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Perceptions of Early Childhood Teachers Regarding Environmental Education in Public Sector Schools of Karachi

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Abstract

Environmental education (EE) has gained significance in the past few decades due to visible aftermaths of human advancement activities and the resulting destruction. Early childhood is the most significant phase of human life when it comes to development of attitudes, behavior and personality that has long lasting effects. This is also true in the case of cultivating positive attitudes towards the environment. Environmental education in early childhood care and education (ECCE) programmes in Pakistan is an understudied area. Teachers are the key to delivering the knowledge skills and attitudes that are important to create environmental awareness through formal education. This research aimed to gain insights regarding early childhood teachers' (ECT) perceptions of environmental education and employed a quantitative method. The survey questionnaire 'Perceptions and Attitudes of ECCE Teachers Regarding Environmental Education' developed by Konstantinou Eleni (2023) was adapted for this research. The results revealed that the ECTs have a positive perception of environmental education, they consider it to be essential as all the items of the survey pertaining to importance resulted in above 70% agreement, however the teachers perceive that implementation of EE misses the mark, as disagreement was found to be above 50% for each item related to implementation of EE in classroom activities. Financial constraints and large size of classrooms was found to be the most crucial obstacles hindering the implementation of EE in ECCE classrooms in public sector schools of Karachi.

Keywords: Environmental education, Early childhood education, Teacher perceptions

Introduction

Importance of Environmental Education

The advancement of the human race in terms of society and technology has progressed at a rate that was unimaginable a few centuries ago. This advancement has however come with a cost, the earth's ecological system has faced destruction to an extent that has rung alarms throughout the world (Mckenzie & Edwards, 2006). At present, the consequences of human activity and negative regard for nature is evident in the form of natural disasters, rising temperatures, and extinction of various species of animals and plants. However,



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it is only the human race that can solve the problems that it has created (Parmesan et al., 2022). Efforts have been made to curb the damage through various means that include implementing environment-friendly technologies, improvement in industry wide legislation, mindful usage and conservation of resources. Moreover, to create a culture of ecological mindfulness and to raise awareness regarding the responsibility of preserving the resources for future generations the role of environmental education is extremely significant. Environmental education is one of the fundamental basis for the Sustainable Development Goals (SDGs) that provide a blueprint for a planned global intervention towards a sustainable future for earth and its dwellers. The SDGs have a three-pronged approach which integrates social, economic and environmental aspects that are all interconnected (Uralovich et al, 2023). These three factors impact one another, thus the development of 17 SDGs and their indicators. These indicators determine a roadmap which relies on the whole world and all the nations working towards these SDGs to preserve the resources while progressing and advancing towards a better future (Obrecht et al., 2022).

Importance of Environmental Education in Early Childhood Education

Environmental Education at an early age can play a significant role in creating ecocentric mindsets of future generations. Early years or early childhood education is often used interchangeably and is generally understood as preschool or primary education. The age that falls under early childhood i.e., 0-8 years is key to personality as well as attitude development. A child learns to distinguish himself from the environment (Blom, 2022; Nankhantee et al., 2025). This developmental stage of a child's mind can leave a long-lasting influence of anything that it is exposed to. A child of this age group if provided with an environment that instills an attitude to value the environment, nature and other living organisms that are the basis of earth's ecological system will have a higher chance of becoming an environmentally responsible citizen. Furthermore, these children will develop into individuals who will demonstrate natural cognition and will more likely seek sustainable lifestyles (Blom, 2022). It can also be instrumental in developing environmental awareness that can further mold their abilities and attitudes that will reflect their environmental responsiveness and a true understanding of knowledge as well as skills to shape the economy based on environmentally sustainable resources. Environmental Education at the pre-primary level is also influential in shaping the worldview of the children which defines their personalities as individuals and collectively forming a society that has a positive and rational attitude towards the natural environment. Moreover, the continuous nature of formal education requires consistency and logical progression in the concepts as well as phenomena that are taught in school and exposed through the learning environment (Lamanauskas, 2023; Saeed et al., 2024).

Global Perspective on Environmental Education and Relevance to Sustainable Development Goals

A collaborative international effort to address the rising global climatic change was first documented in the United Nations (UN) led consolidation of Brundtland Report (1987). This report emphasized on environmental



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deterioration and its link to social as well as economic inequality. Taking actionable steps forward from the Brundtland report, the 2030 agenda for Sustainable Development and the 17 goals (SDGs) were formed. 184 member states of the UN adopted these SDGs. These goals provide a foundation for sustainable prosperity which is only possible by collective measures by all the countries to eradicate hunger and poverty; improving access to health and education facilities by minimizing inequality (UN, 2021). It is a known fact that Goal 4: Quality Education is the key for the successful adoption and implementation of all the SDGs. Education for Sustainable Development (ESD) and the learning approaches that are tied to it are interdependent to quality education (UNESCO, 2016). The ESD stresses upon the fact that climate change is a systematic phenomenon and its effects can be felt and seen globally. These effects such as displacement of population further exacerbate the widely spread economic and social inequalities around the world. Developing countries are facing destruction in various forms with the root cause being natural disasters which are the result of excessive energy consumption by the developed countries (Diffenbaugh & Burke, 2019). In order to understand this chain reaction from activities related to human advancement, the destruction of natural resources, the increased frequency of natural disasters and prevalence of social as well as economic inequalities, it is crucial that Environmental Education is ingrained across the curriculum developed for formal education and learning environment which can provide the foundations for Education for Sustainable Development in the later stages of formal education (Collins & Garrity, 2025).

Environmental Issues in Pakistan and Their Local Impact

Pakistan is one of the most affected regions due to climate change with temperatures surpassing 50°C (Eckstein et al., 2021). Extreme temperatures are recorded each passing year in the major cities of Pakistan that include Karachi, Lahore and Jacobabad. Heatwaves claimed 1200 lives in 2015 only, which highlights Pakistan's vulnerability to such natural disasters due to its geographic location (Eckstein et al., 2021).

Public awareness is a missing puzzle piece which is crucial if all stakeholders are to be involved to curb the environmental destruction. Many efforts have been made from international and national NGOs as well as civil organizations to raise awareness but all these have not been able to engage stakeholders from the grassroot level specially from the rural communities (Hamad et al., 2024). Schools can provide a base that can act like a bridge to fill the awareness gap by incorporating environmental education in the curricula and engaging parents and other family members of the students (Aziz & Afridi, 2025)

Rationale for Focusing on Early Childhood Teachers

Early childhood teachers play a vital role in the cognitive, socioemotional and overall personality development of a child. The attitudes and perspectives of early years teachers towards climate change and environmental education influence children's understanding and behaviour towards environmental issues (Beach, 2023). It is also an established phenomenon that awareness acquired in early years related to environmental mechanisms and the effect of human advancement on the natural resources impacts the development of a person's



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positive attitude towards the environment in their future life. This highlights the role of early childhood teachers, who are responsible for the development of future generation's personality, cultivating values that promote positive attitudes towards the environment (Wilson, 2020; Garner & Wajid, 2012; Shah et al., 2023; Saeed et al., 2024).

Research Questions

Question 1. What are the perceptions of Early Childhood Teachers regarding the importance of Environmental Education in Early Childhood Care and Education programmes of public sector schools of Karachi?

Question 2. What are the perceptions of public schools' early childhood teachers about implementation of Environmental Education in Early Childhood Care and Education classrooms of public sector schools of Karachi?

Question 3. What are the perceptions of Early Childhood Teachers regarding the obstacles that they face in implementing environmental education in Early Childhood Care and Education classrooms of public sector schools of Karachi?

Hypotheses

H1. Early childhood teachers of public schools of Karachi perceive environmental education as important for early years education.

H2. Early childhood educators of public schools of Karachi perceive that environmental education is being implemented in ECCE classrooms.

Literature Review

Theoretical Framework

Bronfenbrenner Ecological Systems Theory (1977)

The microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem are the five systems that Bronfenbrenner identified inside an individual's environment. Despite having its roots in developmental psychology, this theory is equally helpful for research in education since it provides guidance for creating better learning environments through practical applications. Bronfenbrenner (1977) presented an ecological approach to education in one of his earlier publications, highlighting the dynamic interactions between students and their surroundings. He argued against the conventional wisdom that educational research should only use laboratory experiments and in favor of a more comprehensive and ecologically sound method of examining educational institutions and procedures. He concentrated on the value of real-world contexts and the dynamic interactions that occur between students and their surroundings. Bronfenbrenner stressed that knowledge of how people learn in classrooms depends on the interaction between the traits of learners and the environments they interact with (Tong & An, 2024). Teachers are the most influential part of a child's mesosystem when they are in their early developmental phases. Teachers' perceptions and attitudes translate into their classroom teaching through explicit instructions or behaviour modelling (Beach, 2023).

Definition and Dimensions of Environmental Education

Environmental Education

Environmental education is a terminology that appeared in the literature and



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various international platforms significantly in 1947 CE. If we focus on environmental education with respect to modern pedagogy, it is found to be closely connected to evolutionary history, understanding of human psychology, sociology of education and overall advancement of the human race and its repercussions to the ecological system of Earth (Collins & Garity, 2025).

Over the years since 1947 various definitions of environmental education have emerged. The commonality of most of the definitions is that they consider it to be a discipline that is used to teach management of natural resources in a responsible manner by stressing upon the survival of the human race that is only possible by maintaining a positive attitude towards the other stakeholders of the Earth's ecological system (Green, 2022).

Anthropocentrism

The term anthropocentrism takes its roots from the Greek work 'anthropocene' which means the new world influenced by human dominance. This new world is marked as an era that encompasses the greatness of human advancement and the catastrophic consequences of this dominance resulting in the degradation of our planet's natural order and system (Collins & Garity, 2025; Blom, 2022). The impacts include threats of a sixth mass extinction including a crisis that also endangers sustainability and survival of the human race due to extreme environmental issues. These changing climatic conditions are the root cause for the resource conflicts, mass migrations and loss of fertile agricultural land (Spinola, 2024).

Sustainable Development Goals

The United Nations developed the Sustainable Development Goals which serves as a response to the rapid degradation of the Earth's environment due to human activities as well as the connected social and economic factors (WWF, 2020). The SDGs pinpoint the effects of global warming and climate change on the prevalent economic and social inequalities. Countries that are struggling economically are impacted by the consumption of energy by developed countries (Diffenbaugh & Burke, 2019). The consequences of this inequality has caused disparity in terms of socioeconomic division of wealth. The rich 1% percent of the world have wealth that is more than what 6.9 million people have altogether (Oxfam International, 2021). The sustainable development goals aim to bring all the nations globally on one page in order to achieve harmony and work towards preservation and mindful usage of resources. Collective efforts towards these goals is one of the most viable chances of humanity's survival and sustainability. Quality Education is the goal 4 of SDGs. All the goals are interconnected to one another, therefore, without working towards the quality of education we cannot fathom a sustainable society in the future. Under the umbrella of SDG-4 comes early childhood education, which is considered to be an important part of long-lasting changes in the human attitudes as well as behaviours towards the environment are to be achieved (Collins & Garrity, 2025; Green, 2022).

Significance of Environmental Education in Early Childhood Development

Gordon Browne (2000) defines early childhood education as the teaching and learning that takes place in preschool, kindergarten, Montessori and primary



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education for children of two to eight years of age (Arshad & Zamir, 2018). According to Fatima et al., (2021) early childhood education is a carefully designed set of activities and experiences that facilitate the cognitive and social development of the young ones (Cagle, 2018)

The most vulnerable among the earth dwellers are children, who tend to be greatly affected by the unsustainable living conditions. The physical and cognitive abilities of children that are still in developing phases and impacted by the calamity and disasters that are the result of an unsustainable living environment (Davis, 2010 ; Faseel & Siddiqui, 2025). Research also suggests that children with all their vulnerabilities are also key to building a sustainable future society. Instead of viewing them as only victims, they can be provided with the skills, knowledge and attitude about the required changes towards the environment and equipping them with resilience so that they can contribute towards a healthy and sustainable world in the future (Bonnett, 2002; Lamanauskas & Makarskaite-Petkeviciene, 2023).

Teachers' Perceptions of Environmental Education

The current body of research from across the globe has few studies related to teachers' perception regarding environmental education, but, there has been growing interest in this area of research. One of the studies that was conducted in Spain with a sample size of 421 early childhood teachers uncovered that teachers had high levels of 'plant blindness'. The teachers in this study were asked to record living things as they were taken for a walk in a park. The majority of them provided responses that recorded animals with only a few plants being considered (Torres & Alcantara, 2019).

In another study that was conducted in the United States of America in which 110 teachers were asked to view photographs that were from different categories, water, forest, grassy area and park. Most of the teachers viewed parks as the most conducive place for children's education. They considered safety concerns and lack of access to natural settings as the obstacles in selecting other categories as conducive to learning (Ernst & Tornabene, 2012).

A research that was conducted in Greece found that although teachers perceived environmental issues as important and mostly used media to acquire understanding related to environmental education, there were still gaps when it came to implementation of environmental education programmes. It was found that mainly the lack of teacher training and organization of environmental education for early years classrooms were the hindrance in implementation of the environmental education programme for early childhood education (Petkou et al., 2021).

A study that was conducted in Malta found a mismatch between early childhood teachers' perceptions and their practices regarding environmental education. The study was conducted employing qualitative phenomenology. The interviews of the teachers revealed that environmental education programmes were not implemented critically enough. Furthermore, the study recommended that early childhood teacher education programmes needed to re-orient focus towards sustainability and environmental issues to embed environmental education (Spiteri, 2022).

Furthermore, a study conducted in Turkey revealed that there is a positive correlation between teachers' self-efficacy beliefs and their attitudes towards



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environmental sustainability. 30 early childhood educators participated in the research and an Environmental Protection Attitude Scale was used to gather data. The three major themes that emerged from the study were, an increase in environmental awareness, an increase in individual responsibility and motivation of being better equipped for environmental education (Kotaman et al., 2022).

A quantitative study conducted in Malaysia uncovered that early childhood teachers have a positive perception towards environmental education. However, their classroom practices and daily routines at the school did not demonstrate a strong connection with their perceptions and still had room for improvement (Bethany et al., 2024)

Environmental Education in ECCE in Pakistan

A growing research trend has been observed in Education for sustainable development and its implications on Early Childhood Education. The role early childhood educators plays in laying the foundation of lifelong attitudes and behaviours is also being studied by researchers worldwide due to its significance (Borg et. al., 2019; Nicholls et. al., 2016; Madden et. al., 2023). Hence, teachers' perceptions of environmental sustainability education are worthy of investigation as they influence environmental pedagogy and learning (Farias et al., 2018). Perceptions of early childhood educators' perspectives regarding environmental education is also an understudied area (Butul, 2021; Meier & Sisk-Hilton, 2017). There is research data available that shows that implementation of environmental education has been studied, however, there is little evidence on how they perceive environmental sustainability (Georgiou et al., 2021) The researches carried out in the Pakistani context lack the environmental dimension of the education for sustainable development (Zeeshan & Qureshi, 2022). Consequently, there is limited data available regarding early years' educators' perspectives on environmental education to further explore the possible ways of incorporating environmental education in the early childhood care and education programmes (Saeed, 2024)

Methodology

Research Design

This research employs a quantitative design as the purpose of this study is to investigate perceptions of ECCE teachers regarding environmental education. A survey model is used which is a research approach that aims to reveal a specific situation without any intervention (Eryasar & Ozel, 2025). This approach enables collection of quantitative data from large groups. Therefore, it is suitable for assessing the perceptions of ECCE teachers towards environmental education.

Population and Sampling

A total of 19368 primary teachers are currently working in public schools of Karachi. The Sindh government introduced Early Childhood (EC) cadre in 2017 and an initial policy with a plan to train 1100 teachers was put into motion. Since no qualified ECTs were available then, in-service primary teachers were trained across Sindh. 635 qualified teachers have been recruited and 1188 new posts have been announced (SELD, 2024).

Data collection for the study consisted of 216 out of 467 teachers of Early



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Childhood Care and Education (ECCE) programs of the public sector schools of Karachi for participation in the quantitative survey. This is 46.2% of the total number of ECCE teachers. These teachers were approached after approval from Sindh Education and Literacy Department. The number of ECCE teachers is limited as there is a gap in the number of ECCE schools and the number of qualified ECCE teachers across Sindh. The sampling was non-probability based and encompassed all the teachers who are teaching in various campuses of public sector schools of Karachi that offer ECCE programmes. Purposive sampling can be used in quantitative research to improve precision and validity by focused data collection from specific groups germane to the hypotheses regardless of the research design (Memon et al., 2025).

Data Collection Methods

The survey questionnaire 'Perceptions and Attitudes of ECCE Teachers regarding Environmental Education' developed by Konstantinou Eleni (2023) was adapted and feedback and approval was taken from three experts in the field. Survey, is a method that provides demographic characteristics, attitudes, values, performances or opinions of the target audience that can be determined.. This method both provides ease of statistical analysis and facilitates the determination of patterns and correlations between data (Deryakulu & Büyükköztürk, 2005).

All the teachers of Early Childhood Education (ECE) programs of the public sector schools of Karachi will be asked to participate in the quantitative survey. They were provided survey questionnaires via google forms and hard copies were also given where online access was unavailable to the participants.

Data Analysis

Data was analysed using Microsoft Excel 2019. The data had demographics of the participants as well as 5 point likert scale values that were analysed through frequencies and percentages of the responses. The 'neutral' responses were equated to 'disagreement' as after careful deliberation of the researcher and their supervisor, it was decided that the nature of the items deemed 'neutral' to be analyzed as 'disagreement'. It is an acceptable practice among researchers to merge these categories to enhance clarity and reduce complexity of the data (Mariano et al., 2024).

Ethical Considerations

Participants' identities were kept confidential. A consent form was given to all the participants ensuring their participation was voluntary. They were informed that their responses will be utilized for a research study.

Results

This research study reveals that ECCE programmes in public schools of Karachi comprise a vast majority of qualified female teachers as depicted in Table 1. These teachers have a positive perception about the importance of environmental education in ECCE as reflected by their responses in Table 2. Furthermore, these teachers perceive that implementation of environmental education is overall lagging behind in terms of inside or outside the classroom teaching and learning activities, the same can be observed in Figure 1. These



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ECCE teachers also perceive that lack of financial resources and large classrooms are the most significant barriers in the implementation of environmental education in the ECCE programme as can be observed in Table 3.

A total of 46.25% (n=216) out of 467 teachers that were approached, responded to the survey. The demographics of the participants are given in Table. 1. All of the participants were female except 2.7% male teachers. Approximately 89% of the participants were from an age range of 26 to 45 years, however 11.11% participants fell in the age range of 46 to 55%. The majority of participants that comprised 63.88% had a Masters degree, 27.77% were ECE diploma holders, 5.55% had a bachelor's degree and 2.77% had specialization in ECCE other than the diploma.

Table1: Demographic Data Of Participants Reflected In Percentages

Category		Percentage
Sex	Male	2.77%
	Female	97.22%
Age	26 to 35	43%
	36 to 45	45.83%
	46 to 55	11.11%
Qualification	Bachelors	5.55%
	Masters	63.88%
	ECCE diploma	27.77%
	Any other Specialization in ECCE	2.77%
Years of experience	Up to 5 years	33.33%
	6 to 10 years	19.4%
	11 to 20 years	44.44%
	21 years or over	2.77%

Perceptions of ECCE Teachers' Regarding Importance of Environmental Education

The research also investigated the perceptions of early childhood teachers regarding the importance of environmental education in ECCE classrooms in public sector schools. The results are depicted in Table2.





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Table 2: Perceptions of Early Childhood Teachers Regarding Importance of Incorporating Environmental Education in Classroom

Environmental education actions in the classroom	Strongly Disagree	Disagree	Agree	Strongly Agree
help students to gain knowledge about the environment	0%	13%	42%	44%
help students to recognize the existence of environmental problems	0%	25%	44%	31%
inform students about good environmental protection practices	0%	20%	56%	25%
help students cultivate skills related to solving environmental problems	0%	22%	53%	25%
help students to become aware of environmental issues	0%	23%	56%	22%
help students adopt environmentally friendly consumer behaviour	0%	23%	53%	25%
motivate students to participate in environmental protection actions	3%	25%	39%	33%

The data revealed that the highest percentage was that of 82% of teachers, who perceived that environmental education in early childhood care and education can 'help gain students' knowledge about the environment'. Followed by 81% of teachers who were in agreement with the statement that 'environmental education in ECCE classrooms helps students gain information about good environmental protection practices'. 78% teachers agreed that environmental education in ECCE classrooms is important to 'cultivate skills related to solving environmental problems', 'help students become aware of the environmental issues' and also 'helps students adopt environmentally friendly consumer behaviours'. The highest level of disagreement was found to be 28% with the statement that 'Environmental education actions in the classroom motivate students to participate in environmental protection actions. The statement that 'Environmental education actions in the classroom help students to recognize the existence of environmental problems' found a disagreement from 25% of the participants which makes the rest of the 75% in agreement with the aforementioned statement. So overall, the trend shows that teachers perceive environmental education as important for the ECCE programme.

Perceptions of ECCE Teachers Regarding Implementation of Environmental Education

The research also gained insights about the perceptions of Early Childhood Teachers regarding the current implementation of environmental education in

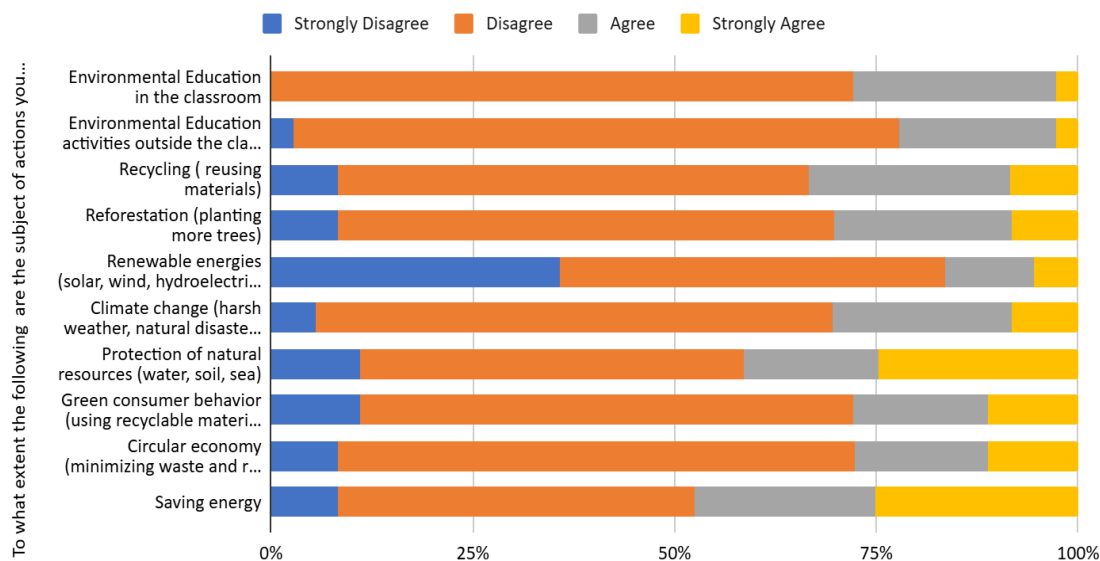


classrooms. The findings highlight perception of the teachers' that implementation of environmental education is greatly missing from the ECCE programmes, especially in the classroom teaching with approximately 72% in disagreement that environmental education actions are taught in the classroom whereas, approximately 78% disagreed that any environmental education related activities are carried out as outside the classroom activities. Overall the trend depicts a negative perception of ECCE teachers in their responses related to environmental education related activities being carried out in ECCE programmes.

According to this research teachers' perception related to educational activities being carried out in terms of 'saving energy' and 'protection of natural resources' as least negative with approximately 52% and 58% respectively, disagreeing to activities being carried out for teaching concepts related to saving and protecting natural resources including electricity and other forms of energy.

Figure 1: Perceptions of Early Childhood Teachers Regarding Implementation of Environmental in Classroom Teaching Education

Strongly Disagree, Disagree, Agree and Strongly Agree



Perceptions of ECCE teachers' Regarding Obstacles in Implementing Environmental Education

The perceptions of teachers regarding barriers and obstacles in incorporating environmental education in ECCE classrooms was also studied through this research.

The analysis of data as reflected in Figure 3. revealed that the majority of teachers do not consider 'Problem of cooperation with students' , 'Negative attitude of students towards environmental actions' , 'Lack of understanding of pedagogies related to environmental education' and 'problem working with other teachers' as obstacles in implementing environmental education and actions in ECCE classrooms. Teachers' disagreement with these statements was calculated at 86%, 84%, 78% and 77% respectively.

Table 3: Perceptions of Early Childhood Teachers Regarding the



Obstacles in Incorporating Environmental Education in Classroom Teaching

Type of Obstacle	Strongly Disagree	Disagree	Agree	Strongly Agree
Lack of necessary technological equipment	14%	42%	17%	28%
Poor quality of internet connection	22%	41%	14%	22%
Lack of culture oriented towards environmental education	14%	50%	17%	19%
Negative attitude of students towards environmental actions	39%	45%	11%	6%
Inability to plan and implement environmental actions due to limited knowledge about environmental issues	25%	50%	17%	8%
Lack of planning and implementation time in the classroom	25%	39%	22%	14%
Problem working with other teachers	22%	55%	8%	14%
Problem of cooperation with students	22%	64%	11%	3%
Limited financial resources	11%	36%	14%	39%
Bureaucratic constraints	31%	30%	19%	19%
Lack of understanding of pedagogies related to environmental education	25%	53%	11%	11%
Lack of importance to the subject by the school management/policy makers	14%	45%	19%	22%
Large classroom (student-teacher ratio, more than 30 students with one teacher)	17%	31%	17%	36%

According to the data of this survey, teachers perceive 'large classrooms' and 'limited financial resources' with 53% agreement for each, as barriers in implementing environmental education related activities in ECCE programmes.

Discussion

The research study that was quantitative in nature aimed to gain insights related to early childhood teachers' perceptions regarding environmental education in public schools of Karachi. The key findings of the study comprise of the perceptions of the importance of environmental education in ECCE, perceptions of current state of implementation of environmental education in classroom activities as well as outside the classroom activities and the perceptions on the obstacles that teachers face when incorporating environmental education related topics and tasks in their lessons.

The analysis of early childhood teachers' perceptions of importance of



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environmental education was highly positive which is consistent with the study conducted by Bethany, Leng and Kim (2024). Teachers believe that environmental education helps students gain the basic understanding and knowledge of their environments and influences their attitudes towards natural resources. This also builds their problem solving skills oriented towards the environment and issues related to it. These findings also align with the findings of Herrero, Martin and Torija (2025) in which they presented the perceptions of Spanish teachers. Their results depicted that teachers view environmental education mostly from a citizen's perspective and deem it important to cultivate awareness, conceptual understanding and positive attitudes towards the environment. The review of literature indicates that environmental education and its importance is well established and researchers were unable to find any studies that pinpoint teachers perceiving environmental education as unimportant. Karachi is a metropolitan, it is geographically located at the coast of Arabian sea, the drastic changes in climate have affected the citizens including teachers. Academic activities get affected frequently due to rain causing urban flooding. Recently unusual seismic activity caused damage to public and private property. Moreover, the loss of mangroves is also alarming due to its impact on marine life. These factors are now visibly affecting everybody in Karachi which has resulted in awareness of environmental issues and importance of education in this regard (Eckstein et al., 2021).

Furthermore, this study highlights the teachers' perceptions that environmental education is far from the implementation that is the requirement of today's day and age. These findings correspond to the results of the research study that was conducted in Turkey and revealed that they emphasized on the significance of nature based environmental education but their classroom practices did not depict utilization of any nature based activities (Temiz, 2024). The ineffective implementation of environmental education is a problem that is multi-faceted. It requires actions in terms of policies, curriculum revisions, teacher training, community mobilization and monitoring and evaluation as indicated by Collins & Garrity (2025) and Feng et. al., (2023).

Studies indicate that teachers often find incorporating environmental education faces challenges due to limited resources, competing curriculum demands and lack of training (Grageda et al., 2023).

The perceptions of teachers regarding the challenges and obstacles they face in implementing environmental education was also studied in this research. The early childhood teachers' considered lack of financial resources as the biggest obstacle that hinders the implementation of the environment in early years classrooms is financial constraints which has also been indicated in a study conducted in Chile by Christie, Ulloa, Barraza and Schiehing (2025). They pinpointed that budgetary issues became the key challenge in teaching activities, especially outdoor excursions when it comes to environmental education. The other most significant barrier according to the results of this research study is the student teacher ratio. The large classrooms impact the time, attention and energy levels that teachers' can dedicate towards environmental education in classroom activities. This is a problem that exists in many developing countries where class size exceeds even 70 students per teacher (Gugssa, 2024). The large size of an early childhood class creates issues such as ensuring safety of students inside the classroom and if taken for outdoor activities. It also negatively impacts teachers'



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motivation as they suffer from exhaustion, resulting in mental health being affected and impacting on student learning as well (Tikkanen, 2021).

This research study was instrumental in providing with insights related to teachers' perceptions of importance, implementation and obstacles of incorporating environmental education in early childhood education programmes, however, since there was limited public access to data available that could provide access to all the early childhood teachers, it is possible that the results do not reflect the perceptions of all the ECTs currently working in Karachi. Furthermore, since this is an academic research which is self-funded by the researcher, it does not cover the qualitative data and other means of acquiring data within a timeframe financially sustainable to carry out this research.

Overall, environmental education in early childhood classrooms is considered to be of immense significance by the early childhood educators, who perceive it as unimplemented in an effective manner due to financial constraints and unmanageable size of early years classrooms.

Conclusion and Recommendations

Pakistan is a country struggling with an economy that has been unstable due to external and internal factors that include political unrest, war and over population (Naqvi et al., 2025). Although Karachi is the largest city of Pakistan and the major contributor to the country's GDP, it has yet to see progress that translates into access to SDG4 i.e., quality education specially when it comes to early childhood education (Kashkouli, 2025; Saeed, 2023). Formal education is divided into numerous streams and categories even at the early childhood education level, which deepens the socioeconomic disparity and reflects the lack of vision and common goal as a nation. Policies regarding environmental education remain unimplemented due to lack of focus from authorities as they remain occupied in dealing with challenges such as out of school children, teacher training and above all limited resources allocated to the education sector (Sadik & Afzal, 2023).

This research study has only covered a minute part of the bigger issues that exist in terms of environmental education and its implementation in the early childhood education programmes. However, it is teachers who have the power to influence the future generation even with all the limitations of the education system. The student-teacher dynamic can be utilized to maximize the impact by providing them with environmental awareness translated into agency by creating modifications in the curriculum and redirecting it with emphasis on environmental knowledge, skills and attitudes.

This research also highlights the need for data management of ECTs by the authorities as access to these stakeholders is limited for researchers. Policy makers need to develop a systematic monitoring system which is connected to government organizations responsible for the implementation of environmental education. Continuous teacher training and evaluation of implementation can substantially reduce the obstacles that teachers face when incorporating environmental education in public schools' ECCE programmes.

Furthermore, this study can also provide future researchers with a basis to further study teachers' perceptions related to environmental education in ECCE and its implications for Pakistan's education system.



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