

## **The Silent Crises: Climate Change and Its Adverse Impacts on Children's Education in Pakistan: A Qualitative Study of District Charsadda**

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### **Abstract**

Climate change has appeared the greatest challenge upsetting not only livelihoods and ecosystems but also the educational growth of children in climate-vulnerable areas. Pakistan is amongst the countries utmost exposed to climate-related disasters, where higher temperature, protracted weather inconsistency and repeated floods continue to interrupt education-related infrastructure and systems. In spite of growing research on climate-vulnerability, partial consideration has been given to comprehend how climate change impacts children-education at the community-level. The present research study explores the hostile effects of climate-change on education-sector in District Charsadda, Pakistan. A qualitative-research approach was adopted to apprehend the insights and experiences of local-communities. Three union-councils, Batagram, Mirzadher, and Kot, one from each tehsil of District-Charsadda were purposively selected due to their extreme exposure to climate-associated risks. The data were collected through three focus-group discussions (FGDs), (25 participants in each) from total 75 participants. Thematic analysis was used to identify key themes and recurring patterns. The results reveal that repeated flooding and other climatic-hazards dented educational-infrastructure; imposed health and economic hardships, child labor, psychological strain, broadening gender inequalities, and displacement considerably challenge educational access, academic-performance, attendance, and school retention. Due to prevalent socio-economic limitations, the girls were found to experience greater social and educational implications. The results further reveal insufficient institutional-preparedness and limited climate-resilient educational-planning. It concludes that incorporating climate-adaptation into educational-policies, improving disaster-preparedness, reinforcing school-infrastructure and improving community-participation are crucial for protecting children-rights to education in climate-sensitive areas.

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### **Background of the Study:**

Climate change has emerged one of the major universal challenges of the 21<sup>st</sup> century, with long lasting impacts on socio-economic development, human well beings and environmental sustainability. Repeated floods, heat waves irregular rainfalls, prolonged droughts and other extreme climate events increasingly threaten public health, infrastructure, livelihoods and educational systems, predominantly in developing countries (IPCC, 2023; Lincoln, 1985). In the meanwhile education is the key to alleviate poverty in a livable planet; particularly in developing countries, it has no substitute. But unfortunately the education sector in developing countries has been observed very vulnerable to climate change with inadequate adaptation capabilities. As climate change has increased the intensity and frequency of extreme weather events like, rainfall, floods, cyclones, heat waves, wildfires and droughts, therefore, a 10-year-

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old kid in 2024 experienced double tropical cyclones and wildfires, three times more stream and river-in floods, four times greater crop failures, and five times greater droughts in their lifetime due to 3°C increase in global warming than a 10 year old kid in 1970. Similarly, in last two decades or so, during more than 75% of climate-hazards, the schools remained closed that impacted more than 5 million children in developing countries (Sergio, 2024). The factors forced school closure and learning losses included poor socio-economic conditions, gender disparities, geographic vulnerability, fragile infrastructure and the usage of school buildings for emergency sheltering. Severe indication from COVID-19 demonstrates that, normally, a day of school closures was equal to a day of learning lost (Bahadar Sher D. S., 2022). It shows children extreme vulnerability to climate change, as it not only affect their physical well-being but also has severe implications on their educational prospects and future development (S Datzberger, 2026; Walter et al., 2023; Ann, et al., 2019). Moreover, Climate related disasters disturb academic calendars, demolish schools, decrease household incomes, displace families, enhances gender disparities, and bare children to psychological grief, thus affecting learning outcomes, educational achievements and school attendance. Despite these disastrous consequences, education remains ignored in the main climate policy outline. Education made up just about 1.3 percent of climate related official development assistance in 2020 and cited in around 1 in 3 Nationally Determined Support plans (Sergio, 2024). These affects are disproportionally high in marginalized and rural communities where fragile infrastructure, inadequate institutional capacity and poverty limit adaptation responses (Heather, 2019; Sheridan, 2008).

Pakistan is listed in high climate-sensitive countries, in spite of its comparatively little input to global greenhouse gas emissions; (Krisna, 2023; World Bank, 2022) The changing precipitation patterns, recurrent floods, prolonged heat waves and other climatic hardships have frequently affected several million people, exposing the susceptibility of critical segments comprising education (Bahadar Sher M. K., 2026).

Geographical location (the basin of three flood flowing rivers i.e. Swat, Jindi and Kabul River) coupled with poor disasters mechanism make Charsadda as one of the most vulnerable districts of Khyber Pakhtunkhwa Province to climate change extreme events particularly to floods (Bahadar Sher M. K., 2026).

Regular climate-induced disasters interrupt educational services, damage farming and related livelihoods and also damage school infrastructure, aggravate children, educational vulnerability (Bahadar Sher, 2024). In the meanwhile significant scholarly consideration has given to the adverse impacts of climatic change on health, food security, and agriculture, relatively a reduced amount of research has observed its impacts on children's education, in spite of education being a basic human right and a serious driver of sustainable development (IPCC, 2023; Lincoln, 1985). Therefore, to fill this gap, the present research study sightsees the exist perceptions and experiences of communities in three flood-sensitive union councils of District Charsadda to know the corridors through which climate change extreme events affects children's education and find locally beached strategies for reinforcing educational resilience.

### **Research Question:**

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How does climate change affect children's education in District Charsadda, Pakistan?

**Research Objective:**

To identify the negative impacts of climate change on children's education in District Charsadda, Pakistan.

**Scope of the Study:**

This study aims to evaluate the impacts of extreme climate events on children's education in three flood-prone union councils Kot, Batagram, and Mirzadher of District Charsadda, Khyber Pakhtunkhwa, Pakistan. This study explores community perception about climate-associated educational risks, including livelihood insecurity, health issues, displacement, gender disparities, school closures and institutional preparedness. The qualitative data were collected through three Focus Group Discussions from 75 participants. The research study finds indigenous adaptation measures, and policy actions that can reinforce educational resilience. The results are proposed to give to education, DRR, and climate literature while advising context-specific policy interventions.

**Significance of the Study:**

The present research study contributes to the mounting frame of knowledge on education and climate change by providing qualitative facts from Pakistan's highly climate vulnerable district. Unlike earlier studies that fundamentally stress economic, agriculture or health losses, this research study highlights children educational vulnerability as a significant yet under-explored aspect of climate change. This study provides theoretical value by incorporating Sustainable Livelihood Framework with Bronfenbrenner's Ecological Systems Theory to describe how socio-economic, institutional and environmental dynamics interact to effect educational consequences. Basically, the results offer evidence based recommendations for educational planners, disaster management authorities, development organizations and policymakers pursuing to design climate resilient educational system and safeguard children's right to uninterrupted quality education in climate-vulnerable communities.

**Theoretical Framework:**

The present study is steered by Sustainable Livelihood Framework (DFID, 1999), and Bronfenbrenner's Ecological Systems Theory (1979), which give a inclusive justification of how climate change disturbs children's education. Bronfenbrenner's Ecological Systems Theory suggests that variety of environmental systems, including school, institutions, family, community, and wider social environment when intermingle impact children development. Each of these systems is unsettle by climate change, by damaging educational infrastructure, fading households' livelihoods, upsurge displacement and decrease institutional capability, thus distressing children's education (Bronfenbrenner, 1979).

The sustainable Livelihood Framework couples this perception by enlightening how climate-related blows grind down family assists, comprising physical, financial, social, natural and human capital. In Agricultural-dependent communities like District Charsadda, climate-

induce disasters particularly repeated floods decrease household farm production and income and increase poverty, restraining families' capacity to spend on children's education. The incorporation of these two theoretical frameworks allows the study to describe educational susceptibility as the consequence of interrelated socio-economic, institutional, and environmental procedures while highlighting the significance of community resilience and adaptation capability in supporting educational continuity.

### **Literature Review:**

Climate change is more and more renowned as a major risk to educational development predominantly in developing countries where climate-hazards interact with fragile infrastructure, poverty and inadequate institutional capability. The recent researches show that prolonged droughts, recurrent floods, heat waves, and other extreme climate-events damage educational infrastructure, decrease households' income, displace families, upsurge children physical and mental health vulnerability. Subsequently, climate-disasters contribute to absenteeism, learning loss, school closure, and deteriorating educational attainment (UNESCO, 2024; Caitlin et al., 2024).

Several international studies demonstrate that educational interruption is frequently determined by indirect social and economic impacts rather than physical damage only (Bahadar Sher M. K., 2020). Climate-associated livelihood damages decrease household capability to support education, compelling a lot of kids into extended educational stoppage or labor-market. Girls disproportionately confront severe educational difficulties because climatic-disasters upsurge domestic duty, gender-based disparities and mobility restrictions. Therefore, climate-related disasters avert at least 4 million girls in poor and lower middle income countries from completing their education. These fact shows that children belong to vulnerable households have received extreme educational consequences every time a climatic disaster occurred (Heather Randell, 2019). These facts highlight the requirement to comprehend educational vulnerability in wider socio-economic context (UNICEF, 2023; DFID, 1999). In the recent disastrous situation during COVID-19, about 50 percent of poor families and 42 percent of children of color have no access to adequate technology means to participate in online teaching-learning process and in the schools with high poverty, greater rates of absenteeism were reported in the time of pandemic. Besides, school districts were sluggish to deliver technology to connect the digital gulf and to provide strategies for disable students and extraordinary needs demanding classroom accommodations (Bahadar Sher D. S., 2022).

In Pakistan, climate-related research studies are majorly focused on disaster management, public health, food security, and agriculture, whereas relatively less consideration has been given to children's education (Baloch, 2022). The flooding happened during July-August 2022 disproportionately disrupted the learning process of students belonging poor vulnerable households. Numerous parts of the country were severely affected by significant flooding during monsoon season in 2022. The regions affected suffered huge amounts of damage. According to statistics around 25,993 schools have been broken or destroyed in Khyber Pakhtunkhwa (KP), Sindh, Punjab, and Baluchistan. Similarly, more than 7,062 schools were changed into relief camps during floods and more than 670,000 schools going children

education process remained disconnected (Bahadar Sher, 2024). Even though research studies following 2010 and 2022 devastating floods stated prevalent damage to education sector infrastructure and disruptions in schooling, some have sightseen how climate change outlines children's educational practices through community perceptions. However, qualitative evidences from extremely flood-prone districts like Charsadda remains limited (Bahadar Sher M. K., 2026).

The present research study discourses these gaps by implementing a qualitative approach to study the interrelated livelihood, environmental, social and institutional factors manipulating children's education. By incorporating livelihood and ecological perspectives, this research study gives a context-specific understanding of educational vulnerability and community resilience, proposing evidence to advise climate-resilient educational policies and sustainable development enterprises in Pakistan.

### **Material and Methods:**

A qualitative research design has been employed for this research study to explore how changing climate affects children's education in District Charsadda. The qualitative research design was considered suitable because it help in a thorough understanding of respondents, perception, interpretations and experiences of climate-related educational challenges. This study was carried out in purposively selected three union councils Kot, Batagram and Mirzadher, one each from all three tehsil of District Charsadda. Moreover, data were collected from 75 respondents through three Focus Groups Discussions (FGDs), each FGD were consist of 25 participants. The respondents comprised teachers, farmers, community elders, local representative, youth and parents to capture different perspectives. The data were then analyzed through Braun and Clarke's (2006) six phases thematic analysis, a broadly acknowledged qualitative analytical approach (Braun, 2006). The responses were also recorded for enhancing familiarity with the data before constructing preliminary codes. The codes were grouped in wider categories, from which later on the appropriate themes were developed. The themes were appraised, refined and interpreted in the context of objective of the study and the incorporated theoretical framework. This method confirmed that the results precisely replicated respondents' perspectives while sustaining analytical coherence.

### **Thematic Analysis:**

The analysis produced ten interconnected themes, each one representing a separate yet interrelated aspect of climate-forced educational vulnerability. Collectively, these themes demonstrate that educational disturbance stretched far beyond momentary school closures and incorporate far-reaching issues of gender inequality, displacement, poverty, psychological agony, institutional and governance weaknesses and challenges.

### **Theme 1: Flood-forced Learning Interruptions and School Closures**

The participants during focus group discussions in all three Focus Group Discussions consistently reported that floods continue the main reason behind extended school closures.

All the participants in across the FGDs acknowledged that repeated floods and heat waves restrict children from getting education and for some times this education interruption extended to week and months.

Parents from Kot described that schools remain sealed for numerous weeks after adverse floods because roads are inaccessible and classrooms become swamped.

One participant demonstrated:

*“Every year when floods strikes, our kids stay at home for weeks. Even after the water move away, schools cannot revive because classrooms are packed with debris.”*

Teachers from Mirzadher stressed that regular disruptions avert completion of the academic calendar. The results align with Lucia et al., 2025; Unyime, 2024, observations; they stated that floods have both immediate and long term negative impacts on children education and well-being. He added that floods always interrupt learning process and enhance school closure.

A Participant stated:

*“The syllabus remains unfinished almost every yare when floods strikes. Student lost interests because classes are frequently postponed.”*

Respondents from Batagram also expressed the same observations.

These facts show that climate-related flooding majorly decreases learning continuity and instructional time. These facts aligned with Sergio, 2024 findings, he also reported that repeated climate-induced extreme events adversely affect teaching learning process around the world particularly in developing countries. Moreover, Floods disproportionally affect the social, economic and educational well-being of children (Bahadar Sher, 2024).

## **Theme 2: Damage to Educational Infrastructure**

All the respondent collectively stated that climate-induced disasters particularly floods, bring widespread damages to educational infrastructure and facilities. They reported that floods damage school buildings, classroom, libraries, furniture, drinking water, toilets, playgrounds and boundary walls.

A teacher from Batagram reported:

*“Floodwater come into schools and even classrooms and abolishes everything. Even furniture, books, and notebooks cannot be reused. All these damages disconnect the children of our area from schools and teaching-learning process sometimes for long period of time”*

The Community-elders in Kot further revealed that broken school-buildings, damaged roads and bridges disconnect our children with schools and learning process. They further explained that this huge infrastructural destruction disappoints parents from sending kids back to school. These findings are exactly aligned with Lucia et al., 2025; Easaw, 2025, observations, they also stated that climate-induced disasters, particularly floods severely damage the educational

and related communication infrastructure and disconnect the children from schools and teaching learning process (Datzberger, 2026).

### **Theme 3: Household Poor Socio-economic Conditions and Educational Break**

Respondents majorly connected climate-change with deteriorating household income. Livestock losses, crop failure, reduced farm productivity and job lost force parents to prioritize food security over education. Therefore, prolonged absenteeism enhances school dropout, profoundly among boys responsible for assisting family income.

A farmer from Mirzadher told:

*“When frequent floods abolish our livelihoods, education becomes a luxury. Feeding the family comes first.”*

Major proportion of parents, whose children were admitted in private schools, confirmed delaying fee payments or children dropout from schools. Similarly, several research studies related to climate change demonstrate that extreme climate events adversely affect the social and economic fabric of poor people, which directly impact their children’s education and well-being. The climate change has disparate consequences on children and youth living with poor socio-economic conditions. They receive adverse educational implications immediately after striking a disaster (Jolly, 2026). Moreover, Sergio et al., 2024 observed that education is the key factor to cope poverty but repeated climate change extreme events are disrupting schooling, learning and enhancing dropout. As result the poverty is on the boom and children particularly youth are entering to labor market in bulk.

### **Theme 4: Child-labor and School Dropout**

Respondents in all three FDGs consistently reported that climate-forced poverty pushes kids into labor and increased dropout. After disasters Children support parents in brick kilns, agriculture, local markets, and workshops.

A respondent from Batagram told:

*“Majority of boys particularly belongs to poor families discontinue school because they start laboring after floods to support their families.”*

The climate-induced disasters further deepen the poor socio-economic conditions of marginalized communities and compel their children particularly boys to stop schooling and take part in livelihood activities to support their families. Climate-induced disasters increases school dropout (Datzberger, 2026; Lucia, et al., 2025).

### **Theme 5: Gender Educational Inequalities:**

All the participants in the three FGDs overwhelming confirmed that climate change extreme evens particularly floods have disproportionate negative impacts on girls’ education.

Parents showed concerned regarding mobility, safety, increased domestic responsibilities and damaged sanitation facilities. They further reported that the hidden costs of and distance to

schools, and child-marriage, when coupled with climate-induced disasters, disproportionately affect girls education in our area.

A mother from Kot reported:

*“During floods and other climatic-hazards the girls in our community remain home due to increasing vulnerability and to support with household work. Resuming school and starting learning process becomes difficult.”*

The same was also observed by Ellen, 2016, he reported that in developing countries only 75% girls starting schools but just 8% entering to middle or higher levels. This ratio further become worsens when several socio-cultural and geographical factors coupled with climate-induced disasters. Tien, 2025; Lucia et al., 2025 also found that climate-driven disasters disproportionately affect girls’ education with force dropout and child marriage.

### **Theme 6: Health, Nutrition, and Psychological Stress**

The other important theme that was found in FGDs is that climate change extreme events brought health, nutrition and psychological stresses in to the people particularly to the kids. Respondents confirmed that climate change adversely affects children’s physical and mental health. It brings heat stress, malnutrition, diarrheal diseases, depression, anxiety and fear in children.

A teacher from Mirzadher told:

*“After floods or other disastrous event, the children feel frightened to return to school and focus on studies.”*

The extreme climate events particularly rising temperature adversely affect the health and well-being of children. This adversity will increase if concrete measures are not taken in this regard (Saima, 2025; Janet, 2016). Climate change creates anxiety, depression, and sleep disorder particularly in children which in turn lead to emotion, cognitive, learning and behavioral problems (Ann, 2022; Susie et al., 2018; Bahadar, 2022). All these affects when coupled with climate vulnerable educational facilities and poor adaptation capacity bring adverse impacts on children educational development and overall well-being (Unyime, 2024).

### **Theme 7: Displacement and Educational Exclusion**

The other significant theme that comes out from FGDs is that due to floods and erosion people displace temporarily or permanently to relief camps or remote areas, which compel children to spend weeks and even months without formal schooling.

One participant reported

*“When climatic disaster, particularly floods strikes, schools converted into relief camps. Children lose their school and learning process completely.”*

Lucia et al., 2025 also observed that climate-induced disasters compel people living in vulnerable areas on displacement, which ultimately exclude their children from education and

learning process. Similarly, Tien, 2025 also demonstrated that climate-forced displacement restricts children access to schooling, facing difficulties adapting to new learning environment, and affect their academic performance (Bahadar Sher, 2024).

### **Theme 8: Fragile Institutional Preparedness**

During FGDs the participants acknowledged that the institutional role in disaster preparedness during and after the disasters is weak, disconnected and biased. The respondents severely criticized the government insufficient preparedness to confronting disasters. They confirmed the absence of school emergency plans, inadequate early warning, poor drainage, no alternative children education mechanism, and delayed rehabilitation services.

One community elder from Kot demonstrated

*“Disasters strike every year but coping mechanism never improve.”*

Lucia et al., 2025, also revealed similar results; they demonstrated that repeated extreme climate events adversely affect ill-prepared and vulnerable educational institutions particularly in rural areas by damaging infrastructures, disrupting educational and learning process, increases school dropout and child labor and enhances gender disparities (Bahadar Sher, 2024).

### **Theme 9: Limited Access to alternative and Digital Learning**

The other most significant theme found in all three FGDs was limited access of students in the study area particularly during disasters to digital and alternative learning. The respondents confirmed that teaching learning process stop completely during and after long time of disasters because mostly rural in rural areas the internet signals are weak and students having less access to online learning. Furthermore, large proportion of families cannot afford to provide smart mobile devices to their children.

The parents from all three union councils confirmed lack of smart phones, limited and weak internet connectivity, and unreliable electricity supply.

One Respondent from Batagram observed:

*“Urban students continue uninterrupted online learning, but our kids lose weeks, even months because we cannot afford smartphones and having no access to internet particularly during disasters. Our children have low or no access to alternative learning programs, to reduce children learning losses during disasters.”*

Similar findings has been extracted by Lucia et al., 2025, they also stated that particularly in rural areas the non-availability of alternative education facilities and limited access to technology and digital education, the children faces extreme learning challenges such as losing learning hours and even discontinuation of schooling when the disastrous situation prolonged.

### **Theme 10: Community Resilience and Adaptation:**

Despite significant challenges, respondents labeled several community-based initiated adaptation measures. These included, community-funded classrooms repair, raising school platforms, local flood-warning systems, volunteer cleaning campaign, tree plantation, temporary learning spaces, and cooperation among teachers and villagers.

One of the elder from Mirzadher remarked:

*“Education should never stop because of climatic disasters particularly during floods. If community, developmental organizations and government work together, children can continue uninterrupted learning.”*

Context specific adaptation measures can reduce local people and education sector vulnerability and increases resilience, which can ultimately help in smooth running of teaching learning process during and immediately after disasters (Bahadar, 2024; Khan, 2020). In the same time climate-resilient educational institutes can play key role in climate solutions, by providing effective and efficient climate education to children and youth to combat future climate change challenges (Donny, 2023; Iqbal, 2022). Coping strategies such as building of climate-resilient educational infrastructure, temporary learning centers, outdoor lessons, online education facilities, expanding digital access, gender sensitive interventions, strengthening of teacher support systems, financial support, and climate-resilient education sector, can reduce children’s educational vulnerability to climate change hazards (Lucia et al., 2025; Firdaus, 2024; Badriya, 2021).

### **Discussion:**

The thematic analysis of the Focus Group Discussions Conducted in Union Councils Batagram, Kot, and Mirzadher confirmed that climate change has significantly reshaped educational experiences of children through different interconnected socio-economic, environmental, psychological and institutional pathways. Rather than working as isolated events, rising temperature, irregular precipitation, repeated floods, drought, and other climate-related disasters produce surging effects that all together weaken children health, educational infrastructure, household livelihoods, and institutional capacity. These increasing pressures significantly decrease teaching-learning continuity and deteriorate community resilience. These findings align with Bronfenbrenner’s Ecological System Theory, which demonstrates that children’s overall development is influenced by interacting family, community, institutional environment and school. Similar, the sustainable development Framework illustrates how climate-associated damages reduce households’ capacity to sustain children’s education.

The results are consistent with prior research studies demonstrating that climate-induced disasters intensify school dropout, absenteeism, educational inequality, and learning loss predominantly in climate-vulnerable rural communities. The research study further pointed out that pathetic institutional preparedness and inadequate climate-resilient infrastructure increase educational vulnerability. However, robust community involvement and local adaptation practices improve resilience and help bear educational continuity.

### **Conclusion:**

Climate change has appeared as a major risk to children's education in District Charsadda Khyber Pakhtunkhwa, Pakistan. The results of the study indicate that climate-disasters particularly floods, damaged educational infrastructure, displacement, health challenges, institutional weakness and livelihood insecurity together weakened educational continuity and upsurge vulnerability amongst school going children. However, local knowledge, locally employed adaptation measures, and robust community involvement provide significant openings for reinforcing educational resilience. The research study determines that shielding children's education needs integrated climate change adaptation strategies that pool effective governance, resilient infrastructure, community commitment, livelihood backing and comprehensive educational policies. Consolidating these interventions will not solitary protect children's education right but also contribute to long-lasting community resilience and bearable development in climate vulnerable areas of Pakistan.

**Policy Implications:**

The results propose that climate-related adaptation policies should explicitly integrate education as a priority sector. Disaster preparedness planning, climate resilient school infrastructure, emergency learning mechanism and early warning systems should be incorporated into educational policies. More coordination amongst disaster management authorities, NGOs, local government, education department, and vulnerable communities is necessary to safeguard children's educational rights during climate-associated disasters.

**Recommendations:**

- Build climate and flood-resilient educational infrastructure.
- Improve school continuity and emergency education plans.
- Incorporate disaster-risk reduction and climate-change education into school curricula.
- Provide financial support to vulnerable families to decrease school dropout.
- Reinforce early warning systems for schools.
- Increase access to online learning and digital infrastructure.
- Increase psychological support services for disaster affected children.
- Indorse gender responsive educational policies.
- Reinforce partnership among schools, NGOs, government agencies and local communities.
- Enhance investment in climate adaptation within the education sector.

**Strengths of the Study:**

This research study offers one of the rare qualitative inquiries of children's education and climate change in Pakistan. By integrating community viewpoint from three extremely vulnerable union councils, it proposes context specific understandings into educational resilience and vulnerability. The incorporation of livelihood and ecological theories further make stronger the analytical impact of the research study.

**Limitations:**

The present research study was restricted to three union councils in District Charsadda and applied a qualitative research design. Subsequently, the results cannot be statistically comprehensive to all climate vulnerable areas of Pakistan. Prospect research studies may apply longitudinal or mixed method designs to observe educational impressions through diverse geographical perspectives.

### **Future Research Directions:**

Upcoming research studies should study the longstanding educational impressions of climate-change crossways all the provinces of Pakistan, compare urban and rural communities, assess the usefulness of climate resilient educational policies and examine the role of technology in sustain educational continuity throughout disastrous situations.

### **Author Contribution**

The first author solely collected the data, wrote and analyzed the article, while the 2<sup>nd</sup> author provided proofreading services.

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This research received no external funding.

### **Ethics Statement**

The research proposal was reviewed by the review committee at Bacha Khan University. The review committee decided that the study posed no ethical concerns and no formal certificate is required. The study involved an anonymous interview schedule of adult respondents, no personal identifiable information was collected, respondents were voluntary and informed consent was obtained from all respondents prior to data collection.

### **Informed Consent Statement**

Informed consent was obtained from entire population size before data collection.

### **Conflict of Interest**

The authors declared no conflict of interest.

### **Generative AI Statement**

During writing this research article, the author used Open AI ChatGPT (GPT-5.5) to assist with grammar improvement, formatting, references consistency check, language editing, and improvement of manuscript clarity. The AI tool was not utilized for generation of research data, statistical analysis, interpretation of findings, or for drawing scientific conclusions. The author critically received, edited and verified all AI assisted outputs and accepted full responsibility for the content of this research article.

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