1200 American kindergarten to grade 12 teachers found that some of the top sources of stress are not having enough time to prepare lessons, class size being too large, and experiencing feelings of isolation (Richards, 2012). These potential sources of stress can be reduced if teachers get a day off from students where they can plan lessons, have more time to talk with other teachers, or if fewer students attend.

Extreme weather-related events that impact schools are becoming more frequent and intense (United Nations Office for Disarmament Affairs, 2020). These closures might impact students' education as well as students' and teachers' emotional health and well-being, making this a crucial area to investigate. This study aims to explore teachers' and administrators' perspectives on weather-related school closures in the Canadian elementary school context. Results may indicate if plans are needed to make up missed instructional time and highlight areas for future research.

Methods

Data were collected through semi-structured interviews with teachers and administrators over

Zoom (Zoom Video Communication, 2022) between March 2022 and June 2022. Before the study began, all participants were read the same letter on the ethical procedures of this study and gave oral consent. The project was approved by the University of Winnipeg Research Ethics Board (IRB Protocol# HE16949).

In total, ten key informants (teachers, principals, or vice principals) were recruited using a purposive sampling method and interviewed for this study. Teachers and administrators were selected because they all had worked in elementary education and experienced weather-related disruptions. For this study, elementary education was defined as kindergarten to grade 8, students aged approximately 4–14. Semi-structured interviews were chosen as they allowed participants the opportunity to discuss their thoughts and feelings about the topic. Most of the questions focused on extreme weather-related events related to winter weather e.g., cold, snow, and ice. However, participants were given the option to discuss any other extreme weather-related events that impacted their school. Interview questions included questions about weather and school closure such as, what happens during extreme weather at your school? Do you have any concerns about missing school due to extreme weather? How does extreme weather impact your planning or teaching? Do you have any additional comments about extreme weather and school related policies?

Data were analyzed using a content analysis with the aim of staying as close to the text as possible. Brenton first listened to and then read all the interviews to obtain a general sense of the data and then grouped the data into different thematic sections. Next, Brenton started to create categories and then subthemes. Since the goal was to stay close to the text, each theme name was based on a direct quote from the participant. The process of going from reading to coding to themes was a non-linear process, with Brenton going back and forth between reading, coding, and theme creation (Erlingsson & Brysiewicz, 2017). Data was also examined by position and gender identity. To aid in this process, a second coder (Carson) was used to help check interpretations against that data and ensure that each theme was sufficiently defined and supported by the raw data. Gina contributed to study design and critically edited the manuscript.Coder positionality was considered throughout the analysis and interpretation of the data. Brenton interpreted the data based on his experience growing up and teaching in a rural northern community that frequently had weather-related school interruptions. As both a student and a teacher, he enjoyed either staying at home or going to school with fewer students on snow days or teaching and building relationships with students that would attend school on snow days as a teacher. Carson grew up across the Canadian Prairies where numerous weather-related school interruptions prevail. As a student he also had fond memories of “snow days” and is currently beginning his career as a schoolteacher in a rural school division.

Results

Ten key informants participated in the study and, on average, the sample had ten years of experience. One of the first questions was about school closures. Most key informants suggested that their school never or rarely closed. During bad weather or “snow days,” teachers were still expected to report to their school, and the school would remain open. Often on these days, school buses were cancelled, and attendance throughout the school would vary. Depending on how many students were in attendance, teachers would determine if they would continue with new material or use the day to catch-up on assessment and evaluation, build relationships with students, or try new lessons. Through the remainder of this paper “snow days” will be used to refer to any snow

weather-related transportation cancellation. Depending on the school location, snow days could mean that only a few students would attend class or almost all students would attend class. Informants mentioned that walking distance and age were two of the biggest determinants of how many students would show up on those days. Typically, older grades and schools that had most students using a school bus would have lower attendance. Additionally, three key themes were selected from the data. The first theme, "Snow days are the best days," describes the positive benefits of snow days for students and teachers. The second theme, "I'm not too concerned," explores teachers' and administrators' thoughts about how missing school for weather-related closures impacts instructional time. The third theme, "It's not safe for children to be on the road, but you're allowing your educators to be on the road" explores the tension between having buses cancelled but still requiring teachers to report to schools.

"Snow days are the best days."—A Refreshing Pause for Students and Teachers

When key informants were asked about snow days, most enjoyed them. As one key informant said, "Snow days are the best days. I love snow days" (Interview 4). When further discussing snow days with this informant, they explained that:

> No, I like snow days, I appreciate the snow days. I did work abroad, and I never got snow days, and I really missed them. It is a good break for the kids, especially between September and December. If there is no break like March Break, that is a long, long couple weeks. So, everybody takes a break, resets, and then comes back, and behaviours are not as bad. It is a good mental health day for the kids. It is a good catch up day for the teachers because now that we are not in cohorts, one teacher will take all the kids for a period, and then the next teacher would take all the kids, so they still get some extra planning time, which I really enjoy having like that collaborative planning time with your teaching partners where you do not have to do it on the weekend or after school late, that is my biggest thing. (Interview 4)

Other key informants had similar feelings about snow days, as they said:

> I have the mindset of a snow day is a snow day. It is better for their mental health to have a break, if that is what their parents have elected for them, than for them to sit at home on a computer doing work. Get outside, whatever, and have fun. (Interview 3)

"I'm not too concerned"—Teacher Confidence and Adaptive Resilience in the Face of Weather-Related Disruptions

Key informants were generally not concerned about any potential loss of instructional time from snow days or school weather-related closures:

> I think that is something that we can keep up with, it is one day, and I know those days can add up, but it is one day of the week, and I am very capable of making sure that we can continue that program the following day. I do not panic about that. Sometimes I will post it [school content] online for the students to have access to, even though I do not have to do that, but I know some parents get a little squirrely about not having content or not having something for their kids to do, but I am not worried about the things that they are missing for a day. (Interview 8)

Participants suggested that they would be concerned if their students missed multiple days a week, as one informant said:

> When we have like three snow days back-to-back, which are rare, that's when I am like, we are going to get behind here. I am not too concerned about a day here or there or even two days is not a big deal because you can always make it up. (Interview 3)

Another informant said: "I do not have big concerns about it because it is not very frequent. I would have some concerns if this happened once a week. That would definitely be impactful" (Interview 5).

One key informant did make an interesting comment: "Because we have three professional development days, that if there is a snow day, then these days at the end of the year are school days and not a professional development day" (Interview 7).

When key informants were probed about missed school days and asked if they placed information on their class or school learning management system with a specific focus on physical education. Informants were mixed, with some saying they would and others just wanting their children to enjoy the snow day. Of the teachers that did post on their school learning management system or teach online, they found that students at home did not participate: "Yeah, this year when there were the two snow days, we were supposed to be teaching online, but there was not much participation at least from my students" (Interview 10).

"It's not safe for children to be on the road, but you're allowing your educators to be on the road"—A Double Standard for Safety

When key informants were asked about travel to school during inclement weather some felt unsafe travelling to school on certain days:

> I know sometimes in the winter, there are days where I have risked getting into a car accident because school is still on, and I do not think that's right and especially for educational assistants and other school staff that don't have personal days or do not have paid leave for them it's very impactful financially not being able to show up for work. (Interview 10)

This issue of safety also came up when informants were asked about bus cancellations. One participant said: "Safety for students but also teachers. If you're saying it's not safe for children to be on the road, but you're allowing your educators to be on the road. You do not feel very good about yourself" (Interview 3).

Some informants also thought they were putting parents at risk: "We're putting people's safety at risk by having them out on the roads to try and get their kids to school" (Interview 1).

Discussion

The study aimed to explore teachers' and administrators' perspectives on weather-related school closures. The results indicate that informants had few concerns about the number of days that are currently being lost from extreme weather and thought they provided mental health benefits, time to participate in outdoor activities for students, and an opportunity to collaborate with other teachers. However, teachers did indicate that if the amount of extreme weather days started to increase, steps would need to be taken to cover all the curriculum outcomes. Key informants also

discussed the tension when students' transportation is cancelled, but teachers are still expected to report to schools.

Most key informants suggested that their school rarely if ever closed. In some cases, schools would have weather-related disruptions where the buses were cancelled, resulting in varying numbers of students attending school. Key informants had few concerns with academic loss during these weather-related school interruptions. This coincides with a quantitative study from California, USA, that found short school closures had little to no impact on English and mathematics scores of the *California Assessment of Student Performance and Progress* (Miller & Hui, 2022). Miller & Hui (2022) hypothesized that teachers could adjust their lesson, unit, or yearly plans in response to these closures. This study supports this hypothesis, as teachers had confidence in their ability to ensure that students would meet the necessary expectations. However, when teachers were asked about posting health and physical education material to the learning management system few teachers were posting that specific subject. Future research is needed to explore if short-term school closures impact physical activity levels and its corresponding effect on health.

Similar to points raised by Goodman (2015) and Hyndman (2017), this study found that participants were more concerned about attendance from other events like sports tournaments, family vacations, or doctor's appointments. The difference between some weather-related school interruptions and other truancies is that during a weather-related closure, all students miss the same lesson, but if a single student or small group of students miss school, they need to do extra work to account for the missed classes (Goodman, 2015; Hyndman, 2017). Some teachers noted that despite bus cancellations, they proceeded with their planned lessons because most students still attended. These absences, stemming from transportation issues rather than personal or parental choice, may require closer attention, as students could miss new material. This highlights an education equity concern, as access to transportation can impact students' ability to fully participate in and benefit from educational opportunities, potentially contributing to educational disparities based on geographical location and transportation access. It was also noted that if extreme weather days got beyond a certain threshold, it might become a concern. As reported by the International Panel on Climate Change, extreme weather and weather-related events are likely to increase, so schools should start tracking how many days are missed and work with teachers to ensure students are staying caught up (Pörtner et al., 2022).

Previous research on weather and school-related closures have tended to focus on potential academic losses (Goodman, 2015; Hyndman, 2017; Miller & Hui, 2022). Although this area of exploration is warranted, participants in this study focused on the many positive benefits of snow days, including a mental health break for students. Teachers felt that days off due to weather conditions provided a mental health break. Teachers also described other benefits of snow days, including allowing for collaborative work between teachers, increasing planning time, and improving interpersonal relationships among staff and students. Future research must explore the potential physical, academic, and emotional benefits of snow days or other weather-related closures for both students and teachers.

One area of concern was the safety of children, parents, and students during inclement weather. Teachers in this study felt they were unnecessarily risking their own safety to travel to school and parents were risking their own and their child's safety to get them to school. One informant even made the point that even on days where it was determined that school buses should not be on the road, it was okay for teachers to be on the road. However, if schools are closed, some parents must rush to find childcare, work from home, or take their children to work.

A study from Argentina, that looked at missed school due to strikes, which accounted to 4.1% of instructional days, found that parents would miss approximately 1.6 months of labour earnings to account for temporary school closures (Jaume & Willén, 2019). Another potential concern in temporary school closures is food insecurity, as many students rely on school food and nutrition programs for a healthy meal (Fletcher & Frisvold, 2017). When determining school weather-related closure policies, there are multiple factors that must be considered.

This article served as an exploratory study on teachers' and administrators' perspectives on weather-related school closures, and is limited to their views and experiences. This study used of a purposive sample with key informants in Canada that all had some experience encountering extreme weather with most informants experiencing extreme weather as a result of cold temperatures. Therefore, the information is not generalizable to a global audience, but can be transferred to other schools that experience extreme weather. Another area for future research is capturing information on how many students take a bus to school each day as that seemed to impact the number of students in class and a teacher's decision on what would be done during the day. School-related weather-related closures are now, and will continue to be, an important topic to explore, as there is likely to be an increase in extreme weather-related events (Pörtner et al., 2022). School weather-related interruptions seem to have positive and negative impacts on students, parents, and teachers. School board decision makers need to work with students, parents, teachers, and school staff within their school to determine the policies, practices, and procedures that would be most beneficial to their school community.

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