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Education in Emergencies: Developing Resilient Systems For Continuity of Learning

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ABSTRACT

The primary purpose of the study was to evaluate the impact of emergency crises on the continuity of learning in Balochistan, and specifically focus on the mediating role of resilience capacity. The study employed a mixed methodology design, which was an integration of quantitative and qualitative data in order to comprehend the issue. Quantitative data about 300 respondents, including teachers, school heads, and students, were collected using a semi-structured questionnaire. The in-depth interviews and focus group discussions with the district education officers, policy makers, and professionals involved with various NGOs were used to gather qualitative insights. The SPSS analyzed quantitative data using frequencies, percentages, means, standard deviation, correlation coefficients, and regression, while qualitative data were analyzed thematically. The research findings indicate that emergency factors such as floods, droughts, and economic shocks significantly affect the continuity of learning by reducing access, retention, and engagement. Structural, institutional and socio-economic factors further exacerbate these disruptions by reducing the capacity of the education system to respond to these emergencies. Notably, the resilience capacity, including preparedness, adaptation, and recovery measures, proved to be the key to reducing the negative impact of the emergency and ensuring the continuation of the learning process. Based on findings, the study suggests that to ensure the continuity of the learning process during emergencies in disaster-prone regions like Balochistan, the resilience capacity of the education system should be enhanced by improving educational infrastructure, strengthening good governance, and fostering community involvement.

Keywords— Education in emergencies, resilient education system, leaning continuity

1. Introduction

Education is a basic human right and a key pillar to sustainable development. Children of all ages, both those who are trapped in natural and man-made crises, should have access to quality education. This gives rise to the dilemma of how to provide education to children in such harsh conditions. Education is not a relief activity: it is the core of

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human and national development and should be conceptualized as a development activity. In any emergency, educational activities need to be established or restored as soon as possible (Pigozzi, 1999).

The provision of learning opportunities that are inclusive, equitable and high-quality to learners regardless of their gender, socio-economic status and place of residence during and after emergency crises is what is referred to as education in emergencies (EiE). The rate at which climate-related disasters are increasing is very high all over the world and this requires a very formidable system of learning that can offer continuous educational development with no disruptions. It is especially important in such countries as Pakistan, where the vulnerability to the environment and structural disparities interplay to perpetuate the disruption of education (UNESCO, 2024).

Being one of the worst and most concerned places in terms of climate change and natural disasters, Pakistan experiences a number of issues, such as the highest number of out-of-school children, lack of educational infrastructure, and internal displacement (UNESCO, 2023). All these are compounded in the underdeveloped provinces like Balochistan, which is geographically isolated and faces extreme poverty and lack of access to resources. Floods, earthquakes, droughts and other extreme weather problems are common in the province, which have a great impact on access and sustainability of learning opportunities. The floods of 2022 affected the lives of millions of individuals in Pakistan and ruined thousands of learning institutions and schools. In Balochistan, there were cases of severe impacts on the learning of certain districts, such as Jaffarabad, Sohbatpur, and Jhal Magsi, in which the learning opportunities were suspended for several months (UNESCO, 2023; UNICEF, 2024). These facts show how severely emergencies cause disruption to education system. According to UNICEF (2024), floods displaced millions of children in Pakistan as well as damaged infrastructure and prevented them from attending school.

Similarly, an empirical study from Balochistan indicates that children in rural areas generally miss school during moderate rains due to fragile school buildings and muddy roads (UNICEF, 2024). Moreover, European-funded interventions in flood-affected areas of Balochistan showed that more than a year of the education of numerous children was interrupted because of the destruction of educational institutions (UNICEF & European Union, 2023). These results show that the education system of these areas is not resilient enough to respond to frequent environmental shocks.

Besides natural disasters, new geopolitical and economic crises also interfere with education systems. The recent fuel crises in Pakistan caused by the regional geopolitical tensions have even resulted in a temporary closure of educational institutions in some of the regions. These disruptive incidences highlight the multi-dimensionality of any crisis that can affect education, not only environmental catastrophes, but also economic crises and the supply chain crisis. As Ahmad and Saeed (2024) say, contingency planning and institutional coordination to respond to such multi-faceted emergencies are usually not available in developing countries such as Pakistan, thus affecting the continuity of learning.

Resilience in education systems has become a concept of more importance. A resilient education system is a system with the ability to anticipate, absorb, adapt and recover

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from shocks without interfering with fundamental education functions (UNESCO IIEP, 2024). This involves coming up with infrastructure resistant to disaster, alternative means of learning like digital and community-based learning, and effective governance systems. UNESCO IIEP (2024) emphasizes that data-driven planning and early warning systems are critical elements of resilience to provide a timely and efficient response to a crisis. Nonetheless, in Balochistan, the lack of digital connectivity, low institutional capacity, and socio-cultural restrictions are major limitations to the application of such measures.

Education in emergencies play protective and psychosocial role as schools are safe places where children learn to deal with trauma and have a sense of normalcy in times of crisis (UNESCO, 2024). However, recent assessments have indicated that a large number of schools that are struck by floods lack the most fundamental facilities such as safe water, sanitation and psychosocial support systems, and this directly impacts on school attendance and student performance (UNESCO, 2026). The problem is especially worrying among girls, as they are at a higher risk of drop-out because of safety issues and socio-cultural limitations.

In spite of the multiple efforts of the Government of Pakistan, UNICEF, UNESCO, and the European Union, there are still substantial gaps in making sure that education continues in emergency situations. Although, temporary learning centers, mobile schools, and community-based initiatives are introduced, their coverage and maintenance are scarce (UNICEF, 2025). Moreover, the lack of a context-specific, comprehensive resilience framework of such provinces as Balochistan diminishes the efficacy of such interventions.

It is in this light that an urgent need to look into the development of resilient education systems is required to provide continuous learning opportunities during such disasters in the disaster-prone areas in Pakistan, particularly, Balochistan. This research will enhance the existing literature by investigating what structural, environmental and policy-related issues impact the education in emergencies and what strategies can be employed to enhance the resilience of the education sector. The study is very informative to policymakers, practitioners and international bodies engaged in the process of attaining Sustainable Development Goal 4 (quality education) in disaster-prone areas.

1.1 Significance of the Study

The study has great implications for theoretical, practical, and policy aspects. At the theoretical level, the research is part of the growing literature on the subject of education in emergencies. It provides more insight into the role of education systems in crises and the ways in which resilience might be built in resource-limited environments.

At the practical level, by identifying barriers and developing mitigation strategies, the study will help school administration, teaching faculty, and development partners to improve their work in disaster prone areas. To sustain continuity of learning during crises, the study emphasizes the need for effective learning strategies, including community based education, and mobile schooling

Moreover, at the policy level, the study will help policymakers develop more inclusive and effective policies. The study emphasizes building disaster-proof infrastructure,

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improving coordination among different stakeholders, and investing in a digital education system. The research will also help the governments to fulfill their international commitments, including Sustainable Development Goal 4 (Quality Education), as it suggests policy recommendations on how to enhance inclusive and equitable access to quality education during and after emergency crises.

Additionally, the study is particularly applicable to the province of Balochistan, which is generally under-researched despite being the province with severe educational problems to resolve. The emphasis on this area will allow the study to provide context-specific evidence that can be applied during specific interventions and resource allocation. It also brings to the light the voices and experiences of communities that are often at risk of emergencies yet are rarely reflected in scholarly research.

1.2 Research Objectives

1. To assess the impact of key emergency factors on the continuity of learning in Balochistan.
2. To investigate how the disruption and resilience capacity of the education system under emergency situations are influenced by structural, institutional, and socio-economic factors.
3. To examine the mediating role of resilience capacity in sustaining the continuity of learning during crises.
4. To make feasible and context-specific suggestions on how to enhance the resilience of the education system in Balochistan.

2. Literature Review

The pace of climate change, conflicts, and socio-economic crises worldwide has been increasing, which in turn has given rise to education in emergencies (EiE) as an important area of research. UNESCO (2024) says that EiE can offer inclusive and equitable learning during a crisis, while also fulfilling the protection and psychosocial needs of learners. Emergencies are not a one-time event, as the world has witnessed over the recent past, but a continuous phenomenon that is in action to constantly disrupt the education system, especially in developing economies.

The level of educational disturbance is alarming worldwide. According to a new UNICEF (2025) report, about 242 million children in 85 countries were disrupted by climate-related disasters, including floods, droughts, and heatwaves, therefore, affecting their learning. These results suggest that climate change is now one of the major threats to continuity in education. Another key finding by UNESCO IIEP (2024) is that approximately one billion children live in high-risk regions where they are vulnerable to environmental hazards, and that resilient and adaptive education systems are important. These global trends can be applied quite well Pakistan, where the climate-related catastrophes often disrupt education.

The education systems of the developing countries are not capable of anticipating emergencies. According to Ahmad and Saeed (2024), some of the main reasons for difficulty in implementing effective EiE strategies are the lack of institutional coordination, financial resources, and preparedness mechanisms. Similarly, UNESCO (2023) states that the emergency crises exacerbate the situation by increasing dropout

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rates, loss of learning, and inequalities. The challenges are especially severe in the marginalized and rural regions where access to education is already low.

The situation in Pakistan presents a good case for this global discussion. According to UNICEF (2024), community of learning has been severely restricted due to frequent floods and droughts. The 2022 floods alone completely destroyed thousands of schools and deprived millions of children from schooling across the country. The situation in Balochistan is even worse, as the province faces bad governance, extreme poverty, and geographical isolation. The findings of a project funded by UNICEF show that a significant number of schools in rural Balocistan are built with temporary materials which render them useless even in moderate rainfall. This shows that education system in the province has serious structural weaknesses, which make system more vulnerable in times of crisis.

European Union (2024) emphasized the protective and developmental role that education plays during crisis. European Union (EU) considers education as a lifeline for 234 million children living in crisis affected regions worldwide, as education not only provides them opportunities with formal learning, but also a hope for their better future. All EU funded programs are designed to provide inclusive and equitable access to marginalized groups to quality education, and reduce gender inequality. These programs highlight that global community need to integrate inclusive and quality education into world developmental agenda.

The concept of resilience in education systems is one of the major themes in the literature. UNESCO IIEP (2024) defines resilience as a capacity of education systems that enables them to anticipate, adjust to, and recover after shocks without interrupting the key functions of the education system. Data-based planning systems, early warning mechanisms, and flexible learning systems are the part of the resilience. Empirical investigations indicate that countries with good data systems and institutional capacity are capable of addressing education disruptions and ensuring continuity of learning effectively. However, these approaches are less effective in regions like Balochistan, where reliable data is limited, and government system is poor.

Alternative learning strategies are a critical part of education in emergencies. UNICEF (2024) also notes the significance of temporary learning centers, mobile schools, and community-based education as effective initiatives to address emergencies. Such plans offer affected and displaced communities access to education. In addition, UNESCO (2024) highlights the importance of digital learning platforms for the continuity of learning in times of crisis, such as the COVID-19 pandemic. Such strategies, however, would only be effective when the regions have access to technology, infrastructure, and trained staff, which remains a huge challenge in underdeveloped areas.

Moreover, in the context of emergencies, the psychological effects of emergency crises on learners have been increasingly studied. UNICEF (2024) states that the education systems should include mental health and psychosocial support (MHPSS) programs to deal with the impact of the crisis, such as trauma and stress, among children who experienced the crisis. Schools are not merely learning venues but also secure environments that are involved in emotional healing and social sanity.

Although numerous studies are conducted to comprehend the issue, there are still major

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gaps in the literature. The majority of the studies are centered on national or global level, with little attention paid to the region-specific challenges like those in Balochistan. Moreover, there is no integrated study on environmental, economic, and geopolitical factors that affect education. The recent fuel crises and economic turmoil in Pakistan is one such example of schools being temporarily closed, but this has not been explored in EiE studies.

3. Research Methodology

3.1 Research Design

The study was conducted using a mixed-methods approach, integrating both numeric data and qualitative insights to provide a full picture of the effects of emergency factors on education in Balochistan. The methodological design assists in gathering and analyzing both qualitative and quantitative data simultaneously and then combining the results to make the findings valid.

3.2 Study Area

The survey was conducted in three districts of Balochistan; Jaffarabad, Sohbatpur, and Jhal Magsi, which are highly vulnerable to climate-induced disasters such as floods and droughts. The last 15 years have been marked by high levels of disruption in education in these districts.

3.3 Population and Sampling

3.3.1 Target Population

The study population included teachers, school heads and administrators, secondary-level pupils, parents, community members, district education officers, policymakers, and professionals associated with non-governmental organizations. Including a variety of respondents helped gather diverse perspectives, which, in turn, were used to develop a well-rounded vision of the problem.

3.3.2 Sampling Technique

The study employed multiple techniques to select a representative sample from the target population. For quantitative data collection, the study used a random sampling technique to get a representative sample across districts (rural and urban) and schools (boys' schools and girls' schools). On the other hand, to collect qualitative insights, the purposive sampling technique was used to select persons who directly experienced educational disruption during the emergency crisis.

3.3.3 Sample Size

For the quantitative aspect, a sample of 300 participants, including 120 teachers, 90 head teachers, and 90 students, was selected for the study. Similarly, for qualitative insights, 10 in-depth interviews with key informants, and 8 focus group discussions with 8 participants in each discussion group were carried out across three districts.

3.4 Data Analysis

Statistical Package for the Social Sciences (SPSS) was used to analyze quantitative data using frequency distributions, percentages, means, standard deviations, Pearson's Correlation, and regression, whereas the qualitative insights were thematically analyzed to identify key patterns and themes.

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4. Results and Analysis

4.1 Quantitative Results

The analysis of quantitative data collected through a structured questionnaire was conducted using descriptive statistics such as frequency distributions, percentages, means, and inferential statistics such as correlation coefficients and regression analysis.

4.1.1 Descriptive Analysis

Table 1: Demographics

Variable	Category	Frequency	Percentage (%)
Gender	Male	180	60%
	Female	120	40%
Location	Rural	210	70%
	Urban	90	30%
Role	Teachers	120	40%
	Students	90	30%
	School Heads/ Administrators	90	30%

The demographic features of the study sample are given in Table 1. The sample consisted of 60 percent of men and 40 percent of women, which ensured that both genders were represented. Regarding location, 70% of the respondents lived in rural communities and 30% in urban areas, which is in line with the primary interest of the study: the rural communities that are more prone to floods and droughts. There were 40% teachers, 30% students, and 30% school heads or administrators. Teachers and students provided their views on teaching and learning, and school heads and administrators provided their opinions on governance and policy responses.

Table 2: Descriptive Statistics of Key Variables

Variable	Mean	Std. Deviation
Emergency Factors	4.24	0.62
Education Disruption	4.43	0.71
Resilience Capacity	3.25	0.81
Continuous educational development	3.12	0.70

The results show that the mean scores of emergency factors (4.24) and education disruption (4.43) are high, indicating that the respondents believe that factors such as floods, droughts, and economic shocks are devastating to education. The average resilience capacity (3.25) and continuous educational development (3.12) values, on the other hand, are low, suggesting that there is inadequate preparation and poor mechanisms to sustain learning when there is an emerging crisis.

4.1.2 Correlation Analysis

Table 3: correlation Matrix

Variables	Emergency Factors	Education Disruption	Resilience Capacity	Continuous educational development
Emergency Factors	1			

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Education Disruption	.67**	1		
Resilience Capacity	-.45**	-.51**	1	
Continuity of Learning	-.61**	-.72**	.66**	1

The findings show a strong positive relationship between emergency factors and education disruption, which helps in proving that more emergencies lead to greater disruption of education. There is a negative correlation between resilience capacity and disruption and a positive correlation between resilience capacity and continuity of learning, which supports the idea that the higher resilience capacity sustains the continuity of learning by reducing disruption.

4.1.3 Regression Analysis (Stepwise Models)

Model 1: Direct Effect (IV ⟶ DV)

Table 4: Effect of Emergency Factors of Continuity of Learning

Variable	B	St. Error	Beta	Sig
Emergency Factors	-0.56	0.05	-0.62	0.00

$R^2 = 0.41$

The regression results indicate that emergency factors have a statistically significant negative effect on continuous educational development ($p < 0.001$). The negative beta coefficient (-0.62) suggests that an increase in emergencies leads to a substantial decline in students' access, retention, and engagement in education.

The value of R^2 is 0.41 which shows that emergency factors alone explain 41 percent variation in continuity of learning. This indicates a medium degree of explanatory power implying that although emergencies are influential determinants, other elements also have an impact on the outcomes of education.

Model 2: Mediation Effect (Adding Resilience Capacity)

Table 5: Effect of Emergency Factors on Resilience Capacity and Continuity of Learning

Variable	B	St. Error	Beta	Sig
Emergency Factors	-0.28	0.04	0.26	0.01
Resilience Capacity	0.56	0.08	0.58	0.00

$R^2 = 0.53$

Incorporating resilience capacity into the model, the influence of emergency factors decreases to -0.26, and resilience capacity has a significant, positive influence on the continuity of learning (0.58, $p < 0.001$). This implies that resilience capacity significantly supports education in times of emergencies.

The value of R^2 increases to 0.53 in comparison to 0.41, indicating that the model becomes more effective in explaining 53 percent of the variation in continuity of learning. This significant rise demonstrates that resilience capacity is influential in enhancing the explanatory power of the model.

These results provide solid empirical evidence for the mediating effect of resilience capacity as it minimizes the adverse effects of emergencies on education.

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\Model 3: Effect of Emergency Factors on Resilience

Table 6: Effec t of Emergency Factors on Resilience Capacity

Variable	B	St. Error	Beta	Sig
Emergency Factors	-.0.47	0.05	-0.46	0.00

$R^2 = 0.34$

The findings show the negative impact of emergency factors on resilience capacity, suggesting that high frequency and severity of emergencies have an adverse effect on system preparation, adaptation, and recovery from disruption.

With $R^2 = 0.34$, we observe that emergency factors explain 34% of the variance in resilience capacity. Although it represents a moderate level of explanations, it also implies that structural, institutional, and socio-economic conditions are also contributing factors to resilience.

Model 5. Intervening Variables Analysis

Table 7: Effect of Intervening Variables on Resilience Capacity

Variable	B	Beta	Sig
Structural Factors	0.42	0.46	0.00
Institutional Factors	0.36	0.35	0.01
Socio-economic Factors	0.31	0.30	0.01

$R^2 = 0.52$

The results of the regression analysis show that all of the intervening variables, i.e., structural, institutional, and socio-economic factors, significantly affect the resilience capacity. Structural factors are the most influential compared followed by the institutional and socio-economic ones.

The R^2 value of 0.52 implies that resilience capacity variation is explained by these contextual factors by 52 percent. This indicates a high explanatory power, which suggests that resilience is highly influenced by the broader systemic conditions.

Qualitative Results

The thematic analysis approach was used to analyze the qualitative data collected, through which repetitive patterns, meaning, and experiences of respondents were identified in a systematic manner. This analysis shows that an intricate interplay of the environmental, structural, institutional, and socio-economic factors influences education in Balochistan. Notably, the themes are very consistent with the quantitative results, especially the key role of resilience capacity in mediating the relationship between emergencies and continuity of learning.

Theme 1: Nature and Impact of Emergencies on the Continuity of Learning

One of the key themes that emerged from qualitative data analysis was the multi-layered, long-term nature of the emergencies that impact education in Balochistan. The participants reported floods, droughts, and the current fuel shortages not as individual events but rather a series of events that derail the academic process each time.

These crises are cumulative in nature, and unlike one-time crises, repeated school closures have long term consequences of disengagement, loss of learning and higher rates of dropouts. This finding supports the quantitative results, which show that emergency factors were negatively correlated with continuity of learning.

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The participants stressed that due to the uncertainty and high frequency of such occurrences, it is hard to ensure educational stability at both the institutional and household levels.

A teacher highlighted, "Learning is always interrupted in our area since we resolve one problem, another one comes up with severe impacts."

These responses indicate that the education system in disaster-prone areas is always under pressure, which requires long term planning rather than short terms initiatives to resolve the issue permanently.

Theme 2: Structural Vulnerability as a Root Cause of Disruption.

Structural vulnerability was reported as one of the root causes of educational disruption in Balochistan. Most schools in the province lack disaster proof structure, sanitation, and other basic facilities such as water, electricity and toilet facilities, which make them more vulnerable to climate-induced disasters. Participants said that even small changes in climate, such as rainfall, severely disrupt the education system. In rural areas, the absence of road networks and transportation facilities further restricts access to schools. A head teacher said, "When heavy rainfall flooded roads, no teacher or student could reach school."

This theme strongly supports the quantitative results, which indicate that distances do not operate in isolation; rather, structural vulnerabilities exacerbate them. Structural vulnerabilities not only disrupt continuity of learning but negatively influence the resilience capacity of the education system by limiting its capacity to respond challenges effectively.

Theme 3: Institutional Gaps and Reactive Governance

The discussion noted that the education system in Balochistan devoid of any emergency preparedness plan. The system is reactive in nature. Despite anticipating emergency crises, it responds when challenges arise. The issue becomes more complicated due to the absence of coordinated response mechanisms, and the lack of training of teachers for crisis management.

One of the professionals cited, "There is no definite plan in place, we just wait for directions, and by the time we are given the directions, it is always too late to address the issue effectively."

This theme supports the quantitative findings, which show that the resilience capacity of the education system in Balochistan is low, which suggests that education institutions in the province are not prepared to address disruption effectively.

Analytically, this theme confirms the importance of the institutional factors as important intervening variables that affect resilience.

Theme 4: Education and Socio-Economic Constraints

The discussion highlighted how socio-economic factors determine whether students continue their education in an emergency crisis. Families compelled by poverty and displacement often prioritize survival over education. They cannot afford the expenses related to uniform, transportation, and other things, so, in times of crisis, children are involved in work to support their families. Girls are particularly affected by these crises as they leave schools due to safety and security concerns.

One of the fathers said, "Where there is no earning, education is a luxury."

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This theme highlights how emergency crises worsened already existing disparities, and how socio-economic factors significantly affect the resilience capacity of the system.

Theme 5: Limited Adaptive Capacity and Absence of Alternative Learning Systems

One of the most important results of the study is that there are no effective adaptive mechanisms to sustain learning in times of crisis. Although there are some temporary arrangements, they are not organized and accessible.

Digital learning, as one of the worldwide solutions in times of crisis, is not effective in Balochistan because of limited internet connectivity, low levels of digital literacy, and lack of digital devices.

One student informed, "When school is closed, no learning is possible since we do not have an alternate learning system."

This theme supports the quantitative results of resilience capacity and continuity of learning, which do a major gap in the adaptation dimension of resilience, implying that the system is not flexible and innovative in addressing crises effectively.

Theme 6: Community-Based Coping Mechanisms and Local Resilience

Despite systematic issues, the study recognizes community initiatives as a key source of resilience. Informal classes, conducted either at home, in a mosque, or in the open air, are organized voluntarily by teachers and community members in certain regions.

One of the teachers pointed out, "We attempt to continue teaching wherever possible so that the students do not fall behind."

According to this theme, institutional gaps are somewhat filled by informal and community-based responses, although formal systems are weak. These responses, however, are limited in size and sustainability.

This finding indicates that community engagement can positively influence the resilience capacity building, especially in areas where resources are limited.

Theme 7: Central Role of Resilience Capacity in Sustaining Learning

The most important theme that emerged during the analysis is the role of resilience capacity in determining the outcomes of education during an emergency crisis.

Participants constantly stressed the fact that if resilience in form of preparedness, adaptation, and recovery exists, the adverse effects of emergencies can be minimized.

One of the educational officials said, "If there is preparedness and prompt response to a crisis, education continues in emergencies.

This theme strongly supports the regression results, which show that resilience capacity minimizes the adverse effects of emergencies, positively affects continuity of learning, and mediates the disruption-outcomes relationship.

This shows that resilience is not only a support factor, but also a key mechanism that helps education system continue learning during a crisis.

Discussion

The results of this study provide a thorough understanding of the issue of education in emergencies by integrating both quantitative and qualitative results. The study confirms through regression results and the lived experiences of the participants that emergency factors disrupt the continuity of learning. This finding aligns with existing literature

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that reflect the vulnerability of education systems in disaster-prone areas. The results of the study show that the effects of emergencies on the continuity of learning are not uniform but are determined by structural, institutional, geographic, and socio-economic factors. Educational disruption is intensified by weak infrastructure, poor governance, and poverty. This observation underscores that without taking systematic issues into consideration, addressing emergencies alone cannot bring the desired results.

The study further reveals that the resilience capacity is a significant mediating factor. The quantitative results show that the adverse impact of emergencies on the continuity of learning can be minimized by increasing resilience capacity of the education systems. The qualitative insights support this fact by highlighting that preparedness, adaptation, and recovery positively affect learning outcomes. These findings confirm that resilience is not only a supportive factor, but also a determinant of educational continuity.

Moreover, the research finds a significant gap in adaptive capacity, particularly the lack of alternative learning systems. Unlike other areas where digital or hybrid learning systems reduce disruption in education, infrastructure and technological limitations in Balochistan prevent the adaptation of such solutions. While stakeholder involvement is identified as important, coordination among them remains inadequate. Although community efforts effectively demonstrate local resilience, they are insufficient without strong institutional support. This suggests that a more concerted and active engagement from government, communities, and development partners is essential.

Overall, the discussion has revealed that ensuring uninterrupted learning in emergency crises requires a multi-dimensional approach that enhances resilience at both system and community levels.

Conclusion

Based on the findings, the study concludes that education in Balochistan is highly vulnerable due to frequent emergencies, such as floods, droughts, and economic shocks. Such emergencies have a significant impact on the continuity of learning in the form of school closure, low enrollment, and high dropout rates. However, the consequences of such emergencies are not only dependent on their occurrence but also on the ability of the education system to mitigate them. The results clearly indicate that resilience capacity, which includes preparedness, adaptation, and recovery, is at the center of sustaining learning in times of crisis.

The study also highlights that lack of structural capacities and effective institutional mechanisms, and inadequate socio-economic conditions limit the development of resilience, which further impacts education. Although community-based initiatives provide some support, they cannot be relied on to address systemic issues. Therefore, it is important to build a robust education system that can help in sustaining continuous learning in regions prone to such emergencies like Balochistan.

Recommendations

The findings of the study highlight a need to adopt a multifaceted and region-specific strategy to build resiliency in the education system in Balochistan. First, there is a dire need to invest in climate resistant and durable schooling infrastructure especially in

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disaster prone areas. There should be better road networks and transportation infrastructure in remote areas to ensure that not only during emergencies but even after the emergencies, students and teachers have access to schools. In parallel to infrastructure upgrades, the education system needs to strengthen its institutional capacity by designing protocols to respond to disasters, set up fast-track communication channels and train teachers and school administrators in disaster response.

In addition, it is necessary to encourage flexible and adaptive learning systems to ensure continuity of education during crises. This includes setting up of temporary learning centers in the affected regions, promoting low cost alternative delivery methods such as radio classes and mobile technologies, especially in areas with poor internet connectivity. At the same time, socio-economic barriers must be tackled, as poverty, displacement, and livelihood insecurity significantly affect students' capacity to learn during emergency crisis. Financial aid programs, conditional cash transfers and initiatives to alleviate child labor and promote girls' education can be very important in improving school enrolment.

Moreover, the study highlights the importance of strong collaboration among different stakeholders. The government agencies, local communities and the development partners must work together in order to prepare and offer sustainable solutions. The community-based programs must be institutionalized and incorporated into the overall education plans since they have proved effective in maintaining education at the local level. International organizations can also be involved in assisting with technical and financial assistance to build long-term resilience.

Lastly, resilience needs to be institutionalized within the education system through the incorporation of education in emergencies (EiE) approaches into education policy and planning, as well as monitoring and evaluation of strategies for resilience. A comprehensive, multi-faceted approach that focuses on infrastructure, governance, socio-economic factors and adaptive capacity will be important for maintaining learning in emergency-prone areas such as Balochistan.

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