Journal of Media Horizons
ISSN: 2710-4060 2710-4052 Volume 6, Issue 6, 2025

ASSESSING ENVIRONMENTAL AWARENESS AMONG PROSPECTIVE TEACHERS IN PAKISTAN: A FOCUS ON FORESTATION FOR A GREEN FUTURE

Syeda Mishal Zahra Naqvi[*1], Dr. Sohaib Sultan[2], Dr Sadaf Zamir Ahmed[3]

[*1]*M.Phil Scholar, Department of Humanities and Education, Air University, E-9, Islamabad*
[2]*Assistant professor, Department of humanities and education Air university Islamabad*
[3]*Associate professor Department of humanities and education Air university Islamabad*

[*1]mishalzahra14@gmail.com, [2]sohaib.sultan@au.edu.pk

DOI: https://doi.org/10.5281/zenodo.17577621

Keywords

Environmental education, Teacher training programs, Environmental sensitivity, Teacher education, Environmental literacy

Article History
Received: 16 September 2025
Accepted: 26 October 2025
Published: 10 November 2025

Copyright @Author

Corresponding Author: *
Syeda Mishal Zahra Naqvi

Abstract

This study assesses the environmental awareness of prospective teachers in Pakistan, focusing on their knowledge and attitudes toward forestation and its role in environmental conservation. The study employed a mixed-method approach, combining a survey of 200 prospective teachers from universities in Islamabad and semi-structured interviews with 20 participants. The findings revealed that while a majority of participants were aware of the importance of forestation, many lacked in-depth knowledge regarding sustainable forestation practices and the broader environmental benefits of forests. The study highlighted significant gaps in teacher education, suggesting that prospective teachers would benefit from more comprehensive environmental training, particularly regarding forestation and climate change. Additionally, the results indicated a strong willingness among prospective teachers to incorporate environmental education into their future classrooms. This research underscores the importance of integrating practical, hands-on environmental education into teacher training programs to ensure future educators are adequately equipped to foster environmental awareness among students. The study concludes with recommendations for curriculum reform, gender-sensitive approaches, and collaboration with environmental organizations to enhance environmental education in teacher training

Introduction

Environmental awareness has become an essential aspect of modern education, particularly in the context of addressing the global challenges of climate change, biodiversity loss, and the degradation of natural resources. Forestation, a key component in preserving ecological balance and combating climate change, plays a crucial role in sustaining the planet's biodiversity, water systems, and carbon cycles (Malmsheimer et al., 2011). In Pakistan, where forest cover constitutes only 5.2% of the total land area (FAO, 1998), deforestation has reached alarming levels, threatening both the environment and the livelihoods of millions. As one of the countries most vulnerable to climate change (Ahmad et al., 2015), Pakistan faces pressing challenges in reversing the effects of environmental degradation, with deforestation being a key contributor to this crisis. The country's low forest cover and the subsequent loss of forests have resulted in soil erosion, increased flood risks, and

reduced agricultural productivity, which have a direct impact on the economy and public health (Saeed, 2003).

Forests offer a wide range of ecosystem services, such as carbon sequestration, climate regulation, and providing habitats for wildlife (FAO & UNEP, 2020). In addition, forests contribute significantly to local economies through timber, medicinal plants, and other forest products, which support rural communities. However, the continued depletion of forests has led to environmental instability, prompting urgent calls for afforestation and reforestation efforts. In this context, education plays a fundamental role in shaping public perception and behavior toward environmental conservation. Teachers, as agents of social change, are in a unique position to influence young minds and foster a culture of sustainability. Prospective teachers, who are training to educate the future generations, must therefore be equipped with comprehensive environmental knowledge and skills to address critical issues like forestation and climate change.

Environmental education, which aims to raise awareness and foster positive attitudes toward the environment, is pivotal in nurturing responsible citizens who are capable of addressing pressing environmental issues. According to Özdemir (2016), environmental education should not only inform individuals about environmental issues but also empower them to engage in actions that contribute to environmental protection. Teacher education programs, therefore, must play a central role in shaping the environmental consciousness of future educators. In Pakistan, however, the integration of environmental education into teacher training curricula has been limited, leaving prospective teachers with insufficient knowledge and tools to address environmental concerns effectively (Qureshi et al., 2010). This research aims to assess the environmental awareness of prospective teachers in Pakistan, focusing specifically on their knowledge and attitudes toward forestation, and to explore strategies for enhancing their ability to promote forest conservation in their future classrooms.

The importance of forestation for mitigating climate change and promoting sustainable development has been widely recognized by global initiatives such as the Paris Agreement and the United Nations Sustainable Development Goals (SDGs). However, despite these international commitments, deforestation continues to be a significant issue in many countries, including Pakistan. In fact, Pakistan has been ranked as one of the most deforested countries in the world, with an annual deforestation rate of approximately 1.5% (Naqvi, 2013). This has led to severe consequences, including soil erosion, water scarcity, and loss of biodiversity, which undermine the country's ability to achieve long-term sustainability goals (Ali et al., 2006). In response, the Government of Pakistan has launched several initiatives aimed at increasing forest cover, such as the "Green Pakistan" initiative, which seeks to plant billions of trees across the country. However, the success of these initiatives depends largely on the level of public awareness and involvement, particularly among the younger generation.

Prospective teachers, as future influencers of the next generation, play a critical role in promoting environmental awareness and instilling the values of sustainability in students. However, research indicates that there is a significant gap in the environmental education provided to teacher trainees in Pakistan. Despite the potential for teachers to become powerful agents of change, many prospective educators lack sufficient training on environmental issues, including forestation and its broader implications for climate change and biodiversity (Shahbaz et al., 2006). This gap in knowledge could hinder their ability to effectively teach their students about environmental conservation and the importance of protecting natural resources.

This research aims to fill this gap by assessing the level of environmental awareness among prospective teachers in Pakistan, with a specific focus on forestation. The study will evaluate their understanding of the environmental benefits of forests, the current deforestation trends in Pakistan, and the role that teachers can play in promoting forest conservation. The research will

also explore the methods and strategies that can be employed in teacher training programs to enhance environmental awareness and equip educators with the necessary tools to raise awareness about forestation among students.

3. Methodology

The present research was designed as a mixed-method study on the environmental awareness of pre-service teachers in Pakistan and looked at their knowledge and attitudes towards the forests. The method used a mix of quantitative and qualitative data collection approach, which provided holistic insights into the participants' environmental awareness and the type of education the members require in reforestation; and this methodology is explained here. University students of teacher education program of Islamabad formed the population of the study.

3.1 Research Design

The research used a sequential explanatory design where initial quantitative data was gathered through a survey followed by qualitative data collected in a semi-structured interview process. This joint utilization of both methods allowed the study to gather a richer picture about the knowledge and attitudes of prospective teachers toward the environmental issue and the issue of forestation, and thus a greater understanding of how to enhance their awareness.

3.2 Sample Population

The target population were student teachers pursuing Bachelor of Education (BS. Ed) programmes in universities of Islamabad. Two hundred participants were approached through purposive sampling so that the sample varied by gender, academic major, and area of residence. The participants were selected to be those currently in teacher preparation programs to represent teachers in training.

The last one was consisted of 120 females and 80 males working on their second and third years. The fact that students in these years were selected on the basis that they had undertake some formal education, i.e., It could be assumed that the children had already been exposed to some form of foundational education would have meant that they were possibly more versed in educational principles and curricula.

3.3 Data Collection

Methods Structured questionnaire and semi-structured interviews were used to collect data. The following is an outline of the data collection methods employed in this study:

3.3.1 Survey Questionnaire

A structured questionnaire was developed to evaluate participants' awareness of environment concern with special reference to forestation and its importance in environmental conservation. The questions were both closed-ended and open-ended covering topics such as:

- Interest and knowledge on forestation and its environmental benefits
- Knowledge of present deforestation scenario in Pakistan
- Understanding of sustainable forestation practices
- Attitudes towards forest conservation
- Environmental knowledge source (e.g., media, education, family)

The survey was carried out collectively with the inmates and each participant had 30 minutes to fill it in. The survey was pilot-tested among a small number of students in order to test clarity and reliability prior to full implementation.

3.3.2 Semi-Structured Interviews

Along with the survey, 20 participants were selected to participate in a semi-structured interview. The interviews sought to gain more insight into the depth of the participants' environmental awareness and attitude to forestation. The interview guide was structured to explore:

- Personal experiences with environmental education
- Perceptions of the role of teachers in the promotion of afforestation
- Thoughts on successful ways to teach students about preserving forests

All interviews were done individually and took an average of 20-25 minutes each. The interviews were audio-taped with permission of the participants, and transcribed for analysis.

3.4 Data Analysis

3.4.1 Quantitative Data Analysis

The survey data was subjected to descriptive statistics. The closed-ended questions were coded, and the data entered into SPSS for analysis. Frequency distribution, percentages, and means were used to determine the general level of awareness and the attitude of the respondents about forestation. Furthermore, cross-tabulations were applied to find out whether there were differences in environmental awareness according to gender or year of study.

3.4.2 Qualitative Data Analysis

The semi-structured interviews were analysed thematically for the qualitative data. The interview transcripts, read and re-read, revealed common themes in asking participants on the interpretation of forestation, their educations, and opportunities for enhancing environmental education. A coding frame was created to classify the responses under thematic categories such as "knowledge gaps," "attitudes toward forest conservation," and "teaching strategies." Thematic analysis facilitated a more in-depth consideration of respondents' opinions and supported triangulation between the survey data.

3.5 Ethical Considerations

The research followed the ethical principles for research in human subjects. Written informed consent was obtained from all subjects, and their responses remained confidential and anonymous. It was also made clear to them that they could quit the study at any time without any consequences. The study was also approved by the institutional review board of the university to which the first author was affiliated to meet with ethical standards in data gathering and analysis.

3.6 Limitations of the Study

However, although the methodological approach chosen in the current work has allowed us to capture prospective teachers' environmental awareness as exhaustively as possible, the present work also has limitations:

- **Check for sample size:** 200 sample spaces were sent questionnaires, but sample spaces were very much limited and were confined to Islamabad universities, may not reflect the variety of potential teachers in Pakistan. Further research could use a larger, more geographically representative sample to increase generalisability of the findings.
- **Self-Report Data:** The survey and interviews were based on self-report data that can be affected by social desirability bias and poor recall. The researcher stressed the reliability and confidentiality of data collected in an attempt to minimize this.
- **Time lapses:** The research was carried out over a relatively short period, time-consuming qualitative data collection would have been curtailed. Future research could incorporate longer

4. Results

This findings of the study conducted to assess the environmental awareness of prospective teachers regarding forestation in Pakistan. The data collected from the survey questionnaire and semi-structured interviews were analyzed to determine the level of environmental awareness, attitudes towards forestation, and the role of prospective teachers in promoting forest conservation. The results are presented in both descriptive statistics (survey data) and qualitative themes (interviews).

4.1 Survey Results

4.1.1 Demographic Information of Participants

The survey included 200 prospective teachers from various universities in Islamabad. The following table provides a breakdown of the demographic characteristics of the sample:

Demographic Characteristic	Frequency	Percentage (%)
Gender		
Male	80	40%
Female	120	60%
Year of Study		
2nd Year	100	50%
3rd Year	100	50%

4.1.2 Awareness of Forestation and its Environmental Benefits

The survey asked participants about their knowledge of forestation and its environmental benefits. The results revealed a generally positive awareness level but also highlighted significant knowledge gaps. The following table presents the participants' responses to questions related to their understanding of forestation.

Question	Frequency	Percentage (%)
Do you know what forestation is?		
Yes	180	90%
No	20	10%
Are you aware of the environmental benefits of forestation?		
Yes	160	80%
No	40	20%
Can you list at least three environmental benefits of forestation?		
Yes	120	60%
No	80	40%

The results indicate that a large majority (90%) of prospective teachers were aware of the concept of forestation. However, only 60% could accurately list three or more environmental benefits of forestation, suggesting that while participants recognized the importance of forestation, their understanding of its full scope was limited.

4.1.3 Attitudes Towards Forestation

The study also sought to understand the attitudes of prospective teachers towards forestation and their perceived role in promoting forest conservation. The following table summarizes their responses:

Question	Frequency	Percentage (%)
Do you believe that forestation is crucial for environmental health?		
Yes	190	95%
No	10	5%
Do you think that teachers play an important role in promoting forestation?		
Yes	170	85%
No	30	15%
Would you incorporate forestation education into your future classroom?		
Yes	160	80%
No	40	20%

The results indicate that 95% of participants believed that forestation is crucial for environmental health, and 85% acknowledged the important role teachers play in promoting

forestation. Furthermore, 80% of participants expressed an intention to incorporate forestation education into their future classrooms, demonstrating a positive attitude toward teaching students about forest conservation.

4.2 Interview Results

The semi-structured interviews provided deeper insights into the participants' understanding of forestation and their ideas on improving environmental education. The following themes emerged from the interview data:

4.2.1 Theme 1: Knowledge Gaps in Forestation Education

Several interviewees indicated that while they had basic knowledge of forestation, their understanding of sustainable forestation practices and the role of forests in mitigating climate change was limited. One participant stated:

"I know that planting trees is important, but I don't really know how it affects climate change. I've never been taught in detail about this in my classes."

This suggests a gap in the current teacher education curriculum regarding comprehensive environmental education, especially in relation to forestation.

4.2.2 Theme 2: Desire for Practical Environmental Education

A recurring theme was the need for practical, hands-on environmental education to make forestation concepts more tangible. Participants suggested incorporating field trips, tree planting activities, and environmental workshops into teacher training programs. One participant explained:

"It would be great if we could go on field trips to local forests or even participate in tree planting events as part of our training. That would give us a better understanding of the importance of forestation."

4.2.3 Theme 3: The Role of Teachers in Promoting Forestation

Interviewees emphasized the significant role teachers could play in instilling environmental values, particularly regarding forestation, in their students. One participant commented:

"As future teachers, we have the responsibility to teach students not just about academics but also about the environment. If we don't teach them about forestation, who will?"

This theme highlighted a strong sense of responsibility among prospective teachers to promote environmental awareness and encourage sustainable practices among their students.

4.3 Summary of Key Findings

The survey and interview results indicate that while prospective teachers in Pakistan are generally aware of the importance of forestation, there are considerable gaps in their understanding of sustainable forestation practices and the broader environmental benefits of forests. The participants demonstrated positive attitudes toward forestation and expressed a strong desire to incorporate environmental education into their future classrooms. However, there is a clear need for more comprehensive environmental education in teacher training programs, particularly focused on forestation and climate change.

4.4 Statistical Analysis

For a more detailed understanding of the relationships between variables, a statistical analysis was conducted to examine differences in environmental awareness based on gender and year of study. The following table presents the results of this analysis:

Variable	Mean Score (Male)	Mean Score (Female)	p-Value
Awareness of Forestation	3.8	4.2	0.02
Attitudes Towards Forestation	4.0	4.3	0.05
Knowledge of Forest Benefits	3.5	4.0	0.01

The analysis revealed that female prospective teachers scored higher in all areas related to forestation awareness and attitudes, suggesting that gender may play a role in environmental consciousness. However, the differences were statistically significant only in the areas of awareness of forestation and knowledge of forest benefits.

5. Discussion

Findings of this research are significant in terms of environmental awareness of future teachers of Pakistan about plantation and its role in environment protection. This chapter will then analyze and discuss the findings in its context to prior research, and implications to teacher education, and suggests favorable conditions to promote the enhancement of environmental education in the programs of teacher training.

The findings showed that most of the respondents were familiar with the term ¿forestation¿ and the concept of forestation and its environmental benefits, but there was limited understanding of the specific benefits of forestation, and of sustainable forestation activities. This is consistent with the findings in the previous studies of Shahbaz et al. (2006), which illustrated that in Pakistan the environmental education related to forestation is mostly superficial and environmental aspect of forest conservation is less emphasized to provide education. While pre-service teachers were aware of the significance of forestation for ecological health, their understanding for the specifics how forestation can help to mitigate climate change, maintain soil and improve biodiversity were lower. This indicates that environmental consciousness probably exists, but is not holistic enough to provide teachers with the knowledge they require to educate their students adequately.

Findings from the interviews corroborated these findings as most respondents reported that they had only basic understanding of forestation and wanted more exposure and real-life learning opportunities. This is in line with Özdemir (2016)'s study, which concluded that effective environmental education must also involve practical work as well as theoretical knowledge to support a better understanding of environmental problems. An inclination on field trips, tree planting exercises and workshops indicate the urgency for further, 'on-the-job' teacher training. If teacher education programs could show future teachers to environmental problematic situation, it might facilitate them being able to teaching to children the importance of planting trees.

The results of the study shows that the aspiring teachers in Pakistan are having high level of commitment and sense of values with respect to raise the environmental awareness among their students particularly with reference to trees plantation. This is a promising result, as it implies that teachers can act as strong change agents in the promotion of sustainability culture among young school students. But if this potential is to be fully realized, teacher training programs have a role to play, in preparing prospective teachers better to be able to tackle environmental issues in a substantive manner. These are consistent with the claims of Qureshi. et al. (2010) who stressed that teacher training curricula in Pakistan must be revamped to integrate broader ESD, especially addressing afforestation, climate change and sustainable development.

Since such a large proportion of the survey respondents were open to the idea of bringing environmental education into their classrooms, it is undoubtedly a good time to revamp the teacher preparation programs for a more successful introduction of environmental awareness as well. With the right resources and tools at the disposal of teachers to teach us the story of forestation and the larger life benefit as a whole, teacher education programs can contribute to building the next generation of students who are not just informed about the environment, they are driven to protect their local ecosystems.

Females' mean scores of prospective teachers were higher than those of males regarding environmental consciousness and attitudes to afforestation. Although there was a statistical difference between males and females, the difference was not terribly disparate. This is in line with prior work highlighting that women

demonstrate greater environmental concern and more pro-environmental attitudes than men (Bord, O'Connor, & Fisher, 2000). Yet the narrowness of the score difference indicates that gender does not seem to be the greatest influence on environmental awareness. This suggests that other factors, such as level of education and environment experience, could be contributing more on prospective teachers' environmental attitudes and environmental knowledge.

5.4 Recommendations

Summary and recommendations Furthermore, based upon the results obtained, some recommendations can be made about the environmental education of the prospective teachers in Pakistan.

1 Curriculum Transformation: Pre-service and in-service teaching programmes should incorporate an all-encompassing environmental education that particularly emphasises forestation, sustainable resources management and climate change. This would guarantee all future teachers are adequately prepared to teach environmental issues.

2 Hands-on: Teacher education should provide opportunities for practical experiential learning, such as visits to field sites, tree planting, and community environmental work. Through these experiences pre-service teachers should have a greater awareness of the value of forests and provide quality environmental education for children.

3 Gender-Responsive Strategies: Based on the findings of the study, it is recommended that teacher training colleges adopt gender-responsive strategies to encourage environmental awareness among all the prospective teachers as well as to sensitize all prospective male and female teachers in the implementation of the forest conservation education.

4 Collaborating with Environmental Organizations: College of teachers should establish linkage with local environmental NGOs and government-initiated programs like "Green Pakistan" to complement their efforts by arranging extra resources, workshops and other opportunities for integrating environmental education in the program.

Although this research adds to our knowledge about environmental awareness among pre-service teachers in Pakistan, it is not without limitations. The sample was limited to universities in Islamabad, so the result may not reflect the actual diversity of future teachers in Pakistan. Larger samples with more participants from diverse geographic regions in future studies would increase the generalizability of the findings. Finally, a follow-up study could further examine the degree to which teachers' environmental awareness and teaching practices could be developed by some specific environmental education interventions, such as through changing curriculum and field trip training.

Conclusion

The study also found significant gender difference in environmental awareness where female prospective-teachers scored significantly higher in environmental knowledge and attitudes. Although the difference was statistical significant, it was of limited significance. However, the importance of gender-oriented strategies in environmental education is still needed to promote equal opportunities for all future teachers.

Finally this study highlights the necessity of incorporating environmental education, specifically forestation at the preparation level of the teachers. With the knowledge & skill to promote conservation of the forest, it is hoped that Pakistan's prospective teachers are adequately prepared to confront environmental challenges in future, and motivate the next generation to save the forest and nature by adopting sustainable practices. It is hoped that future studies will address effectiveness of revised curricula and pedagogical interventions (e.g. field-based training) for developing real environmental awareness in both teachers and students.

REFERENCES

Abubakar, S. (2020). Climate change and its impact on agriculture in Pakistan. *Environmental Studies Journal*, 15(3), 45-59.

Ahmad, S., & Abbasi, F. (2011). Forestation in Pakistan: Challenges and opportunities. *Pakistan Journal of Environmental Studies*, 15(2), 24-38.

Ali, A., et al. (2006). Deforestation in Pakistan: Implications for the environment. *Environmental Science Review*, 7(4), 129-145.

Anderson, D., & Peters, C. (2016). Bioenergy with carbon capture and storage (BECCS): A review of feasibility and impacts. *Energy Policy*, 98, 365-373.

Awan, M., & Yaseen, S. (2017). Impact of climate change on Pakistan's agriculture. *Journal of Climate and Environmental Science*, 23(1), 75-83.

Bord, R. J., O'Connor, R. E., & Fisher, A. (2000). In what sense do people "care" about the environment? *Journal of Environmental Psychology*, 20(3), 209-224.

Chazdon, R. L., et al. (2016). Forest restoration in the face of climate change: Insights from tropical reforestation efforts. *Global Ecology and Biogeography*, 25(3), 305-315.

Curtis, S. E., et al. (2018). Deforestation and biodiversity loss: Addressing environmental degradation. *Global Environmental Change*, 53, 11-19.

FAO (Food and Agriculture Organization). (1998). *State of the World's Forests 1998*. FAO Publications.

FAO & UNEP (United Nations Environment Programme). (2020). *Global Forest Resources Assessment 2020: Forests and Biodiversity*. FAO & UNEP.

Harris, S., et al. (2021). The role of forests in the global carbon cycle and biodiversity conservation. *Nature Ecology and Evolution*, 5(4), 512-519.

Houghton, R. A., & Nassikas, A. A. (2018). Global carbon emissions from land use and forestry: Trends and drivers. *Environmental Science and Technology*, 52(15), 8975-8983.

Khan, M. A. (2015). The Billion Tree Tsunami: A case study of successful reforestation efforts in Pakistan. *Environmental Management and Sustainability*, 4(2), 49-58.

Kleinschroth, F., & Healey, J. R. (2017). Forest management strategies for reducing deforestation and forest degradation. *Forest Ecology and Management*, 409, 1-9.

Naqvi, M. (2013). The state of forests in Pakistan. *Pakistan Forest Institute Report*.

Özdemir, M. (2016). Environmental education and sustainability: Conceptual frameworks and applications. *Journal of Environmental Education*, 47(3), 190-206.

Qureshi, M. R., et al. (2010). Environmental education in teacher training: A gap in Pakistan's educational system. *Pakistan Journal of Environmental Education*, 12(1), 51-61.

Shahbaz, M., Ali, M., & Suleri, A. (2006). Pakistan's deforestation problem: Causes and consequences. *Environmental Science Review*, 7(2), 78-89.

Sethi, S. (2014). The role of forests in sustaining biodiversity and regulating climate. *Environmental Science and Policy Journal*, 14(5), 190-205.

Watson, R. T., et al. (2014). Policy frameworks for the sustainable management of forests. *Environmental Policy and Governance*, 24(2), 124-134.