
EDUCATORS' PERCEPTIONS OF CLIMATE CHANGE EDUCATION IN PAKISTAN & STUDENTS' READINESS

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ABSTRACT

This qualitative study aims to investigate the outlook of geography educators in Pakistan. It involves a group of around twelve participants, primarily aiming to understand their viewpoints regarding the goals of climate change education; it also explores how these viewpoints influence their teaching approaches, especially when dealing with contentious topics in geography education. The research delves into the complex educational landscape related to climate change education in Pakistan. The study's results reveal that educators' perspectives on the objectives of climate change education significantly impact their willingness to address controversial subjects in their classrooms. Additionally, the study reveals that educators' beliefs concerning their students' academic abilities significantly influence their strategies for addressing contentious aspects of climate change education, resulting in tailored approaches for various student demographics. This study provides valuable insights into the mindset of Pakistani educators concerning climate change education. It sheds light on the factors that inform their pedagogical decision-making. By examining these dynamics, the study aims to contribute to the discourse on climate change education in Pakistan, addressing the unique challenges and opportunities posed by this critical global issue. This research underscores the importance of comprehensive and inclusive climate change education that equips all students to engage with environmental issues effectively. Such an approach holds the potential to foster a more equitable and impactful education system, not only in Pakistan but also in other regions globally.

KEYWORDS

Climate Change, Geography educators, Pakistan Education

INTRODUCTION

Climate change represents a global crisis that demands immediate attention and concerted efforts to alleviate its devastating consequences (Everth et al., 2021). The alarming rise in global temperatures, predominantly driven by human activities and

resulting greenhouse gas emissions, presents substantial threats to our planet's ecological equilibrium and societal well-being (Steffen et al., 2018). This pressing issue transcends geographical boundaries, profoundly impacting ecosystems, public health, cultural norms, and socioeconomic structures (IPCC, 2022). To tackle this intricate problem effectively, there is a growing demand for locally tailored solutions, with educational institutions assuming a pivotal role not only in promoting climate change awareness and environmental sustainability (Nyamwanza, Jacobs, & Nyezi, 2023) but also in endowing teachers with the awareness and skills needed so they can prepare students for the challenges and opportunities related to sustainability (Eames, 2022).

The present generation of students is maturing in a world shaped by the stark realities of climate change, underscoring the urgency for higher education institutions to integrate climate change education into their curricula (Eames, 2017). Nevertheless, educators encounter significant challenges in navigating the complexities of this politically charged and contentious subject (Unny, 2020). Public opinion and media portrayals further complicate matters, potentially leading to misinformed or biased perspectives on environmental issues (Pepper & Leonard, 2016). Educators, particularly teachers, play a pivotal role in moulding students' outlooks and attitudes towards climate change, transcending the mere dissemination of knowledge (Kirby & Webb, 2023).

The influence of higher education on students' engagement with climate change issues varies, with some advocating for its limited impact (McNeal, Spry, Mitra, & Tipton, 2014). Therefore, comprehending educators' beliefs, attitudes, and practices regarding climate change education is paramount in evaluating their potential contribution to fostering environmentally conscious individuals and resilient communities. This research paper explores the multifaceted landscape of climate change perception among educators and students within the educational context of Pakistan. As Kundzewicz et al. (2014) articulated, climate change perception encompasses individuals' interpretations of evolving climates, encapsulating elements such as temperature fluctuations, alterations in rainfall patterns, the origins and repercussions of climate change, and approaches to mitigation and adaptation. This study aspires to enrich climate science literacy and provide insights for educational initiatives that cater to diverse academic settings by examining commonalities and disparities in climate change perception among educators and students.

This qualitative study aims to clarify the perspectives of 12 experienced and novice geography educators in Pakistan regarding the objectives of climate change education. It also explores how these teachers' views on students' ability to engage with contentious aspects of climate change education influence their curriculum decisions.

While significant attention has been given to educational differentiation and categorization, we should take a closer look at how it affects discussions about teaching climate change to different groups of students (Hargis, McKenzie, & LeVert-Chiasson, 2021). Pakistan has a notable emphasis on climate change-related subjects in the educational curriculum. (National Curriculum Council [NCC], 2021). Moreover, Pakistan's commitment to the Single National Curriculum (SNC) across all provinces, as overseen by the National Curriculum Council within the Ministry of Federal Education and Professional Training, creates a uniform framework for incorporating climate change education perspectives (NCC, 2021). Pakistan faces a complex climate challenge, ranked 18th in global disaster risk, with potential temperature increases of 1.3°C to 4.9°C by the 2090s due to factors like greenhouse gas emissions (Ahsan, 2022). These changes significantly impact hydrology and water supply, raising catastrophe risks for vulnerable populations. Furthermore, Pakistan experiences high maximum temperatures, with June peaks at 36°C and a 3% annual heatwave probability, as seen during the 2015 heatwave when over 65,000 heatstroke-related hospitalizations occurred (Ahsan, 2022). These climatic changes, driven by various factors, including greenhouse gas emissions, have profound implications for Pakistan's hydrological patterns and water supply, although precise consequences remain uncertain. Anticipated increases in extreme climatic events may exacerbate catastrophe risk, particularly for vulnerable populations. (Kamboh & Ittefaq, 2023). The challenges facing Pakistan are escalating. In 2022, widespread flooding inundated a third of the country, impacting 33 million individuals, including many children. The devastating floods wreaked havoc on vital water infrastructure in affected regions, leaving over 5.4 million people with no alternative but to rely on contaminated water from ponds and wells. (UNICEF, 2023) (Ahsan, 2022). (Kamboh & Ittefaq, 2023).

In summary, this research follows a coherent structure, beginning with this introduction. It will then investigate how academic institutions in Pakistan address climate change education and analyze differences in how educators and students perceive climate change education. Furthermore, the study will review relevant research comparing the climate change perspectives of educators and students. Through these inquiries, this research aims to contribute to the discussion on climate change education, specifically focusing on Pakistan's distinctive context, where climate-related challenges are particularly relevant.

LITERATURE REVIEW

Pakistan, positioned at the crossroads of South Asia, grapples with the tangible repercussions of climate change, encompassing economic challenges, densely populated urban centres, and limited access to critical resources such as water, sanitation, energy, and healthcare (Syed et al., 2022; Khan et al., 2023). Rising temperatures, shifts in precipitation patterns, and their adverse impacts on sectors like

agriculture are paramount concerns (Shehzad, 2023; Mir et al., 2022). In this context, educators' viewpoints are pivotal in shaping climate change education. This study adds to the larger conversation surrounding climate change education, particularly emphasising Pakistan's distinct climate-related challenges and opportunities. As the study navigates the nuanced landscape of educators' perspectives on climate change education, it aims to foster a deeper understanding of their role in nurturing environmentally aware citizens and resilient communities in an ever-evolving world.

Teachers' Perspectives on Their Students

The customary practice of categorizing pupils into different academic strata or groups based on their perceived aptitude is prevalent in educational systems worldwide. This educational stratification often establishes separate instructional programmes distinguished by varying curricula and educational objectives (Buchmann & Park, 2009). Notably, teachers' perspectives on their students' abilities, as well as factors like socioeconomic backgrounds and ethnic origins, have been identified as potential sources of inequality in both what and how different student groups are taught (Wang et al., 2023). For instance, research by Stich (2018) conducted in the United States revealed that educators often make instructional decisions influenced by their perceptions of tracking and the specific characteristics of students within these tracks. Likewise, Kuzmanic et al. (2022) discovered that secondary school educators' perspectives on their pupils' socioeconomic backgrounds substantially influenced the nature of the curriculum they imparted. Consequently, lower-track classes frequently receive a modified curriculum that teachers believe is more appropriate for "regular" students; these judgments tend to be deeply rooted in shared societal and cultural perceptions entrenched within the educational institution Choi (2016).

Moreover, teachers may adopt strategies to maintain classroom discipline and ensure student compliance. Consequently, they might resort to what can be termed "defensive teaching" strategies, which often involve simplifying the curriculum and avoiding potentially contentious topics in their instructional methods (Barrow & Xu, 2022). This intricate interplay between teachers' beliefs about their students, the prevailing tracking system, and their pedagogical approaches underscores educators' influential role in shaping students' educational experiences across various academic streams. (Costa, Pirchio, & Glock, 2022). Given the multifaceted challenges posed by disasters due to climate change in Pakistan (Ahmad Shah et al., 2020). Understanding how teachers perceive and engage with this critical subject is paramount (Mamolo, Rodney, & Tepylo, 2022). Teachers' perceptions and beliefs regarding climate change education can significantly impact its delivery within the diverse educational landscape of Pakistan. This insight holds the potential to provide valuable guidance to policymakers, curriculum developers, and educators seeking to enhance climate change education and promote equitable access to knowledge throughout the nation

(Gokmenoglu, Yavuz, & Sensin, 2023).

The worldwide custom of categorizing students into different academic pathways based on their prior capabilities raises essential questions regarding educational fairness and inclusivity. Teachers' perceptions are central to this process, influencing instructional and curricular choices (Nunes et al., 2023). These dynamics are particularly relevant in Pakistan, where the challenges posed by climate change require a nuanced understanding of how educators engage with this critical issue to ensure students get effective climate change education.

Pakistan's Approach to Climate Change Education

A nation's educational, political, psychological, sociological, and economic approach profoundly influences the landscape of climate change education, particularly in addressing contentious subjects such as climate change (Lee, Paavola, & Dessai, 2022). In Pakistan, these contextual factors take on unique dimensions due to the nation's distinctive challenges and vulnerabilities in climate change (Farooqi, Khan, & Mir, 2005; Fahad & Wang, 2020; Hussain et al., 2020). Recent studies indicate that Pakistan has experienced significant temperature shifts, with average temperatures increasing at 0.5°C per decade between 1981 and 2010 (Ahsan, 2022; Rafiq et al., 2022). These changes are expected to have distinct regional impacts, with northern and northeastern regions facing rising minimum temperatures and southeastern and south-central areas experiencing heightened maximum temperatures. (Bhatti, Nizamani, & Mengxing, 2022) Pakistan also contends diverse precipitation patterns, with monsoon season contributing to approximately 70% of total precipitation (Abbas et al., 2022). These shifting climatic patterns pose formidable challenges across various sectors, including water resources, agriculture, and public health (Fahad & Wang, 2020), significantly impacting agricultural productivity, particularly in rice production (Abbas et al., 2022).

In Pakistan, a nation grappling with unique challenges and vulnerabilities posed by climate change, individuals' perspectives, which encompass the cognitive process of assimilating external stimuli and information, play a pivotal role in decision-making. These perspectives are influenced by various factors such as education and experience, as indicated by Nunes et al. (2023). Given these contextual factors, climate change education is paramount in Pakistan's educational landscape. It shapes the curriculum and significantly impacts students' understanding of this global issue. Pakistan's political landscape further underscores the urgency of climate change education. The nation has shown commitment to international agreements, such as the Paris Agreement, and has adopted the National Climate Change Policy as a foundational framework (Government of Pakistan, NCCP 2021). These political initiatives reflect Pakistan's awareness of the challenges posed by climate change and underscore its

dedication to addressing these issues at a national level.

Economically, Pakistan's resource constraints necessitate innovative approaches to climate change education, including public-private partnerships and international collaborations (UNESCO, 2023). Socially, cultural sensitivity is crucial in tailoring climate change education to resonate with diverse communities. The demographically young population presents youth engagement and activism opportunities in climate action (World Bank Group & Asian Development Bank, 2021). Educationally, climate change topics should be integrated into various subjects, and teacher training programs should equip educators with the necessary knowledge and skills. Innovative teaching methods and digital resources can enhance students' engagement (Government of Pakistan, NCCP 2021).

Pakistan's dedication to climate change education aligns with global endeavors to combat the climate crisis, and it is not merely an educational pursuit; it signifies an investment in bolstering climate resilience, promoting sustainable development, and empowering future leaders and change-makers. This commitment positions Pakistan to shape a more sustainable future, equipped to confront climate challenges, with informed citizens playing an active role.

RESEARCH OBJECTIVES

1. To examine the Pakistan's landscape regarding Climate Change Education, with a specific emphasis on the viewpoints of geography educators.
2. To explore the perceptions and beliefs of geography educators in Pakistan regarding the objectives and purpose of climate change education.
3. To investigate how educators' views on students' readiness to engage with contentious aspects of climate change education influence their curriculum decisions.
4. To examine the diverse aspects of how climate change is perceived by educators and students in the educational setting of Pakistan, while also identifying both shared views and differences.
5. To assess the impact of contextual factors, including climate challenges, political commitment, economic constraints, and cultural sensitivity, on climate change education in Pakistan.
6. To understand the role of educational institutions and teacher training programs in promoting climate change awareness and equipping educators with the necessary knowledge and skills.
7. To emphasize the significance of climate change education as an investment in building climate resilience, fostering sustainable development, and empowering the next generation of informed citizens and change-makers in Pakistan.

RESEARCH METHODOLOGY

This investigation aimed to delve into how educators in Pakistan make decisions concerning the instruction of contentious subjects, such as climate change. This called for an interpretative approach that would enable a more profound understanding of the knowledge or beliefs held by individual teachers and what they professed to implement within their specific contextual circumstances. Consequently, it employed an instrumental qualitative case study methodology inspired by the frameworks outlined by Creswell (2009).

Table 1: Detail of Participants

S#	Participant's Name	School's Name/ Institution	Teaching Experience	System in Place
1	Ali	Private Public School	12	
2	Bashir	Private Public School	09	Private
3	Hammad	Private Public School	05	
4	Mehmood	Govt High School	18	
5	Ibrahim	Govt High School	17	
6	Murtaza	Govt High School	16	Government
7	Zainab	Govt High School	12	
8	Abrar	Govt High School	11	
9	Adeel	Govt Education	01	
10	Saima	Clg, Karachi	02	Pre-Service
11	Zohaib		02	Educator
12	Salma		03	

The participants in this study included eight current geography teachers and four novice teachers currently enrolled at Govt. Education College (G.E.C.) in Sindh Karachi, Pakistan (refer to Table 1). G.E.C. is the exclusive institution for teacher education in the region. Initially, the aim was to include teachers at various stages of their careers to explore whether there were differing perspectives on addressing contentious topics in the geography classroom between practising and pre-service teachers. However, the analysis of teacher beliefs did not reveal significant differences between these two groups. Therefore, this paper presents their insights collectively. It is essential to clarify that this research the main objective was not to observe teachers' classroom practices when teaching about climate change. Instead, it focused on understanding how teachers' beliefs about why they teach climate change connect with their perceptions of whether students are ready to discuss it.

The researcher conducted purposeful interviews specially tailored for this research. Participants were intentionally selected according to their teaching experience, academic context, and affiliations with specific educational institutions. All participants had pursued geography or Pakistan Studies at the undergraduate level or had completed various geography-related courses during their academic journey. Each of the eight teaching teachers holds a master's degree in geography. Conversely, the four novice teachers had prior teaching experience but were awaiting school assignments for their teaching practicum.

Within the group of eight experienced teachers, five were associated with government schools (Govt High Secondary School), while the remaining three were affiliated with elite private schools (Private Public Schools). The deliberate inclusion of teachers from regular government schools and elite institutions was driven by the recognition that the latter often follow distinct Geography curricula. Government schools are publicly funded, whereas elite state schools, often owned by private bodies or individuals, enjoy greater autonomy in shaping their curricula within specific guidelines stipulated by the Government of Pakistan and the Provincial Government (Niazi, 2022).

DATA ANALYSIS

The carefully devised interview plan aimed to uncover the participants' concealed knowledge and beliefs concerning climate change education, enabling them to express their thoughts and actions. This plan involved activities such as brainstorming, where participants either drew or wrote down ideas related to global warming to extract information (Jonassen & Kim, 2010). It was complemented by a series of well-structured interview questions (Creswell, 2009). Participants were encouraged to employ visual aids to elucidate their views on the origins, repercussions, and possible responses to climate change. They were also prompted to elaborate on their methods for teaching climate change to diverse groups of students. Additionally, participants were provided with excerpts from individuals who hold reservations about climate change and were asked about their readiness to incorporate such viewpoints into their teaching approaches.

The process for the data analysis followed an inductive methodology guided by the data that had been collected. The original dataset, comprising researcher observations and interview transcripts, underwent collaborative categorization and coding in this phase. Furthermore, researchers conducted a meticulous review of the interview transcripts to identify and remove redundancies in texts categorized similarly, as described by Miles, Huberman, and Saldana (2014).

FINDINGS

This section delves into the participants' perspectives on the objectives of climate change education. This offers an in-depth exploration of how these viewpoints mold their approach to handling the contentious aspects of this critical subject matter. It is evident that teachers' comprehension of the underlying aim of climate change education significantly guides their preferred teaching methodologies, with a notable impact that often supersedes factors such as their teaching experience, the overarching educational landscape, the prevailing political climate, and the institutional context. Moreover, these results emphasize that educators' convictions about their student's academic abilities impact their teaching choices in this area and significantly mould their knowledge regarding objectives of climate change education, especially when dealing with various student groups. This intricate interaction between purpose, teaching methods, and perception provides valuable insights into the intricacies of climate change education within the educational context.

Nurturing Climate Change Awareness

Every participant expressed a strong consensus on the importance of including climate change education as an essential and irreplaceable part of the curriculum. Virtually every participant underscored the global dimension of climate change as a paramount rationale behind its inclusion in the educational repertoire. In the narratives of Zohaib, Ibrahim, and Bashir, the salience of climate change as a worldwide concern resonated profoundly. In his reflections, Zohaib emphasized that global warming transcended geographical confines, characterizing it as a phenomenon that "not merely encroaches upon specific regions." Ibrahim, in consonance, expounded on the "far-reaching global repercussions" and the inexorable nature of climate change. For Bashir, this subject represented a compelling culmination to the academic pursuit, justified by its status as "an exceedingly tangible and pressing concern on a global scale." Remarkably, Saima, imbued with a sense of personal responsibility as an educator, articulated her profound commitment to imparting this subject with utmost efficacy, driven by the noble aspiration of fostering greater awareness of this critical issue.

Advocacy Rooted in Values

Among the twelve participants, eight individuals (specifically Saima, Murtaza, Ibrahim, Zohaib, Adeel, Ali, Bashir, and Hammad) expressed a strong belief that their primary duty as educators is to facilitate open discussions, advocate for, and equip students with environmental understand and challenges. For example, Ibrahim argued that since climate change is here and we as individual cannot have power to change it therefore students should be well-informed and actively engaged in efforts to mitigate its impact. Zohaib emphasized the importance of students recognizing their role in "making the world a better place." Similarly, Murtaza asserted that students needed to grasp that, as individuals, they have the capacity to effect change when addressing

climate change. While these educators all acknowledged the widespread importance of climate change, they held varying perspectives regarding the necessity of climate change education.

I make sure my students and followers understand how we contribute to greenhouse gases and what causes these harmful emissions;... if we do not do something about it, there is no planet B. I use these examples to say, "Hey, don't underestimate the significance of your actions, even if you consider yourself just a small part of the solution. Your actions can genuinely make a difference."

Furthermore, Mehmood underscored the gravity of the climate change issue: "The younger generation should be raised with the understanding that this is an insurmountable challenge that requires attention. There's no simple solution, the entire planet is at stake, and individuals should be prepared to make sacrifices for the greater good." These eight participants were deeply committed to their roles as values-based education advocates and were cautious about introducing climate change controversies into their teaching. Their caution in this matter stemmed from their concern that delving into such controversies might divert students from what they saw as the core goal of climate change education – fostering a greater sense of responsibility towards the environment. Zohaib, in particular, highlighted the importance of showing how people are involved in causing climate change. He wanted to encourage his students to take action themselves. It is crucial to act now because waiting only brings us closer to a potential disaster.

I believe that every teacher should comprehend the significance of relating the subject to real-life situations because! the issue is caused by human actions... and demands urgent attention. If we don't advocate for it... Guess what... people might perceive it as normal and assume it's just a natural occurrence that will resolve by itself.

Mehmood conceded to a degree of disingenuousness in his presentation of climate change as an unequivocal reality, devoid of any engagement with alternative perspectives.

Climate Change I believe is a tangible reality. I refrain from engaging in debates with climate change deniers... Instead! my approach is to substantiate the reality and tangible consequences of climate change by providing everyday examples. While... it may seem somewhat one-sided, I hold the belief that fostering a belief in the undeniable reality of climate change is more significant than nurturing doubt.

Ibrahim indicated that she would significantly restrict her students' exposure to diverse viewpoints.

Certainly, some scientists believe we might be exaggerating climate change, but I won't dwell on that too much. If I present too many conflicting views to the students, they might become confused, and that wouldn't serve the purpose of the lesson. So, I'll introduce some alternative perspectives, but not too many.

These individuals showed a readiness to steer classroom discussions with a thoughtful approach. For instance, Murtaza mentioned her preference for using materials from the school textbooks, as they presented a clearer perspective on the severity of climate change. Similarly, Mehmood admitted to a deliberate approach in designing his lessons, incorporating questionable and flawed arguments from climate change sceptics. He intended to underscore the pressing nature of the climate change problem for his students.

I select examples from those who oppose the idea of climate change. I do this intentionally to help them see that their beliefs may not be accurate. I provide them with strong evidence and solid information to support my argument.

Mehmood thinks that ensuring students understand climate change's enormous impact is more important than focusing on data reliability and critical thinking. So, according to Bashir, the main goal of this lesson is to ensure "the students really get how much climate change affects things."

Fostering Critical Thinking Skills

Although the National Curriculum Council in Pakistan strongly emphasizes environmental responsibility through the Single National Curriculum, the other four participants agreed that climate change education should mainly focus on helping students think critically. Bashir, for instance, suggested nurturing "informed awareness" in his students. He explained that much of the discussion, especially concerning global warming, revolves around understanding data. Saima also stressed the importance of teaching students to question the accuracy of the information they come across. Abrar emphasized understanding long-term climate change trends, pointing out that people often need to pay more attention to recent events and miss the bigger picture. Similarly, Ali believed responsible citizenship meant encouraging students to think critically about climate change issues.

When I think about being a good citizen, it's not just about following what's popular, you know? Because, in the end, am I teaching this because the school says I have to, or do I want my students to really understand and make up their minds about climate change? So, I try to help them get a better grasp of all the complicated stuff about climate change, instead of just saying, "If we don't do this, we're all in trouble because the sea will rise."

Zainab and Salma conveyed analogous sentiments during their dialogues. Both educators aspired for their students to actively participate in critical thinking, investigative inquiry, and comprehensive reading. To elucidate, Salma underscored her profound interest in comprehending her students' perspectives after they engaged with academic materials. She noted that, on occasion, their reactions might be infused with scepticism or disbelief as they scrutinized the logical consistency of the presented content. Similarly, Zainab underscored the importance of nurturing a spirit of inquisitiveness in students. He encouraged them to pose thought-provoking queries and engage in contemplative reflection before articulating their viewpoints, acknowledging the existence of uncharted domains within the realm of knowledge.

Contrary to the eight teachers who focused on teaching values, these four educators firmly believed in exposing students to various perspectives. Such material must be included in the geography curriculum and the suggested textbooks. Bashir and Ali, both instructing at the prestigious state school, openly discussed introducing their students to diverse and opposing viewpoints. Bashir tried incorporating numerous primary sources, such as the Intergovernmental Panel on Climate Change report and articles from academic journals or newspapers. It is worth noting that Bashir preferred aiding his students in understanding diverse methods of inferring climate change facts, even if this led to a dilution of the arguments made by environmental advocates.

Allow me to clarify our actions. We looked into the viewpoints of world leaders and their data and presentations. We also delved into various understandings of the same facts offered by different climate change specialists. These experts may not deny climate change, but they do emphasize that how the data is presented can sometimes make the issue seem more dramatic than it is. It is helpful to closely examine the data and its built-in tendencies in its presentation and analysis.

Preparedness among students

Among the four individuals who ardently championed environmental awareness, they preferred to avoid confusing their students when incorporating contentious topics into climate change education. Zohaib, for instance, expressed the belief that students might need to be adequately prepared or possess sufficient knowledge to delve into subjects beyond their standard curriculum.

"Our students may not be ready for so much information, in my view. It might confuse them, and they could become mixed up. Nah, I don't think I'd go for that, especially in our local schools. You see, here, what really matters is students showing up and how well they do in their exams, not these extra things.

Mehmood also thinks avoiding conflicting information that could confuse the students

is a good idea. He believes that because of their age and other important things they have to deal with, students might get distracted from their primary education if they have to handle such complicated information.

I strongly believe that our students haven't reached that level of understanding and needs time. I would also say that, I am unsure whether college students have grasped that concept yet. Since they are dealing with other significant issues that have more immediate consequences, their interest and comprehension of climate change might be limited.

Out of the eight participants who believed in using climate change education to improve critical thinking, two had a different approach as they believed their technique should align with the student's understanding, acknowledging that students come from diverse backgrounds. Some excel academically, while others may need help to grasp the necessary knowledge. So, they mainly discussed different ideas with students who were more proficient in their studies. For instance, Ali taught at a prestigious school where most students had a solid educational background. He could freely discuss climate change and its consequences with these students. However, he also engaged students who were part of sports programs in discussions related to climate change.

DISCUSSION

The Complex Landscape of Climate Change Education

Education about climate change is essential for cultivating responsible and knowledgeable individuals. However, this educational field is highly complex and subject to various challenges related to science, politics, economics, ethics, and personal beliefs. While previous studies have primarily focused on evaluating educators' understanding of climate change, limited research has explored the influence of educators' beliefs about climate change education objectives on their teaching methods. (Sezen-Barrie, Shea & Borman, 2019; Khalidi & Ramsey, 2021; Skarstein, 2020). This research emphasizes the significance of understanding how educators' viewpoints shape their approach to teaching climate change. This represents a departure from the previously unexplored aspect of climate change education. By exploring this dimension, we gain deeper insights into the intricate dynamics that govern climate change education. Climate change education goes beyond simply imparting knowledge; it involves a complex interplay of beliefs, values, and instructional choices that can influence how future generations perceive and respond to this critical global issue.

Educators' Perspectives on Climate Change Education

This study explores the influence of educators' personal beliefs on their approach to climate change education, aligning with prior research that emphasizes the impact of

educators' viewpoints on their pedagogical practices. Among the educators who participated in this study in Pakistan, four individuals—Bashir, Murtaza, Zohaib, and Ibrahim—has a strong understanding that the most important focus should be centred on promoting environmentally friendly values about Climate change education. However, there hasn't been much exploration into how this perspective affects their teaching methods. This viewpoint aligns with the national curriculum and receives support from the Pakistani state. The results documented in Cotton's (2006) study reveal a disparity in the attitudes of certain educators towards promoting conscientious environmental education. They exhibit hesitancy primarily because of their steadfast commitment to upholding an impartial educational stance. Notably, these educators show a remarkable dedication to advancing environmental awareness, to the point where they exercise caution when introducing a variety of perspectives in their classrooms, with a concern that this could potentially confuse their students. Furthermore, based on Nation and Feldman's 2022 study, it was revealed that teachers chose not to promote specific viewpoints in their climate change curriculum instruction. This decision was influenced by the contentious nature of the subject and apprehensions about potential opposition from stakeholders. Instead, educators opted to adopt a "neutral" position when addressing climate change within their teaching approach.

In contrast, the remaining eight educators believed that fostering critical thinking skills in their students should take precedence within climate change education. This commitment drove them to broaden their teaching methods beyond the constraints of the established curriculum, introducing alternative viewpoints. This approach aligns with the findings of Monroe, Oxarart, and Plate's (2013) research on American educators. The diverse interpretations of the climate change education's objectives and the range of teaching methods employed by educators are particularly noteworthy. This is especially significant in the context of Pakistan's evolving and somewhat decentralized education system, which has undergone changes following the 18th Amendment (Inter Provincial Coordination Division, Government of Pakistan, 2010). While the Pakistani government provides strong support for climate change education (Ministry of Climate Change and Environmental Coordination, Government of Pakistan), it is noteworthy that eight educators have chosen distinct perspectives and teaching approaches.

Notably, these teachers employ similar reasoning and justifications as the Pakistani government, even though they support different teaching approaches. For instance, some educators aim to emphasize environmental awareness when teaching about climate change. However, this can sometimes conflict with other educational objectives, such as promoting critical thinking, as outlined in Pakistan Vision 2025. As a result, certain teachers prioritize instilling specific values and attitudes that align

with the Ministry of Education's guidelines. On the other hand, some educators emphasize critical thinking, analysis, and thoughtful inquiry, which are emphasized in various sections of the same curriculum document.

This suggests that educators initially base their choices regarding climate change education on their personal beliefs and subsequently rationalize them by aligning with government policies that support their views. This adaptive approach mirrors Deed et al. (2020) assertion that educators adjust their strategies based on what is achievable within their educational context. It is also essential to consider Pakistan's changing educational landscape, particularly in the wake of the 18th Amendment, which has decentralized elements of the education system. This shift introduces new dynamics and complexities to how climate change education is perceived and practised in Pakistan.

Educational Differentiation and Addressing Controversial Topics in Pakistan

While substantial research has explored educational differentiation, limited attention has been directed towards its implications for handling contentious topics within the school environment, particularly in Pakistan. Educators' beliefs concerning their students' capabilities have added intricacy to their understanding of climate change education's purpose and instructional choices. Six of the twelve teachers raised concerns about their student's readiness to engage with the contentious aspects of climate change due to developmental or academic constraints. This concern aligns with recent findings regarding Education for Sustainable Development: Challenges in Pakistan by Dhindsa (2016). For example, four teachers, including Bashir, Murtaza, Ibrahim, and Zohaib, believed that students in regular government schools lacked the maturity and capacity to grapple with the uncertainty and complexity of climate change. Consequently, they opted to manipulate facts and data, intentionally avoiding the introduction of alternative viewpoints to ensure student clarity. It made sense for them to skip discussing any topics that might cause arguments and teach what supported their beliefs. They wanted to inspire their students to care about the environment.

Among twelve participants, Ali and Abrar emerged as proponents of emphasizing critical thinking in climate change education. They also endorsed incorporating varying degrees of information into the Pakistani educational system. From their perspective, controversial subjects should be reserved for advanced classes to ensure clarity among less academically inclined students in Pakistan. They suggested that high order discussion only be limited to higher-achieving students/ classes. As revealed in recent research findings, these educators seemed to employ distinct teaching methods (Garrison & Bromley, 2004). They tended to simplify the subject by imparting specific climate change facts while avoiding in-depth discussions to

clarify what they perceived as "complex dialogues". Their approach aligned with the broader context in Pakistan, where educators, like their peers, opted to limit discussions on contentious topics for students deemed less academically proficient.

Furthermore, the authors observed a disparity in autonomy between teachers in elite schools and those in regular government schools in Pakistan when addressing such topics. "In a recent study conducted by Fatima, Noor, and Shafqat (2015), the authors advocated for a necessary shift in the landscape of geography education in Pakistan. Their research highlighted the importance of emphasizing problem-solving skills and collaborative knowledge development in the field of geography education. This approach is envisioned to empower all students, enabling them to actively engage as informed citizens. Moreover, Fatima, Noor, and Shafqat (2015) conducted a critical analysis of the current state of geography education in the Pakistani context. They shed light on the prevailing focus within the educational system, which primarily trains teachers to assume the role of decision-makers for society. However, this traditional approach may not be conducive to promoting equitable and widespread access to knowledge and resources. In response to these findings, Fatima, Noor, and Shafqat (2015) proposed an alternative path forward. They suggested that adopting more inclusive and community-based approaches to geography education could offer a more effective means of achieving educational goals and fostering active citizenship. Consequently, educators' beliefs in prioritizing critical thinking skills must be confined to geography teaching space with intellectually proficient students, which may pose challenges to the future participation of other students in citizenship activities within Pakistan.

Abrar shared similar concerns about whether secondary school students were prepared to comprehend complex scientific data related to climate change. He believed that such information should only be shared with competent students. Therefore, after evaluating the class's readiness, he would only delve into complicated topics if the students demonstrated a strong understanding. Conversely, the four other participants supporting critical thinking in climate change education adhered to a uniform teaching method, regardless of their students' academic levels or the nature of their educational institutions. Bashir, Zainab, Salma, and Saima all strived to nurture their students' critical thinking skills by engaging in discussions involving various perspectives on climate change. Saima, in particular, firmly believed that all students had the potential to excel. This conviction shaped his teaching approach, as he was confident that every student could learn effectively.

This study offers critical insights into the mindset of teachers in Pakistan and its profound impact on climate change education. Operating within Pakistan's distinctive sociopolitical and educational landscape, this research sheds light on two essential

aspects that resonate within Pakistan and have broader implications for geography and social studies teacher training worldwide. Firstly, this study underscores that teachers in Pakistan often have a preconceived mindset regarding climate change education. They tend to reserve detailed and in-depth climate change education primarily for academically excelling students. This mindset creates a divide in the educational experience, where academically proficient students receive a more comprehensive understanding of climate change while others are left with limited exposure. Secondly, this preset mindset among teachers reflects the belief that climate change education is of lesser importance than other pressing challenges the country faces. They perceive that students should prioritize subjects and issues of higher national importance.

Consequently, this mindset affects how climate change education is delivered and perceived in the classroom. In parallel with the need to enrich educators' knowledge of climate change, findings underscore the urgency for teacher educators and practitioners to engage in profound introspection. This means we must carefully check how well climate change education is holding up and ensure that all students, not just the smart ones, get to have good, brainy discussions about climate change. Climate change education should serve as an inclusive platform for all students, fostering comprehensive exploration and engagement with environmental issues. Addressing these mindsets among educators is essential to creating a more equitable and impactful climate change education system in Pakistan and beyond.

RECOMMENDATIONS

Promoting inclusivity in climate change education

Developing and implementing strategies that promote inclusivity in climate change education within Pakistan and beyond is imperative. Educators should be encouraged to adopt teaching methods and curricular approaches that ensure all students have access to comprehensive climate change education regardless of academic performance. This can be achieved through teacher training programs emphasizing inclusive pedagogical practices and providing educators with the tools to engage all students in meaningful discussions about climate change.

Raising awareness of climate change's global significance

To address the perception that climate change education is less important than other challenges, there is a need for broader awareness campaigns highlighting the global significance of climate change. These campaigns can target educators, policymakers, and the general public, emphasizing how climate change education contributes to environmental sustainability and broader social justice, economic stability, and global cooperation. Such awareness efforts can shift the mindset regarding the importance of climate change education in Pakistan and other regions facing similar challenges.

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