MULTIVARIATE BEHAVIORAL RESEARCH
2025, VOL. 60, NO. 6, 1229–1238

ECE Leadership in Action: Addressing Climate Change and Biodiversity

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ABSTRACT
Early childhood education (ECE) plays a critical role in shaping the values, attitudes, and behaviors of young learners, laying the groundwork for lifelong learning and responsible citizenship. In an era where climate change and biodiversity loss pose unprecedented challenges to the planet, ECE emerges as a powerful platform to introduce concepts of environmental stewardship and sustainability. Leadership within ECE settings is pivotal in transforming these early learning spaces into hubs of eco-conscious education, where young minds are sensitized to the interconnectedness of humans and nature. By navigating complex challenges and opportunities, ECE leaders can play a transformative role in embedding climate change and biodiversity education into the core of early learning. This study investigates the leadership roles of preschool heads in Lahore, Pakistan, focusing on promoting climate change and biodiversity education. Using a qualitative approach, interviews with seven school heads—four from public secondary schools with ECE on primary campuses and three from private ECE centers reveal their multifaceted roles. These include curriculum development, teacher training, fostering an eco-friendly culture, and community involvement. Despite facing resistance from some teachers and parents, these leaders are committed to cultivating environmentally conscious students through proactive and innovative strategies, continuous learning, and expert collaboration.

KEYWORDS
ECE, Climate Change, Biodiversity, Heads' role

1. Introduction

Climate change and environmental risks are pressing realities, particularly for students in disadvantaged communities who bear the brunt of these impacts. This issue is no longer a distant threat; it is already affecting health, livelihoods, and deepening global inequities. The situation is worsening, leading to widespread unpredictability and instability, and making climate change an all-encompassing challenge. Pakistan is among the nations directly experiencing the consequences of climate change, with each passing year bringing increasingly severe crises (Hussain, Mujahid, & Anwar, 2022). Though largely driven by human activities, the problems of climate change can—and must—be addressed through human efforts. Tackling climate change is essential for ensuring a better future.

Children and youth, witnessing the impacts on their world and future, often feel anxious and helpless. It is crucial to support their resilience, agency, and leadership so they can lead the

necessary solutions to the climate crisis, both now and in the future. Central to this effort is climate education.

Importance of Climate Education in Early Childhood

The perspectives of early childhood educators on climate change education have become increasingly important as the global community grapples with the escalating effects of climate change (Borg, Winberg, & Vinterek, 2019). Preschool education is pivotal in shaping early development and environmental awareness. When education helps students develop a strong personal connection to climate solutions, as well as a sense of personal agency and empowerment, it can significantly influence their daily behaviors and decision-making, thereby reducing their overall lifetime carbon footprint.

In Pakistan, the term Early Childhood Education (ECE) generally refers to "katchi" or one-year pre-primary education in public schools for children between 3 and 5 years of age. In private settings, children aged 3-6 undergo three years of education, mostly in the form of Kindergarten or Montessori. Following the 18th amendment to the constitution, ECE is now under the responsibility of the provinces, some of which have developed clear ECE policies and plans (UNESCO International Bureau of Education, 2006). By fostering climate education from an early age, we can empower the next generation to take meaningful action against climate change, creating a more sustainable and equitable world for all.

Impact of Climate Education

Cordero, Centeno, & Todd (2020) reported that if just 16 percent of high school students in high- and middle-income countries received climate change education, we could achieve a nearly 19-gigaton reduction in carbon dioxide emissions by 2050. This education has the added benefit of enhancing young people's ability to adapt to the severe impacts of climate change by equipping them with essential knowledge and a wide range of "green skills." These skills include a solid understanding of the causes of climate change and practical abilities such as problem-solving, critical thinking, teamwork, coping with uncertainty, empathy, and negotiation. These "transferable skills" are not only crucial for addressing climate challenges but also for thriving in the workforce and being constructive citizens.

Role of School Leadership in Climate Change Education

School leadership plays a pivotal role in advancing climate change education by setting a vision, establishing priorities, and fostering a culture that values sustainability. Effective leaders integrate climate change education into the curriculum, ensuring it aligns with broader educational goals and meets the needs of students. They advocate for professional development for teachers to enhance their understanding of climate issues and pedagogical strategies. Additionally, school leaders push for the allocation of resources and support for innovative teaching methods and projects focused on climate action. By actively engaging with students, parents, and the community, school leaders can inspire collective efforts to address climate challenges, embedding a sense of environmental responsibility and urgency within the school culture.

Everth and Bright (2023) argue that climate change education (CCE) should be integrated at all levels of the education system. They, along with Gilbert (2015), contend that leadership should create an environment that encourages and supports transformative learning and interactions rather than imposing top-down regulations. This approach inspires teachers and students to take ownership of the educational process, leveraging collective creativity for innovative solutions. Schools must redefine their operations to shift from cultural reproduction to active cultural transformation, embracing a post-humanist culture that recognizes its role in the climate emergency. This transition will require bold leadership.

The American Psychological Association (Clayton et al., 2017) offers five top tips for leaders and practitioners addressing climate concerns: (1) build belief in personal resilience, (2) foster optimism, (3) develop active coping and self-regulation skills, (4) maintain practices that provide a sense of meaning, and (5) promote connectedness to family, place, culture, and community.

Transforming Principals into Green Leaders

To create a sustainable environment, the concept of "green leadership" is crucial (Nurasa, 2024; Dhar, 2015; Malik, 2016). Transforming principals into green leaders involves equipping them with the knowledge, skills, and mindset necessary to spearhead sustainability initiatives within their schools. This transformation starts with training and professional development focused on environmental issues, sustainable practices, and green leadership principles. Principals must develop a deep understanding of climate change and its impact on education and communities.

Green leaders are expected to model sustainable behaviors, such as reducing waste, conserving energy, and incorporating eco-friendly practices into school operations. They play a key role in integrating environmental education into the curriculum, ensuring that students understand and engage with sustainability issues.

Additionally, transforming principals into green leaders involves fostering a culture of collaboration and innovation. They should encourage teachers and students to participate in green projects, such as school gardens or recycling programs, and create opportunities for community involvement in sustainability efforts. Effective green leaders also advocate for policy changes and seek partnerships with local organizations to support their green initiatives.

Overall, the shift towards green leadership requires principals to be visionary and proactive, using their position to drive meaningful environmental change and inspire others to contribute to a sustainable future. As environmental issues related to climate change become increasingly pressing, there is a growing need to transform today's principals into green leaders. As heads of educational institutions, principals can leverage their influence to raise awareness of climate change and biodiversity through various forms of education. Teachers, likewise, must possess a strong understanding of climate change to prepare a climate-resilient society (Chiedozie et al., 2015).

Gole (2012) defines green leadership as a style that is eco-friendly and promotes and practices climate change mitigation and resilience actions. Green leadership in schools is seen as a way to create greater awareness of climate change and instill climate change issues in our 21st-century learners (Ali, 2019). Green leadership is characterized as transformational management that strongly emphasizes motivating people to support environmental and green activities (Nawaz, 2023). Several academics acknowledge that green leadership supports pro-environmental behaviors and improves environmental performance (Jamshed, 2022).

By integrating climate education into early childhood education (ECE) and fostering green leadership among school leaders, we can create a robust foundation for addressing climate change. This approach not only equips young learners with the knowledge and skills necessary to tackle environmental challenges but also instills a sense of agency and empowerment, ensuring a more sustainable future for all.

Research Gap

Despite the growing body of international literature on climate change education and school leadership, existing research has largely focused on primary, secondary, or higher education contexts, with comparatively limited empirical attention given to early childhood education (ECE) leadership—particularly in developing countries. Much of the scholarship conceptualizes climate education at a curricular or policy level, while the lived leadership practices of ECE heads responsible for translating sustainability ideals into day-to-day institutional realities remain underexplored. Moreover, studies that do address "green leadership" tend to emphasize organizational performance or teacher behavior, rather than examining how school leaders in early childhood settings navigate curriculum constraints, parental resistance, resource limitations, and professional capacity gaps when introducing complex concepts such as climate change and biodiversity to very young learners.

In the Pakistani context, this gap is even more pronounced. Although Pakistan is highly vulnerable to climate change impacts, there is a paucity of qualitative, context-sensitive research that documents how ECE leaders perceive their roles, strengths, challenges, and opportunities in promoting climate and biodiversity education. Existing studies have not sufficiently captured how leadership practices are shaped by local socio-cultural realities, institutional structures, and policy environments in ECE settings. Consequently, there is limited evidence to inform leadership development, policy

formulation, and targeted professional support for ECE heads tasked with advancing sustainability education at the foundational stage of learning.

Addressing this gap, the present study aims to explore the leadership practices of Early Childhood Education heads in Lahore, Pakistan, with specific reference to their role in promoting climate change and biodiversity education. By adopting a qualitative approach, the study seeks to generate in-depth insights into how ECE leaders conceptualize their responsibilities, leverage their strengths, navigate skill and knowledge gaps, and respond to contextual challenges. In doing so, the study contributes original, context-specific evidence to the emerging discourse on green leadership in early childhood education and offers practical implications for leadership development, policy alignment, and sustainable educational practices in climate-vulnerable settings.

2. Methodology

Research Design

This study employed a qualitative research design to gain an in-depth understanding of the leadership practices of Early Childhood Education (ECE) heads in promoting climate change and biodiversity education. A qualitative approach was deemed appropriate as it allows for the exploration of participants' perceptions, experiences, and meanings within their real-life institutional contexts. Given the exploratory nature of the study and the limited empirical research on ECE leadership for sustainability in Pakistan, this design enabled the researchers to capture rich, context-specific insights that would not be accessible through quantitative methods.

Research Context and Participants

The study was conducted in Lahore, Pakistan, a major metropolitan city with a diverse mix of public and private educational institutions. The participants comprised seven ECE heads, selected from both public and private sector institutions offering early childhood education programs. Four participants were drawn from public secondary schools operating ECE programs on their primary campuses, while three were from private ECE centers.

A purposive sampling strategy was used to select participants who were directly responsible for administrative leadership, curriculum oversight, and teacher supervision within ECE settings. This ensured that participants possessed relevant experience and decision-making authority related to environmental education initiatives. All participants had professional qualifications in education and several years of experience in early childhood leadership roles.

Data Collection

Data were collected through semi-structured, in-depth interviews, which allowed flexibility to probe participants' experiences while ensuring consistency across interviews. An interview guide was developed based on a review of relevant literature on climate change education, green leadership, and early childhood education. The guide included open-ended questions focusing on participants' roles and responsibilities, leadership strengths, skills and knowledge gaps, opportunities for advancing environmental education, and challenges faced in integrating climate change and biodiversity concepts into ECE programs.

Interviews were conducted in person at participants' respective institutions at times convenient for them. Each interview lasted approximately 40–60 minutes. With participants' informed consent, interviews were audio-recorded to ensure accuracy and later transcribed verbatim for analysis. To maintain confidentiality, participants were assigned pseudonyms (H1–H7).

Data Analysis

The data were analyzed using thematic analysis, following the systematic procedures outlined by Braun and Clarke. Analysis began with repeated reading of the interview transcripts to achieve data familiarization. Initial codes were then generated to identify meaningful segments of data related to leadership practices and environmental education. These codes were subsequently reviewed, refined, and organized into broader categories.

Through an iterative process, five overarching themes emerged:

(1) roles and responsibilities of ECE heads,

(2) leadership strengths and qualities,

(3) skills and knowledge gaps,

(4) opportunities for advancing environmental education, and (5) challenges in promoting climate change and biodiversity education.

Thematic patterns were continuously compared across participants to ensure consistency and depth of interpretation. Representative quotations were selected to illustrate each theme and to preserve participants' authentic voices.

Trustworthiness and Rigor

To enhance the trustworthiness of the study, several strategies were employed. Credibility was ensured through prolonged engagement with the data and careful verification of themes against the original transcripts. Member checking was conducted by sharing summarized interpretations with selected participants to confirm the accuracy of findings. Dependability was supported through the maintenance of an audit trail documenting coding decisions and analytical steps. Transferability was addressed by providing detailed descriptions of the research context, participants, and procedures, allowing readers to assess the applicability of findings to similar settings.

Ethical Considerations

Ethical principles were strictly observed throughout the study. Participants were informed about the purpose of the research, the voluntary nature of their participation, and their right to withdraw at any stage without penalty. Written informed consent was obtained prior to data collection. Confidentiality and anonymity were maintained by removing identifying information from transcripts and research reports. The study adhered to institutional ethical guidelines for educational research.

Thematic Analysis

Table 1: Perspectives of Early Childhood Education (ECE) Heads on Their Responsibilities, Strengths, Skills, Opportunities, and Challenges

Themes	Key Data mentions
Role and responsibilities	• to create an environment • to engage with parents and the broader community • inclusion of environmental education in school policies and collaborate with local and national educational authorities • ongoing professional development for teachers • to develop a school culture that prioritizes environmental awareness and sustainability • to promote experiential learning opportunities that allow students to engage with nature and understand ecological concepts firsthand • to assess the effectiveness of our environmental education programs
Strengths or qualities	• deep commitment to environmental issues • ability to articulate a clear vision for environmental education • looking for creative and effective ways to engage young learners with environmental concepts • working collaboratively with teachers, parents, and the community • strong background in early childhood education • continuous learning and stay updated on the latest research and best practices • adept at identifying and utilizing available resources
Skills or knowledge	• Lack of continuous professional development and access to updated resources • Limited high-quality, age-appropriate educational materials and resources • skills in community outreach and communication • assessing the impact of our environmental education program • need for deeper scientific knowledge • Access to updated and high-quality resources
Opportunities	• Developing and incorporating comprehensive environmental education modules into our existing curriculum • Organizing workshops and training sessions for teachers • sustainable practices can provide hands-on learning experiences • Implementing and promoting eco-friendly practices within the school • direct exposure to biodiversity • community-based environmental projects • extend learning beyond the classroom and encourage broader community involvement
Challenges	• maintaining a balance between teaching about biodiversity and climate crises alongside the regular curriculum • lack of specialized resources and materials tailored for young children • training and support for teachers • resistance from parents and the broader community • Securing funding for extracurricular activities and resources that support biodiversity and climate crisis education • already crowded curriculum

THEME 1: Roles and Responsibilities

When Heads were asked about their role and responsibilities as the school head in promoting learning about biodiversity and climate crises in early childhood schools, they said

H1: I work to create an environment that fosters curiosity and respect for nature. This includes organizing outdoor activities, such as nature walks and gardening projects, that allow children to interact directly with the environment. Additionally, I facilitate workshops and training sessions for teachers to ensure they are well-equipped with the knowledge and skills to teach these critical subjects effectively.

H2: To me an important responsibility of heads in ECE schools is to engage with parents and the broader community to raise awareness about the importance of early environmental education. This includes hosting informational sessions, distributing educational materials, and encouraging sustainable practices at home and within the community.

H3: I advocate for the inclusion of environmental education in school policies and collaborate with local and national educational authorities to ensure that our programs align with broader environmental goals and standards.

H4: I try to provide ongoing professional development for teachers, equipping them with the knowledge and skills needed to effectively teach young children about environmental issues. This includes workshops and access to relevant resources.

H5: I try to develop a school culture that prioritizes environmental awareness and sustainability. This includes implementing practices such as recycling programs, energy conservation initiatives, and the use of eco-friendly materials.

H6: I promote experiential learning opportunities that allow students to engage with nature and understand ecological concepts firsthand. Activities like gardening, nature walks, and interactive projects help students grasp the importance of biodiversity and the impact of climate change.

H7: I regularly assess the effectiveness of our environmental education programs, gathering feedback from teachers, students, and parents to continuously improve our approach. This helps ensure that our efforts are making a tangible impact on students' understanding and behaviors.

THEME 2: STRENGTHS OR QUALITIES

When Heads were asked about their strengths or qualities they believe they bring to the promotion of learning about biodiversity and climate crises within their schools, they told

H1: My deep commitment to environmental issues drives my efforts to integrate biodiversity and climate education into our school's curriculum. This passion inspires both teachers and students to engage with these critical topics.

H2: My ability to articulate a clear vision for environmental education and lead by example fosters a unified and proactive approach within the school.

H3: I am always looking for creative and effective ways to engage young learners with environmental concepts like designing interactive and experiential learning activities.

H4: I believe in working collaboratively with teachers, parents, and the community to create a supportive environment for environmental education.

H5: My strong background in early childhood education allows me to tailor environmental education strategies to be age-appropriate, ensuring that the content is both educational and engaging.

H6: I prioritize my own continuous learning and stay updated on the latest research and best practices in environmental education.

H7: I am adept at identifying and utilizing available resources to enhance our environmental education efforts.

THEME 3: Lack of Skills or Knowledge

When Heads were asked about any areas where they feel their skills or knowledge are lacking in the context of promoting biodiversity and climate crisis education in early childhood schools, they pointed out

H1: Continuous professional development and access to updated resources are crucial to ensure that I am providing accurate and relevant information to both teachers and students.

H2: Access to high-quality, age-appropriate educational materials and resources specifically designed for early childhood education on these topics can sometimes be limited.

H3: While I facilitate training for teachers, I also need continuous professional development to deepen my own understanding and leadership in this area.

H4: Enhancing my skills in community outreach and communication can help build stronger support and participation in our programs.

H5: Developing and implementing effective tools for assessing the impact of our environmental education programs is an area where I could improve. Understanding how to measure changes in students' knowledge, attitudes, and behaviors regarding environmental issues would provide valuable insights into the effectiveness of our efforts.

H6: Although I have a basic understanding of biodiversity and climate change, I recognize the need for deeper scientific knowledge to effectively convey complex concepts to young children and answer their questions accurately.

H7: Keeping up with the latest resources, tools, and educational materials related to biodiversity and climate education can be challenging. Access to updated and high-

quality resources would enhance our curriculum and teaching practices.

THEME 4: Opportunities

When Heads were asked about opportunities, both within and outside the school, they see for enhancing biodiversity and climate crisis education, they told

H1: Developing and incorporating comprehensive environmental education modules into our existing curriculum can provide students with continuous exposure to biodiversity and climate crisis topics.

H2: Organizing workshops and training sessions for teachers focused on the latest teaching methods and resources for environmental education can enhance their ability to engage students effectively.

H3: Creating and maintaining a school garden where students can learn about plant life, ecosystems, and sustainable practices can provide hands-on learning experiences.

H4: Implementing and promoting eco-friendly practices within the school, such as recycling programs, energy conservation measures, and reducing plastic use, can serve as practical lessons for students.

H5: Organizing field trips to parks, nature reserves, and botanical gardens can give students direct exposure to biodiversity and the impacts of climate change, enhancing their understanding through real-world experiences.

H6: Involving students in community-based environmental projects, such as tree planting drives and clean-up campaigns, can foster a sense of responsibility and active participation in environmental conservation.

H7: Conducting workshops for parents and community members on the importance of biodiversity and climate crisis education can extend learning beyond the classroom and encourage broader community involvement.

THEME 5: Challenges

When heads were asked about challenges they have encountered in promoting biodiversity and climate crisis education, they told

H1: Being a head of ECE school, maintaining a balance between teaching about biodiversity and climate crises alongside the regular curriculum presents several challenges. One major difficulty is the limited time within the school day, as integrating comprehensive environmental education can be demanding without compromising core subjects like literacy and numeracy.

H2: there is often a lack of specialized resources and materials tailored for young children to effectively teach complex environmental topics.

H3: Teachers may also need more training and support to feel confident in delivering this content, further complicating its integration.

H4: there can be resistance from parents and the broader community who may prioritize traditional academic subjects over environmental education.

H5: Securing funding for extracurricular activities and resources that support biodiversity and climate crisis education can be a significant hurdle, impacting our ability to provide enriching, hands-on learning experience.

H6: The primary difficulty lies in the already crowded curriculum, which leaves limited time for additional subjects.

H7: the varying levels of awareness and interest among parents and the community, which can impact the support and reinforcement of environmental education at home.

3. Conclusions

Based on thematic analysis of ECE ‘s heads perspective, it can be concluded that the heads of Early Childhood Education (ECE) play a crucial role in shaping a nurturing and supportive environment that fosters early development and environmental awareness. They are responsible for creating an atmosphere that encourages exploration and curiosity about the natural world. Engaging with parents and the broader community is essential, as it ensures a cohesive approach to environmental education that extends beyond the classroom. These leaders work to include environmental education in school policies and collaborate with local and national educational authorities to align their efforts with broader educational goals. Ongoing professional development for teachers is another critical responsibility, ensuring that educators are well-equipped with the knowledge and skills needed to effectively teach environmental concepts. Developing a school culture that prioritizes environmental awareness and sustainability is a key focus, as it helps instill

these values in students from a young age. Promoting experiential learning opportunities allows students to engage with nature and understand ecological concepts firsthand, making the learning process more tangible and impactful. Additionally, assessing the effectiveness of environmental education programs is vital to ensure continuous improvement and the achievement of educational objectives. Through these multifaceted roles and responsibilities, heads of ECE play an integral part in cultivating environmentally conscious future generations.

Second theme was Strengths or qualities. It was found that The heads of Early Childhood Education (ECE) demonstrate a deep commitment to environmental issues, crucial in shaping the future perspectives of young learners. They possess the ability to articulate a clear vision for environmental education, ensuring that it is a central component of the curriculum. Their role involves looking for creative and effective ways to engage young learners with environmental concepts, making complex topics like biodiversity and climate change accessible and interesting. They work collaboratively with teachers, parents, and the community to build a supportive network that enhances the learning experience. With a strong background in early childhood education, these heads continuously learn and stay updated on the latest research and best practices. They are adept at identifying and utilizing available resources, maximizing the impact of their environmental education initiatives. This combination of vision, collaboration, expertise, and resourcefulness enables them to effectively promote sustainability and environmental awareness among young students.

Third theme was Skills or knowledge. When asked about areas where they felt their skills or knowledge were lacking in promoting biodiversity and climate crisis education in early childhood schools, the heads pointed out several key challenges. They noted a lack of continuous professional development and access to updated resources, which hampers their ability to stay current with the latest educational practices. There is also a limited availability of high-quality, age-appropriate educational materials and resources, making it difficult to effectively engage young learners. Additionally, they identified a need to improve their skills in community outreach and communication to better involve parents and the wider community in environmental education. Assessing the impact of their environmental education programs is another area where they feel less confident, indicating a need for better evaluation tools and techniques. Furthermore, they expressed a desire for deeper scientific knowledge to enhance their understanding and teaching of complex environmental issues. Access to updated and high-quality resources remains a persistent challenge that they hope to overcome to better support their educational initiatives.

Fourth theme was opportunities. When asked about opportunities for enhancing biodiversity and climate crisis education, both within and outside the school, the heads identified several key strategies. They emphasized the importance of developing and incorporating comprehensive environmental education modules into the existing curriculum. Organizing workshops and training sessions for teachers was highlighted as a crucial step to equip educators with the necessary skills and knowledge. The heads also recognized the value of implementing and promoting eco-friendly practices within the school, as these sustainable practices provide hands-on learning experiences for students. Direct exposure to biodiversity through activities and projects was seen as vital for fostering a deeper understanding and appreciation of the environment. Additionally, they suggested community-based environmental projects to extend learning beyond the classroom and encourage broader community involvement in sustainability efforts.

Fifth theme was challenges. When asked about the challenges they have encountered in promoting biodiversity and climate crisis education, the heads highlighted several key issues. One major challenge is maintaining a balance between teaching about biodiversity and climate crises alongside the regular curriculum. They also pointed out the lack of specialized resources and materials tailored for young children, which makes it difficult to effectively convey these complex topics. Training and support for teachers are often insufficient, further complicating the integration of environmental education. Additionally, they face resistance from parents and the broader community, who may not fully understand the importance of

this education. Securing funding for extracurricular activities and resources that support biodiversity and climate crisis education is another significant hurdle. The already crowded curriculum poses an ongoing challenge, leaving limited time to dedicate to these crucial topics. Despite these obstacles, the heads remain committed to fostering environmental awareness among their students.

REFERENCES

Ali, W(2019). Green Leadership as an Emerging Style for Addressing Climate Change Issues in Schools, Journal of Social Sciences, 15,58-68

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Borg, F., Winberg, M., & Vinterek, M. (2019). Children's learning for a sustainable society: Influences from home and preschool. *Education Inquiry*, *10*(2), 151–172. https://doi.org/10.1080/20004508.2018.1518321

Chiedozie, O.L., C.O. Ezeugbor and F.O. Okoye, 2015.Climate change awareness and institutional management strategies by principals of secondary schools in Anambra State. British J. Educat., 3: 32-40.

Cordero EC, Centeno D, Todd AM (2020) The role of climate change education on individual lifetime carbon emissions. PLoS ONE 15(2): e0206266. https://doi.org/10.1371/journal.pone.0206266

Clayton, S., Manning, C., Krygsman, K., & Speiser, M. (2017). Mental health and our changing climate: Impacts, implications, and guidance. American Psychological Association and ecoAmerica. https:// www.apa.org/news/press/releases/2017/03/mentalhealth-climate.pdf

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). SAGE Publications.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

Davis, J. M. (2015). Young children and the environment: Early education for sustainability. *Cambridge Journal of Education*, *45*(1), 1–13. https://doi.org/10.1080/0305764X.2014.960911

Elliott, S., & Davis, J. (2018). Exploring the resistance: An Australian perspective on educating for sustainability in early childhood education. *International Journal of Early Childhood*, *50*(1), 51–65. https://doi.org/10.1007/s13158-018-0225-6

Everth, T., & Bright, R. (2023). Climate change and the assemblages of school leaderships. Australian Journal of Environmental Education 39,17–36. https://doi.org/10.1017/aee.2022.8

Ferreira, J.-A., Ryan, L., & Tilbury, D. (2007). Mainstreaming education for sustainable development in initial teacher education in Australia. *Environmental Education Research*, *13*(2), 225–245. https://doi.org/10.1350462070129644 2

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, *18*(1), 59–82. https://doi.org/10.1177/1525822X05279903

Hedefalk, M., Almqvist, J., & Östman, L. (2015). Education for sustainable development in early childhood education: A review of the research literature. *Environmental Education Research, 21*(7), 975–990. https://doi.org/10.1080/13504622.2014.971716

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Malik, S. Z., Saleem, M., & Naeem, R. (2016). Effect of Leadership Styles on Organizational Citizenship Behavior in Employees of Telecom Sector in Pakistan. Pakistan Economic and Social Review, 54(2), 385–406. https://www.jstor.org/stable/26616714

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

Mittal, S., & Dhar, R. L. (2015). Transformational leadership and employee creativity: Mediating role of creative self-efficacy and moderating role of knowledge sharing. Management Decision, 53(5), 894–910. https://doi.org/10.1108/MD-07-2014-0464

Nawaz Khan, A. (2023). Is green leadership associated with employees' green behavior? Role of green human resource management. Journal of Environmental Planning and Management, 66(9), 1962-1982.

Nurasa, H., Putri, S. S. U., Abdillah, A., Widianingsih, I. (2024). Green Leadership in Policy Making towards Sustainable Future: Systematic Critical Review and Future Direction. Polish Journal of Environmental Studies. https://doi.org/10.15244/pjoes/186576

Jamshed, K., Shah, S. H. A., Majeed, Z., Al-Ghazali, B. M., & Jamshaid, S. (2022). Role of green leadership and green training on the green process innovation: mediation of green managerial innovation. Journal of Xidian University, 16(2), 66-72.

OECD. (2018). *Preparing our youth for an inclusive and sustainable world: The OECD PISA global competence framework*. OECD Publishing.

Patton, M. Q. (2015). *Qualitative research and evaluation methods* (4th ed.). SAGE Publications.

Tilbury, D. (2011). Education for sustainable development: An expert review of processes and learning. *UNESCO*.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.