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Learning Continuity in Times of Weather-Related Class Suspensions: A Thematic Review of Literature

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Abstract: Weather-related class suspensions can interrupt the regular delivery of instruction and require college students to shift temporarily from face-to-face classes to asynchronous learning. This thematic review synthesizes ten studies on flexible learning, remote learning difficulties, student readiness and adaptation, internet connectivity, information and communication technology infrastructure, and transactional distance. The reviewed literature indicates that learning continuity is shaped by access to devices and reliable internet, students' readiness and capacity to adapt, the quality of instructional support and communication, and the conditions within the learning environment. Philippine studies report challenges involving unstable connectivity, power interruptions, inadequate resources, competing home responsibilities, and difficulties in sustaining engagement during remote learning. Other studies highlight the role of academic adjustment, learner autonomy, belonging, and institutional preparation. However, most of the reviewed research was conducted during the COVID-19 pandemic or examined broad and continuing flexible-learning arrangements. Less attention has been given to the lived experiences of college students who repeatedly move between face-to-face and asynchronous classes because of weather-related suspensions. The review identifies this situation as a context-specific research gap and emphasizes the need to understand how students maintain learning continuity when interruptions are temporary, recurring, and accompanied by uneven access to technology.

Keywords: *Weather-Related Class Suspensions; Learning Continuity; Asynchronous Learning; Flexible Learning.*

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I. INTRODUCTION

➢ *Background Context*

Weather-related class suspensions are recurring disruptions to the regular conduct of classes in areas exposed to heavy rainfall, typhoons, flooding, and other severe weather conditions. When face-to-face meetings are suspended, colleges may use asynchronous activities or other flexible arrangements to sustain instruction. Although this shift can help prevent a complete interruption of learning, it also changes how students access lessons, communicate with instructors, complete requirements, and manage their study time. These changes may be especially difficult when students have limited internet access, depend on mobile devices, experience power interruptions, or share devices and learning spaces with other household members.

Research on flexible and remote learning provides a foundation for understanding these challenges. Rotas and Cahapay (2020) documented difficulties experienced by Philippine university students during the COVID-19 remote-learning period, including unstable internet, inadequate resources, power interruptions, overloaded activities, limited teacher support, communication problems, and home responsibilities. Asio et al. (2021) likewise examined internet connection and learning-device availability among college students, while Barrot et al. (2021) explored online-learning challenges and students' coping strategies in the Philippine context. These studies establish that access and the conditions in which students learn influence their capacity to participate in remote instruction.

➢ *Scope and Purpose*

This review brings together ten studies identified in the researcher's review-of-related-literature and research-gap matrix. The sources address flexible-learning contexts and preferences, institutional preparation, remote-learning difficulties, online-learning coping strategies, student readiness, adaptation to distance learning, transactional distance, and the adequacy of information and communication technology infrastructure. The review gives particular attention to findings relevant to Philippine higher education and to conditions that may affect students' ability to continue learning when classes shift from face-to-face to asynchronous delivery.

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➢ *Thesis Statement/Objective*

The review aims to synthesize the literature thematically, identify convergent findings and limitations, and establish the need for research on the experiences of college students who repeatedly transition between face-to-face and asynchronous classes because of weather-related class suspensions, particularly in settings where internet connectivity and access to learning resources may be unstable.

II. METHODOLOGY

➢ *Search Strategy*

The review is based on ten studies listed in the researcher-provided research-gap matrix. The studies cover Philippine and international discussions of flexible learning, remote learning, student adaptation, access to technology, and learning environments. The source list includes studies published from 2020 to 2025, with most examining higher education students or institutional conditions related to online and flexible learning. The matrix identifies the studies and provides summaries of their methods, major findings, populations, and research limitations.

➢ *Selection Process*

Studies were retained when they addressed at least one of the following areas: (1) internet connectivity and learning-device access; (2) flexible or remote learning experiences in higher education; (3) student readiness, adaptation, or coping; (4) institutional and instructional preparation; and (5) learning-environment conditions, including learner autonomy and dialogue. The synthesis is thematic rather than chronological. Since the materials supplied for this draft include a research-gap matrix and bibliographic entries rather than the complete texts of all ten studies, the discussion is limited to the findings and descriptions recorded in that matrix. Detailed claims beyond those summaries are not assumed.

➢ *Access to Devices, Internet Connectivity, and Learning Conditions*

Access to technology is a foundational condition for participation in asynchronous learning. Asio et al. (2021), in a descriptive cross-sectional survey involving 2,894 college students in Central Luzon, reported that 70 percent of respondents had internet access at home and that smartphones were the most available learning devices. The study provides evidence that students' access to connectivity and devices is not uniform. Its focus, however, was not on students experiencing repeated weather-related suspensions, and it did not establish how learners maintain continuity when face-to-face classes are repeatedly interrupted.

The importance of connectivity also appears in Bercasio and Dugan (2025), whose study of 434 students in Albay examined flexible-learning contexts and preferences during the COVID-19 pandemic. The matrix records inadequate learning spaces, power interruptions, and internet disconnections among the challenges identified by students. Preferences included affordable devices and convenient applications. In a related institutional perspective, Arante and Bascon (2025) found that information and communication technology infrastructure was generally functional, while internet connectivity was rated inadequate or less functional by faculty respondents. Because that study focused on faculty perceptions, it leaves student experiences during actual asynchronous learning less clearly understood.

Taken together, these studies indicate that the availability of a device does not necessarily guarantee stable participation. Connectivity, electricity, affordability, and the suitability of the learning environment can influence whether students are able to access learning materials and complete activities during a suspension. The literature therefore supports examining technology access as an ongoing condition of learning continuity, not merely as a general measure of readiness.

➢ *Student Challenges, Coping, and Readiness for Flexible Learning*

A second theme concerns the challenges students encounter when instruction moves away from the classroom and the strategies they use to cope. Rotas and Cahapay (2020) identified a range of difficulties among Philippine university students during the COVID-19 crisis, including unstable internet, insufficient learning resources, power interruptions, overloaded activities, limited teacher support, poor communication, home responsibilities, and financial difficulties. Barrot et al. (2021) also examined online-learning challenges and coping strategies among Filipino college students. The matrix notes that these studies provide evidence about remote-learning difficulties and student coping, but they do not specifically investigate how students transfer those strategies between face-to-face and asynchronous classes during weather-related disruptions.

Student readiness is another important consideration. Licayan et al. (2021) used a convergent parallel mixed-methods design involving 408 students to examine readiness for flexible learning across technological and learning-related dimensions. The matrix indicates that readiness findings offer a useful picture of students' preparedness in a general flexible-learning context. However, readiness does not necessarily explain how students adapt after repeated transitions from face-to-face to asynchronous learning, particularly when the change is unexpected and caused by severe weather.

Bercasio and Dugan (2025) add a more recent Philippine perspective by documenting student preferences and constraints in flexible learning. Considered together, these studies suggest that student coping and readiness are shaped by resources, learning conditions, communication, and the demands placed on learners. Yet, a specific account of how students reorganize their study routines during short, recurring suspension periods remains limited in the reviewed matrix.

➢ *Adaptation, Academic Adjustment, and Learner Autonomy*

The ability to adjust to a different learning environment is not solely a matter of technological access.

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Cameron and Rideout (2022), through a phenomenographic qualitative study involving 27 first-year students, examined how students adapted to learning in a university environment. The matrix reports that students initially lacked self-directed learning skills, gradually developed them, relied on peers, and continued improving their learning strategies. Although the study contributes to understanding adaptation, its focus on first-year students and general university adjustment does not directly address weather-related class suspensions or repeated transitions between face-to-face and asynchronous instruction.

Jaiswal et al. (2024) examined college students' adaptation to synchronous distance learning, with attention to academic adjustment, sense of belonging, and perceived stress. The study used interviews and a questionnaire with undergraduate and postgraduate students in India. As summarized in the matrix, it provides evidence about adjustment to distance learning but does not focus on Philippine students or on temporary, intermittent modality changes caused by weather. Its findings nevertheless point to the relevance of academic adjustment and belonging when students learn outside the usual classroom setting.

Tria (2024) developed and validated a transactional-distance scale in the Philippine context. The instrument identified three dimensions: structure, learner autonomy, and dialogue. These dimensions offer a useful lens for considering how students experience flexible learning. In the context of sudden suspensions, changes in course structure, opportunities to communicate with instructors, and the level of independence expected from learners may influence whether students can continue their academic work. However, the matrix notes that the study's primary purpose was instrument development and validation, rather than an examination of students' lived experiences during weather-related disruptions.

➢ *Institutional Preparation and Instructional Support*

Learning continuity also depends on institutional decisions and the organization of instruction. Pawilen (2021) used qualitative document analysis of memoranda, advisories, reports, and higher education institution updates to examine curricular and instructional adjustments, challenges, and issues during the COVID-19 pandemic. The study identified institutional adjustments and proposed a model for flexible learning. Its contribution is primarily institutional; it does not provide direct student-level evidence about how learning continuity is maintained during weather disruptions.

The studies by Rotas and Cahapay (2020), Barrot et al. (2021), and Bercasio and Dugan (2025) further indicate the importance of communication, teacher support, manageable learning activities, and appropriate learning resources. These elements become especially relevant when students must shift quickly to asynchronous work. Institutional arrangements that are effective for a planned and sustained flexible-learning modality may not automatically address short-notice suspensions, when students and instructors must adapt within a limited period. The reviewed literature therefore points to the need to understand both student experiences and the practical support provided by colleges during temporary transitions.

➢ *Synthesis and Identified Research Gap*

Across the ten studies, four connected points emerge. First, access to reliable internet, suitable devices, electricity, and an adequate learning environment affects students' ability to participate in remote and asynchronous learning. Second, students experience academic, technological, financial, and personal challenges when learning takes place outside the classroom. Third, readiness and adaptation involve more than possessing technology; they also include self-directed learning, academic adjustment, learner autonomy, dialogue, and a sense of belonging. Fourth, institutional preparation and instructional support influence the conditions under which flexible learning is implemented.

Despite these contributions, the studies summarized in the matrix largely examine learning during the COVID-19 pandemic, broad flexible-learning arrangements, or continuous distance learning. They do not sufficiently explain the experiences of college students who repeatedly move between face-to-face and asynchronous classes specifically because of weather-related class suspensions. The gap is particularly important in settings where unstable connectivity, power interruptions, and unequal access to devices may make each transition more difficult. A focused study of students' lived experiences can help explain how they receive instructions, access materials, manage deadlines, communicate with instructors, cope with disruptions, and sustain learning when the shift to asynchronous classes is temporary and recurring.

III. CONCLUSION AND RECOMMENDATIONS

➢ *Summary of Main Findings*

The reviewed literature shows that learning continuity in flexible and remote settings is influenced by technology access, learning conditions, student readiness and coping, adaptation to new learning arrangements, and institutional support. Unstable internet connectivity, power interruptions, inadequate resources, and competing home responsibilities can constrain participation. Students' capacity to adjust also depends on self-directed learning, academic adjustment, learner autonomy, dialogue, and communication with instructors. However, the available studies provide limited insight into recurring, weather-triggered transitions between face-to-face and asynchronous classes.

➢ *Significance*

This thematic synthesis clarifies how existing research can inform the study of learning continuity during weather-related class suspensions. It brings together technological, student-centered, and institutional dimensions of flexible learning and identifies a context-specific gap in Philippine higher education. Understanding this gap may help colleges develop more responsive procedures for temporary asynchronous instruction, including clearer communication,

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accessible learning materials, realistic activity schedules, and support for students with limited connectivity.

- *Future Research*

Future studies should: (1) explore the lived experiences of college students who repeatedly shift between face-to-face and asynchronous classes because of weather-related suspensions; (2) examine how internet connectivity, device access, electricity, and home learning conditions affect participation and task completion; (3) investigate students' coping strategies, self-directed learning practices, and communication with instructors during short-notice transitions; and (4) consider how institutional policies and instructional practices can support continuity during recurring weather disruptions. Research involving students from different programs, year levels, and connectivity conditions may provide a broader understanding of the issue.

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