

Sustaining Physical Literacy Through Microlearning: The Curation, Transformation, and User Acceptability of TeachTok for Grade 5 Fitness During Climate-Induced Class Suspensions

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Abstract

This study developed and evaluated TeachTok as a teacher-curated, curriculum-aligned, and safety-conscious Alternative Delivery Mode (ADM) for Grade 5 Physical Fitness during climate-related class suspensions. Anchored on Connectivism, Self-Determination Theory, the Technological Pedagogical Content Knowledge (TPACK) framework, and the Technology Acceptance Model (TAM), the study employed a multi-phase Educational Design and Development Research (DDR) Type 1 using a sequential exploratory mixed methods design. Data were collected through a PRISMA-guided systematic literature review, semi-structured interviews, focus group discussions, expert validation, and a learner acceptability survey involving 37 Grade 5 learners, 10 interview participants, 10 focus group discussion participants, and three expert validators. Qualitative data were analyzed using thematic analysis, while quantitative data were analyzed using descriptive statistics through weighted means. Findings showed that the redesign of TeachTok was guided by evidence-based microlearning principles emphasizing segmented instruction, learner engagement, accessibility, safety, and formative assessment. Learner experiences also revealed challenges related to unstable internet connectivity, shared devices, limited learning space, distraction, and the need for clearer demonstrations and structured guidance. These findings informed the redesign of TeachTok by integrating mirror-mode demonstrations, learner-friendly pacing, safety reminders, private submission procedures, and low-bandwidth accessibility. Expert validation rated the instructional package as highly valid, while learners rated it highly acceptable in terms of perceived usefulness, perceived ease of use, and instructional quality. The study concludes that TeachTok is a feasible and effective Alternative Delivery Mode that supports learning continuity in Grade 5 Physical Fitness during climate-related class suspensions. The study aligns with Sustainable Development Goal (SDG) 4: Quality Education by promoting equitable and continuous learning and supports SDG 3 (Good Health and Well-Being), SDG 9 (Industry, Innovation and Infrastructure), and SDG 13 (Climate Action) through safe home-based physical activity, innovative digital instruction, and resilient educational delivery. The study contributes to educational sustainability by providing a context-responsive instructional model that strengthens learning continuity, institutional preparedness, and responsible digital learning in disruption-prone communities.

Keywords: Alternative Delivery Mode, Climate-Related Class Suspensions, Educational Design and Development Research, Grade 5 Physical Fitness, Microlearning, Physical Education, Short-Form Video Learning, Teachtok, Technology Acceptance Model, TPACK

1. Introduction

The increasing integration of digital technologies into education has transformed the way learners access, engage with, and apply knowledge. Among these innovations, short-form video platforms have emerged as promising tools for delivering concise, engaging, and repeatable learning experiences through microlearning. In Physical Education (PE), such platforms provide opportunities for visual demonstration, guided practice, and repeated performance, making them particularly valuable when face-to-face instruction is disrupted. However, the effective educational use of short-form videos requires teacher guidance, curriculum alignment, learner safety, and structured instructional design. In the Philippine context, recurring climate-related class suspensions have underscored the need for flexible Alternative Delivery Modes (ADMs) that ensure learning continuity. Although digital fitness content is widely available, existing materials are generally not aligned with DepEd competencies, designed for elementary learners, or adapted to local conditions. Responding to these concerns, this study developed and evaluated TeachTok as a teacher-curated, curriculum-aligned, and safety-conscious Alternative Delivery Mode for Grade 5 Physical Fitness during climate-induced class suspensions. The study synthesized evidence from related literature, learner experiences, expert validation, and implementation findings to develop an instructional package responsive to local educational needs.

1.1 Background of TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness During Climate-Related Class Disruptions

Digital platforms, particularly TikTok and other short-form video applications, have become increasingly familiar to young learners by presenting information through brief, visual, and repeatable clips. These characteristics support microlearning or nanolearning, enabling learners to review focused lessons repeatedly until concepts and tasks become clearer (Castillo-Sarmiento et al., 2023; Liao, 2021). Research further suggests that short-form video instruction facilitates demonstration, guided practice, feedback, and repeated performance, while enhancing learner engagement through music, rhythm, challenge-based activities, and creative movement (López-Carril et al., 2024). Similarly, social media-supported physical activity interventions have shown positive outcomes when supported by clear goals, monitoring, and structured feedback (Laranjo et al., 2021). Despite these advantages, studies also identify challenges associated with distraction, self-regulation, and exposure to non-instructional content within short-video environments (Xu et al., 2023). These findings indicate that educational use of short-form videos requires teacher guidance, curriculum alignment, age-appropriate learning tasks, safety reminders, and private submission procedures rather than reliance on public entertainment platforms alone. The emergence of "TeachTok" communities further demonstrates how teachers have adapted short-form video platforms for instructional purposes beyond entertainment, transforming social media into spaces for professional knowledge sharing and curriculum-based learning (Vizcaino-Verdú & Abidin, 2023). The importance of structured digital learning became more evident during frequent weather-related disruptions in the Philippines. To ensure learning continuity during calamities, the Department of Education issued DepEd Order No. 037, s. 2022, establishing guidelines for class suspension while encouraging schools to continue instruction through appropriate delivery modes (Department of Education, 2022). During School Year 2025–2026, several documented class suspensions in Camarines Sur due to heavy rainfall, flooding, tropical disturbances, and extreme weather further reinforced the need for flexible instructional approaches capable of sustaining Grade 5 Physical Fitness learning outside the traditional classroom. Physical Education presents unique instructional challenges because effective learning depends on teacher demonstration, guided practice, movement observation, and timely feedback. During class suspensions, learners lose opportunities to observe correct movements, receive safety reminders, and obtain performance feedback. Consequently, maintaining safe and effective Physical Fitness instruction at home requires instructional materials specifically designed for remote learning. Existing literature on TikTok, microlearning, and short-form video instruction primarily focuses on higher education, informal learning, or general learner engagement. Few studies examine teacher-curated, standards-aligned short-form video interventions for elementary Physical Education in disaster-prone Philippine settings. Likewise, available online fitness videos are seldom aligned with DepEd competencies, age-appropriate instructional design, learner safety, privacy, or low-data accessibility. These gaps highlight the need for a structured, context-sensitive instructional model capable of sustaining Physical Education learning continuity during climate-related class disruptions. At Pugod Elementary School, recurring weather-related suspensions frequently interrupted Grade 5 Physical Fitness instruction. Existing alternatives relied primarily on written tasks or reminders, leaving learners without clear visual demonstrations, structured home-based routines, or effective channels for teacher feedback. Recognizing this local instructional need, TeachTok was developed as a practical, teacher-managed, low-data, and safety-conscious Alternative Delivery Mode. The study documented local challenges through class-suspension records, teacher observations, and learner experiences before redesigning TeachTok through systematic literature review, learner feedback, expert validation, implementation, learner acceptability assessment, and final refinement into TeachTok Version 3.

1.2 Themes and Insights from Related Literature on TeachTok, Short-Form Video Learning, and Grade 5 Physical Fitness

The reviewed literature consistently demonstrates that effective short-form video instruction is supported by interconnected theoretical, technological, pedagogical, psychosocial, contextual, and ethical considerations. Microlearning and nanolearning facilitate repeated viewing, flexible access, and manageable learning segments, making them particularly appropriate for Physical Education, where learners benefit from repeated observation and practice (Ullah et al., 2025; Berlanga et al., 2025). Recent reviews likewise indicate that integrating microlearning with social media platforms can improve learner engagement when instructional content is intentionally designed and teacher guided (Alqahtani & Alharbi, 2024). Connectivism further explains how digital learning networks enable learners to access teacher-developed instructional resources beyond traditional classroom settings (Siemens, 2005). Meanwhile, the Technology Acceptance Model emphasizes that learner acceptance depends primarily on perceived usefulness and ease of use (Venkatesh & Davis, 2000), whereas the TPACK framework highlights the importance of integrating technology, pedagogy, and subject content into meaningful instructional practice (Mishra & Koehler, 2006). Meta-analytic evidence further confirms that these constructs consistently predict learners' acceptance of educational technologies across diverse instructional contexts (Scherer et al., 2019). Collectively, these perspectives support the development of structured, teacher-curated short-form video instruction rather than informal social media use. Related literature also emphasizes instructional design principles essential for effective digital Physical Education. Short-form video platforms support visual demonstrations, replayability, captions, pacing, editing, and segmented instruction that enhance motor-skill learning (Hartung et al., 2022; Greve et al., 2022). Studies further highlight the importance of visual pedagogy, mirror-mode demonstrations, full-body framing, clear movement cues, and repeated observation in promoting accurate movement performance (Schnitzler, 2018; Modinger et

al., 2022; Rizzolatti & Craighero, 2004). However, researchers caution that platform features alone do not guarantee learning effectiveness; successful instruction requires alignment among technology, pedagogy, assessment, curriculum, and learner safety (Hartung et al., 2022; Mishra & Koehler, 2006; Hattie & Timperley, 2007). The literature likewise identifies learner motivation, self-regulation, autonomy, and behavioral engagement as critical determinants of instructional effectiveness. Familiar platform features, music, challenges, and visual presentation may increase learner motivation (Rutledge et al., 2024; Wang & Rahman, 2025), while Self-Determination Theory explains how autonomy, competence, and relatedness sustain engagement (Ryan & Deci, 2020). Self-regulated learning further supports learners' ability to plan, monitor, and improve their own learning processes during home-based instruction (Zimmerman, 2002; Broadbent & Poon, 2015). Nevertheless, researchers caution that distraction, platform overuse, and reduced attention remain important concerns requiring structured instructional guidance (Williamson, 2025). Another major theme concerns contextual resilience and equitable access. Studies recognize that recurring disasters, digital inequality, limited connectivity, shared devices, restricted learning spaces, and varying levels of home support significantly influence instructional effectiveness during remote learning (Di Pietro et al., 2020; Reimers & Schleicher, 2020; Van Dijk, 2020). These realities underscore the need for instructional materials that are accessible, flexible, mobile-friendly, and responsive to learners' actual home environments. Finally, the literature consistently emphasizes learner safety, ethical implementation, privacy protection, and digital wellbeing. Home-based Physical Education requires safety reminders, proper demonstrations, progressive intensity, hydration guidance, and injury prevention strategies (Faigenbaum et al., 2020; McKay et al., 2021). Ethical considerations further require private submission procedures, supportive teacher feedback, learner privacy, responsible data handling, and protection from unnecessary public exposure (Ifenthaler & Schumacher, 2016; Pardo & Siemens, 2014). Research also cautions against negative social media influences on wellbeing and self-comparison (Holland & Tiggemann, 2016; Perloff, 2014; Kuss & Griffiths, 2017). Broader evidence likewise suggests that the educational impact of digital media depends largely on how technology is designed and supervised rather than on technology use alone (Odgers & Jensen, 2020). These findings collectively informed the instructional design, implementation, and refinement of TeachTok as a safe, structured, and learner-centered Alternative Delivery Mode.

1.3 Local, National, and Global Context of TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness

Globally, digital technologies and short-form video platforms have increasingly been explored as instructional tools capable of supporting flexible, engaging, and learner-centered education. International research demonstrates the potential of microlearning, digital Physical Education, and video-based instruction to improve learner engagement, repeated practice, and technology-supported skill acquisition, while simultaneously identifying concerns regarding distraction, learner self-regulation, privacy, and instructional quality (Castillo-Sarmiento et al., 2023; Liao, 2021; López-Carril et al., 2024; Laranjo et al., 2021; Xu et al., 2023). Nationally, the Philippines continues to experience recurring climate-related disruptions that necessitate flexible educational delivery systems. DepEd Order No. 037, s. 2022 established learning continuity measures during emergencies, while the Basic Education Learning Continuity Plan (Department of Education, 2020) and the K to 12 Physical Education Curriculum Guide (Department of Education, 2016) emphasize the continuity of competency-based instruction despite educational disruptions. Reports from the Department of Education (2024) further document the increasing number of weather-related class disruptions affecting schools nationwide. Locally, Pugod Elementary School experienced repeated interruptions to Grade 5 Physical Fitness instruction during officially declared class suspensions. Existing instructional practices were insufficient to provide visual demonstrations, structured home-based routines, private performance submission, and teacher feedback. These challenges mirror international experiences demonstrating the difficulty of delivering movement-based learning when face-to-face interaction is restricted (Varea & Gonzalez-Calvo, 2021). Consequently, the development of TeachTok addressed a context-specific instructional need by providing a teacher-managed, curriculum-aligned, low-data, and safety-conscious Alternative Delivery Mode designed to sustain Physical Education learning continuity during climate-induced disruptions.

1.4 Theoretical and Conceptual Basis of TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness

The study is anchored on complementary theories and technology integration frameworks that collectively explain the development, implementation, and evaluation of TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness. Connectivism views learning as a networked process in which digital technologies serve as learning nodes that facilitate continuous access to instructional resources beyond the physical classroom (Siemens, 2005). In this study, teacher-curated short-form videos function as digital learning resources that enable learners to observe, review, and practice Physical Fitness activities during climate-related class suspensions. Self-Determination Theory explains learner engagement through the fulfillment of autonomy, competence, and relatedness (Ryan and Deci's, 2000). TeachTok supports learner autonomy by allowing self-paced home practice, competence through repeated demonstrations and guided instruction, and relatedness through structured teacher feedback despite the absence of face-to-face classes. The Technological Pedagogical Content Knowledge (TPACK) framework emphasizes that effective technology integration requires the deliberate alignment of technology, pedagogy, and subject content (Mishra and Koehler's, 2006). Accordingly, TeachTok was designed by integrating short-form video technology with Grade 5 Physical Fitness competencies, age-appropriate instructional strategies, safety measures, and curriculum requirements to ensure meaningful learning rather than simple technology use. The Technology Acceptance Model (TAM) provides the evaluative basis for determining learner acceptability by

emphasizing perceived usefulness and perceived ease of use (Venkatesh and Davis', 2000). These constructs guided the assessment of TeachTok's usability, accessibility, instructional quality, and potential for sustained implementation as an Alternative Delivery Mode. Collectively, these theoretical foundations support the proposition that a structured, teacher-curated short-form video platform can provide an acceptable and resilient instructional approach that sustains Grade 5 Physical Fitness learning during emergency class suspensions.

1.5 Research Gaps and Rationale for Developing TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness

Although previous studies have demonstrated the educational potential of TikTok, microlearning, and short-form video instruction, existing evidence remains concentrated on higher education, informal learning, and general learner engagement. Philippine studies on Alternative Delivery Modes have largely focused on modular and distance learning rather than technology-supported Physical Education instruction (Asio & Jimenez, 2021; Bustillo & Aguilos, 2022; Tanucan et al., 2023). Consequently, limited evidence exists regarding teacher-curated short-form video instruction designed specifically for elementary Physical Education during climate-related class suspensions. Studies have likewise reported that Filipino Physical Education teachers continue to face challenges in integrating digital technologies effectively into remote instruction (Tanucan et al., 2021). This highlights the need for practical, curriculum-aligned digital instructional models that teachers can readily implement during climate-related class suspensions. Limited research has examined teacher-curated, standards-aligned short-form video interventions specifically designed for elementary Physical Education in disaster-prone Philippine contexts. Likewise, existing online fitness content is rarely aligned with DepEd competencies, age-appropriate instructional design, learner safety, privacy, and low-data accessibility. The literature further reveals limited empirical evidence on how established learning theories such as Connectivism, TPACK, and the Technology Acceptance Model can be operationalized in a Grade 5 Physical Fitness Alternative Delivery Mode during actual climate-related class suspensions. Existing studies also provide limited guidance on transforming short-form video affordances into validated instructional features such as mirror-mode demonstrations, full-body framing, learner-friendly pacing, private submission procedures, and structured feedback mechanisms for elementary learners. Similarly, while previous research recognizes the motivational benefits of short-form video, concerns regarding distraction, self-regulation, learner autonomy, and behavioral engagement remain insufficiently examined within elementary Physical Education. Existing studies seldom integrate positive learner experiences with identified challenges to improve instructional design. Contextual gaps also persist regarding the implementation of Alternative Delivery Modes for Physical Education under actual weather-related class suspensions. Although studies discuss learning continuity and digital inequality, limited evidence addresses how these challenges influence Grade 5 Physical Fitness instruction in local communities experiencing frequent climate-related disruptions. Furthermore, previous literature emphasizes learner safety, ethics, and digital wellbeing but offers few validated instructional models that integrate child protection, privacy, and home-based safety measures within elementary Physical Education. In response to these gaps, the present study developed TeachTok through a systematic process involving literature synthesis, learner experiences, expert validation, implementation during documented class suspensions, learner acceptability assessment, and final refinement. The study therefore contributes a structured, curriculum-aligned, teacher-managed, and context-responsive Alternative Delivery Mode that addresses instructional continuity for Grade 5 Physical Fitness in disruption-prone educational settings.

1.6 Alignment of TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness with Relevant Sustainable Development Goals (SDGs)

The study aligns with several Sustainable Development Goals based on its objectives and instructional context. SDG 4 – Quality Education is the primary SDG addressed because the study develops an inclusive, accessible, and curriculum-aligned Alternative Delivery Mode that supports continuous learning despite climate-related class disruptions. By providing teacher-curated digital instructional materials that promote equitable access to Physical Education, the study contributes to improving educational continuity and learning quality. SDG 3 – Good Health and Well-Being is also relevant because TeachTok promotes continued participation in Grade 5 Physical Fitness through structured home-based physical activities while emphasizing learner safety, proper movement, injury prevention, hydration, and responsible physical activity practices. SDG 9 – Industry, Innovation and Infrastructure is reflected through the development of an innovative digital instructional approach that integrates educational technology with curriculum-based teaching strategies to improve learning delivery during emergency situations. SDG 13 – Climate Action is applicable because the study directly responds to climate-induced educational disruptions by developing an instructional model that strengthens educational resilience and learning continuity during weather-related class suspensions.

1.7 Importance of TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness to Multidisciplinary Sustainability

The study contributes primarily to educational sustainability by strengthening learning continuity through a structured Alternative Delivery Mode that enables Grade 5 learners to continue Physical Fitness instruction during emergency class suspensions. It demonstrates how carefully designed digital instructional materials can support curriculum implementation despite disruptions while maintaining instructional quality, learner engagement, and accessibility. The study also

contributes to technological and innovation sustainability by transforming widely used short-form video technology into a teacher-managed instructional platform grounded in curriculum standards, instructional design principles, and learner acceptability. This demonstrates how existing digital technologies may be responsibly adapted to support resilient educational systems. From a public health sustainability perspective, the study supports continued participation in safe home-based physical activity during prolonged class suspensions through structured demonstrations, safety reminders, and guided Physical Fitness instruction. The study likewise contributes to community and institutional sustainability by providing schools, teachers, and educational administrators with a practical, context-responsive instructional model that strengthens preparedness for future climate-related disruptions while promoting learner safety, equitable access, and responsible digital learning practices.

2. Material and methods

2.1 Research Design

The study adopted a multi-phase exploratory design within Educational Design and Development Research (DDR) Type 1 at the macro level because it focused on developing, refining, implementing, and evaluating TeachTok as an instructional product in an authentic educational setting. The study systematically developed and assessed TeachTok rather than creating or validating a general instructional design model. TeachTok progressed from an initial version, through evidence-based redesign, expert validation, implementation, learner acceptability assessment, and final refinement into Version 3. The exploratory approach followed a sequential exploratory mixed methods design in which qualitative findings informed the subsequent quantitative phase (Creswell & Creswell, 2018). Evidence from the systematic literature review, learner interviews, and focus group discussions was used to identify instructional, contextual, accessibility, motivational, and safety requirements before learner acceptability was assessed quantitatively. The study first conducted a PRISMA-guided systematic literature review to establish research-based requirements for microvideo-based Physical Education. PRISMA was selected because it provides a transparent and systematic process for identifying, screening, and reporting studies (Page et al., 2021). The review established evidence related to short-form video learning, digital Physical Education, learner engagement, home-based participation, safety, and accessibility. The literature review further strengthened the interpretation and application of synthesized evidence for instructional design. Rather than merely summarizing previous studies, the review translated research findings into practical design requirements, including segmented demonstrations, clear movement cues, learner-friendly pacing, safety reminders, feedback routines, private submission procedures, and low-data accessibility features. Learner interviews and focus group discussions generated user-based requirements related to clarity, safety, accessibility, motivation, confidence, device use, and home-based participation. These qualitative data were analyzed using thematic analysis to identify recurring learner experiences, following Braun and Clarke (2006). Findings regarding internet connectivity, device availability, limited movement space, distractions, and teacher guidance informed the redesign of TeachTok. The literature review and learner-experience findings guided the development of TeachTok Version 2 as a teacher-curated, standards-aligned, safe, private, and accessible instructional package. The revised version underwent expert validation before implementation to ensure curriculum alignment, clarity, accessibility, privacy, safety, and assessment quality. After implementation, learner acceptability was evaluated using descriptive survey data measuring perceived usefulness, perceived ease of use, and instructional quality. The inclusion of perceived usefulness and perceived ease of use was based on the Technology Acceptance Model (Davis, 1989; Venkatesh & Davis, 2000). Learner feedback, implementation observations, and validation compliance were then used to finalize TeachTok Version 3.

2.2 Locale of the Study

The study was conducted at Pugod Elementary School, F. Simeon, Ragay, Camarines Sur, a rural public elementary school that regularly experiences weather-related class suspensions. The site was selected because disruptions to face-to-face classes necessitated the use of Alternative Delivery Modes, particularly in Physical Education where demonstration, guided practice, and teacher supervision are essential.

2.3 Respondents of the Study

The primary respondents were the 37 Grade 5 learners enrolled at Pugod Elementary School during School Year 2025–2026. These learners participated in the implementation of TeachTok and the learner acceptability survey. Additionally, 10 learners participated in the focus group discussion and another 10 learners participated in the semi-structured interviews. These participants were purposively selected based on their willingness to share experiences, experience with class suspensions, ability to describe their learning experiences, and access to digital devices. Three purposively selected experts—a District MAPEH Coordinator, a School Principal I, and a School MAPEH Coordinator—served as validators of TeachTok Version 2 before learner implementation. The Grade 5 learners represented varying levels of access to digital resources. While some owned smartphones, others relied on shared family devices, borrowed gadgets, or scheduled access to a parent's phone. Internet connectivity depended largely on prepaid mobile data and was often affected by unstable signal strength and adverse weather conditions. Although most learners were familiar with viewing and navigating short-form videos, they differed in their ability to download files, record videos, and upload outputs independently. These varying conditions justified the inclusion of low-data features, simple instructions, privacy reminders, and adult support in

TeachTok. Learners also completed physical activities in different home environments with varying levels of supervision, making them appropriate participants for evaluating the feasibility, accessibility, and acceptability of the intervention. The expert validators were selected because of their expertise in Physical Education, curriculum implementation, instructional material evaluation, learner safety, child protection, assessment, and school administration. Their professional backgrounds ensured that TeachTok Version 2 was evaluated for curriculum alignment, movement accuracy, implementation feasibility, privacy, ethics, assessment, and learner safety before implementation.

2.4 Sample and Sampling Procedure

The study employed total enumeration for the quantitative phase by including all 37 Grade 5 learners enrolled at Pugod Elementary School during School Year 2025–2026 in the implementation of TeachTok and the learner acceptability survey. Participation required parent or guardian consent and learner assent. For the qualitative phase, purposive sampling was used to select 10 learners for the focus group discussion and another 10 learners for the semi-structured interviews. Participants were chosen based on their experience with class suspensions and home-based Physical Education activities, willingness to participate, ability to describe their learning experiences, and access to a personal or shared digital device. Learners without parent or guardian consent, learner assent, willingness to participate, or those with health or other conditions that made participation inappropriate were excluded. Three expert validators were also purposively selected to evaluate TeachTok Version 2 before implementation. The panel consisted of the District MAPEH Coordinator, School Principal I, and School MAPEH Coordinator, whose expertise in curriculum implementation, Physical Education, instructional material evaluation, learner safety, child protection, and assessment ensured a comprehensive review of the instructional package before learner use.

2.5 Research Instrument

The study utilized multiple research instruments corresponding to each phase of the multi-phase exploratory design. A PRISMA-guided systematic literature review was used to identify and synthesize studies related to TikTok-based pedagogy, short-form video learning, microlearning, nanolearning, digital Physical Education, learner engagement, accessibility, safety, instructional design, and Alternative Delivery Modes. The review involved database searching, screening, eligibility assessment, and thematic synthesis using predefined inclusion and exclusion criteria. The synthesized evidence served as the foundation for the development of TeachTok. Semi-structured interview and focus group discussion (FGD) guides were employed to document learners' experiences with home-based Physical Education during climate-related class suspensions. The guides explored learners' physical activity routines, challenges related to space, supervision, internet access, motivation, preferred video characteristics, and perceptions of safety and comfort in recording and submitting performance videos. During the FGD, learners were encouraged to participate voluntarily, share both positive and negative experiences, and provide recommendations for improving TeachTok. Responses were documented through note-taking and, when permitted, audio recording to ensure accurate transcription. The findings from the literature review and learner experiences guided the redesign of TeachTok Version 1 into TeachTok Version 2. The instructional package was developed through planning, storyboarding, scripting, recording, editing, and the integration of safety reminders, privacy safeguards, assessment cues, and performance directions. Before implementation, TeachTok Version 2 underwent individual expert validation by the District MAPEH Coordinator, School Principal I, and School MAPEH Coordinator to evaluate curriculum alignment, content accuracy, movement appropriateness, learner safety, accessibility, privacy, assessment clarity, and implementation feasibility. The expert feedback was incorporated before learner implementation. Learner acceptability was measured using a survey that evaluated TeachTok in terms of perceived usefulness, perceived ease of use, and instructional quality. The survey items were constructed following established recommendations for questionnaire development and item wording to improve clarity, minimize response bias, and ensure that the statements were appropriate for the target learners (Krosnick & Presser, 2010; Chyung et al., 2018). Negatively worded and ambiguous statements were avoided whenever possible to minimize common method bias and improve response quality (Podsakoff et al., 2003). Following implementation, learner responses, implementation observations, expert validation compliance, and qualitative feedback were used to refine the instructional package and produce the final version of TeachTok.

2.6 Data Gathering Procedure

Data collection followed the multi-phase exploratory design, beginning with evidence gathering and progressing through learner-experience documentation, TeachTok development, expert validation, implementation, learner acceptability assessment, and final refinement. This sequence ensured that the instructional package was developed from research evidence, learner experiences, expert judgment, and actual implementation during climate-related class suspensions. The first phase involved a PRISMA-guided systematic literature review. Relevant studies were identified through database searches in Scopus, ERIC, Google Scholar, and ResearchGate using Boolean search strings related to TikTok-based instruction, short-form video learning, microlearning, nanolearning, digital Physical Education, learner engagement, accessibility, safety, and Alternative Delivery Modes. English-language, full-text, peer-reviewed, or credible indexed studies published from 2021 to 2025 were included, while studies that did not satisfy the inclusion criteria were excluded. The selected studies were organized using an SLR matrix, and their findings were synthesized thematically to establish the instructional design requirements for TeachTok. The second phase documented learners' experiences through semi-

structured interviews and focus group discussions. Purposively selected Grade 5 learners shared their experiences, challenges, preferences, and suggestions regarding home-based Physical Education and TeachTok activities during class suspensions. The interviews and discussions were conducted after learners had experienced TeachTok-related activities but before the expert-validated Version 2 was implemented. Participation was voluntary, and parent or guardian consent and learner assent were obtained. Responses were recorded through note-taking and, when permitted, audio recording to facilitate accurate transcription and thematic analysis. The third phase involved the redesign and development of TeachTok Version 2 using evidence gathered from the literature review and learner experiences. The instructional package was developed through planning, storyboarding, scripting, recording, and editing while incorporating safety reminders, privacy safeguards, assessment cues, and performance directions. TeachTok Version 2 was then individually validated by three experts, and their recommendations were incorporated before implementation. Following expert validation, the revised TeachTok Version 2 was implemented among the Grade 5 learners. Learner acceptability was assessed through a survey measuring perceived usefulness, perceived ease of use, and instructional quality. Learner comments, implementation observations, survey findings, and expert validation compliance were subsequently used to refine the instructional package and finalize TeachTok Version 3.

2.7 Data Analysis Techniques

The study employed data analysis techniques appropriate for its sequential exploratory mixed methods design. Qualitative data from the interviews and focus group discussions were analyzed using thematic analysis, while quantitative data from the learner acceptability survey were analyzed using descriptive statistics to determine the acceptability of TeachTok. Qualitative data were transcribed, coded, grouped into related categories, and refined into themes relevant to the study objectives and the design requirements of TeachTok. An audit trail documenting the progression from raw responses to initial codes, clustered sub-themes, final themes, and design decisions was maintained to enhance the trustworthiness of the analysis. Both positive and less favorable learner comments were retained and interpreted as valuable design inputs rather than isolated observations. Quantitative data were analyzed using the weighted mean to determine the level of learner acceptability across the domains of perceived usefulness, perceived ease of use, and instructional quality. The weighted mean scores were interpreted using the following scale: 4.50–5.00 as Highly Acceptable, 3.50–4.49 as Acceptable, 2.50–3.49 as Moderately Acceptable, 1.50–2.49 as Slightly Acceptable, and 1.00–1.49 as Not Acceptable. Although Cronbach's alpha was considered to assess the internal consistency of the learner acceptability survey, it was not emphasized because the responses exhibited a strong ceiling effect. Consequently, the findings were interpreted primarily through weighted means and their corresponding verbal interpretations. The qualitative and quantitative findings were integrated throughout the study. Findings from the systematic literature review, interviews, and focus group discussions informed the design of TeachTok Version 2. Expert validation results guided revisions before implementation, while learner acceptability results were interpreted alongside the qualitative findings and validation feedback to support the final refinement of TeachTok Version 3, consistent with the sequential exploratory mixed methods design described by Creswell & Creswell (2018).

2.8 Ethical Considerations

The study adhered to ethical principles throughout the research process. TeachTok Version 2 underwent expert validation to evaluate curriculum alignment, clarity, developmental appropriateness, safety, accessibility, usability, assessment, ethics, privacy, child protection, and overall instructional quality before implementation. Each of the three expert validators independently evaluated the twelve instructional videos, and their recommendations guided the refinement of the instructional package. Participation was voluntary, and learners were informed of the study's purpose, their right to decline participation or recording, and their freedom to withdraw at any stage without academic consequences. Parent or guardian consent and learner assent were secured before participation. The study complied with the Data Privacy Act of 2012 (Republic Act No. 10173) by collecting only data necessary for the research, assigning participant codes instead of names, and excluding identifying information from transcripts, survey forms, tables, and quotations. Audio recordings, video submissions, field notes, and electronic files were securely stored, accessed only by authorized individuals for academic purposes, and scheduled for permanent deletion after thesis completion and acceptance. Learner safety and privacy were prioritized throughout the implementation. Performance videos were submitted only through private, teacher-managed platforms rather than public social media accounts. TeachTok activities incorporated warm-up reminders, safety precautions, pacing guidance, and instructions to discontinue activities when discomfort occurred, while adult supervision at home was encouraged whenever possible. Learners were also advised not to wear school uniforms or clothing that could identify their school when recording videos to protect their identity and privacy.

3. Results and Discussion

3.1 Bases for Redesigning Existing TeachTok Videos

3.1.1 Systematic Literature Review Findings on Instructional Microvideos

The systematic literature review identified five major themes that guided the redesign of TeachTok: microlearning design for skill demonstration, engagement and motivation in short-form video learning, access and contextual constraints, safety and instructional integrity, and assessment and feedback in remote Physical Education. Collectively, these findings

emphasized that effective instructional microvideos should provide brief and segmented demonstrations, meaningful learner engagement, accessible delivery despite connectivity issues, safe and developmentally appropriate instruction, and opportunities for assessment and feedback. These themes served as the evidence-based foundation for redesigning TeachTok as an Alternative Delivery Mode for Grade 5 Physical Fitness. The PRISMA-guided review strengthened the credibility of the instructional design because the literature was selected and synthesized through a systematic process rather than informal selection (Page et al., 2021). The findings further support the use of short, replayable instructional videos with clear demonstrations and feedback to enhance learner engagement, repeated practice, movement quality, and safe performance in Physical Education (Hartung et al., 2022; Ullah et al., 2025; Hattie & Timperley, 2007; Mödinger et al., 2022).

3.1.2 Microlearning Design for Skill Demonstration

The review showed that short, focused, and segmented instructional videos improved learners' repetition, understanding, and safe practice. Clear demonstrations and step-by-step instructional cues enabled learners to review skills repeatedly, practice independently, and better understand correct movement execution. Providing learners with clear instructional cues also supports effective motor learning by directing attention toward appropriate movement execution (Wulf, 2013). These findings supported the use of concise instructional videos for teaching Grade 5 Physical Fitness during class suspensions. These findings indicate that microlearning reduces cognitive overload by allowing learners to focus on one skill at a time and practice at their own pace. The results are consistent with Hartung et al. (2022), Conde-Caballero et al. (2023), and Ullah et al. (2025), which emphasize the effectiveness of segmented demonstrations. They also align with Connectivism, Self-Determination Theory, and the Technology Acceptance Model by showing that clear, repeatable, and easy-to-follow instructional videos improve learners' competence, support digital learning, and enhance perceived usefulness and ease of use. Consequently, TeachTok was redesigned to provide brief, step-by-step demonstrations with clear instructions and safety reminders appropriate for Grade 5 learners.

3.1.3 Engagement and Motivation in Short-Form Video Learning

The review found that structured short-form video activities increased learner enjoyment and participation when combined with teacher guidance. Music, movement challenges, and organized video activities encouraged learners to participate more actively while maintaining a clear instructional purpose. The findings also showed that motivation was strengthened when learners were provided with both engaging content and clear performance goals, resulting in sustained participation and task completion during home-based learning. These findings are likewise supported by recent studies showing that digital physical activity interventions and online movement programs can increase youth participation when instructional activities are engaging, structured, and developmentally appropriate (Lonsdale et al., 2024). Similarly, systematic reviews indicate that social media-based interventions can positively influence physical activity participation when instructional activities are appropriately structured and monitored (Shiyab et al., 2023). These findings suggest that learner engagement becomes educationally meaningful when enjoyable activities are supported by structure and supervision. The results are consistent with López-Carril et al. (2024), Rutledge et al. (2024), and Wang and Rahman (2025), which emphasize that short-form videos are most effective when integrated into a structured pedagogical framework. They also support Self-Determination Theory by promoting autonomy, competence, and relatedness, align with Connectivism through meaningful interaction with digital learning resources, and reinforce the Technology Acceptance Model by improving learners' perceptions of TeachTok's usefulness and ease of use. Consequently, TeachTok incorporated music, movement challenges, attractive presentation, clear instructions, defined learning goals, teacher feedback, and safety supervision to sustain meaningful participation during class suspensions.

3.1.4 Access, Equity, and Contextual Constraints

The findings revealed that learners' participation in digital Physical Education depended greatly on their home environment and access to technology. Device sharing, unstable internet connectivity, limited home space, and low-bandwidth conditions restricted learners' ability to access instructional videos, perform activities, and submit required outputs. Similar challenges have been documented in Philippine basic education, where unequal access to digital resources continues to influence learners' participation in technology-supported instruction (Bustillo & Aguilos, 2022). These results demonstrate that contextual and technological barriers significantly influenced participation in digitally delivered Physical Education. The findings indicate that the effectiveness of digital instruction depends not only on content quality but also on its responsiveness to learners' circumstances. This interpretation is supported by Centeio et al. (2021), Pavlovic et al. (2021), and Depping et al. (2022), which emphasize the influence of technological readiness and contextual limitations on online Physical Education participation. The findings also align with Connectivism, Self-Determination Theory, and the Technology Acceptance Model, highlighting that access to digital resources, learner competence, and perceptions of usefulness and ease of use are affected by technological and environmental constraints. In response, TeachTok was designed to be low-bandwidth, mobile-friendly, flexible in scheduling and submission requirements, and accessible through alternative submission options to promote equitable participation during climate-related class suspensions.

3.1.5 Safety, Quality Assurance, and Instructional Integrity

The findings showed that short-form fitness videos required careful regulation before being used for Physical Education instruction. Unregulated online fitness content often lacked essential safety reminders, proper skill progression, and developmentally appropriate instruction for learners. Studies also indicate that learners may be influenced by the credibility of online fitness personalities, reinforcing the need for teacher-curated instructional materials that prioritize curriculum alignment and learner safety over social media popularity (Jang et al., 2022). Research also shows that social media fitness content may influence learners' exercise intentions and body image, reinforcing the importance of teacher-guided instructional materials (Sokolova & Perez, 2021). The review further indicated that instructional effectiveness depended on the accuracy, pacing, safety, and suitability of video content, making teacher-curated materials essential for Grade 5 learners. These findings suggest that learner engagement alone is insufficient unless instructional materials are accurate, safe, and aligned with curriculum standards. The results are consistent with Witte et al. (2023), Hartung et al. (2022), and van der Helm et al. (2024), which emphasize the importance of reviewing digital fitness content for instructional quality, learner safety, and developmental appropriateness. They also align with Connectivism by highlighting the importance of reliable digital learning resources, with Self-Determination Theory by supporting learners' competence through clear and safe instruction, and with the Technology Acceptance Model by strengthening learners' perceptions of TeachTok as useful and easy to use. Consequently, TeachTok was teacher-curated, standards-aligned, and designed with appropriate pacing, safety reminders, and child protection measures before implementation.

3.1.6 Assessment and Feedback in Remote and Video-Based Physical Education

The review found that clear performance criteria and timely feedback promoted skill correction, self-regulation, and sustained participation in remote Physical Education. Providing learners with structured assessment and regular feedback improved movement performance, encouraged continuous practice, and supported accountability in video-based learning environments. Recent reviews likewise emphasize that digital formative assessment supports continuous monitoring of motor skill development and timely instructional feedback in Physical Education (Muller & Wagner, 2025). These findings indicate that assessment and feedback are essential components of effective digital Physical Education because they help learners monitor progress and improve performance. The results are supported by Mödinger et al. (2022), Schnitzler (2018), and Hattie and Timperley (2007), which emphasize the value of formative assessment and video-based feedback in promoting learner improvement and continued participation. Accordingly, TeachTok integrated criterion-based assessment, simple learner outputs, and timely teacher feedback to reinforce skill development, self-regulation, and continuous engagement in Grade 5 Physical Education.

3.2 Learner Experiences with the Use of TeachTok Microvideos

3.2.1 Motivation, Enjoyment, and Overall Satisfaction

The qualitative findings from the semi-structured interviews and focus group discussion showed that learners viewed TeachTok as an enjoyable and familiar way of completing Physical Fitness activities during climate-related class suspensions. Learners described the recording tasks as engaging because they resembled short-form videos while remaining connected to Physical Education activities. Overall, the responses highlighted increased motivation, enjoyment, and satisfaction with the learning experience. Sustained learner engagement may also increase as learners become more familiar with technology-supported instructional activities over time (Rodrigues et al., 2022). Continued exposure to well-designed digital learning activities may also reduce the novelty effect while sustaining learner engagement throughout implementation (Tsay et al., 2020). These findings are consistent with national evidence indicating that maintaining regular physical activity remains an important concern among Filipino children and adolescents, highlighting the value of innovative school-based interventions that encourage continued participation (Cagas et al., 2022). The findings suggest that learner motivation resulted from combining familiar short-form video features with teacher-guided instruction rather than entertainment alone. Research also indicates that learner engagement in short-form video environments is influenced by cognitive load, flow experience, and affective engagement, emphasizing the importance of carefully designed instructional videos (Wang et al., 2024). The positive emotional experience reduced boredom and encouraged participation while maintaining instructional focus. This interpretation supports Self-Determination Theory, which emphasizes competence, autonomy, and relatedness (Ryan & Deci, 2020), and is consistent with studies showing that music, challenge-based activities, and teacher guidance increase learner participation in digital Physical Education (López-Carril et al., 2024; Rutledge et al., 2024; Wang & Rahman, 2025). Consequently, TeachTok retained engaging video elements while strengthening learning objectives, competencies, safety reminders, and performance expectations in subsequent versions.

3.2.2 Clarity, Guidance, and Instructional Quality

The interview and focus group findings showed that learners valued TeachTok because it allowed them to clearly observe, replay, and understand movement demonstrations. Participants emphasized that clear demonstrations, full-body visibility, appropriate pacing, and understandable instructions helped them perform the required physical activities more accurately. These responses indicate that instructional quality was determined not by the visual appeal of the videos alone but by how effectively they demonstrated movement skills. The findings suggest that effective Physical Education videos should prioritize accurate demonstrations, clear visual presentation, and opportunities for repeated observation to support skill

acquisition. This interpretation is consistent with literature on visual pedagogy and motor learning, which emphasizes demonstration, repeated observation, and clear visual feedback in developing movement skills (Schnitzler, 2018). Consequently, TeachTok was refined by improving full-body visibility, reducing unnecessary background noise, balancing narration with music, adding captions, and incorporating mirror-mode labels to enhance instructional clarity and learner understanding.

3.2.3 Confidence, Convenience, and Ease of Home-Based Participation

The findings revealed that learners appreciated TeachTok because they could practice repeatedly before recording and submitting their performance. Home-based participation allowed learners to rehearse movements privately, increasing their confidence while reducing anxiety about making mistakes. The responses showed that the learning environment provided both practical convenience and emotional support during class suspensions. These findings indicate that TeachTok supported learner autonomy and competence by allowing repeated practice within a teacher-managed environment. Learner confidence may also be strengthened when digital learning environments are perceived as useful and easy to use, consistent with findings from studies applying the Technology Acceptance Model in educational settings (Alismaiel et al., 2022). The results align with Self-Determination Theory, which explains that learners become more motivated when they experience autonomy and competence while remaining supported by their teacher (Ryan & Deci, 2020). As a result, TeachTok continued to use private, teacher-managed submission procedures while strengthening privacy reminders and guidance in the succeeding version.

3.2.4 Access, Connectivity, and Device Constraints

The learners also reported that unstable internet connectivity, shared devices, and limited mobile access affected their ability to use TeachTok effectively. These challenges became more evident during climate-related class suspensions, when poor connectivity and limited technological resources delayed access to instructional videos and activity submission. The findings demonstrate that the success of TeachTok depended not only on instructional quality but also on its usability under rural home-based conditions. This interpretation is supported by literature on the digital divide and online Physical Education, which emphasizes that participation is influenced by device availability, internet connectivity, digital skills, and home learning conditions. Accordingly, TeachTok retained low-data and downloadable video formats, mobile-friendly visuals, flexible deadlines, and alternative submission options to improve accessibility for learners experiencing connectivity limitations.

3.2.5 Focus and Distraction Management

The findings showed that although learners found the short-form video format engaging, it also created opportunities for distraction through accidental swiping, off-task viewing, and unnecessary navigation. Learners indicated that maintaining focus required clear instructional guidance throughout the learning process. The findings suggest that short-form videos require structured teacher guidance to minimize distractions and maintain learners' attention on instructional tasks. This interpretation is consistent with research showing that short-video environments may encourage off-task behavior when they are not intentionally designed for learning (Xu et al., 2023). Therefore, TeachTok was further refined by keeping videos concise, task-focused, downloadable where possible, and supported with clearer instructions and a strengthened teacher-managed viewing and submission process.

3.2.6 Cross-Cutting Learner Suggestions for TeachTok Development

The interviews and focus group discussions revealed that learners provided specific recommendations to improve TeachTok, including slower exercise demonstrations, longer water breaks, improved audio quality, clearer directional cues, and better video pacing. These responses reflected learners' ability to identify practical improvements based on their actual experiences using the instructional videos. The findings indicate that learners served as valuable contributors to the refinement of TeachTok because their experiences provided practical insights into improving instructional design. This interpretation is supported by design and development research, which recognizes formative user feedback as an essential component of product improvement. The use of interviews, focus group discussions, and thematic analysis further strengthened the qualitative findings by capturing both individual experiences and shared learner perspectives that informed the final redesign of TeachTok.

4. Conclusion & Recommendations

The study established that redesigning TeachTok required both evidence-based instructional principles and learner experiences to address cognitive, technological, and environmental challenges in home-based Physical Education. The redesigned videos incorporated structured microlearning features, safety measures, clear visual demonstrations, and learner-centered enhancements that transformed the original prototypes into a cohesive instructional package. Expert validation confirmed the pedagogical, technical, and ethical quality of the redesigned videos, while learner evaluation demonstrated high acceptability in terms of usefulness, ease of use, and instructional quality. Overall, the findings indicate

that TeachTok is a feasible and effective alternative delivery mode that supports learning continuity in Grade 5 Physical Fitness during climate-related class suspensions.

Physical education teachers, curriculum developers, instructional designers, school administrators, and educational leaders should adopt standardized design protocols that prioritize clear visual demonstrations, safety, child protection, low-bandwidth accessibility, and structured learner support when developing asynchronous instructional videos. The validated TeachTok model should be institutionalized as an alternative delivery mode for Physical Education during emergency class suspensions, while future educational design projects should utilize a systematic design, validation, implementation, and evaluation process to ensure the quality, usability, and effectiveness of localized digital learning interventions.

The study was limited to the redesign, validation, implementation, and evaluation of TeachTok for Grade 5 Physical Fitness in a single elementary school during climate-related class suspensions. The evaluation involved one cohort of 37 Grade 5 learners and focused on learner acceptability after implementation rather than long-term learning outcomes or broader application across different grade levels, subject areas, schools, or learning environments.

Compliance with ethical standards

This study was conducted in accordance with established ethical principles to protect the rights, safety, privacy, and welfare of all participants throughout the research process. Participation was voluntary, with parent or guardian consent and learner assent obtained prior to involvement. Participants were informed of the study's purpose, their right to decline participation or recording, and their freedom to withdraw at any stage without academic consequences. The study complied with the Data Privacy Act of 2012 (Republic Act No. 10173) by collecting only the data necessary for the research, maintaining participant confidentiality through coded identifiers, securely storing research data, and limiting access to authorized individuals for academic purposes. Learner safety and privacy were further protected through private, teacher-managed submission procedures, safety reminders, pacing guidance, and measures to prevent participant identification during the implementation of TeachTok.

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