

Article

Educational Access and Continuity in Flood-Affected Communities Surrounding Ruti Dam, Zimbabwe: A Qualitative Case Study

Sinikiwe Ingwani¹, Rachel Tatenda Chikambi², Nyaradzo Mhizha², Dorcas T Hove², Tafadzwa Zulu², Clementine Mukulaga³, Livingson Moyo^{3,*}

¹Department of Social Work and Applied Psychology, Zimbabwe Ezekiel Guti University, Bindura, Zimbabwe

²Department of Social Work, Reformed Church University, Masvingo, Zimbabwe

³Department of Social Work, Women's University of Africa, Harare, Zimbabwe

*Corresponding author: Livingson Moyo, livingsonmoyo@gmail.com

Abstract

Flooding increasingly disrupts education in vulnerable rural communities, yet limited qualitative evidence explains how recurrent flooding surrounding dams affects learners' educational access and continuity. This study explored how flooding influenced learners' attendance, participation, academic progression and psychosocial wellbeing in communities surrounding Ruti Dam, Zimbabwe. It also examined household, infrastructural, school and community conditions influencing educational continuity and considered locally appropriate response strategies. A qualitative case-study design was employed. Fifteen participants, comprising eight learners, two parents, three teachers and two community stakeholders, were purposively selected based on their direct experience or contextual knowledge of flood-related educational disruption. Data were collected through individual semi-structured interviews and analysed using Braun and Clarke's six-phase reflexive thematic-analysis process. Four themes were developed: disruption of learning and academic progression; barriers to attendance and educational participation; psychosocial consequences for learners; and strategies for strengthening educational continuity. Participants associated flooding with school closures, reduced instructional time, damaged transport routes, household displacement, economic hardship and increased family responsibilities. Learners also described fear, reduced concentration and disrupted peer relationships. Family assistance, teacher support, peer relationships, community learning spaces and preparedness practices provided opportunities for continuity, although limited resources constrained these responses. The findings suggest that educational recovery requires more than reopening schools. It also requires safe infrastructure, academic catch-up, psychosocial support, accessible learning alternatives and coordinated institutional and community responses. The study concludes that educational continuity represents an important coping capacity within disaster-risk assessment and should be integrated into inclusive, locally informed disaster-preparedness planning.

Keywords

Educational access, Educational continuity, Flooding, Disaster resilience, Learners, Ruti Dam

Article History

Received: 20 July 2026

Accepted: 14 August 2026

Revised: 13 August 2026

Available Online: 18 August 2026

Copyright

© 2026 by the authors. This article is published by the Cultech Publishing Sdn. Bhd. under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0): <https://creativecommons.org/licenses/by/4.0>

1. Introduction

Access to safe, inclusive and continuous education is a fundamental human right and a central component of Sustainable Development Goal 4. However, climate-related disasters increasingly threaten progress towards universal education, particularly in communities characterised by poverty, weak infrastructure and limited disaster-preparedness capacity. UNICEF in 2025 reported that extreme climate events disrupted the education of at least 242 million learners across 85 countries and territories in 2024. Flooding, storms, droughts and extreme heat contributed to school closures, damage to educational infrastructure and interruptions to learning [1].

Flooding affects education through interconnected physical, socioeconomic and psychological pathways. It can damage schools, roads and bridges, displace households and prevent learners and teachers from reaching educational institutions. Its consequences may continue after schools reopen because affected households must recover livelihoods, replace learning materials and meet additional basic needs. Natural disasters influence children's education both directly, through school closures and infrastructure damage, and indirectly, through displacement, household income loss and psychosocial distress [2]. Learners from low-income and remote rural communities are particularly vulnerable because they often have fewer alternative schools, transport routes and learning resources.

Zimbabwe's experience with Cyclone Idai illustrates the vulnerability of education to climate-related disasters. The cyclone and associated flooding affected schools, transport infrastructure, households and livelihoods in eastern Zimbabwe. Cyclone Idai disrupted school enrolment and contributed to dropout patterns in eastern Chimanimani [3]. Their study also identified the need for coordinated initiatives to build a disaster-resilient education system. These findings demonstrate that the educational effects of disasters extend beyond the physical destruction of schools to include participation, academic progression and the general quality of education.

Disaster-related educational disruption is also closely connected to learners' psychosocial wellbeing. Displacement, loss of familiar routines and uncertainty about future disasters may contribute to fear, reduced concentration and weakened social relationships. In their study of adolescent survivors of Cyclone Idai in Manicaland, scholars found that disaster-related losses affected participants' psychological, social and physical wellbeing [4]. The adolescents relied on personal coping mechanisms and social support, leading the authors to recommend school-based programmes that strengthen coping capacity. Educational responses to flooding should therefore address not only the reopening of schools but also learners' emotional readiness and ability to participate meaningfully in learning.

Local knowledge and community participation are similarly important to educational recovery. Studies of flood-affected communities in Muzarabani, found that indigenous knowledge and locally developed coping strategies contributed to community resilience [5]. Scholars further argue that children should be recognised as active contributors to disaster-risk reduction because their experiences can inform preparedness and response programmes. Involving learners, families, teachers and community stakeholders may help identify unsafe routes, accessible learning spaces and locally appropriate strategies for maintaining education [6].

Bangure, situated in Ward 23 of Buhera District, provides an important setting for examining these issues. Communities surrounding Ruti Dam experience flooding that reportedly affects roads, household livelihoods and access to educational institutions. Dependence on agriculture may intensify household vulnerability when crops and income are disrupted. Although remote learning may provide continuity during school closures, unequal access to electricity, digital devices, connectivity and data can exclude economically disadvantaged learners. Disaster-responsive educational planning must consequently combine resilient infrastructure with psychosocial support, community participation and accessible learning alternatives.

Despite growing scholarship on disasters in Zimbabwe, research has largely focused on major events such as Cyclone Idai or on broader community resilience. Limited qualitative evidence documents how recurrent flooding affects the interconnected academic, participatory and psychosocial dimensions of educational access in communities surrounding dams. This study addressed this gap by exploring educational access and continuity from the perspectives of learners, parents, teachers and community stakeholders in communities surrounding Ruti Dam. It examined the effects of flooding on attendance, academic progression, participation and psychological wellbeing, as well as strategies for strengthening educational continuity.

2. Problem Statement

Flooding in communities surrounding Ruti Dam disrupts learners' access to education by damaging roads and other infrastructure, displacing households and weakening family livelihoods. These conditions contribute to school absenteeism, interruptions in learning and reduced participation in educational activities. Learners may also experience fear, anxiety, difficulty concentrating and disruption of social-support networks, which can continue affecting their education after

floodwaters have receded. Although schools, families and communities employ different responses to maintain learning, limited context-specific evidence exists on their accessibility, adequacy and sustainability. Existing disaster responses often concentrate on immediate physical and material needs while giving insufficient attention to educational continuity and learners' psychosocial wellbeing. Without evidence drawn from affected learners and local stakeholders, interventions may fail to address the interconnected academic, socioeconomic, infrastructural and psychological barriers to education. This study therefore examined how flooding influences educational access and continuity in communities surrounding Ruti Dam and explored strategies for strengthening education in flood-affected settings.

3. Research Objectives

The study sought to:

- (1) Explore how flooding affects learners' educational access, participation, academic progression and psychosocial wellbeing in communities surrounding Ruti Dam.
- (2) Examine the household, infrastructural, school and community conditions influencing educational continuity and identify locally appropriate strategies for strengthening learners' access during and after flooding.

4. Research Questions

- (1) How does flooding affect learners' educational access, participation, academic progression and psychosocial wellbeing in communities surrounding Ruti Dam?
- (2) What household, infrastructural, school and community conditions influence educational continuity, and what locally appropriate strategies could strengthen learners' access during and after flooding?

5. Theoretical Framework

The study was guided by the Disaster Risk Assessment Framework, which conceptualises disaster risk as the interaction among a hazard, the people and systems exposed to it, their underlying vulnerabilities and their capacity to cope and recover. The framework is not attributable to a single theorist; rather, it developed through multidisciplinary disaster-risk and vulnerability scholarship. Blaikie et al. [7], through the Pressure and Release Model, argued that disasters occur when hazards interact with vulnerable social conditions produced by root causes, dynamic pressures and unsafe circumstances. Their work challenged interpretations of disasters as purely natural events and demonstrated that social, political and economic processes influence the severity of disaster outcomes.

Cutter et al. [8] further developed social vulnerability by demonstrating that socioeconomic and demographic conditions influence the capacity of individuals and communities to anticipate, withstand and recover from environmental hazards. Birkmann [9] similarly conceptualised vulnerability assessment as a multidimensional process involving physical, social, economic, environmental and institutional conditions. Collectively, these scholars established the intellectual foundations for understanding disaster risk through the interaction of hazards, exposure, vulnerability and coping capacity.

The United Nations Office for Disaster Risk Reduction subsequently standardised these concepts through its disaster-risk terminology [10]. The framework assumes that a hazardous event does not automatically become a disaster. Serious disruption occurs when exposed people, infrastructure and services possess vulnerabilities that exceed their available capacity to anticipate, cope with and recover from the event.

Four interconnected concepts guided the study. Hazard referred to flooding in communities surrounding Ruti Dam. Exposure concerned learners, households, schools, roads, bridges and educational resources located within flood-affected areas. Vulnerability referred to physical, socioeconomic, institutional and psychosocial conditions increasing learners' susceptibility to educational disruption. Coping capacity referred to resources and arrangements available to maintain or restore education, including family assistance, teacher support, community learning arrangements and preparedness practices.

The Disaster Risk Assessment Framework is related to, but distinct from, the Sendai Framework for Disaster Risk Reduction 2015-2030. Sendai was adopted by United Nations Member States in 2015 as an international policy framework for reducing existing disaster risk and preventing new risks [11]. It was not the originator of the analytical model; instead, it provides a policy structure for applying risk-assessment principles through understanding risk, strengthening governance, investing in resilience and enhancing preparedness and recovery.

The framework enabled educational disruption to be interpreted as an outcome of interactions among flooding, exposure, underlying vulnerability and coping capacity. It also guided identification of interventions capable of reducing exposure,

addressing vulnerability and strengthening educational continuity.

This conceptualisation distinguishes educational continuity from three related ideas. Resilience is the broader capacity of learners, households, schools and communities to withstand and adapt to disruption over time [12]. Adaptive capacity refers to the ability to adjust practices and mobilise resources as conditions change, while educational recovery concerns the restoration of learning after disruption. Educational continuity is narrower and more operational: it concerns maintaining or rapidly re-establishing safe access, instruction, participation, academic progression and psychosocial readiness across preparedness, response and recovery. It therefore functions as a sector-specific coping capacity within disaster-risk assessment rather than as a synonym for resilience or recovery. This distinction makes visible whether education remains usable and inclusive while a community is still experiencing and responding to recurrent flooding.

6. Literature Review

6.1 Flooding and Educational Access

Flooding presents a growing threat to educational access, particularly in rural and economically marginalised communities where schools, transport systems and household livelihoods are vulnerable to climate-related hazards. UNICEF [1] reported that climate-related events interrupted the education of at least 242 million learners across 85 countries and territories in 2024. Floods can damage classrooms, roads, bridges, sanitation facilities and learning materials, while displacement may separate learners from schools and support networks.

Kousky [2] distinguishes direct effects, including school closures and damaged facilities, from indirect effects such as household-income loss, displacement and psychosocial distress. Baez et al. [13] similarly argue that disasters can undermine human-capital development through interruptions in schooling, declining household resources and adverse health conditions. Nguyen and Pham [14] found that floods negatively influenced educational participation and cognitive outcomes in several low- and middle-income countries.

Educational effects may continue after infrastructure has been restored. Gibbs et al. [15] found delayed academic difficulties among children exposed to a major disaster, demonstrating that reopening schools does not guarantee immediate educational recovery. Zimbabwean evidence is comparable: Musarandega and Masocha [3] found that Cyclone Idai disrupted enrolment and contributed to dropout patterns in Chimanimani. However, less attention has been given to recurrent and localised flooding surrounding dams. The present study addresses this gap by examining how recurrent flooding around Ruti Dam affects access, participation and academic recovery.

6.2 Academic Progression and Educational Participation

Regular attendance, continuous instruction and meaningful classroom participation are essential to academic progression. Flood-related closures reduce instructional time and can prevent teachers from completing the curriculum. Baez et al. [12] argue that temporary interruptions can become long-term disadvantages when learners fail to recover missed instruction or household recovery needs delay their return.

Educational participation is broader than physical attendance. It includes concentration, interaction with teachers and peers, completion of learning activities and access to resources. Burde et al. [16] argue that education during emergencies can provide continuity, structure and protection, but its effectiveness depends on accessibility, quality and relevance. Mutarak and Lutz [17] maintain that education can strengthen disaster preparedness and adaptive capacity, although unequal access to education and information can reproduce vulnerability.

Remote learning may maintain instruction during closures, but it requires electricity, connectivity, suitable devices, digital skills and affordable data. Learners from remote and low-income households are more likely to be excluded. Academic recovery therefore requires more than replacing classroom days; it may require structured catch-up, flexible assessment, materials and sustained support. The present study examines how learners, parents and teachers interpreted these processes around Ruti Dam.

6.3 Psychosocial Wellbeing and Learning

Flooding may affect education through learners' psychological and social wellbeing. Displacement, fear of recurrence, loss of routine and separation from peers can reduce concentration, motivation and participation. Masten and Narayan [18] conceptualise children's disaster responses through multisystem pathways of risk and resilience, emphasising interactions among learners, families, schools and communities.

A systematic review and meta-analysis by Beaglehole et al. [19] found that natural disasters can be associated with substantial psychological distress. Within Zimbabwe, Sifelani et al. [4] found that Cyclone Idai-related losses affected the

psychological, social and physical wellbeing of adolescent survivors. These findings indicate that educational recovery must address psychosocial wellbeing alongside material reconstruction.

Schools can restore routines, reconnect learners with peers and identify those requiring assistance. Nevertheless, teachers cannot independently address every psychosocial need. Norris et al. [12] understand community resilience as a network of information, communication, social connections, economic resources and collective competence. The present study therefore examines psychosocial wellbeing as a factor affecting attendance, participation and academic continuity.

6.4 Indigenous Knowledge, Community Capacity and Educational Resilience

Flood-affected communities possess local knowledge, social networks and coping strategies that can contribute to continuity. Mavhura et al. [5] found that indigenous knowledge and coping practices strengthened resilience in Muzarabani. Mercer et al. [20] argue that risk reduction can be improved by respectfully integrating indigenous and scientific knowledge. Gaillard and Mercer [21] similarly contend that knowledge must be translated into coordinated action through bottom-up and top-down processes.

Within Zimbabwe, Dube and Munsaka [22] found that indigenous knowledge can contribute to risk reduction, although limited documentation and practitioner scepticism may constrain its application. Iloka [23] links indigenous knowledge to local empowerment and participation. Mudavanhu et al. [6] further emphasise including children's voices because learners possess practical knowledge about unsafe routes and accessible support.

Community resilience should not transfer institutional responsibility to affected households. Community learning spaces require personnel, materials, safe facilities and coordination with formal schools. Sustainable continuity therefore requires cooperation among learners, families, schools, stakeholders and public institutions.

6.5 Gender, Disability and Broader Social Inclusion

Disaster-related educational disruption is not experienced uniformly. Gender, disability, household income, age, family responsibilities and distance from school can influence exposure and access to support. Cutter et al. [8] demonstrate that social vulnerability is shaped by demographic and socioeconomic inequalities.

Gender may influence educational disruption through household roles and expectations, although such patterns should not be assumed without evidence. Children with disabilities may encounter additional barriers when transport routes and facilities become inaccessible. Peek and Stough [24] argue that vulnerability among children with disabilities arises through interactions among support needs, inaccessible environments and inadequate planning. Ronoh et al. [25] similarly maintain that disaster initiatives frequently overlook children with disabilities. Stough and Kang [26] note that Sendai strengthened recognition of disability inclusion within disaster-risk reduction.

Inclusive continuity requires accessible early-warning information, transport, learning spaces and educational materials. The present study did not collect sufficient disaggregated data to establish systematic differences by gender or disability; these dimensions are therefore treated as interpretive and policy considerations rather than direct subgroup findings.

6.6 Research Gap

Existing research demonstrates that flooding can damage infrastructure, interrupt attendance, weaken progression and affect psychosocial wellbeing. Nevertheless, three gaps remain. First, much evidence concerns large-scale disasters rather than recurrent flooding surrounding dams. Second, educational access, academic recovery and psychosocial wellbeing are often examined separately. Third, limited Zimbabwean research integrates learners' accounts with complementary household, school and stakeholder perspectives while retaining analytical distinctions among these groups. The present study addresses these gaps in communities surrounding Ruti Dam.

7. Methodology

7.1 Research Design and Study Setting

Qualitative research is an interpretive approach used to examine how individuals understand, experience and assign meaning to social phenomena within natural settings. Creswell and Poth [27] explain that qualitative inquiry is appropriate when a complex issue cannot be adequately understood through numerical measurement alone. Merriam and Tisdell [28] similarly emphasise interpretation and contextual meaning.

The study employed a qualitative case-study design. The case was bounded geographically by communities surrounding Ruti Dam in Bangure, Ward 23 of Buhera District; conceptually by educational access and continuity during and after flooding; and experientially by participants possessing direct experience or relevant contextual knowledge. The design

enabled examination of flooding alongside household livelihoods, transport infrastructure, school practices, psychosocial wellbeing and community responses. It sought contextual depth rather than prevalence estimation or statistical generalisation.

7.2 Participants and Sampling

Purposive sampling deliberately selects participants with experiences or knowledge relevant to the research question. Palinkas et al. [29] explain that it supports selection of information-rich participants, while Patton [30] emphasises its value for contextual depth.

Fifteen participants were purposively selected: eight learners below 18 years, two parents, three teachers and two community stakeholders. Learners constituted the primary group and described direct experiences of attendance, learning and psychosocial wellbeing. Parents participated as caregivers and described household displacement, economic pressure and educational decisions. Teachers described instructional interruption and recovery. The stakeholders provided contextual information concerning infrastructure, preparedness, institutional responses and locally available support. These groups occupied different experiential and institutional positions, and their accounts were not treated as equivalent representations of learners' experiences (Table 1).

Table 1. Participant profile based on retained study records.

Participant category	No.	Age information	Gender	Experience or community role
Learners	8	Below 18 years; exact range not reported	Not reported	Direct experience of flood-related attendance, learning and psychosocial disruption
Parents	2	Adult; exact range not reported	Not reported	Caregiver perspectives on displacement, household pressures and educational decisions
Teachers	3	Adult; exact range not reported	Not reported	Instruction, attendance and academic recovery; years of experience not reported
Community stakeholders	2	Adult; exact range not reported	Not reported	Community and institutional perspectives on infrastructure, preparedness and locally available support

Note: Exact age ranges, gender distribution, teachers' years of experience and more specific stakeholder designations were not available in the retained study records. This limits demographic subgroup analysis and is acknowledged in Section 11.

Sample adequacy was considered in relation to the study's narrow case boundary, the direct relevance of participants' flood experience and the complementary perspectives provided by four participant groups. The 15 interviews generated sufficiently detailed accounts to address the research questions and to develop coherent patterns across the bounded case. A formal numerical saturation threshold was not set and saturation was not treated as a universal quality criterion for reflexive thematic analysis [31]. Instead, adequacy was judged through information richness, repeated patterns across interviews, inclusion of divergent accounts and the point at which further analysis was no longer materially changing the four thematic interpretations. This procedural basis is reported transparently rather than claiming statistical representativeness.

7.3 Data Collection

Data were collected through individual in-depth interviews guided by semi-structured schedules. Semi-structured interviews use prepared open-ended questions while permitting probes of issues emerging during conversation. Kallio et al. [32] explain that interview guides support systematic coverage while retaining flexibility, and DeJonckheere and Vaughn [33] note their value for detailed exploration of experiences and interpretations.

Schedules were developed from the objectives, research questions, theoretical framework and literature and adapted to participant roles. Learners discussed attendance, participation, progression, emotional wellbeing and support. Parents discussed displacement, livelihoods, educational costs and family responsibilities. Teachers addressed closure, instruction, attendance and recovery. Stakeholders discussed infrastructure, preparedness, support systems and community-level responses. The study did not employ surveys, focus groups, GIS procedures or document analysis.

7.4 Data Analysis

Fifteen interview transcripts were analysed manually using reflexive thematic analysis following Braun and Clarke's six-phase process [31,34]. Analysis was predominantly inductive and semantic during initial coding, while the Disaster Risk Assessment Framework was used later as a sensitising interpretive lens. The primary researcher conducted the initial coding. Independent duplicate coding was not undertaken because reflexive thematic analysis treats coding as an interpretive

practice rather than a test of coder agreement. A formal fixed codebook was not used; instead, an evolving coding record and analytical notes documented code labels, revisions, candidate themes and decisions.

First, all transcripts were read repeatedly and contextual notes were made. Second, meaningful segments were assigned descriptive codes such as school closure, unsafe routes, missed lessons, household responsibilities, fear during rainfall, peer support and limited digital access. Third, related codes were clustered into candidate themes. Fourth, candidate themes were checked against coded extracts and the complete dataset for coherence, support and distinction; overlapping patterns were merged and divergent accounts retained. Fifth, each theme's central meaning and boundaries were defined. Four final themes were developed: disruption of learning and academic progression; barriers to attendance and educational participation; psychosocial consequences for learners; and strategies for strengthening educational continuity. Sixth, representative quotations were selected for relevance and explanatory value.

Transcripts were initially examined according to participant category before convergence and divergence were considered. For example, the codes school closure, missed lessons, syllabus pressure, difficulty catching up and examination unpreparedness were initially clustered as interrupted instruction and learning loss. Reviewing these codes across learner, teacher and parent accounts showed that they described a connected process rather than separate issues; they were therefore refined into the theme disruption of learning and academic progression. Learner quotations were treated as direct accounts, while adult and stakeholder quotations were interpreted as complementary perspectives. Theme construction was understood as interpretive rather than a neutral discovery process. The primary researcher's theme structure and interpretations were subsequently discussed with the wider author team during manuscript development; differences were resolved through return to the coded extracts and study questions rather than numerical inter-coder agreement.

7.5 Researcher Positionality and Reflexivity

The research team comprised Zimbabwean university-based researchers from social work and applied-psychology backgrounds. Their disciplinary training influenced attention to psychosocial wellbeing, household vulnerability, community support and institutional responsibility. Familiarity with Zimbabwean rural and educational contexts supported interpretation but could also create assumptions requiring examination.

The researchers recognised that age, educational status and perceived professional authority could affect disclosure. Contextual observations, emerging interpretations and possible assumptions were recorded during the research process. During analysis, the team examined whether codes and themes remained grounded in participants' accounts, considered alternative interpretations and distinguished the epistemic positions of learners, parents, teachers and stakeholders.

7.6 Trustworthiness

Credibility was supported by comparing accounts across participant roles and by member checking, through which participants reviewed interview records and commented on emerging interpretations. Dependability and transparency were supported through records of data-collection and analytical decisions. The research protocol, analysis and preliminary findings were also subjected to academic peer review. Reflexive examination of assumptions and retention of divergent accounts strengthened confirmability. Contextual description of the setting, participant roles and limits of the available demographic record supports readers in judging potential transferability.

7.7 Ethical Considerations

Research authorisation was obtained from the relevant Rural District Council. Adult participants provided informed consent. For learners below 18 years, written parental or guardian consent and learner assent were obtained. Participation was voluntary, participants could decline questions or withdraw without penalty, and confidentiality was protected through removal of identifying information and use of general participant categories in quotations.

8. Findings

Analysis of the 15 interviews produced four themes: disruption of learning and academic progression; barriers to attendance and participation; psychosocial consequences of flooding; and strategies for strengthening educational continuity. Consistent with reflexive thematic analysis, the significance of a theme was judged by its relevance to the research questions and explanatory value rather than frequency alone. Because the retained analysis did not contain reliable participant-by-participant frequency counts, numerical prevalence is not reported retrospectively. Instead, the findings indicate which participant groups contributed to each pattern and identify whether accounts converged or differed. Learner quotations provide direct accounts, while adult and stakeholder quotations provide complementary household, school and contextual perspectives. Fuller authentic extracts recovered from the original findings were used without reconstructing participants' words.

8.1 Disruption of Learning and Academic Progression

This theme was evident across learner, teacher and parent accounts. Learners and teachers provided the strongest direct accounts of school closure, reduced instructional time and difficulty recovering missed content, while parents corroborated declining academic performance. Learners indicated that they received little educational support while at home and struggled to study independently. When schools reopened, teachers had limited time to cover missed content, leaving learners overwhelmed and academically unprepared. One learner explained:

“When the floods affected our school, our school was closed for weeks. When we finally managed to go back, it felt like I was in a race trying to catch up with all the lessons I missed.”

Teachers similarly experienced pressure to complete the syllabus within a shortened period. One teacher stated:

“The academic calendar was disrupted completely, and we were forced to teach everything in the syllabus within a short timeframe. The students were overwhelmed, and many could not grasp the concepts we were rushing through.”

Participants associated these disruptions with learning loss, reduced concentration and poor examination preparation. Learners described returning to school without remembering previously covered material and facing assessments before adequately recovering lost instructional time. One learner noted:

“I felt like I was walking into the examination room empty-headed. I could not remember the formulas or concepts we had covered in class.”

Parents observed corresponding changes in their children’s academic performance. One parent reported:

“I saw her grades dropping dramatically. It was not due to a lack of effort but because of the circumstances we found ourselves in. The floods took away their chance to learn consistently.”

Participants were also concerned that repeated interruptions could have consequences beyond the immediate school term. Learners feared that missed foundational knowledge and poor grades could restrict their future educational opportunities.

8.2 Barriers to Attendance and Educational Participation

Barriers to attendance were reported across learner, parent and teacher accounts. Learners described damaged routes and competing household responsibilities, parents explained constrained household choices, and teachers observed reduced attendance and difficulty supporting return to school. Flooding restricted physical access by damaging roads and other routes used by learners. Household displacement also increased travelling distances and separated learners from familiar schools and support networks.

Economic pressures compounded these physical barriers. Flood-affected households had to prioritise food, shelter and livelihood recovery, leaving fewer resources for educational expenses. Some learners remained at home to assist their families with recovery-related responsibilities. A parent explained:

“We had to make tough choices. With the limited resources we had, some families decided it was better for their children to stay home and help with recovery rather than attend school. Survival came first for many of us.”

Teachers reported significant declines in attendance and difficulties persuading learners to return. One teacher stated:

“Attendance rates dropped dramatically, and it was heartbreaking. We tried to reach out to families and encourage students to return, but many were overwhelmed by the immediate needs of their households. The education system struggled to adapt to these realities.”

The findings showed that educational participation involved more than reaching school. Some learners who returned remained preoccupied with household challenges, missed learning and uncertainty about future floods. Participants feared that prolonged absenteeism could gradually lead to disengagement and school dropout.

8.3 Psychosocial Consequences for Learners

Psychosocial effects were described primarily by learners and were corroborated by parents and teachers. Learners reported fear, anxiety and uncertainty during later periods of heavy rainfall, parents described behavioural changes, and teachers observed effects on concentration and engagement. These accounts did not establish clinical diagnoses, but they consistently positioned emotional readiness as part of educational participation. One learner explained:

“After the floods, I felt a constant sense of fear. Every time it rained, I would panic, thinking that the water was going to rise again. This anxiety made it difficult for me to concentrate on my studies. I would often try to read but find that I was not understanding anything.”

Parents observed behavioural and emotional changes among affected learners. One parent stated:

“I could see the change in my child’s behaviour. They were more withdrawn and often had nightmares about the floods.”

Teachers consequently found themselves responding to both academic and emotional needs. One teacher reported:

“The emotional effect on the students was evident. I had to spend extra time talking to them about their fears and concerns. It was not just about teaching the curriculum but helping them cope with their experiences.”

Flooding also disrupted learners’ relationships with peers. Household displacement and recovery responsibilities reduced opportunities for social interaction, while some learners became withdrawn. Nevertheless, peer relationships also served as a source of support. One learner described how discussing experiences with friends helped them manage fear and return attention to learning:

“I learned to cope by talking to my friends about my feelings. We formed a support group where we shared our fears and encouraged each other. Although the floods were devastating, our friendship helped us focus on our studies together, and I think that made a difference.”

The findings therefore demonstrated that social connections could either be disrupted by flooding or become resources supporting psychosocial recovery.

8.4 Strategies for Strengthening Educational Continuity

Strategies were proposed across all four participant groups, although their emphasis reflected their roles: learners focused on continued access and reduced fear, parents on safety and household feasibility, teachers on infrastructure and instructional continuity, and stakeholders on preparedness and coordination. The first strategy was investment in flood-resilient schools, roads, bridges and drainage systems. Participants believed stronger infrastructure would reduce school closures and improve the safety of journeys to school. One teacher argued:

“There is a need for the government to prioritise the construction of schools that can withstand climate-related disasters because our learners’ education is currently at the mercy of these events.”

The second strategy involved school and community disaster-preparedness programmes. Participants wanted learners, teachers and families to receive training in emergency procedures, early-warning information and safe responses to flooding. A community stakeholder stated:

“Preparedness is the key to overcoming the effects of floods here in Bangore. We need to know how we are expected to react when the floods come again.”

Participants also described community learning spaces as potential alternatives when conventional schools were inaccessible. Such arrangements could enable learners to access books, interact with peers and receive educational support closer to their homes. However, participants acknowledged that these initiatives required trained personnel, learning materials and sustainable institutional support.

Technology was identified as another possible means of maintaining learning. Learners and teachers believed remote learning could reduce instructional losses during school closures. One learner stated:

“During the floods, if we had access to online classes, I would have kept up with my studies.”

Nevertheless, participants recognised that limited access to digital devices, electricity, connectivity and data could exclude learners from disadvantaged households. Technology was therefore viewed as one component of a broader response rather than a complete solution. Overall, participants called for an integrated approach combining resilient infrastructure, disaster preparedness, psychosocial support, community participation and accessible alternative learning arrangements.

9. Discussion

9.1 Educational Disruption as a Cumulative Process

The findings suggest that flooding affected education through interconnected physical, academic, socioeconomic and psychosocial pathways. This supports Kousky’s [2] distinction between direct and indirect disaster effects but extends it by showing that infrastructure damage, household livelihoods, attendance and examination anxiety were mutually reinforcing. The findings correspond with Nguyen and Pham [14] and Gibbs et al. [15], but demonstrate that repeated, comparatively localised flooding may also produce cumulative disadvantage.

Reopening schools should not be equated with restoring education. Learners may return while academically behind, emotionally distressed or unable to participate fully. Recovery should be assessed through attendance, curriculum recovery,

engagement, psychosocial wellbeing and continued progression.

9.2 Household Vulnerability and Unequal Recovery

Participants associated disruption with displacement, livelihood loss, educational costs and family responsibilities. This supports Baez et al. [13], but describing poverty merely as an additional barrier understates its role in determining transport, materials, remote learning and time available for study. Consistent with Blaikie et al. [7], flooding became an educational crisis through interaction with pre-existing unsafe routes, climate-sensitive livelihoods and limited alternatives.

Remaining at home to assist recovery may represent constrained decision-making rather than rejection of education. Policy responses should avoid blaming families and instead address the structural conditions narrowing their choices.

9.3 Psychosocial Wellbeing and Participation

Fear, uncertainty, reduced concentration and disrupted relationships affected engagement. These findings correspond with Sifelani et al. [4] and Masten and Narayan [18], while extending the literature by positioning psychosocial wellbeing within educational access rather than as a separate health outcome. Peer relationships were both disrupted by flooding and used as sources of support. Informal support, however, cannot replace trained services and referral pathways.

9.4 Community Capacity and Institutional Responsibility

Participants identified family support, teacher assistance, community learning spaces and preparedness programmes. These findings align with Mavhura et al. [5], Mercer et al. [20] and Dube and Munsaka [22]. Nevertheless, celebrating resilience without examining limited resources may romanticise coping under institutional neglect. Communities cannot independently repair bridges, fund resilient infrastructure or provide specialised services. Local knowledge should inform, not substitute for, institutional planning.

9.5 Technology and Inequality

Remote learning was viewed as useful but constrained by electricity, connectivity, devices and data. Availability therefore differed from accessibility. Digital approaches should complement printed materials, teacher outreach, radio instruction and community learning spaces. Without deliberate inclusion measures, emergency technology may reproduce existing socioeconomic inequalities.

9.6 Theoretical Contribution

The study advances the Disaster Risk Assessment Framework by specifying education as both an exposed social service and a sector-specific coping capacity. First, educational exposure includes dependence on vulnerable routes, instructional schedules, household livelihoods and communication systems, not only the physical location of schools. Second, educational vulnerability is multidimensional, combining infrastructure, poverty, restricted learning alternatives, accumulated academic gaps and psychosocial distress. Third, educational continuity is conceptualised as an organised coping capacity comprising safe access, flexible instruction, academic catch-up, psychosocial readiness, family assistance and supported community arrangements.

This differs from resilience, adaptive capacity and educational recovery in analytical timing and scope. Resilience describes a broader ability to withstand and adapt over time [12]; adaptive capacity concerns adjustments and resources that enable such change; and recovery usually emphasises restoration after disruption. Educational continuity examines whether learners can safely access, participate in and progress through education before, during and after recurrent flooding. It therefore supplies observable educational dimensions through which coping capacity can be assessed, while also showing that continuity can fail even when a school has physically reopened. The contextual relationship can be summarised as: flooding hazard + educational exposure + multidimensional vulnerability - inclusive continuity capacity = disruption of educational access and progression. This is a heuristic, not a mathematical formula, and requires examination in other settings.

9.7 Gender, Disability and Social Inclusion

Educational disruption is unlikely to be uniform. Gender, disability, household income and distance from school may affect exposure and recovery. Peek and Stough [24], Ronoh et al. [25] and Stough and Kang [26] demonstrate the importance of accessible planning. Because this study lacked sufficient disaggregated evidence, it does not claim specific subgroup differences. Instead, it identifies gender-responsive, disability-inclusive and economically accessible continuity planning as a policy and research priority.

10. Implications for Social Work and Policy

Flood-related educational disruption is both an educational and social-work concern. Social workers should participate in preparedness structures, identify vulnerable learners, assess household needs and coordinate families, schools, government departments and humanitarian organisations. School social-work services can provide psychosocial support, facilitate peer programmes, train teachers to recognise distress and establish referral pathways.

Education and disaster-management authorities should incorporate continuity into policy through resilient infrastructure, emergency materials, school preparedness plans, academic catch-up and accessible psychosocial support. Plans should be gender-responsive, disability-inclusive and accessible to economically marginalised learners. Early-warning information, transport arrangements, community learning spaces and remote-learning materials should be available in accessible formats.

Locally grounded and indigenous knowledge-informed strategies: Communities surrounding Ruti Dam possess contextual knowledge developed through repeated flood experiences, including knowledge of unsafe routes, flood-prone locations, communication channels and safer spaces. Mavhura et al. [5] and Dube and Munsaka [22] support using such knowledge in risk reduction. Local observations should be integrated with meteorological information, engineering assessments, school-safety standards and formal systems rather than romanticised or treated as sufficient alone. Participatory mapping involving learners, parents, teachers and stakeholders could identify unsafe routes, safer meeting locations and possible learning spaces.

11. Limitations

The study involved 15 purposively selected participants from one bounded setting. The findings provide contextual understanding rather than statistical representation, prevalence estimation or generalisation to all flood-affected communities. Selection bias is possible because participants were chosen for relevant experience, and interview accounts may have been affected by recall or social-desirability considerations.

The study relied on interviews and did not systematically triangulate accounts with attendance registers, examination results, school-closure records, infrastructure assessments, meteorological information or disaster-management reports. It documents experiences and interpretations but cannot independently verify the scale or duration of disruption or establish causal relationships.

Participant groups occupied different positions. Learners provided direct accounts, while parents, teachers and stakeholders provided complementary interpretations. Although distinctions were maintained, age and authority may have influenced disclosure. Some retained extracts were brief, although fuller authentic quotations were recovered from the original data set findings during revision. Statements were not reconstructed.

The retained study records did not provide exact age ranges, gender distribution, teachers' years of experience or sufficiently specific stakeholder designations. They also did not support reliable participant-level frequency counts for each theme. Consequently, the study cannot establish demographic subgroup differences or quantify thematic prevalence. Gender, disability, age, income and distance from school are therefore treated as policy and future-research considerations rather than direct subgroup findings.

12. Recommendations for Future Research

Future studies should employ larger and more diverse samples across flood-affected communities. Longitudinal and mixed-methods research could combine interviews with attendance records, examination results, school-closure reports, infrastructure assessments and disaster-management documents. Further research should examine differences by gender, age, disability, household income and distance from school and evaluate community learning spaces, psychosocial programmes, accessible digital learning and preparedness education. Participatory research should involve learners in designing safe travel, communication and continuity strategies.

13. Conclusion

This qualitative case study examined how flooding affected learners' educational access, participation, academic progression and psychosocial wellbeing surrounding Ruti Dam and how household, infrastructural, school and community conditions influenced continuity. The multi-perspective design connected learner experiences with complementary household, school and stakeholder accounts.

Flooding disrupted instruction, reduced attendance and complicated academic recovery. Damaged routes, displacement, economic hardship and family responsibilities restricted participation, while fear, reduced concentration and disrupted

relationships affected engagement. Family assistance, teacher support, peers, community learning spaces and preparedness practices offered continuity but remained constrained by resources.

The study demonstrates that access involves more than reopening schools. It requires safe routes, academic recovery, psychosocial readiness, household support and meaningful participation. Consistent with the theoretical framework, disruption resulted from interactions among hazard, exposure, vulnerability and coping capacity. By distinguishing educational continuity from general resilience and post-disaster recovery, the study positions continuity as an operational, sector-specific coping capacity that can be assessed across preparedness, response and recovery. This requires resilient infrastructure, flexible learning, academic catch-up, psychosocial support and inclusive community participation.

Acknowledgements

The authors acknowledge the learners, parents, teachers and community stakeholders who contributed to the study and the relevant local authorities and educational institutions that facilitated the research.

Funding

The authors received no external funding for this research.

Ethics Statement

Research authorisation was obtained from the relevant Rural District Council. All adult participants provided informed consent. For learners below 18 years, written parental or guardian consent and learner assent were obtained. Participation was voluntary, and confidentiality and anonymity were maintained throughout the study.

Data Availability Statement

The qualitative data are not publicly available because they contain potentially identifiable and sensitive participant information, including data from minors. De-identified data may be made available by the corresponding author upon reasonable request, subject to ethical, consent and confidentiality restrictions.

Author Contributions

All authors contributed to the conceptualisation and development of the manuscript. Livingson Moyo coordinated manuscript preparation and revision. The authors collectively contributed to methodology, interpretation and implications, critically reviewed the manuscript, approved the final version and accept responsibility for its content.

Conflict of Interest Statement

The authors declare that they have no financial, professional or personal conflicts of interest that could have influenced the research, interpretation or preparation of the manuscript.

Generative AI Usage Statement

During revision, the authors used ChatGPT, developed by OpenAI, to assist with language editing, organisation and clarity. The tool assisted in restructuring selected passages in the Introduction, Theoretical Framework, Literature Review, Methodology, Discussion, Implications and Conclusion and in organising point-by-point responses. Generative AI was not used to collect data, conduct interviews, generate participant quotations or make decisions concerning the findings. All AI-assisted text was critically reviewed and revised by the authors, who verified the findings and bibliographic information and accept full responsibility for the final manuscript.

References

- [1] United Nations Children's Fund. UNICEF. Learning interrupted: Global snapshot of climate-related school disruptions in 2024. New York: United Nations Children's Fund (UNICEF), 2025, 2-4.
- [2] Kousky C. Impacts of natural disasters on children. *The Future of Children*, 2016, 26(1), 73-92. DOI: 10.1353/foc.2016.0004
- [3] Musarandega H, Masocha W. Disasters and the education system: Cyclone idai and schooling disruption in eastern Chimanimani, Zimbabwe. *Jambá: Journal of Disaster Risk Studies*, 2023, 15(1), a1349. DOI: 10.4102/jamba.v15i1.1349

- [4] Sifelani I, Matsikure M, Songo S, Kwembeya M, Kudejira D. Cyclone Idai-related losses and the coping strategies of adolescent survivors in the Odzi community of Manicaland Province, Zimbabwe. *South African Journal of Psychology*, 2022, 52(4), 423-435. DOI: 10.1177/00812463221077608
- [5] Mavhura E, Manyena SB, Collins AE, Manatsa D. Indigenous knowledge, coping strategies and resilience to floods in Muzarabani, Zimbabwe. *International Journal of Disaster Risk Reduction*, 2013, 5, 38-48. DOI: 10.1016/j.ijdr.2013.07.001
- [6] Mudavanhu C, Manyena SB, Collins AE, Bongo P, Mavhura E, Manatsa D. Taking children's voices in disaster risk reduction a step forward. *International Journal of Disaster Risk Science*, 2015, 6, 267-281. DOI: 10.1007/s13753-015-0060-7
- [7] Blaikie P, Cannon T, Davis I, Wisner B. *At risk: Natural hazards, people's vulnerability and disasters*. Routledge, 2014.
- [8] Cutter SL, Boruff BJ, Shirley WL. Social vulnerability to environmental hazards. *Social Science Quarterly*, 2003, 84(2), 242-261. DOI: 10.1111/1540-6237.8402002
- [9] Birkmann J. Measuring vulnerability to promote disaster-resilient societies: Conceptual frameworks and definitions. *Measuring Vulnerability to Natural Hazards: Towards Disaster Resilient Societies*, 2006, 9.
- [10] United Nations Office for Disaster Risk Reduction (UNDRR). *The sendai framework terminology on disaster risk reduction*. 2017.
- [11] United Nations Office for Disaster Risk Reduction. *Sendai framework for disaster risk reduction 2015-2030*. Geneva, Switzerland: UNDRR, 2021.
- [12] Norris FH, Stevens SP, Pfefferbaum B, Wyche KF, Pfefferbaum RL. Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 2008, 41(1), 127-150. DOI: 10.1007/s10464-007-9156-6
- [13] Baez JE, de la Fuente A, Santos I. Do natural disasters affect human capital? An assessment based on existing empirical evidence. *IZA Discussion Papers* 5164. Institute for the Study of Labor (IZA), 2010.
- [14] Nguyen CV, Minh Pham N. The impact of natural disasters on children's education: Comparative evidence from Ethiopia, India, Peru, and Vietnam. *Review of Development Economics*, 2018, 22(4), 1561-1589. DOI: 10.1111/rode.12406
- [15] Gibbs L, Nursey J, Cook J, Ireton G, Alkemade N, Roberts M, et al. Delayed disaster impacts on academic performance of primary school children. *Child Development*, 2019, 90(4), 1402-1412. DOI: 10.1111/cdev.13200
- [16] Burde D, Kapit A, Wahl RL, Guven O, Skarpeteig MI. Education in emergencies: A review of theory and research. *Review of Educational Research*, 2017, 87(3), 619-658. DOI: 10.3102/0034654316671594
- [17] Muttarak R, Lutz W. Is education a key to reducing vulnerability to natural disasters and hence unavoidable climate change? *Ecology and Society*, 2014, 19(1), 42. DOI: 10.5751/ES-06476-190142
- [18] Masten AS, Narayan AJ. Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual Review of Psychology*, 2012, 63(1), 227-257. DOI: 10.1146/annurev-psych-120710-100356
- [19] Beaglehole B, Mulder RT, Frampton CM, Boden JM, Newton-Howes G, Bell CJ. Psychological distress and psychiatric disorder after natural disasters: Systematic review and meta-analysis. *The British Journal of Psychiatry*, 2018, 213(6), 716-722. DOI: 10.1192/bjp.2018.210
- [20] Mercer J, Kelman I, Taranis L, Suchet-Pearson S. Framework for integrating indigenous and scientific knowledge for disaster risk reduction. *Disasters*, 2010, 34(1), 214-239. DOI: 10.1111/j.1467-7717.2009.01126.x
- [21] Gaillard JC, Mercer J. From knowledge to action: Bridging gaps in disaster risk reduction. *Progress in Human Geography*, 2013, 37(1), 93-114. DOI: 10.1177/0309132512446717
- [22] Dube E, Munsaka E. The contribution of indigenous knowledge to disaster risk reduction activities in Zimbabwe: A big call to practitioners. *Jambá: Journal of Disaster Risk Studies*, 2018, 10(1), a493. DOI: 10.4102/jamba.v10i1.493
- [23] Iloka NG. Indigenous knowledge for disaster risk reduction: An African perspective. *Jambá: Journal of Disaster Risk Studies*, 2016, 8(1), a272. DOI: 10.4102/jamba.v8i1.272
- [24] Peek L, Stough LM. Children with disabilities in the context of disaster: A social vulnerability perspective. *Child Development*, 2010, 81(4), 1260-1270. DOI: 10.1111/j.1467-8624.2010.01466.x
- [25] Ronoh S, Gaillard JC, Marlowe J. Children with disabilities and disaster risk reduction: A review. *International Journal of Disaster Risk Science*, 2015, 6(1), 38-48. DOI: 10.1007/s13753-015-0042-9
- [26] Stough LM, Kang D. The Sendai framework for disaster risk reduction and persons with disabilities. *International Journal of Disaster Risk Science*, 2015, 6(2), 140-149. DOI: 10.1007/s13753-015-0051-8
- [27] Creswell JW, Poth CN. *Qualitative inquiry and research design: Choosing among five approaches*. 4th ed. Sage Publications, 2018.
- [28] Merriam SB, Tisdell EJ. *Qualitative research: A guide to design and implementation*. 4th ed. Jossey-Bass, 2016.
- [29] Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 2015, 42(5), 533-544. DOI: 10.1007/s10488-013-0528-y
- [30] Patton MQ. *Qualitative research & evaluation methods: Integrating theory and practice*. Sage Publications, 2014.
- [31] Braun V, Clarke V. One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 2021, 18(3), 328-352. DOI: 10.1080/14780887.2020.1769238
- [32] Kallio H, Pietilä A M, Johnson M, Kangasniemi, M. Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 2016, 72(12), 2954-2965. DOI: 10.1111/jan.13031
- [33] DeJonckheere M, Vaughn L M. Semistructured interviewing in primary care research: A balance of relationship and rigour. *Family Medicine and Community Health*, 2019, 7(2), e000057. DOI: 10.1136/fmch-2018-000057
- [34] Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 2006, 3(2), 77-101. DOI: 10.1191/1478088706qp063oa