

**Death of the Snow Day:
The Effect of Inclement Weather Remote Learning on K-12 Students**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

The recent surge in use of virtual meeting platforms was a critical response to the closing of schools and businesses due to COVID-19. The advent of Zoom and its counterparts boosted connectivity and collaborative productivity when there was a serious deficiency of both. Now, with public congregation once again unrestricted, use of video meeting software remains frequent. In the last three years, American public schools have begun to implement virtual instruction schedules on weekdays with inclement weather, forcing the snow day, in its conventional state, into endangered status. This project will explore the effect of this development on three primary aspects of the quality of a student's life. The first is their opportunity to experience respite from routine. The value of a snow day lies primarily in its spontaneity, offering an escape from responsibility and routine, both of which put a unique strain on one's mental health. The second is a student's access to an enriching environment; each of the many traditions and unique experiences inherent to snow days has the potential to add richness to a child's upbringing. The third is students' access to quality education. If part of a curriculum is taught virtually and virtual instruction turns out to be less effective than in-person instruction, it facilitates an inefficient use of time and threatens students' preparation for subsequent material. The quality and viability of virtual instruction will thus be assessed.

Social Context

In the United States, when weather conditions make transportation to schools unsafe or inconvenient, administrations generally close schools until conditions improve, with a cancellation resulting in a day off for students and teachers. In general, annual rates of snowfall

in the U.S. are highest in northern and high altitude regions (Qiao et al., 2021). Because schools in snowier areas tend to be better equipped for snow, it takes more snow in these areas to necessitate a school cancellation and areas with less snowfall tend to cancel school at a lower snow threshold (Nelson, 2015). It follows that, in general, any region in the U.S. with a non-zero rate of annual snowfall experiences weather-related school closures. The only regions with negligible rates of annual snowfall are parts of Southern California and Southern Arizona, most of Florida, and most of the Gulf Coast. The Gulf Coast and Florida also experience hurricanes at some of the highest rates in the country (*Hurricane | National Risk Index*). Thus, the only apparent regions with sufficiently mild weather to avoid school cancellations are small parts of California and Arizona. Every other populated region of the U.S. contains demographics implicated by this report.

In recent years, school systems have begun to administer virtual instruction during weather-related school closures, with a reported 39% of principals and district leaders “convert[ing] snow days to remote learning days” and another 32% considering the same as of November 2020 (Peetz, 2023). These numbers suggest that students in as many as 71% of schools could be facing indoctrination into a new type of school year in which conditions prohibiting transportation don’t always provide a day of fun and relaxation.

Literature

In pursuit of a thorough perspective on this issue, I drew heavily from news articles, which provided perspective on public opinion and contained the remarks of key experts like psychiatrists and school administrators.

Rest

Literature discussing the effect of weather-related school closures on student mental health generally asserts that the relief offered by a weather-related school closure is unique and valuable. Some sources go a step further and suggest that virtual instruction during weather-related school closures directly compromises their benefit to students' mental health.

“Research has shown that an unexpected snow day is perceived as a gift, offering a mental health break far more rejuvenating than a planned day off,” says Mike Szydowski (2024), elaborating that the rarity and spontaneity of a snow day makes it healthier than a typical school day and that its restorative effects allow students to be higher spirited and more productive in the long run. These assertions are echoed by Norman Rosenthal, the psychiatrist who discovered seasonal affective disorder, calling winter storms a “welcome respite from the drumbeat of the continual demands of winter” (Itkowitz, 2016). Another significant advocate of snow days in the context of mental health is Brigid Schulte, author of *Overwhelmed: Work, Love, and Play When No One Has the Time*. She asserts: “to have a day... where we can't help but be ‘unproductive,’ is like getting a taste of what true leisure time ought to be like” (Fitzgerald, 2020). While most discussion of the elation of an unexpected rest day refers specifically to snowy conditions, it is equivalently a function of any spontaneous condition prohibiting schools from operating. Says Schulte, “it's the time that's the gift, not the snow.”

It is intuitive to think that having to attend class virtually on a day that would otherwise be devoid of responsibility would be detrimental to the restorative quality of the time off, but this cannot be simply assumed. While compensatory online classes debuted only a few years ago, they have been met with plenty of pushback on this basis. Michael Venutolo-Mantovani

describes the introduction of inclement-weather-online-learning to New York City’s public school system, quoting Mayor Eric Adams as emphasizing the need to “minimize how many days our children are just sitting at home making snowmen.” Writes Venutolo-Mantovani, “Adams’s comments... completely disregarded the social needs of a generation of overworked and overstressed children” (2024).

Enrichment

Literature on the advantages of the enriching experience of a snow day suggests that the snow day experience is distinctly positive. Its emotional effect seems almost innate in people and its undeniable positivity warrants administrative consideration.

The attraction of snow days is a complex amalgamation of the need for a day off and the affinity for the experience of a snow day in particular. It is difficult to separate all of the variables that render the elation of a snow day. Helen Fitzgerald (2020) describes an experience with snow in college during which she was under significant stress due to an impending deadline. Even given her difficult circumstances – the storm had no effect on the deadline – Fitzgerald writes: “I look back on that snowstorm as one of the best things that happened that year. If you asked me to explain, I couldn’t tell you why.” Irrespective of the reason snow days are so enchanting, it is clear that students’ regard for them is overwhelmingly positive. This is evidenced in part by the multitude of traditions borne merely of hope for snow days. Venutolo-Mantovani (2024) lists instructions to which he superstitiously subscribed as a kid with the intent to conjure a snow day: “Wear your pajamas inside out. Or wear your underwear on the outside of your PJs. Gargle a bit of saltwater right before bed. When you put your shoes away, make sure they’re backward.”

Hopeful superstitions are some of the many beloved traditions associated with snow days. Others include those that have both everything and nothing to do with snow: snowball fights, hot chocolate, sledding, movies, snow forts, walks, snowmen, and anything else uniquely enabled by a day off. While each of these is certainly remembered fondly by any snow day veteran, their benefit is not merely psychological. According to professor of development Melanie Killen, “snow days offer a different kind of learning... an important kind of learning” (Venutolo-Mantovani, 2024). Killen says that while snow days offer a break from the classroom, it is not necessarily a “brain break” in any negative sense, with the nature of snow play inherently containing lessons in physics, mathematics, and chemistry, as well as providing a social environment important for the development of social cognition. Killen supposes not only that the content of a snow day has value, but that online class has the potential to compromise that value, explicitly asserting that holding online class on snow days undermines their social benefits.

Quality of Education

Literary research was performed to assess whether part of a curriculum being taught online causes the curriculum to be taught less effectively. Research did not reveal any significant evidence that virtual learning was inferior to in-person learning. However, consideration for financial disparity between whole school districts as well as individual students prevents online learning from being a universally viable solution.

The recent emphasis on virtual instruction during school closures is rooted in maintaining quality of education. Minnesota superintendent Joe Gothard of St. Paul Public Schools emphasizes that “e-learning” allows students to stay connected with educators and prevents their

work pace from being interrupted (Wagner, 2022). Communications Director Chris Cram of Montgomery Co., MD, affirms this, suggesting that given learning loss due to COVID-19, remote learning is key to “take every moment” to guarantee learning. Gothard also qualifies, however, that he “[doesn’t] ever expect a snow day, e-learning day, to replace... what an in-person day is” (Peetz, 2023). This sentiment of limited confidence in the quality of virtual education is common but not necessarily warranted. The reputation of virtual learning has more than likely been tainted by its widespread use during COVID-19 school closures. K-12 reading and math scores both declined significantly during the pandemic, with math scores falling by the highest margin in recorded history (Binkley, 2022). Further, studies like that referenced in by Loeb (2020) have primarily focused on virtual instruction in extended formats, not the temporary formats applicable to snow days.

Regardless of whether virtual instruction can rival the quality of a more traditional setting, its efficacy depends just as much on its accessibility to both school systems and individual students. As many as 12 million kids in the U.S. have been estimated to lack reliable internet access (Venutolo-Mantovani, 2024). Some schools have experimented with offering take-home wifi hotspots or even drone-delivery of wifi, but, underscoring the other primary obstacle for universal accessibility, many school systems have insufficient funding even to provide every student with a computer, let alone with guaranteed internet access. Rick Ferdig, professor of educational technology, is a staunch advocate for the implementation of e-learning during school cancellations, but concedes that many schools are not adequately equipped to sustain reliable virtual instruction, further stipulating: “In no way shape or form can you consider not having snow days if you don’t address the equity issue” (Lieberman, 2020).

Commenting on recently implemented e-learning policy for New York City school closures, Mayor Eric Adams implicated the learning and socialization lost to COVID-19 as necessitating this policy, saying of students, “they need to catch up” (Siff, 2024). Students may need to catch up, but online class during weather-related closures in no way enables catching up; regardless of mode, schools are required and equipped to meet a minimum duration of instruction each year. Thus, E-learning has the potential to change the time distribution of learning but not its yearly rate.

To support the notion that e-learning during weather-related closures is effective at compensating for learning lost to snow days, there must be evidence that this loss of learning exists. Evidence suggests that it does not. A 2012 study by Harvard professor Joshua Goodman concluded that there is no correlation between the quantity of weather-related closures and student performance. There is evidence that increased absences reduce performance, but this effect appears to apply exclusively to individual student absences.

Methods

The literary evidence discussed is generally based on psychological and educational theory, and while much of it is sourced from the remarks of qualified professionals, their advocacy for a given group only goes so far without affirmation by the group of their supposed perspective. To directly ascertain a small but representative sample of this perspective, I wrote and published a survey via Google Forms. The anonymous survey filtered respondents to ensure that all respondents contributing to analyzed data had at some point experienced a weather-related school closure and had never had to attend online class during one of these

closures. The second stipulation was added to ensure both consistency of experience within the focal group and that all respondents would be older than 18 (the potential reach of my survey was mostly limited to those my age or who attend my former high school, which implemented online learning too long ago for any of its witnesses to be minors). The survey prompted each respondent to describe their emotional response to weather related school closures. Respondents were asked about the extent to which K-12 school closures had provided them with a valuable break, would provide them with a valuable break if they had to attend online class, had provided them with stress relief, and would provide them with stress relief if they had to attend online class. Respondents were asked to choose between two options in two similar scenarios. In the first scenario, option one was to experience a day off from school due to inclement weather (without online class) and for summer break to start one day later as a result, and option 2 was to have to attend online class during a weather-related school closure and for summer break to start on time. In the second scenario, option one was to experience a day off from school due to inclement weather (without online school) and option two was to experience the average day of summer break. The survey was posted on my Instagram and Snapchat ‘stories’ and received 29 responses.

To add an administrative perspective, I also interviewed Dr. Jason Van Heukelum, superintendent of Winchester Public Schools (WPS) in Winchester, VA, notably the school system formerly serving many of those reached by the survey. He provided me with key context regarding how school system policies and his administrative philosophy both factor into planning a school year and establishing adaptive procedures for circumstances prohibiting normal operation of schools.

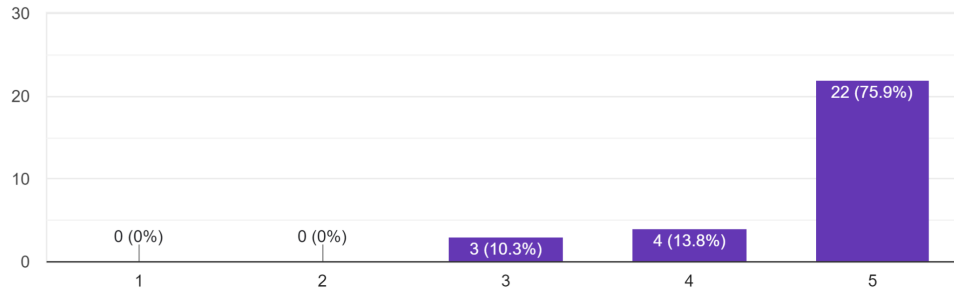
To show student perspectives towards school closures due to specifically non-snow weather events, I searched X (Twitter) for examples of students hoping or thankful for cancellations due to hurricanes.

Survey Results

The results of the survey are presented below. Bar graphs are shown referencing the 5 point scale questions with each prompt displayed with the number of respondents selecting each response to that prompt. A table displays the average response of each 5-point prompt. Pie charts are shown referencing the questions about snow days vs. summer days with each prompt displayed with its distribution of responses.

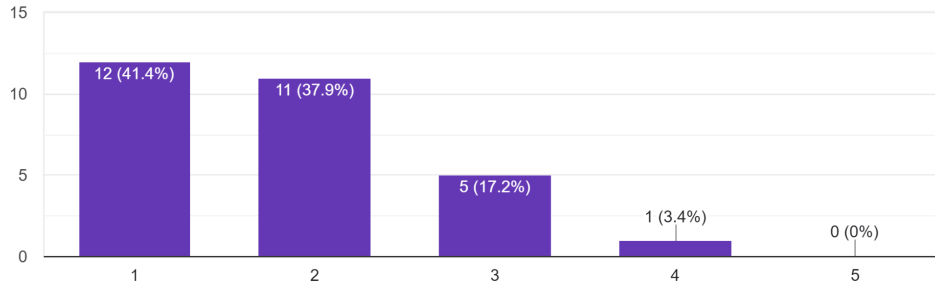
Please indicate how strongly you agree with this statement according to your experience: When my school (K-12) was cancelled due to weather, this provided me with a valuable break.

29 responses

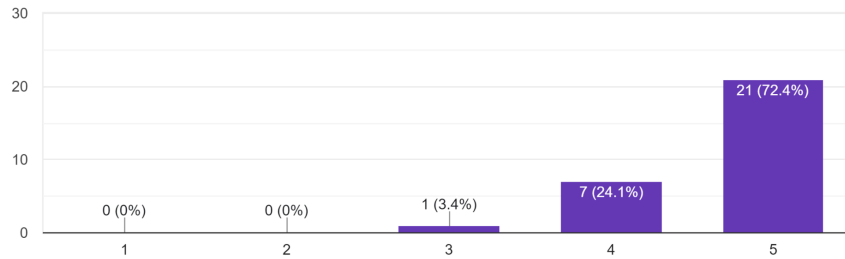


Please indicate how strongly you agree with this statement according to your experience: If my school (K-12) was cancelled due to weather but I had a class, this would provide me with a valuable break.

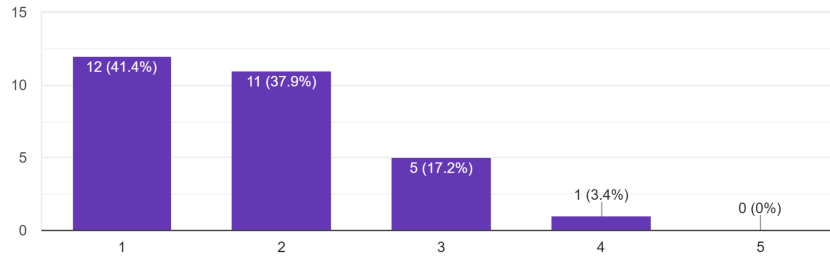
29 responses



Please indicate how strongly you agree with this statement according to your experience: Weather-related school closures have provided me with stress relief.
29 responses



Please indicate how strongly you agree with this statement according to your experience: A weather-related school closure would provide me with stress relief if I had to attend online class.
29 responses

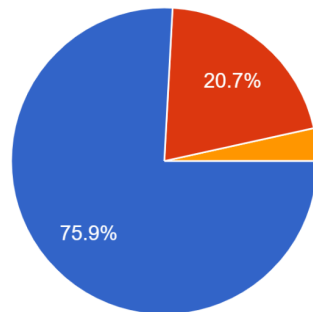


5 Point Survey Averaged Responses

Prompt (respondents rated each from 1 [strongly disagree] to 5 [strongly agree])	Avg. Response Score	Avg. Sentiment (closest)
When my school (K-12) was cancelled due to weather, this provided me with a valuable break.	4.66	Strongly Agree
If my school (K-12) was cancelled due to weather but I had to attend online class, this would provide me with a valuable break.	1.83	Disagree
Weather-related school closures have provided me with stress relief.	4.69	Strongly Agree
A weather-related school closure would provide me with stress relief if I had to attend online class.	1.83	Disagree

Which situation below would you prefer as a K-12 student?

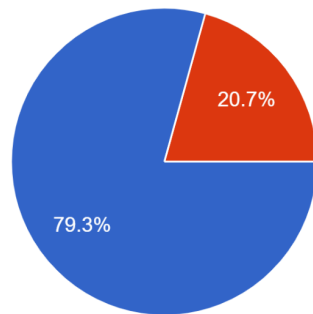
29 responses



- School is cancelled for a day due to weather. You DO NOT have to attend online class that day, but your summer break begins one day later than scheduled.
- School is cancelled for a day due to weather. You DO have to attend online class that day, but your summer break begins on the scheduled date.
- No preference

Which of these days would you prefer to experience?

29 responses



- A day off from school due to inclement weather (with NO online class)
- An average day of summer break
- No preference

Analysis

Rest

Noteworthy as an anecdote is that in the Shenandoah Valley, where I grew up, freezing rain, compared to snow, was the cause for school closure just as if not more frequently, and my relief was much the same in either case, to the extent where I would actively hope more for freezing rain than snow because it seemed the more effective catalyst for a day off. The allure of

an unplanned day off is so powerful that even a hurricane, a dangerous and often tragic weather event, is regarded as a blessing by some students when it results in a day off, with one X (Twitter) user commenting: “#growingupinflorida Praying for a hurricane to hit so school gets cancelled” (@carlosmembreno1, 2016) and another saying “[Shoutout] to this hurricane for getting school cancelled the rest of the week. God is not dead, he knows I wasn't ready for this midterm” (@rowejchris, 2016). So as not to strictly present the perspectives of myself and a few South Atlantic students as definitive, I extended inquiry in the same context to respondents of my survey. When asked to freely describe their emotional response to the announcement of a weather-related school closure, respondents frequently cited the break from routine or responsibility as a source of joy. There were 26 responses to this question, all of which described a distinctly positive reaction and 14 of which made explicit reference to feelings of relief, with one respondent recounting: “I felt like the universe was smiling at me and telling me to relax. I was filled with excitement.”

Due to the relative recency of the issue, quantitative research on the effect of virtual snow day replacement on students’ experiences with school closures is limited, but the 5 point linear questions in my survey were able to shed some light on student perspectives, showing compelling evidence that students, at least belonging to the demographic within the reach of my survey, find weather-related school closures to be much more restful and relieving without online class than with.

Enrichment

Relief is a significant part of what makes a snow day so appealing, but the matter is not nearly that simple. Rather than focusing on what weather-related closures allow students not to

do, this subsection will delve into what snow days uniquely allow them to experience. It will discuss the nature of the experience itself and use as evidence the positive feelings of students with regard to snow days. It is important to acknowledge that these feelings cannot always be specifically attributed to separate qualities of their source, so discussion of the snow day experience may overlap with discussion of the relief inherent to a snow day.

Reference to superstition rooted in hope for snow was made in the Literature section. Known in my household as the “Snow Dance,” the procedure for enticing the clouds to open up involved backwards pajamas and flushing ice cubes down the toilet. While carried out in high spirits, the Snow Dance should not be misconstrued as merely fun and games. For me, it was done out of desperation. I longed for snow days, to the extent that when I outgrew the naivety to believe that the snow dance actually did anything, the desperation turned to despair for knowing that I had no bearing on the weather. Anticipation turned to genuine fury and anguish when an expected snow day didn’t pan out. The intensity of the emotions was such that I can say without exaggerating that just writing my account of the experience is upsetting my stomach. I am not alone in my fervor; responses recounted in my survey of snow day reactions were not only positive but ecstatic. The following descriptors and phrases were used, no two from the same response: “extremely excited,” “always ecstatic,” “thrilled,” “elated,” “extremely overjoyed,” and “Euphoric! Snow days were the best days.” One respondent simply wrote “WOOOOOOOOOOOOOOOOOOOOOOOOOO.” Even in a relatively small sample size, the enthusiasm evident in these responses is so frequent and so extreme as to suggest that snow days have an unparalleled positive effect on the young psyche. I speculate that experiences regarded this glowingly in the memory are not easy to come by and that interfering with access to such an experience is almost inexcusable.

While WPS superintendent Dr. Jason Van Heukelum is a proponent of virtual learning during school closures, the joys and enrichments of snow days are not lost on him. When planning each school year, he stipulates that as many as two cancellations are to be administered without requiring students to attend online class. This policy clearly attributes some inherent value to a spontaneous day off from school. While Van Heukelum remains faithful to the designated limit of traditional snow days, he reserves the right to decide when to grant them. This decision depends on context. He gauges the potential benefit of a true day off in terms of both rest and enrichment. If he thinks that “people are just ready for a day off,” he says, he is more likely to grant a true snow day. “If it’s really cool snow... where you can go sledding and build a snowman and all that fun stuff, then [he’s] always going to call a snow day.”

Respondents of the survey also expressed sentiments that the experience of a snow day would be spoiled by having to attend online class, with one saying they would “feel robbed of having an inclement weather/snow day, which was an enjoyable and memorable part of childhood for [them]” and another referring to “traditional snow days” as “an important part of US primary education culture.”

In the conversation of the value of the snow day experience, it is important to consider how snow days might detract from the value of other experiences. Van Heukelum alludes to the issue of sacrificing summer downtime for winter downtime; if school is closed too many times due to weather and the missed instruction time is not made up on the same day, additional school days are added to the schedule, usually onto the end of the year, delaying summer break. This is a primary reason he hesitates to raise the day-off limit to over two; something like a blizzard, he says, can lead to an “attack on days at the end [of the school year] and no one likes that.” It does stand to reason that no one would want to delay their summer break by several days, but for an

analytical perspective, I posed questions to the survey respondents gauging their opinion on a day off from school resulting in a belated summer break and their preference between a day off due to weather and an average day of summer break. The respondents showed a preference towards true cancellation, with 76% saying they would prefer a full cancellation resulting in belated summer break to a cancellation with online-class resulting in summer break starting on time. 79% said they would prefer a day off due to weather to the average day of summer break. However, it is vital to consider that these questions were asked in the context of a single day. There is likely a number-of-days threshold at which students would begin to prefer to attend online class in favor of preserving their summer break. Also noteworthy is that Winchester Public Schools, like most school systems, says Van Heukelum, has a buffer between the number of days scheduled and the required number of hours of instruction time, enough that his two true cancellations do not necessitate an extension of the school year. Survey results suggest that over three quarters of students would give at least one day of their summer break for a school cancellation, suggesting that Van Heukelum's two day limit is likely below the student preferred number.

Quality of Education

It is tempting to blame the educational shortcomings of the pandemic on its virtual means of instruction, but the causation of the instruction itself cannot be assumed; the environment of the pandemic was unprecedented and any number of the novel conditions of the time could have contributed to the decline of educational efficacy. As for the specific brand of e-learning administered on inclement-weather days, it is too new and has insufficient evidence to draw conclusions regarding its quality.

While evidence to the shortcomings of virtual instruction are lacking, administrators are confident in some of the benefits. Dr. Van Heukelum believes that virtual instruction puts students in an environment conducive to their development of time management and independence, telling me: “what I've seen with [students] is that they learn quickly that when they have self directed autonomy, they don't need as much time to get everything done.” He suggests also that more autonomy could improve the daily experience of a K-12 student by allowing schedules to become more flexible, potentially “allow[ing] students to navigate the content” with ready access to help from the “expert teacher.” He mentions the bonus that this learning environment imbues students with key familiarity of the virtual settings in which they are likely to have to learn and work in the future.

It is important to consider that, even given potential unique advantages of online learning, these are not exclusive to the case of inclement weather; values of autonomy and software literacy can be implemented in a curriculum. Further, if this material is deemed to be important, weather conditions should not determine whether or not it is addressed. The experience of a weather-related school closure, on the other hand, is fully dependent upon environment, and cannot be artificially recreated, with even scheduled holidays lacking the criterion of spontaneity, so it should not be prohibited by a learning activity that can be implemented at will.

Conclusion

Weather-related school closures are too beneficial to students' mental health and enrichment to justify their full replacement by virtual instruction. However, as in most contexts, balance is key; a high enough quantity of school-prohibitive days present school systems with an obligation to use whatever alternatives exist, with extended closures due to COVID-19 being the

extreme example. Dr. Van Heukelum and other similarly-minded administrators have the right idea, canceling school sometimes with and sometimes without the requirement of online class. The focal dilemma is new, and the process of striking the optimal balance between policy sympathetic to the needs of students and policy preventing excessive educational disruption is likely to be long and iterative. To approach this balance, it is crucial for the student perspective to be thoroughly considered. Student preference should be the primary consideration in cases lacking definitive evidence that it counters the quality of education. Policy regarding school responses to weather-related closures will remain one such case until the quality of post-COVID virtual instruction is more thoroughly researched. Virtual instruction in general does potentially offer some distinct educational advantages, but these should be built into curricula rather than administered opportunistically and at the cost of irreplaceable experiences.

Assuming the optimal format of school cancellation could be achieved, it would look different for different school systems. Economic inequality between school systems and between students within the same school system prohibits the effective implementation of a universal policy. No school system lacking the resources or capability to guarantee that every student has access to all of the tools necessary for online learning should make any attempt at mandatory virtual instruction.

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