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Climate Change and Educational Equity: Challenges and Innovations for Nomadic Communities in Mysuru District

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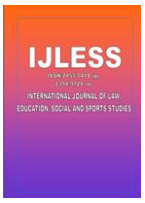

ABSTRACT

Nomadic communities in Mysuru district face increasing challenges due to climate change, which disrupts their traditional lifestyles and limits access to formal education (UNICEF, 2021). This study examines the impact of climate-induced displacement, resource depletion, and erratic weather patterns on the educational opportunities of nomadic children (Krätli & Dyer, 2009). Using a quantitative research approach, data were collected through a structured questionnaire (53 items), administered to a sample of 80 respondents, including students, parents, and educators. The study focuses on students aged 6–16 years (Classes 1–10), analyzing key barriers such as unstable schooling, inadequate infrastructure, and policy gaps (Sharma, 2017). Additionally, the research explores sustainable solutions, including mobile schools, digital learning technologies, and government initiatives, to enhance educational accessibility for nomadic learners in Mysuru district (Madhavan & Babu, 2016). By examining local case studies, the study highlights the need for climate-resilient educational policies and culturally adaptive learning models to ensure inclusive and sustainable education for nomadic children (UNESCO, 2020).

Keywords: Climate change, nomadic education, educational barriers, sustainable learning, digital learning, mobile schools, Mysuru district.

Introduction

Nomadic communities have historically faced challenges in accessing formal education due to their mobile lifestyles and socio-economic marginalization (Krätli & Dyer, 2009). Climate change has further exacerbated these difficulties, leading to displacement, resource scarcity, and unpredictable weather patterns that disrupt schooling (UNICEF, 2021). In Mysuru district, these challenges are evident as nomadic children struggle with unstable educational access, inadequate infrastructure, and a lack of culturally responsive policies (Sharma, 2017). This study explores the educational impact of climate change on nomadic learners and investigates potential solutions such as mobile schools, digital technologies, and government interventions (Madhavan & Babu, 2016).

Review of Literature

Climate Change and Educational Disruptions

Research indicates that climate change-induced displacement, extreme weather events, and resource scarcity significantly hinder the education of nomadic children. According to UNICEF (2021), children from nomadic and pastoralist communities are among the most vulnerable to educational disruptions due to frequent migration and unpredictable environmental conditions. Aikman & Rao (2012) highlight how seasonal variations in rainfall patterns affect school attendance among indigenous and nomadic groups.

Barriers to Education Among Nomadic Communities

Several scholars have identified critical barriers that prevent nomadic children from accessing education. Krätli & Dyer (2009) argue that mainstream education systems fail to accommodate the mobility patterns of nomadic families, leading to high dropout rates. A study by Little (2010) notes that lack of permanent school infrastructure, rigid curriculum structures, and inadequate teacher training further exacerbate educational exclusion.

Role of Mobile Schools and Alternative Learning Models

Mobile schooling has emerged as a potential solution to address educational challenges among nomadic populations. Carr-Hill (2013) provides evidence from African and Central Asian contexts, demonstrating that mobile schools tailored to nomadic lifestyles improve access to education. Similarly, studies by Madhavan & Babu (2016) in India suggest that community-driven mobile education programs enhance learning outcomes for migratory children.

Government Policies and Educational Inclusion

Policy interventions play a crucial role in improving educational access for marginalized communities. The Right to Education (RTE) Act in India provides a legal framework for universal education, but implementation challenges persist for nomadic groups (Sharma, 2017). A UNESCO (2020) report emphasizes the need for context-specific policies that recognize the unique learning needs of migratory populations.

Challenges

- **Climate-Induced Displacement and Migration:** Frequent droughts and unpredictable weather patterns disrupt the education of nomadic communities (UNICEF, 2021). Forced migration due to climate change results in inconsistent school attendance, learning gaps, and high dropout rates among children (Krätli & Dyer, 2009).
- **Lack of Stable Educational Infrastructure:** Nomadic settlements often lack nearby schools, making it difficult for children to access education (Carr-Hill, 2013). The absence of permanent educational facilities forces students to travel long distances, discouraging regular attendance and academic continuity (Little, 2010).
- **Socio-Economic Barriers:** Economic hardships compel children from nomadic communities to engage in labor instead of attending school (Aikman & Rao, 2012). Families struggling with financial instability prioritize earning a livelihood over education, leading to lower enrollment and retention rates (Banerjee & Duflo, 2019).
- **Inadequate Policy Implementation:** While the Right to Education (RTE) Act aims to provide free and compulsory education, it does not adequately address the specific needs of mobile learners (Sharma, 2017). The lack of tailored policies and flexible schooling options further marginalizes nomadic children from the formal education system (UNESCO, 2020).

- **Digital Divide and Limited Access to Technology:** Limited access to electricity and the internet hinders digital learning opportunities for nomadic communities (Madhavan & Babu, 2016). The absence of technological infrastructure prevents students from benefiting from online education, further widening the educational gap (UNESCO, 2020).

Objectives

1. To examine the impact of climate change on the education of nomadic children in Mysuru district.
2. To identify key barriers preventing stable education access for nomadic students.
3. To assess the effectiveness of current policies and initiatives in supporting nomadic education.
4. To explore sustainable educational solutions such as mobile schools and digital learning.
5. To recommend strategies for developing climate-resilient and inclusive education models.

Hypotheses

- There is no significant difference in the impact of climate change on the education of nomadic boys and girls.
- There is no significant difference in the accessibility of education for nomadic children in rural and urban areas of Mysuru district.

Methodology and Results

This study employs a quantitative research approach using a structured 53-item questionnaire developed by Chandra M N and Dr. N. Lakshmi. The survey was administered to 80 respondents, including students (aged 6–16 years), parents, and educators. Data collection focused on educational barriers, climate-induced displacement, and resource limitations. The findings were analyzed using statistical methods to identify trends and correlations between climate change and educational challenges.

Hypothesis 1

There is no significant difference in the impact of climate change on the education of nomadic boys and girls.

GENDER	N	MEAN	S.D.	T-VALUE	SIGNIFICANCE
GIRLS	40	242.03	35.87	0.884	Not significant
BOYS	40	234.05	39.51		

The computed t-value (0.884) is lower than the table value (2.58 at 0.01 and 1.96 at 0.05 level), indicating no significant gender difference in the impact of climate change. Thus, the null hypothesis is accepted.

Hypothesis 2

There is no significant difference in the accessibility of education for nomadic children in rural and urban areas of Mysuru district.

Area	N	Mean	S.D.	t-value	Significance
Rural	40	248.03	36.87	3.748	Significant
Urban	40	216.05	34.51		

The t-value (3.748) exceeds both the 0.01 and 0.05 significance levels. Therefore, the null hypothesis is rejected, indicating a significant difference in accessibility between rural and urban nomadic children.

Discussion

- **Mobile and Community-Based Schools:** Establishing mobile schools that follow migration patterns ensures continuous learning without academic disruption (Carr-Hill, 2013; Krätli & Dyer, 2009).
- **Digital Learning Initiatives:** Tools such as solar-powered tablets and offline educational content offer learning continuity despite infrastructure gaps (UNESCO, 2020; Madhavan & Babu, 2016).
- **Policy Interventions and Government Support:** Targeted scholarships, teacher training, and flexible curriculum models enhance education inclusivity for nomadic learners (Sharma, 2017; UNICEF, 2021).
- **Community Participation and Awareness:** Engagement with local stakeholders helps increase enrollment and change community attitudes toward education (Aikman & Rao, 2012).
- **Climate-Resilient Infrastructure:** Portable classrooms and adaptive facilities promote sustainable learning even during displacement events (UNESCO, 2020).

Conclusion

The findings confirm that climate change significantly disrupts education for nomadic children in Mysuru district, leading to educational instability and marginalization (UNICEF, 2021; Krätli & Dyer, 2009). However, sustainable approaches—such as mobile schools, digital learning solutions, and inclusive policies—offer viable paths to improve access and quality (Madhavan & Babu, 2016). This study emphasizes the urgent need for climate-resilient educational strategies tailored to nomadic cultures and contexts (UNESCO, 2020).

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