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The Connecting Classrooms Project: The Role of School Leadership in Implementing Education for Sustainable Development

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Abstract

Education for Sustainable Development is recognized as a fundamental component of Sustainable Development Goals, and its concept holds greater significance within Educational Systems. The effective implementation involves all stakeholders' collective motivation and efforts. The school leadership plays a critical role to promote a sustainable school culture. This research study is based on the Connecting Classroom Project for Education for Sustainable Development. The purpose of this case study was to explore the role of school leadership in effective implementation of Connecting Classroom Project for ESD in private secondary schools in Karachi. The purposive sampling comprised 18 participants. The data were collected through in-depth face-to-face interviews. For thematic analysis, the study incorporated the coding process using transcribed data from audio recordings. The results indicated that school leadership is a crucial component in building and maintaining ESD practices. The best approaches found for successful implementation were collaborative, distributed and context-sensitive leadership approaches. In addition, curriculum integration, teacher capacity building, international cooperation, resources, monitoring mechanisms and institutional support were found to be important factors that impact the implementation of ESD. The study suggests that within the realm of ESD, these dimensions can be strengthened to enhance the effectiveness of ESD in schools and that they can help to create responsible, reflective and active citizens who can help to tackle local and global sustainability issues.

Keywords: Sustainability, Sustainable Development Goals, Education for Sustainable Development, School Leadership, Connecting Classrooms Project, International School Award, and International School Coordinators. Context-sensitive Leadership Approaches

Introduction

The conception of ESD took place, when the United Nations created the World Commission on Environment and Development (WCED) in 1987 to establish "A global agenda for change," the phrase "sustainable development" was first used. "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" is the definition of sustainable development (WCED 1987, p. 43). Education plays a critical part in a person's success in any field. Education teaches pupils skills that improve their abilities, prepare them physically, and develop them mentally. It is not only necessary to have subject knowledge for good teaching, but it is also necessary to have effective abilities. If the researcher looks at it from a broader perspective, it may be claimed that it is a blend of thinking and feeling (Mehmood, Qasim, & Azam, 2013). In accordance with this global commitment, the education sector aims to create a world where everyone has access to quality education that equips them with the knowledge, skills, values, and behaviors necessary for a sustainable future (UNESCO, 2005). Cultivating informed and engaged citizens is crucial for addressing pressing environmental and societal challenges.

As a developing country, it is critical that we identify the aspects that are critical for the country's academic prosperity. Pakistan faces numerous educational difficulties that must be addressed. We must handle the difficulties and factors associated with it since it has the potential to contribute to long-term economic prosperity. School principals play a critical role in maintaining a healthy learning and teaching environment in the classroom. Principals are under even more pressure

to enhance school environment, instructional practice, and student outcomes as a result of recent educational policy innovations, such as high-stakes teacher evaluation systems and higher levels of external accountability (Liebowitz & Porter, 2019).

The contemporary world is confronted by a multitude of environmental and social crises, including climate change, habitat loss, resource depletion, unemployment, inequality, war, and poverty (Romm, 2016). These interconnected challenges threaten the stability of our planet and necessitate immediate action to achieve a sustainable future. Scholars have argued that unsustainable human lifestyles and practices are driving us toward a collision course with the natural world (Scipes, 2017). Climate change serves as a stark example; human activities are demonstrably warming the planet, resulting in significant global environmental disruptions (IPCC, 2013).

The urgency of the situation demands transformative change across various sectors, including education. Education is widely recognized as a "primary agent of transformation" (Ciferri & Lombardi, 2009, p. 1) capable of empowering individuals and ultimately leading to a harmonious and peaceful society (Tucker, 2017). It cultivates values of environmental stewardship and fosters a deep understanding of the interconnectedness of human and natural systems. UNESCO and other international bodies have emphasized the critical role of education in promoting sustainable development (SD) or Education for Sustainable Development (ESD) principles and values (UNESCO, 2014). Agenda 21, a product of the Earth Summit in 1992, explicitly identifies education as an essential tool for achieving sustainability (UNESCO, 2010).

A crucial idea in education to address the issues of poverty, environmental degradation, and social inequality is sustainability education, often known as education for sustainable development (ESD) (Biasutti & Frate, 2017). ESD has been seen as a tool to help people change their beliefs, attitudes, and way of life in order to guarantee a sustainable future for everybody (UNESCO, 2005). Emerging from international conferences and summits, ESD proposes a transformative approach to education that empowers individuals to create a sustainable society for all (UNESCO, 2002). ESD implementation requires concerted action from various sectors of society. In the context of schools, leadership plays a critical role in fostering a sustainable school culture. This goes beyond individual leaders and their actions; it necessitates a focus on collaborative leadership practices that involve multiple actors interacting and utilizing resources effectively to advance ESD (Raelin, 2016; Simpson, 2016).

School leadership plays a crucial role in fostering sustainable community development (Mogaji & Newton, 2020), particularly in light of the responsibilities entrusted to educational institutions in driving societal progress (Harber & Mncube, 2011). This aligns with the statement by President Nelson Mandela, as cited by USAID (2013), that "education is the most powerful weapon which you can use to change the world" (para. 1). Such assertions highlight the transformative potential of education in advancing sustainable development. Within this context, the responsibilities of school leaders become particularly significant.

Research Statement

Education for Sustainable Development (ESD) in any given society primarily aims to bring sustainability into people's social, economic, and environmental lives. "Education for sustainable development" encompasses attributes such as gender equality, environmental preservation, social justice, pollution control, poverty and illiteracy reduction, tolerance, and peace. The development of learners' skills and self-confidence in dealing with changing, complex situations and acceptable value systems for societal cohesion is facilitated by education for sustainable development. The ESD methodology that was introduced by UNESCO emphasizes a move toward experiential learning and active involvement, which encourages students to think critically and develop their capacity for responsible citizenship. Even with UNESCO's dedication to ESD, most schools take a while to apply it, which causes a gap between the knowledge, skills, and attitudes that students acquire and the behavior they display. The goals of ESD to instill values and attitudes for responsible, engaged, and creative citizenship in a democratic society are undermined by the emphasis placed on cognitive skills rather than affective and psychomotor abilities (Lilian, 2022).

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(Lilian, 2022). The core of ESD is school leaders. The success of Education for Sustainable Development (ESD) heavily relies on the effectiveness of school leaders. Their crucial responsibilities include planning and coordinating the implementation of ESD among all school personnel, all the while ensuring alignment with national policies and school procedures that support ESD (Abidin, Mokhtar, & Arsat, 2023). They need to be fully versed in ESD, sustainable development, and sustainable schools. They also need to know how they can influence the changes that are required to create sustainable schools (Holden et al., 2014). The field of ESD has been extremely significant to school leaders. Gaining a solid understanding of the ESD program requires an understanding of the concept and various approaches that support educational change (Mogaji & Newton, 2020).

Research Questions

The study explores how school leadership helps to implement ESD in secondary schools of Karachi. The question that guides the study is how school leaders perceive, support, and implement ESD in their school context. The study also examines the impact of leadership practices on participation, involvement, curriculum, and sustainability activities of teachers and students within schools. The research questions also seek to determine the key issues identified by schools' leaders in implementing ESD and the support required for ESD to be more effective and sustainable in the secondary schools:

RQ1. How do school leaders and ISA coordinators conceptualize and value Education for Sustainable Development (ESD) within their school context?

RQ2. What leadership practices, strategies, and structures are used to implement ESD and Connecting Classrooms initiatives in schools?

RQ3. How do principals, ISA coordinators, and teachers collaborate and share leadership responsibilities in implementing ESD initiatives?

RQ4. What resources, supports, and challenges affect the implementation of ESD and international collaboration projects in schools?

Significance of the Study

ESD is defined as a transformative learning process that provides knowledge and cognitive frameworks to teachers, students, and educational systems (Chinedu, Wan-Mohamed, & Ogbonnia, 2018). This process develops students' knowledge and abilities, increasing their awareness and compassion for their environment. Integrating ESD components into instructional strategies is crucial for disseminating knowledge and increasing awareness regarding sustainable development. ESD is a related component and a learning goal that encourages people, particularly students, to adopt and live by sustainable principles (Bertschy et al., 2013),

Promoting environmental preservation, social development, and economic sustainability is the core tenet of education for sustainable development (ESD) (Beka & Ciani, 2015). It is noted that the use of educational activities to address goals related to sustainable development has led to the birth of ESD as an innovative method (Kalsoom, 2019). There is a claim that educators should use a diverse and successful strategy, moving beyond traditional teaching strategies like reading materials and exams, to inculcate positive values and sustainable attributes in the country (Washington, 2018).

In spite of its significance in fostering moral principles, accountability, and consciousness, studies indicate that ESD has not gotten enough emphasis in the curriculum. Instructors prioritize environmental education over incorporating social and economic concepts into their lessons (Cebrián & Junyent, 2015). Education plays a widely recognized essential role in preparing communities and citizens for a well-developed environmental, sociological, and economic future. However, there is a lack of significant research on ESD in Malaysian schools (Yean, 2014). ESD has not received much attention in schools as a stand-alone subject and is typically linked to the Environmental Science course (Hanifah & Ahmad, 2014).

According to Haan et al. (2010), ESD is an essential component of a high-quality education for students, and they emphasize that the principles it promotes are still applicable to today's pressing issues for a sustainable future. This emphasizes how important it is to use intentional teaching strategies and engaging learning activities. According to other research, teachers' pedagogical strategies and methods have a big impact on what students learn (Pipere, 2015). According to Pipere's (2015) comparative study, teaching ESD necessitates an interdisciplinary approach to impart knowledge, values, and skills to students. This conclusion is because fostering awareness across the broader realms of the environment, society, and economy is necessary, even though cultivating values can be challenging. Beka and Ciani (2015) emphasize even further the vital connection between

educational approaches and ESD, stating that these approaches are essential for encouraging critical thinking, continuous learning, and the development of an ideal society (Watanabe, 2015). The study will explore the various factors involved in the successful implementation of ESD at the secondary level of schooling in Pakistan.

Literature Review

When the United Nations created the World Commission on Environment and Development (WCED) in 1987 to establish "A global agenda for change," the phrase "sustainable development" was born. "The development that meets the needs of the present without compromising the ability of future generations to meet their own needs" is the definition of sustainable development (WCED 1987, p. 43). This report, commonly known as the Brundtland Report, clearly linked social, economic, cultural, and environmental challenges. International and national agencies' definitions of sustainable development or sustainability have often been criticized for being vague, abstract, ambiguous, contradictory, and non-operational because they fail to specify the strategies and innovative practices required to create sustainable communities (Kates, Parris, and Leiserowitz, 2005). As a result, different definitions and perspectives from different fields, including economics, politics, education, and environmental sciences, coexist.

The concept of sustainable development has been firmly entrenched in the energy, environment and education debate (Agbedahin, 2019). Though it has become a common language of optimism about a brighter future, its meaning is clearly defined by the political, social and cultural context (Acaroglu, 2014). The intrinsic linkages between the needs of human beings and the environment (UNESCO, 2005) is the core of sustainable development. The phrase was made popular by the 1987 Brundtland Report of the World Commission on Environment and Development (WCED), which called for responsible behavior to avoid adverse consequences for future generations.

The Sustainable Development Goals (SDGs) must be reviewed to fully comprehend sustainable development. The SDGs, sometimes known as the "global goals," are a set of 17 interconnected objectives that are intended to serve as a guide for achieving a more affluent and sustainable future for everybody (UN, 2015). These objectives tackle urgent global concerns like population growth, resource depletion, inequality, and climate change, acknowledging the interdependence of the environment, social values and institutions, and ecosystems (Teerikangas et al., 2021).

The world community changed development priorities and outlined the 2030 development agenda with the adoption of the SDGs in response to the 2015 Millennium Development Goals (MDGs) (UN, 2015). The post-2015 discussions marked the conclusion of the MDG era, and the UN created a more targeted development plan known as "Transforming our world: The 2030 Agenda for Sustainable Development." International leaders pledged to move swiftly to end hunger and poverty, promote gender equality, empower women and girls, provide inclusive and egalitarian education, and create a healthy environment for all (Maurice, 2016).

The SDGs recognize that to achieve regional development goals, international cooperation and engagement on shared issues and concerns are essential. The United Nations established the Sustainable Development Goals (SDGs) in 2015 with the intention of achieving economic, social, and environmental development for all people by the year 2030. To maintain the wellness of the environment and all of its people, they also advocate for concentrated efforts to develop a sustainable culture (Verma & Peterson, 2018).

Despite their goals, the SDGs have faced criticism. Scholars have questioned whether they provide the greatest basis for addressing global issues. Notwithstanding the SDGs' professed objectives of guaranteeing a sustainable environment, equitable economic practices, and universal human rights, detractors have raised issues with public comprehension, unclear language, possible government abuse, the voluntary nature of participation, challenges in monitoring progress, financial injustices, power disparities, and a lack of leadership (Lim et al., 2018). Despite these objections, the SDGs align with demands for a "culture of sustainability" for the twenty-first century and beyond, which call for a change in viewpoint and a departure from the paradigms that gave rise to the current problems. grasping Education for Sustainable Development (ESD) in schools, a topic that necessitates policy research and implementation after grasping the concept of sustainable development, are made easier by this review of the literature.

Pakistan, Sustainable Development and Education

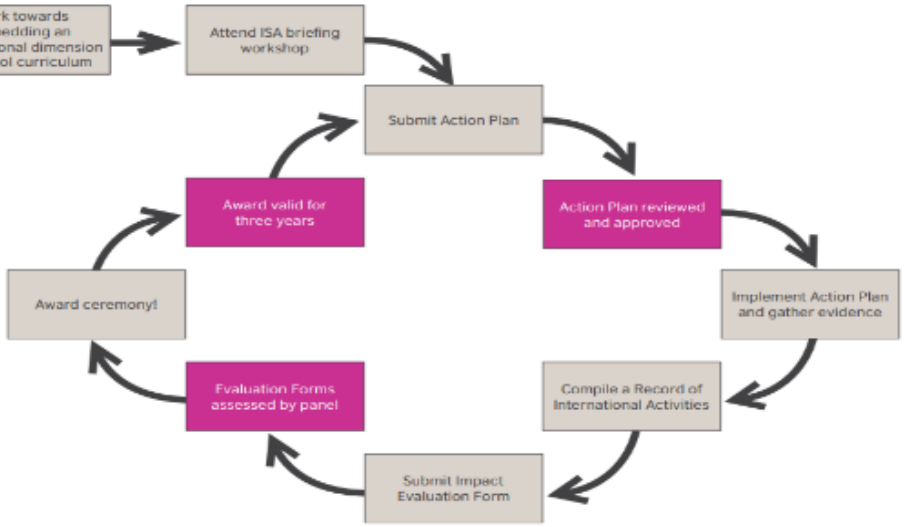
Recognizing its ability to enhance the lives of its residents and promote a healthy world, Pakistan responded to the global demand for sustainable development by ratifying the revolutionary Agenda 2030. The Sustainable Development Goals (SDGs) were unanimously adopted by the Pakistani National Parliament, reaffirming this commitment. At the national level, a specific Sustainable Development Goals Unit was created to aid in implementation and accomplish the lofty objectives. Coordination, data gathering, information sharing, research, policy creation, and progress tracking are all handled centrally by this unit. Its main objective is to suggest an action plan that unifies regional, national, and international initiatives to accomplish the SDGs.

Since its founding, Pakistan has been committed to the advancement of education. The nation has shown its dedication to educational growth by assiduously implementing a number of training initiatives and policy reforms, as well as by adhering to regional and global agreements. Notably, Pakistan has signed the Dakar Framework of Action 2015, the Education for All initiative (1990), and the Millennium Development Goals 2000. These pledges demonstrate Pakistan's enduring and steadfast commitment to enhancing its citizens' access to education. Pakistan is actively working to incorporate sustainability practices and ideas into its educational system in keeping with its commitment to the SDGs and expanding on its previous initiatives. This entails creating curricula that encourage global citizenship, responsible consumption, and environmental awareness; giving educators the tools they need to successfully teach sustainability-focused lessons; and creating an environment in schools that reflects sustainability values. These initiatives demonstrate Pakistan's steadfast support of international objectives and its commitment to using education to promote sustainable development. Pakistan is creating the foundation for a better future for its people and the world at large by emphasizing education and incorporating sustainability into its basic principles (Khushik & Diemer, 2020).

The primary problem with Pakistan's educational system is accessibility. UNICEF (2015) estimates that 22.8 million children between the ages of 5 and 16 do not attend school. Some of the reasons why children decide not to go to school include the general quality of education, the availability of textbooks and notebooks, the school's accessibility for the kids, the relevance of the curriculum, the teachers' animosity or lack of friendliness, the poverty that arises from the kids having to support their parents' hard-earned income, and the lack of textbooks or notebooks. Given Pakistan's existing educational situation, where gaining access to basic education remains a significant barrier for the country, it would be very challenging to reach the SDG targets by 2030 (Khushik & Diemer, 2020).

The Details of ISA Project

The British Council promotes Pakistan's boost in the society through education and personal growth development and promotes linkages between two countries. It runs various educational programmes, mainly for the youth aged 12–30, to improve educational opportunities, raise the voice of youth, build employable skills and better university linkages between Pakistan and the UK, for which English is used as one of the tools for understanding and education.



The Process of ISA Project

The International School Award (ISA) was launched in Pakistan in 2013 and over 250 schools have so far gained the Full Award. A wide variety of schools are participating, from large urban schools to small rural schools, from public to private schools, and from schools of underprivileged communities to schools of middle-class families. The British Council International School Award is now in place in 31 countries around the world.

Connecting Classroom

The Connecting Classrooms Project is designed to provide young people with the key learning outcomes of the 21st century to help them thrive in the inter-connected and changing world. The project builds on the UNESCO's pedagogies of depth and transversal skills, fostered active, inclusive and globally relevant education and enhances the quality of teaching and learning. It also assists schools in establishing effective partnerships with other local and global schools, facilitating the exchange of good practices, joint learning experiences and promoting Education for Sustainable Development (ESD) through legitimate incorporation of the Sustainable Development Goals (SDGs) into the school curriculum.

Transforming Core Skills

Investing in a good education for young people is essential to ensuring they are equipped with knowledge, skills and values that will help them participate in a globalized world in a meaningful way (UNESCO, 2015). Although access to schooling has improved, there are still significant challenges: while universal primary education has been achieved in many countries, many children in many countries are leaving school without basic skills as a result of poor school quality and infrastructure (UNESCO, 2016); and widespread intellectual disengagement is affecting student performance around the world (OECD, 2013). Thus, education systems are encouraged to change their focus from traditional learning skills toward 21st-century or "deep learning skills," such as communication and collaboration, critical thinking and creativity, innovation, learning to learn, metacognition, information literacy, ICT literacy, global citizenship, and civic responsibility (Binkley, 2012). Access to this kind of education, in either Karachi or Delhi, Colombo or Dhaka, Cairo or Istanbul, Lagos or Glasgow, Jakarta or Bogotá is crucial to individual success and the well-being of the community and society at large, sustainable development and stability in the world. The British Council builds on the strong pedagogies framework and UNESCO's notion of transversal skills, and has been working in great depth with a wide range of stakeholders in its network to develop these key skills and competencies. This is accomplished through targeted support for teachers to develop their pedagogical practices and to develop the ability to incorporate these essential skills into their teaching (Fullan & Langworthy, 2013; UNESCO, 2013). The following Core Skills promoted by the Connecting Classrooms Project are provided:

- Critical thinking and problem solving:
- Collaboration and Communication
- Creativity and Imagination
- Citizenship
- Digital Literacy

In the modern world, information is a competitive element that changes quickly, making it easy to access it from an endless number of sources. Information can be easily accessed through the use of computers, smart phones, social media and traditional media. The amount of information is not necessarily accompanied by the use of it efficiently (Gunduzalp, 2021).

School Leadership for ESD

Leadership for sustainability is a paradigm shift and changes the interpretation of leadership. This is more than just the use of well-known leadership models to address sustainability issues; it requires a change of mindset. The innovative approach is one that celebrates ‘a radically expanded understanding of leadership' (Ferdig, 2007, p. 33), and cherishes the irreplaceable role of people from all walks of life willing to contribute to the creation of a sustainable future. Unlike traditional paradigms of leadership focused on sustaining the status quo, sustainable leadership requires a careful consideration of the root causes of unsustainability. It involves a deep understanding of the social, cultural, economic and ecological consequences of our actions, and an understanding of the inter-connectedness of these systems (Foundation for Deep Ecology 2012).

Research Studies on ESD in Pakistan

In table 1, all these studies suggest that ESD is slowly gaining traction in the education system in Pakistan, yet it remains a low priority and is not uniformly implemented. Lack of teachers' preparedness, curriculum design, institutional support, pedagogical approach, and sustainability related skills have been consistently pointed out by researchers (Saqib et al., 2020; Kalsoom et al., 2017; Durrani et al., 2019; Hinduja et al., 2023). Thus it is important to review these studies and understand the current status and areas that need improvement in educational policy, curriculum, teacher training and in school practice:

Table 1. *Research Studies on ESD in Pakistan*

Title of Research	Researcher(s)	Focus of the Study
"Education for sustainable development in Pakistani higher education institutions: An exploratory study of students' and teachers' perceptions"	**Saqib, Z. A., Zhang, Q., Ou, J., Saqib, K. A., Majeed, S., & Razzaq, A. (2020)**	The study investigated the implementation and effectiveness of the ESD in the Pakistani higher education institutes based on the perceptions of students and teachers in public and private universities in Punjab. The study employed student and teacher survey information and centered on the extent that ESD was understood and practiced at University. It was found that ESD practices in HEIs in Pakistan were still relatively weak and superficial. The knowledge of teachers on sustainability was identified as limited, which had an impact on students' sustainability consciousness. The study found that curriculum reform, teacher preparation, and institutional support are necessary for the systematic integration of ESD in higher education (Saqib et al., 2020).
"Gap analysis of Global Citizenship Education \(GCED) and Education for Sustainable Development (ESD) in pre-service teacher education curriculum of Pakistan. "	**Bano, N., Hina, K. B., & Jumani, N. B. (2020).**	The researchers did a gap analysis of Global Citizenship Education and Education for Sustainable Development (ESD) in the pre-service teacher education (PSTE) curriculum of Pakistan. Qualitative content analysis was used in the study, and the study was conducted on the predetermined themes of the GCED and ESD themes in the B.Ed. Honours elementary curriculum subject outlines. It was found that there was a lack of representation of themes related to Target 4.7 in the curriculum. There is the presence of relevant content related to the grades covered by the GCED and ESD in some subjects, but not others, specifically health education subjects. The study suggested that curriculum should be revised for the incorporation of knowledge, competencies, values, and pedagogical approaches in GCED and ESD (Bano et al., 2020).
"Teacher educators' preparedness for re-orienting teacher education programs for sustainable development in Pakistan."	**Mirza, M. S., & Tajuddin. (2020)**	The research examined the readiness of teacher educators for changing the paradigm of teacher education into sustainable development in Pakistan. The study examined teacher educators' perceptions, knowledge, and institutional preparedness in integrating ESD in teacher education. The results indicated that although many teacher educators were aware of social problems like poverty, environmental degradation, and political instability as a threat to sustainable development, they did not have much knowledge about sustainable development and ESD (Mirza & Tajuddin, 2020).
"Sustainability in higher education institutions in Pakistan: A systematic review of progress and challenges"	**Hinduja, P., Mohammad, R. F., Siddiqui, S., Noor, S., & Hussain, A. (2023)**	The researchers performed a systematic review of sustainability in the higher education institutions in Pakistan. Twenty-six studies were retrieved for the analysis for sustainability and ESD in HE system of Pakistan. The results indicated that sustainability has been increasingly taken up but significant gaps exist in the integration of sustainability into the curriculum, learning outcomes, student and faculty awareness of sustainability, training faculty on sustainability, campus practices, governance, funding, and coordination of stakeholders (Hinduja et al., 2023).
"Exploring teachers' perceptions and practices in education	**Shakir, F., Naz, A., & Ahmed, S. M. (2024)**	The study examined teachers' perceptions and practices of education for sustainable development in public schools in the city of Karachi. The study was concentrated on the knowledge of

for sustainable development (ESD) in public schools of Karachi."		public-school teachers about ESD and their efforts to incorporate sustainability-related concepts into their teaching. The results revealed some understanding of the ESD concepts on the part of teachers and that teachers were aware that they can play a role in encouraging sustainability amongst their students (Shakir et al., 2024).
"Exploring the teacher educators practices for integrating education for sustainable development conceptions."	**Khadim, M., Jamil, S., & Yaqub, S. (2024)**	It studied the practices of teacher educators regarding the implementation of the concepts of ESD in teacher education programs in Pakistan. The study adopted a mixed research method and focused on the congruence of teacher educators' classroom practice with the global ESD standards. The results indicated that some active learning strategies were used by teacher educators such as project-based learning, collaborative tasks, and field-related activities. The study, however, revealed that integration was not yet systematic and the teacher educators required more training, awareness, and institutional support (Khadim et al., 2024).
"Understanding education for sustainable development: Prospective teachers' perspectives, pedagogical approaches, and implementation challenges."	**Jamil, M., Kamran, F., & Taj, S. (2024)**	The research was on the attitude, teaching methods, and implementation issues of prospective teachers about Education for Sustainable Development in a district of Punjab. This study adopted a qualitative phenomenological approach with six selected prospective teachers from private educational institutions by purposive sampling. Semi-structured interviews were used to gather data and then analyzed thematically using NVivo 15 software. The results revealed important themes regarding teachers' understanding of sustainability, ESD topics, students' skills needed to address sustainability, teaching approaches, and implementation challenges (Jamil et al., 2024).
"Education for sustainable development: An analysis of English textbook Grade-V."	**Jamil, M., Khalil, F., & Noorani, Z. (2024)**	This study was conducted to examine the lesson on Education for Sustainable Development in a Grade 5 English textbook used in Pakistan. The study employed a qualitative content analysis methodology using NVivo 12 software and the textbook was selected using purposive sampling technique. It analysed the textbook in various perspectives of sustainability such as environmental, social, economic, institutional, cultural and values-based. The results revealed that there were several themes that were connected to sustainability in the textbook, including themes of environmental awareness, empathy, ethical considerations, cultural heritage, and social responsibility (Jamil et al., 2024).
"An analysis of teachers' competencies for the implementation of Education for Sustainable Development (ESD) at primary level: A mixed method approach observational study"	**Afzaal, S., Munir, H., & Aleena (2025)**	Afzaal, Munir, and Aleena (2025) has looked at the competencies of primary school teachers for the implementation of Education for Sustainable Development in Multan, Pakistan. The study involved the participation of 30 teachers in semi-government and private primary schools, and questionnaires were the primary data collection instrument. The results indicated that teachers were interested in implementing ESD but lacked the skills associated with this implementation due to a lack of formal training, insufficient curriculum support, low interaction-based teaching ability and challenges of differentiating instruction in classrooms (Afzaal et al., 2025).

Education for Sustainable Development (ESD) in Pakistan is still in its developmental stage and has not yet been made a part of the education system. While there are signs of awareness, curriculum integration, and teachers' willingness to encourage sustainability, there are many common weaknesses in the literature, which include limited teacher training, inadequate curriculum alignment, insufficient institutional support, lack of resources, and weak practical implementation. Research indicates that future teachers are not adequately trained in ESD-oriented teaching, and the analysis of textbooks and curriculum shows that the themes of sustainability are either incomplete, disjointed, or unbalanced (Kalsoom & Khanam, 2017; Bano et al., 2020; Jamil, Khalil, & Noorani, 2024; Jamil, Mehmood, & Aslam, 2024).

Methodology

The approach in this study is a qualitative paradigm (Leavy, 2017) and the method used is a case study method, which is used to explore the phenomenon of the present time (the case) in its natural setting (Yin, 2018). The research questions and an interpretive, qualitative approach justified the use of the case study method. Therefore, it was a systematic way to gather and analyze data along with sharing the results. This qualitative research study used purposive sampling, a non-probability sampling technique often used in designs designed to gain a deep and rich understanding of the phenomenon or context of the study (Patten & Newhart, 2018). This method proved to be essential to identify the information-rich participants, i.e. those who have been directly involved with a particular international initiative studied.

Table 2. *Description of Demographic Profile*

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	7	38.9
	Female	11	61.1
Age	20–29	2	11.1
	30–39	8	44.4
	40–49	5	27.8
	50–59	3	16.7
	Principal	6	33.3
Designation	ISA Coordinator	6	33.3
	Teacher	6	33.3
Qualification	Bachelor's Degree	3	16.7
	Master's Degree	9	50
	MPhil/MS	5	27.8
	PhD	1	5.6
Experience	1–5 years	2	11.1
	6–10 years	4	22.2
	11–15 years	5	27.8
	16–20 years	4	22.2
	More than 20 years	3	16.7
Leadership Experience	None	2	11.1
	1–5 years	10	55.6
	6–10 years	4	22.2
	11–15 years	1	5.6
	More than 15 years	1	5.6
ISA Involvement	Less than 1 year	8	44.4
	1–3 years	6	33.3
	4–6 years	2	11.1
	More than 6 years	**2**	**11.1**

Sample and Sampling Technique

The participants were strategically selected from Pakistan's Pakistan Urban Development Authority (PUDA) earmarked community school based on their integral and key role in the International Schools Award (ISA) project which is being implemented under the framework of Connecting Classrooms as indicated in the table 1. The sample was carefully designed to include 18 important stakeholders: five principals, five ISA coordinators, and ten classroom teachers, in order to provide an overall sense of the operation at all levels.

Data Collection

The in-depth interviews were conducted by using semi-structured interview guides which were the main instruments used to collect data and were recognized as the best approach in qualitative research for the production of comprehensive and contextualized data and the documentation of the subjective experience of the participants (Braun & Clarke, 2013). During the final phase central concepts and categories were developed, and findings are presented.

Data Analysis and Discussion

Thematic analysis was applied to the data from the principals' and coordinators of the ISA interviews in the study to analyze what they had said about how they had implemented Education for Sustainable Development in their schools, using the Connecting Classrooms project. The recordings from the interviews were transcribed and proceeded to open coded and then axial coding, and finally organized into themes and sub-themes. After expert validation of the themes translated into meaning. A process was

used to identify key meanings that spoke to the attitudes, leadership practices, institutional challenges, and the role of school leadership in planning, implementing, and sustaining ESD efforts.

The Valuation and Conceptualization of ESD

The participants' understandings of ESD are not seen as adding to the curriculum but rather a different way of doing education that changes what education is and how it works. Often participants discussed ESD not as another subject to be added to the curriculum, but as an "umbrella" approach that rethinks the way teaching, learning and institutional priorities are conceptualized. ESD is more than learning; it's about critical consciousness, ethical decision making and skills for action. Additionally, school leaders pointed to the need for embedding the SDGs to create systemic change and the holistic approach was seen as a catalyst to build institutional resilience and sustainability (Maqbool et al., 2024). This view was expressed by one participant who stressed the holistic view of ESD:

"ESD is a teaching and learning of all topics in the classroom, I think, is not a topic it's a thinking, collaboration, behaviour change skills that we teach." (ISAC-2)

This transformational pedagogical approach faces significant implementation challenges, since the incorporation of sustainability content is often a matter of individual teacher commitment and not one of general system implementation. However, it is difficult for many school leaders to move from small-scale, teacher-led projects to a whole-school strategy that makes sustainability a part of the school curriculum (Müller et al., 2022; Seiser et al., 2022). This approach is closely related to the notion of ESD as an attitude, rather than a field of content. Participants reiterated that ESD needs to be integrated into all teaching and learning:

"It is not just a subject but it's a mindset that needs to be integrated into the teaching and learning process." (ISAC-5)

This aligns with the argument that ESD requires a 'cultural' change in schools, as sustainability becomes part of the school culture, the practices of teachers and students and becomes part of the school's values. To achieve this institutional change, the leaders should enable the transition from sustainability projects that are implemented on a piece-meal basis to a structure that integrates curriculum content, school management and the use of facilities (Parry & Metzger, 2023). The second sub-theme ESD as responsibility and global citizenship, puts education at the forefront for creating responsible and global citizens. There was a focus on participants for environmental responsibility, cultural appreciation, and decision making:

"ESD aims to develop good citizens who will help the environment, value cultures and make their choices for a better future." (ISAC-4)

This is consistent with global policy framings of ESD as key for developing global citizenship skills such as empathy, responsibility, and sustainable thinking. Importantly, the participants did not perceive global citizenship as a theoretical concept; rather, they interpreted it as being related to their everyday lives and moral acting. Educators can use local contexts to build systems thinking and collaborative decision-making skills, which can help students to tackle complex societal and environmental problems (Cebrián et al., 2022). Interestingly, there was a high emphasis on relevance of ESD in the context of Pakistan. The participants demonstrated a high level of understanding on how global principles of sustainability must be adapted to the national context to address issues such as depletion of resources, degradation of the environment and social inequity:

"ESD is of relevance to Pakistan as students need to know how to analyse and predict issues such as resource, waste, energy…" (ISAC-1)

This is indicative of the responsiveness of ESD to its local context, in which global concepts are translated to local needs. It also represents the transition from "conceptual learning to problem learning" with the students solving real problems in society. This approach, which is based on a specific theme (such as air pollution or deforestation), and context (local realities such as in the community) can help schools move from theoretical to practical learning opportunities (Ferguson et al., 2022). Thus, this theme reveals that ESD is an ideological and operational concept and there is a need for integrating between vision, policy and practice. This synergy will happen not only as a result of internal policy, but also through the challenges that arise from the integration of theory and application in the process of working with the community, which will foster individual and social capabilities to deal with the challenges in the local environment (Aada, 2024).

Leadership for Sustainability and ESD Integration

Leadership in ESD is not simply a structural position, it is a vision formation, a values enactment and leadership for change. The sub theme of visionary leadership demonstrates how the leaders of schools see sustainability not as a standalone value but as something that rests at the core of their schools. These leaders serve as facilitators and champions, creating a culture of sustainability change while bringing up the environmental topics across multiple areas of knowledge (Zakariah et al., 2024). The school leaders shared a vision for the future which brought together both academic and global priorities:

"I wanted to help build an educational culture that isn't just focused on educational excellence but also a longer-term value for global citizenship and sustainability." (ISA-P1)

This ties in with transformational leadership theory that leaders develop a shared vision to inspire others and gain commitment to long-term change and vision. This is fundamental in establishing the institutionalization of ESD. Moreover, the successful implementation also depends on the interpersonal and problem-solving abilities of the leaders who can effectively deal with the complexity of school development and coordinate cooperation among students, teachers and the community (Yusup et al., 2024).

"If sustainability is championed at the top and thus becomes part of the school's culture, not a project, then sustainability is a project." (ISA-P5)

This emphasises the importance of bottom-up and top-down alignment in this process, with the support of the leadership team being able to help and enable participation. It also mirrors the distinction between a surface level and system approach to ESD. Moreover, for the sustainability initiative to be successful, it requires a combination of the structural anchoring with a decentralized approach that allows individual academics and staff to serve as sustainability champions (Price et al., 2021). When it comes to strategic leadership practices, it points to successful implementation of strategic planning and resource allocation:

"If I don't prioritise sustainability [in terms of resources, time and planning] it won't be well done." (ISA-P4)

The evidence indicates that allocations of resources, time and plans are effective ways of achieving good leadership; this concords with theories on organizational change which emphasize strategic fit. Effective principals need to develop certain skills, such as thinking systemically and the capacity to guide institutional processes but have a broad, long-term vision for their school (Müller et al., 2021). One of the sub-themes of interest is data-informed leadership, which refers to evidence-based management:

"All ESD projects were statistical in nature, this enabled decisions to be made on the sustainability based on hard data." (ISAC-1)

This indicates that leadership approaches are developing in complexity and linked with measurable indicators and outcomes. Existing challenges in institutional processes, including challenges in coordination and communication, are among the intrinsic barriers that can hinder progress even in the presence of leadership support (Weiss et al., 2021). To overcome these obstacles, principals are being encouraged to foster the notion of ESD as a collective vision, to embed sustainability as part of the "business as usual" at school, and to establish dedicated spaces for discussion (Sasaki et al., 2023).

Curriculum Integration and Pedagogic Approaches

The findings indicate movement from piecemeal to whole school sustainability initiatives. This change highlights across-curriculum (horizontal) and across-grade (vertical) integration and reflects an integrated and consistent ESD approach. The curricular reform emphasizes the establishment of EE as a basic component, and the promotion of sustainable consciousness in both the educational program content and implementation (Uleanya, 2024). This shift was explained by participants as a shift from stand-alone activities to integration:

"From a random approach to sustainability activities, a whole-school approach has been developed…" (ISA-P3)

This change is symbolic of the institutionalization of ESD, and sustainability has become part of the curriculum, pedagogy, and co-curriculum. The curriculum in line with SDGs sub-theme points represented the conscious effort to link local curriculum with the global SDGs. It is not just about adapting the content of learning, but also enabling hands-on sustainability experiences, research has shown to be essential for successful, sustained learning outcomes (Holst et al., 2024).

"…I made sure that the 17 Sustainable Development Goals made an appearance in the curriculum…" (ISAC-2)

This is a planned and intentional move towards making local education more relevant and consistent with global agendas. It is important to map the curriculum to make sure ESD is embedded in the curriculum. The emphasis on experiential and real-life learning is an illustration of experiential learning theory where knowledge is gained through first-hand experiences in real-life problems.

"Students collect data from the local environment… that makes it real." (ISAP-2)

These methods increase engagement, learning, and the transfer of learning to real-world contexts. The inclusion of project-based learning (PBL) reinforces student-centered approaches:

"We introduced project-based learning methods ... and engaged in problem-solving." (ISAC-4)

PBL supports cross-disciplinary, critical, and collaborative learning and problem-solving and is in line with the skills needed for sustainable development. Beyond such methods, adopting a cross-cutting approach ensures that sustainability is not relegated to an optional add-on, but rather acts as an interconnected thread across all academic disciplines (Kioupi & Voulvoulis, 2022).

Distributed Leadership and Collaboration

Distributed leadership and collaboration models support ESD implementation, moving away from hierarchical leadership to sharing responsibility. This means ESD is not reliant on the individuals and is supported by the institution. This collaborative framework encourages educators to share pedagogical practices and learn from collective experiences, which is essential for navigating the complex, cross-cutting nature of sustainability challenges (Strachan et al., 2021). The sub-theme of teacher collaboration and shared leadership shows that ESD is best supported when it is integrated within departments:

"I made sure that it was a whole department job and not an individual job." (ISAC-2)

This discovery is in line with the theory of distributed leadership which emphasises the leadership role of multiple actors. This practice enhances the sustainability and scalability of initiative. The sub theme of teacher autonomy and empowerment indicates opportunities for teachers to lead in ownership, motivation and innovation:

"Teachers are provided the opportunity to lead… and this fosters buy-in, motivation and innovation." (ISAP-3)

Teacher empowerment can contribute to the innovation of new pedagogies and be a key player in the implementation of ESD. Cross disciplinary work is also relevant and important, as it brings rigour:

"In asking for two departments… feedback, we were looking for validity and inter-disciplinary connections." (ISAC-1)

Several perspectives are added, which enriches learning experiences. The sub-theme student leadership is a part of the active and participatory nature of ESD:

"Students were engaged and embarked on their own sustainability initiative." (ISAC-5)

This indicates a shift towards participatory democracy and education, where students have a voice in how they act and how they are educated, through sustainable actions. This theme emphasizes that the essence of ESD is that it thrives in a participatory, collaborative, and decentralized environment, where leadership is distributed and learning is collective.

Establish and enhance teacher capacity building and professional development

Capacity building of teachers is an important component of successful ESD because teachers are change agents. The results demonstrate that continuous professional development is essential to deepen teachers' knowledge, skills and confidence to implement ESD. With this in mind, the establishment of school-wide professional learning communities ensures that collaboration is happening and that the critical questions that challenge the assumptions of pedagogy are emerging (Khalo et al., 2023). The sub-theme of Continuous professional development (CPD) implies the importance of training programmes, workshops and visits abroad:

"We have training for teachers… workshops … to build their confidence…" (ISAP-2)

These programs build knowledge and skills and help teachers incorporate sustainability in their classrooms. The sub-theme of peer learning and mentoring highlights the benefits of peer-to-peer learning:

"Teachers were able to mentor each other…" (ISAC-2)

This promotes a culture of learning and improvement, where teachers learn from each other. Pedagogical change is the main result of capacity building:

"Over time teachers started to introduce more interactive, learner-centered pedagogies…" (ISAC-4)

This suggests the shift from traditional teacher-centered to constructivist learner-centered pedagogies, necessary for ESD. This theme generally highlights that teacher development is an iterative change process to sustain ESD implementation and pedagogic change. Beyond technical training, fostering relationships through a lens of care is equally pivotal, as it cultivates the interpersonal trust and openness required for educators to navigate the complexities of systemic change (Beasy et al., 2024).

International Partnerships

International and national collaboration presents as a strategic and disruptive approach to ESD, which promotes learning beyond the classroom and embeds it in a global epistemic space. This research indicates that this type of engagement is not merely rhetorical or performative but pedagogically links global sustainability principles and local contexts. This is an example of "glocalization," in which global knowledge is interpreted, translated, and applied to local socio-cultural and environmental contexts. These institutional partnerships facilitate the exchange of innovative pedagogical approaches and curriculum resources, thereby overcoming the isolation often experienced by educators when integrating complex sustainability frameworks (Fiel'ardh et al., 2023). The participants commented that being able to work with international partner schools made it possible for students to relate abstract global issues (climate change and waste) to local contexts.

"We have been engaged in projects with international partner schools like waste and climate change awareness in order for students to learn and apply global knowledge in a local context." (ISAC-2)

This indicates that international cooperation facilitates sharing and implementation of knowledge and gives students the opportunity to link knowledge to action. It also reflects situated learning, meaning of how knowledge is learned and contextualized. Such interactions will facilitate students' understanding of the interconnection of the world and their role in making change in their community. Additionally, cross-national exchanges play a crucial role in challenging colonial power dynamics and in drawing educators' attention to the examination of their own pedagogical approaches from a variety of perspectives shaped by globalization and different cultures (Christoforatou, 2021).

Digital technologies, specifically in resource-poor settings, is a major enabler of these long-term partnerships. Tools such as Zoom, WhatsApp or Google Meet are used as mediators in synchronous and asynchronous communication:

"We switched to digital platforms such as Zoom…to communicate, collaborate and document with partner schools." (ISAC-5)

These help to span the physical divide and give access to the global knowledge economy. Socio-technically, technology enables transnational collaboration, supporting schools in developing contexts to join global conversations, even when infrastructure is limited. Furthermore, these digital tools support the development of participants' technical abilities, allowing them to utilize webinars and virtual discussion platforms for authentic and real-time international dialogues on the Sustainable Development Goals (SDGs) (Ho et al., 2023). Furthermore, the study validates the importance of creating partnerships for the development of intercultural and global citizenship. Cross-cultural exchanges and joint projects can help create opportunities for dialogue, empathy, respect and understanding.

"Virtual exchanges offered new insights and fostered students' respect, understanding and global citizenship." (ISAP-5)

This is in line with global citizenship education, which prioritizes the development of intercultural understanding skills for sustainable development. These exchanges also foster the development of soft skills such as communication, teamwork, and flexibility. At the organizational level, partnerships help in the creation of learning communities for teachers. Educators expose themselves to a variety of teaching practices, share resources, and develop innovations, thus building their capacity. As such, international partnerships work at a number of levels of students, teachers, and institutions to support the integration of ESD. In addition, these learning communities can come together to seek funding and develop new and innovative approaches to socio-scientific inquiry, which enhances the institutional priorities for the Sustainable Development Goals (SDGs) (O'Donnell et al., 2024).

Monitoring and evaluation (M&E)

M&E practices in ESD are becoming systematic, rigorous, and holistic in line with a focus on accountability and improvement. Responses appear to reflect a change in the nature of evaluation from

anecdotal to more formalized practices. Such programs focus on monitoring transformation rather than just on traditional standardized measures, and they include measures of capacity development and pedagogical changes (Filippaki, 2023). The participants reported the use of a mixed method (qualitative feedback and quantitative data):

"We had feedback from the teachers and the students, and we were able to see the changes in behaviour…" (ISAP-1)

This shows the need to assess both quantitative and qualitative information, especially in ESD where changes in attitudes and behaviors are key but difficult to measure. The quantitative measures enhance the credibility of the evaluation:

"We gathered information about energy and water savings, surveys, before and after the project…" (ISAP-2)

These indicators provide evidence of change in practice and link the education of energy and water with environmental outcomes. It's a big step forward in assessing the effects of ESD programs. Documentation also helps to evaluate by keeping knowledge and transparency. Moreover, the use of maturity models is enabling institutions to systematically assess sustainability strategies for quality and coverage, thus ensuring comprehensive integration of SDGs in pedagogy and in school life in general (Kvelde & Odiņa, 2024).

"Documentation provided quantitative evidence… reduction in resources used…" (ISAC-1)

This marks a change in the school cultures of institutional memory and reflective practice, where schools can learn from their previous experiences and enhance their approaches. Importantly, the findings suggest a shift in how decisions are made about M&E in ESD, which is increasingly moving towards evidence-based practice (decisions made on the basis of evidence and feedback). This is a change in the world of educational monitoring/evaluation where the emphasis is on impact, accountability and sustainability. This approach should, however, be broader than just listing the available courses, and should instead look at the extent to which changes have taken place within the organization and how sustainability is continuously integrated into various academic disciplines (Kusumaningrum et al., 2023).

Conclusion

The results of this study suggest that leadership has a pivotal role in achieving education for sustainable development in secondary schools of Karachi. The Connecting Classrooms Project enabled the British Council to bring SDGs, international partnerships, and sustainability-informed learning to the schools. The key results of the research and considered the implications for leadership and ESD. It revealed that leadership played a key role in implementing ESD in secondary schools of Karachi, however collaborative, distributed, and contextual, leadership was most effective. The results also indicated that curriculum integration, teacher capacity, international collaboration, resources, monitoring and institutional support were factors that affected the implementation of ESD. However, as these features are enhanced, ESD can make real contributions to developing responsible, reflective, and active citizens who can take action to address local and global sustainability issues.

Recommendations

The implementation of ESD requires clarity and support from the school leadership. They should create a vision for ESD at the school level. They should align curriculum with UNESCO's ESD by targeting local needs of the students in Karachi. The teachers are encouraged to incorporate the theme of ESD and SDG into their normal school curricula. They should find connections between their subjects and the SDGs, making ESD a part of the regular learning process and not something done on top of it. Science teachers can tie in with concepts of climate change, water conservation, pollution, health, and biodiversity. A clear and practical guidance should be offered for the incorporation of ESD in secondary education to policymakers. This study suggests that further research is needed in this area, particularly on the role of leadership in ESD implementation in varying educational settings. The descriptive case study design for this study suggests that future studies could involve a greater number of schools from various districts, provinces, and school systems.

References

Aada, K. (2024). Perspective Chapter: Empowering Sustainable Development through Education: A Perspective on the Educational Landscape and Its Impact on Sustainability. https://doi.org/10.5772/intechopen.1005076

Abidin, M. S. Z., Mokhtar, M., & Arsat, M. (2023). School Leaders' Challenges in Education for Sustainable Development: A Scoping Review. *International Journal of Academic Research in*

Progressive Education and Development, 12(1), 401–420. https://doi.org/10.1108/aeds-01-2023-0011

Afzaal, S., Munir, H., & Aleena. (2025). An analysis of teachers' competencies for the implementation of Education for Sustainable Development (ESD) at primary level: A mixed method approach observational study. *Regional Lens, 4*(3), 135–143. https://doi.org/10.55737/rl.2025.43095

Bano, N., Hina, K. B., & Jumani, N. B. (2020). Gap analysis of Global Citizenship Education (GCED) and Education for Sustainable Development (ESD) in pre-service teacher education curriculum of Pakistan. *Pakistan Journal of Distance and Online Learning, 6*(2).

Beasy, K., Richey, S., Brandsema, J., & To, V. (2024). Embedding Sustainability across a Teacher Education Course: Teacher Educator Experiences. *Australian Journal of Environmental Education, 40*(4), 722–739. https://doi.org/10.1017/aee.2024.36

Biasutti, M., & Frate, S. (2017). A validity and reliability study of the attitudes toward Sustainable Development scale. *Environmental Education Research, 23*(2), 214-230.

Agustí, M. F. (2022). Sustainability and the 2030 Agenda within schools: A study of school principals' engagement and perceptions. *Environmental Education Research, 28*(6), 845–866. https://doi.org/10.1080/13504622.2022.2044017

Christoforatou, E. (2021). Teacher education for sustainable development within national frameworks: Squaring the circle from a German perspective. *International Journal of Development Education and Global Learning*, *13*(1). https://doi.org/10.14324/ijdegl.13.1.01

Creswell, J. W. (2019). *Educational research: planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Boston: Pearson Education, Inc.

Creswell, J. W., & Poth, C. N. (2024). *Qualitative inquiry and research design: Choosing among five approaches* (5th ed.). SAGE Publications.

Denzin, N.K. & Lincoln, Y.S. (2018). *Introduction: The discipline and practice of qualitative research.* In N.K. Denzin & Y.S. Lincoln (Eds.), The Sage Handbook of Qualitative Research, 5th Ed. Thousand Oaks: SAGE.

Durrani, R., Malik, S., & Jumani, N. B. (2019). Education for sustainable development (ESD) in pre-service teachers education curriculum at Pakistan: Current status and future directions. *Pakistan Journal of Distance and Online Learning, 5*(2), 67–84.

Ferguson, T., Roofe, C., Cook, L. D., Bramwell-Lalor, S., & Gentles, C. H. (2022). Education for Sustainable Development (ESD) Infusion into Curricula: Influences on Students' Understandings of Sustainable Development and ESD. *Brock Education Journal*, *31*(2), 63–84. https://doi.org/10.26522/brocked.v31i2.915

Fiel'ardh, K., Torkar, G., Rožman, H., & Fujii, H. (2023). Sustainable development goals in teacher education: comparing syllabi in a Japanese and a Slovenian university. *Frontiers in Education*, *8*. https://doi.org/10.3389/feduc.2023.1215500

Filippaki, A. (2023). Building a Collective School Culture to Achieve Education for Sustainability: The Contribution of Teachers' Perceptions. *Open Journal of Social Sciences*, *11*(4), 19–38. https://doi.org/10.4236/jss.2023.114003

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). *How to design and evaluate research in education* (10th ed.). New York: McGraw-Hill. Francisco: Jossey-Bass.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2023). *How to design and evaluate research in education* (11th ed.). McGraw Hill.

Hinduja, P., Mohammad, R. F., Siddiqui, S., Noor, S., & Hussain, A. (2023). Sustainability in higher education institutions in Pakistan: A systematic review of progress and challenges. *Sustainability, 15*(4), 3406. https://doi.org/10.3390/su15043406

Onnelho, S., Bowser, G., Templer, P. H., & Green, S. (2023). Learning for sustainability: partnerships for the goals. *Sustainable Earth Reviews, 6*(1). https://doi.org/10.1186/s42055-023-00059-2

Holst, J. (2022). Towards coherence on sustainability in education: a systematic review of Whole Institution Approaches [Review of *Towards coherence on sustainability in education: a systematic review of Whole Institution Approaches*]. *Sustainability Science*, *18*(2), 1015–1030. Springer Science+Business Media. https://doi.org/10.1007/s11625-022-01226-8

Holst, J., Grund, J., & Brock, A. (2024). Whole Institution Approach: measurable and highly effective in empowering learners and educators for sustainability. *Sustainability Science, 19*(4), 1359–1376. https://doi.org/10.1007/s11625-024-01506-5

Jamil, M., Kamran, F., & Taj, S. (2024). Understanding education for sustainable development: Prospective teachers' perspectives, pedagogical approaches, and implementation challenges. *Qlantic Journal of Social Sciences, 5*(4), 110–118. https://doi.org/10.55737/qjss.v-iv.24587

Jamil, M., Khalil, F., & Noorani, Z. (2024). Education for sustainable development: An analysis of English textbook Grade-V. *Journal of Social Research Development, 5*(2), 1–13. https://doi.org/10.53664/JSRD/05-02-2024-01-01-13

Kalsoom, Q., & Khanam, A. (2017). Inquiry into sustainability issues by preservice teachers: A pedagogy to enhance sustainability consciousness. *Journal of Cleaner Production, 164*, 1301–1311. https://doi.org/10.1016/j.jclepro.2017.07.047

Kalsoom, Q., Khanam, A., & Quraishi, U. (2017). Sustainability consciousness of pre-service teachers in Pakistan. *International Journal of Sustainability in Higher Education, 18*(7), 1090–1107. https://doi.org/10.1108/IJSHE-11-2016-0218

Kalsoom, Q., Qureshi, N., & Khanam, A. (2019). Teacher education for sustainable development in Pakistan: Content analysis of teacher education curriculum and standards. *Journal of Research and Reflections in Education, 13*(1), 20–33.

Karamanidou, M. (2026). Leading for a Sustainable Future: Sustainable Leadership in Cyprus Primary Schools. *Education Sciences*, *16*(2), 177–177. https://doi.org/10.3390/educsci16020177

Kaur, J., & Kaur, K. (2022). Developing Awareness and Attitude Towards Sustainability Through an Activity-Based Intervention. *Journal on Efficiency and Responsibility in Education and Science*, *15*(4), 212–220. https://doi.org/10.7160/eriesj.2022.150402

Khadim, M., Jamil, S., & Yaqub, S. (2024). Exploring the teacher educators practices for integrating education for sustainable development conceptions. *Journal of Social Sciences Development, 3*(2), 247–257. https://doi.org/10.53664/JSSD/03-02-2024-20247-257

Khalo, X., Kafu-Quvane, B., Mzilikazi, B., MP, M., & Olawumi, K. B. (2023). Perspectives of Secondary School Principals on Their Support for the Implementation of Climate Change Education. *Journal of Curriculum and Teaching*, *12*(6), 133–133. https://doi.org/10.5430/jct.v12n6p133

Khushik, F., & Diemer, A. (2020). Education and Sustainability: How SDG4 Contributes to Change the Representations of Developing Issues? The Case Study of Pakistan. *International Journal of Management and Sustainability, 9*(2), 101–119. https://doi.org/10.18488/journal.11.2020.92.101.119

Kioupi, V., & Voulvoulis, N. (2022). Education for Sustainable Development as the Catalyst for Local Transitions Toward the Sustainable Development Goals. *Frontiers in Sustainability, 3*. https://doi.org/10.3389/frsus.2022.889904

Kvelde, A., & Odiņa, I. (2024). Institutional social responsibility in the initiatives of education for sustainable development in latvia. *society integration education Proceedings of the International Scientific Conference*, *1*, 425–440. https://doi.org/10.17770/sie2024vol1.7806

Kumar, R. (2018). *Research methodology: A step-by-step guide for beginners* (5th ed.). California: SAGE Publications.

Kusumaningrum, M. E., Kuswanto, H., Jumadi, J., Suyanto, S., Suhartini, S., Purwasih, D., & Prabawati, R. (2023). A Bibliometric Review of Research on Education for Sustainable Development, 2019-2023 [Review of *A Bibliometric Review of Research on Education for Sustainable Development, 2019-2023*]. *International Electronic Journal of Elementary Education*. International Electronic Journal of Elementary Education. https://doi.org/10.26822/iejee.2023.315

Kvelde, A., & Odiņa, I. (2024). Institutional Social Responsibility in the Initiatives of Education for Sustainable Development in Latvia. *Society Integration Education Proceedings of the International Scientific Conference*, *1*, 425–440. https://doi.org/10.17770/sie2024vol1.7806

Liebowitz, D. D., & Porter, L. (2019). The Effect of Principal Behaviors on Student, Teacher, and School Outcomes: A Systematic Review and Meta-Analysis of the Empirical Literature.

Review of Educational Research. Retrieved on 20 March 2021 from doi:10.3102/0034654319866133

Lilian, G. K. (2022). Education for Sustainable Development Pedagogy in Pre-Primary Social Studies Curriculum in Kenya: Review of Literature. *Journal La Edusci, 3*(3), 69-80. https://doi.org/10.37899/journallaedusci.v3i3.662

Maqbool, S., Zafeer, H. M. I., Zeng, P., Maqbool, S., Draissi, Z., & Javed, S. (2024). Inventive leadership styles and their impact for achieving sustainable development goals in education at secondary schools: a case study from Multan, Pakistan. *Humanities and Social Sciences Communications*, *11*(1). https://doi.org/10.1057/s41599-024-03086-2

Mehmood, T., Qasim, S., & Azam, R. (2013). Impact of Emotional Intelligence on the Performance of University Teachers. *International Journal of Humanities and Social Sciences*,*3*(18), 300-307.

Mirza, M. S., & Tajuddin. (2020). Teacher educators' preparedness for re-orienting teacher education programs for sustainable development in Pakistan. *Journal of Research and Reflections in Education, 14*(1), 1–15.

Mogaji, I. M., & Newton, P. (2020). School Leadership for Sustainable Development: A Scoping Review. *Journal of Sustainable Development, 13*(5), 15. https://doi.org/10.5539/jsd.v13n5p15

O'Donnell, C., Blanchard, K. P., Strom, K. J., D'Amico, A., Mogck, A., Alcazar, R., Brennan, V., Ayman, E.-S., Fitzgerald, A., Greenbaum, E., Osman, E., & Sepiurka, M. (2024). The Network for Emergent Socio-Scientific Thinking (NESST): collaboration for a shared transformative future through STEM Education. *Sustainable Earth Reviews*, *7*(1). https://doi.org/10.1186/s42055-024-00092-9

Parry, S. E., & Metzger, E. P. (2023). Barriers to learning for sustainability: a teacher perspective. *Sustainable Earth Reviews*, *6*(1). https://doi.org/10.1186/s42055-022-00050-3

Patton, M. Q. (2015). *Qualitative research and evaluation methods* (4th ed.). Thousand Oaks, CA: Sage.

PJE, E. (2023). Challenges of Implementing Education for Sustainable Development: University Teachers' Perspectives. *Pakistan Journal of Education*, *39*(1). https://doi.org/10.30971/pje.v39i1.876

Raelin, J. A. (2016). It's not about the leaders: It's about the practice of leadership. *Organizational Dynamics*, *45*(2), 124–131. https://doi.org/10.1016/j.orgdyn.2016.02.006

Romm, J. (2016). *Climate change: What everyone needs to know*. Oxford University Press.

Saqib, Z. A., Zhang, Q., Ou, J., Saqib, K. A., Majeed, S., & Razzaq, A. (2020). Education for sustainable development in Pakistani higher education institutions: An exploratory study of students' and teachers' perceptions. *International Journal of Sustainability in Higher Education, 21*(6), 1249–1267. https://doi.org/10.1108/IJSHE-01-2020-0036

Sasaki, O., Yonehara, A., & Kitamura, Y. (2023). The influence of the whole school approach on implementing education for sustainable development in Japan. *Prospects*, *54*(1), 203–220. https://doi.org/10.1007/s11125-023-09667-4

Scipes, K. (2017). Addressing seriously the environmental crisis: A bold "outside of the box" suggestion for addressing climate change and other forms of environmental destruction. *Class Race Corporate Power, 5*(1), 1-27. doi: 10.25148/CRCP.5.1.001672

Seiser, A. F., Mogren, A., Gericke, N., Berglund, T., & Olsson, D. (2022). Developing school leading guidelines facilitating a whole school approach to education for sustainable development. *Environmental Education Research*, *29*(5), 783–805. https://doi.org/10.1080/13504622.2022.2151980

Shakir, F., Naz, A., & Ahmed, S. M. (2024). Exploring teachers' perceptions and practices in education for sustainable development (ESD) in public schools of Karachi. *Pakistan Journal of Humanities and Social Sciences, 12*(1), 902–914. https://doi.org/10.52131/pjhss.2024.v12i1.2090

Simpson, B. (2016). Where's the agency in leadership-as-practice? In J. Raelin (Ed.), *Leadership-as-practice theory and application* (pp. 159–177). Routledge.

Strachan, S., Logan, L., Willison, D., Bain, R., Roberts, J. J., Mitchell, I., & Yarr, R. (2021). Reflections on developing a collaborative multi-disciplinary approach to embedding

education for sustainable development into higher education curricula. *Emerald Open Research*, *1*(9). https://doi.org/10.1108/eor-09-2023-0007

Tucker, J. A. (2017). Confucianism, capitalism, and Shibusawa Eiichi's The Analects and the abacus. In P. R. Goldin (Ed.), *A concise companion to Confucius* (pp. 305-329). John Wiley & Sons.

Uleanya, C. (2024). Sustainability consciousness in primary schools: roles of leaders in the post/digital era. *Environment Development and Sustainability*, *26*(8), 21783–21796. https://doi.org/10.1007/s10668-024-04801-4

UN. Sustainable Development Goals. 17 Goals to Transform Our World. 2015. Available online: www.un.org/sustainabledevelopment/development-agenda/

UN. Transforming Our World: The 2030 Agenda for Sustainable Development. https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development% 20web.pdf.

UNESCO (2005). *UN Decade of Education for Sustainable Development 2005-2014. International implementation scheme*. Draft. Paris: UNESCO Publishing.

UNESCO. (2014). *Roadmap for Implementing the Global Action Programme on Education for Sustainable Development*. UNESCO.

UNESCO 2017. *UNESCO Global Action Programme on Education for Sustainable Development*. Paris: UNESCO.

UNESCO. (2018). *Issues and trends in Education for Sustainable Development*. In UNESCO Publishing.

Weiss, M., Barth, M., & Wehrden, H. von. (2021). The patterns of curriculum change processes that embed sustainability in higher education institutions. *Sustainability Science*, *16*(5), 1579–1593. https://doi.org/10.1007/s11625-021-00984-1

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.

Yusup, M., Dirga, M., & Sholeh, R. H. (2024). Leadership Effectiveness: Education for Sustainable Development. *Development Studies in Educational Management and Leadership*, *3*(2), 147–158. https://doi.org/10.47766/development.v3i2.4845