

Title

Learning Under Heat: Student and Teacher Adaptation During Heat-Related School Suspensions

Research Overview (50 words)

This study examines how students and teachers experience sudden shifts to online learning during heat-related school suspensions in the Philippines. Focusing on Grade 8 and Grade 10, it explores adaptation strategies, classroom practices, and how recurring disruptions influence learning processes and instructional decision-making.

Purpose of Study

Extreme heat has become an increasing concern for schooling in many regions, disrupting regular instructional time and learning conditions (Park et al., 2020; UNICEF, 2025; World Bank, 2024). In the Philippines, high heat index levels during March to May have led to suspensions of face-to-face classes, often with only short notice (Department of Education, 2024a, 2024b; Save the Children, 2024). Unlike more familiar disruptions such as typhoons, heat-related suspensions are less destructive but are likely to become more frequent and persistent, creating ongoing uncertainty in school schedules, instructional planning, and students' learning routines (Department of Education, 2024; IPCC, 2022; UNICEF, 2025; UNDRR, 2015).

As an immediate response, schools often shift to online learning during suspension days. However, these shifts are not equivalent to planned online learning (Moore & Hodges, 2023). They require teachers to adjust lesson goals, platforms, schedules, and participation structures within a short period, while students manage learning from home under varying conditions of internet access, device availability, household routines, heat, and distractions. Preliminary student and teacher post-evaluation data from previously-conducted online days suggest that online classes can preserve instructional contact, particularly through synchronous meetings, teacher availability, and clear time expectations. However, the same data also indicate uneven learning conditions, including connectivity concerns, participation challenges, fatigue from largely synchronous schedules, and lower student confidence in understanding main ideas when learning online.

This study aims to examine how students experience and manage their learning during heat-related suspensions, and how teachers plan and respond to these sudden instructional shifts. It focuses on students' epistemic agency, understood as their capacity to take initiative, make decisions, and regulate their learning, as well as teachers' pedagogical decision-making under conditions of uncertainty (Zimmerman, 2002).

Research Methods

This study adopts a qualitative case study design involving selected Grade 8 and Grade 10 students ($n=24$) and their teachers ($n=5$) from a science high school context (Creswell & Poth, 2018; Yin, 2018). Due to time constraints at the end of the school year, initial data was collected

through open-ended survey responses, with follow-up interviews planned in a later phase to deepen emerging findings.

Participants will be selected purposively to capture a range of experiences across the two grade levels (Palinkas et al., 2015). Data will be analyzed using reflexive thematic analysis, allowing for an interpretation of patterns in how students and teachers experience, respond to, and make sense of recurring disruptions (Braun & Clarke, 2006, 2022). Attention will be given to how students describe their learning strategies and decisions, and how teachers describe their instructional adjustments.

Results and Discussion

As an ongoing study, final results are not yet available. However, preliminary data on online class implementation suggest that heat-related online learning should not be treated simply as a temporary continuation of regular classes. This aligns with the distinction between planned online learning and emergency remote teaching, where instruction is shifted temporarily to another mode because of crisis or disruption rather than designed from the beginning as an online learning experience (Moore & Hodges, 2023). Students reported that clear instructions, teacher availability, structured schedules, and accessible materials helped them learn, but they also identified difficulties related to internet instability, device use, fatigue, distractions, task completion, and sustained attention. These concerns are consistent with studies of synchronous online learning, which show that engagement depends on interaction design, learner support, and opportunities for participation, as well as with Philippine evidence on videoconferencing fatigue among students (Dacillo et al., 2022; Wang et al., 2022). Teacher responses similarly suggest that while synchronous classes helped preserve continuity, they also created constraints related to pacing, student participation, lesson compression, connectivity, and the challenge of meeting learning goals within shorter online periods.

The study is expected to show that student adaptation during heat-related suspensions involves practical forms of agency, such as organizing time, choosing when to ask for help, reviewing posted materials, managing attention, completing asynchronous tasks, and adjusting to unstable learning conditions. These forms of adaptation are supported by self-regulated learning literature, which describes learners as actively planning, monitoring, evaluating, and adapting their learning strategies (Zimmerman, 2002). They also align with online learning research that identifies goal setting, help-seeking, metacognitive monitoring, and self-evaluation as important processes for learning in less directly supervised environments (Wandler & Imbriale, 2017). It is also expected to show that teacher adaptation involves constrained pedagogical judgment, particularly in deciding how to balance synchronous explanation, formative checks, asynchronous work, student workload, and well-being.

Findings aim to provide practical insights for schools facing recurring climate-related disruptions. Global evidence increasingly shows that climate hazards, including heatwaves, storms, floods, and droughts, are disrupting schooling at scale; UNICEF estimates that at least 242 million students in 85 countries or territories experienced climate-related school disruptions in 2024 (UNICEF, 2025). These findings may inform principles for designing heat-mode online schedules, identifying which learning activities are best conducted synchronously or asynchronously, supporting students with unstable access, reducing fatigue from full-day online meetings, and strengthening student self-regulation during repeated shifts between face-to-face and online learning.

Keywords

heat-related disruptions; online learning; epistemic agency; qualitative case study; secondary education

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