Attitudes and Perceptions towards Sustainable Development among Prospective Teachers

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According to Brundtland (1987), "Meeting the present needs while not compromising with the needs of future generations is called sustainable development." Education for sustainable development equips individuals with the ethics, beliefs and knowledge needed to shape a non-consumptive future. Sustainable development considers not only environmental factors but also social and economic aspects. Additionally, education for sustainability makes use of the entire education system to provide students with the skills needed for a sustainable future (Sulaiman, 2019). Prospective teachers play a vital role in education as they will create a new generation by educating students. Therefore, it is important to assess their understanding of sustainable development and identify the requirements to prepare them for this role. This paper aims to explore prospective teachers' perceptions of sustainable development and their attitude towards it. A total of 146 prospective teachers from the Faculty of Education, BHU were selected using a simple random sampling technique. The study is based on a survey, in which the participants completed an e-questionnaire designed by Sultan and Kanazawa (2019) to assess their attitudes and perceptions regarding sustainable development. The questionnaire consisted of statements rated on a 4-point Likert Scale, ranging from 1 (strongly disagree) to 4 (strongly agree). Each statement's level of agreement was ranked accordingly. The survey measured the participants' perceptions and attitudes towards sustainability-related issues, covering three dimensions—social, economic and environmental sustainability. To facilitate analysis and to connect the participants' responses to several topics, the questions were coded. The findings indicate that apart from certain sustainability aspects focussed on economic and environmental issues, prospective teachers generally hold positive perspectives and attitudes towards sustainable development. In particular, they demonstrate a strong inclination towards education for social equity, environmental protection and sustainable development. However, their attitude towards biodiversity conservation is not as favourable. Additionally, the study reveals that urban and rural prospective teachers share similar perceptions and attitudes towards sustainable development. In contrast, differences exist between male and female respondents in this regard. Thus, while the place of residence does not impact perception and attitude, gender does. A key limitation of this study is that its findings are restricted to prospective teachers those studying in education faculty and colleges affiliated to BHU.

Keywords: *Sustainable development, education for sustainable development, prospective teachers, attitude, perception*

Introduction

The Earth is often perceived as a stable, because of its ability to maintain balance through various natural processes like carbon cycle, water cycle, ecological succession etc. However, modern activities like technology, industry and agriculture are exploitative, causing significant environmental damage. To address this issue, sustainable development principles should be integrated into all aspects of life. Sustainable development was brought to public attention by the United Nations

(UN) World Commission on Environment and Development (WCED) report titled Our Common Future, popularly known as the Brundtland Report. According to this report, sustainable development is essential for a better future. It was first presented at the UN General Assembly in 1987. Meeting the present needs while not compromising with the needs of future generations is called Sustainable development.

According to the Sustainable development Education Panel's (SDEP) statement in 1998, "Education for Sustainable development (Education for Sustainable Development, UNESCO, n.d.) is about the knowledge necessary to maintain and improve both our quality of life and the quality of future generations." It aims to educate people about environmental, social and economic issues that are at stake while also providing them with the necessary tools to live sustainably. It focuses on ensuring preparedness for the world in the twenty-first century. According to UNESCO, "Education for sustainable development empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society for the present and future generations, while respecting cultural diversity" (UNESCO, n.d.).

The primary goals of education for sustainable development are as follows.

1. Economic growth: It refers to the process of creating a viable economy that is growing in the right way.
2. Preserving the environment: by reducing waste and pollution and working to reduce global carbon emissions, this objective focuses on how humans may help preserve and enhance the natural environment.
3. Social acceptance: The objectives of this aim are to provide homes for future generations and to encourage the growth of strong, vibrant global communities.

To realise the vision of a sustainable future, the 17 Sustainable Development Goals (SDGs) and their 169 goals were included in the historic United Nations General Assembly summit in September 2015, based on the primary goals of sustainable development. The overall process of sustainable development aims to safeguard our society, economy and environment, ensuring the protection of our world while enabling further progress (Haldar, et al., 2022). Higher education institutions are major drivers to foster the understanding of sustainability and shape future leaders for achieving a sustainable future for everyone (Saidatulakmal, et al., 2022). They also play a crucial role in helping future professionals develop attitudes and ideas about sustainable development that will eventually assist humankind accomplish the objectives of sustainable development (Idris and Balakrishn, 2019).

Literature Review

Aleixo, et al. (2021) conducted a study to understand students' perceptions of sustainable development in Portugal's public higher education institutions. The findings revealed that while students generally recognise the importance of sustainable development, they believe institutions should provide more training on the subject. Although many students are engaged in personal practices like reducing, reusing and recycling, participation in organised environmental activities remains limited. Egyptian students, on the other hand, have a strong sense of duty towards their country, local community and neighbourhood, actively conveying the principles of sustainable development to their loved ones, friends and neighbours. Many students suggested practical efforts, field visits and project-based work to help them better learn the material (Khalil, et al., 2013).

Except for concerns related to economic and social boundaries, Malaysian students have positive opinions and attitudes towards all aspects of environmental, economic and social sustainability. A sense of responsibility for sustainability has been fostered among undergraduate students through sustainable

development education provided by higher education institutions (Idris and Balakrishn, 2019). However, the implementation of education for sustainable development at the secondary stage presents difficulties for teachers due to the lack of resources, material and training. These challenges are a result of both internal and external issues. For students to adopt sustainable attitudes and behaviours, education for sustainable development must be structurally integrated into the curriculum (Kougias, et al., 2022).

At Universiti Sains Malaysia, students exhibit a moderate to high positive attitude towards sustainability on campus, with a significant positive correlation between their perceptions and attitudes. The adoption of sustainability programmes at Universiti Sains Malaysia was viewed well by its students, who could connect sustainability issues with current events (Saidatulakmal, et al., 2022).

Similarly, undergraduates in Nigeria hold favourable opinions about the concept of sustainable development and are urging the National Universities Commission to include education for sustainable development into all university curricula (Abenu, et al., 2023).

Haldar, et al., (2022) examined the attitudes of 100 trainee teachers in Purulia, West Bengal, towards sustainable development. The results showed no significant differences in attitudes based on gender, place of residence (rural and urban), or academic stream (arts and science). However, a significant difference was observed between urban male and urban female trainee teachers. Leal, et al., (2024) analysed the perceptions of sustainable development among higher education students and identified significant gender differences in sustainability knowledge, attitudes and behaviour. Female students had higher mean scores than their male counterparts in all these aspects.

Rationale of the Study

Gregory's Direct Perception Theory, developed in 1970, explains how individuals form perceptions based on available information (Idris and Balakrishn, 2019). Gregory argues that perception is an active process that involves drawing conclusions and interpreting information from context, prior knowledge and experience. According to the theory of instruction, one's attitude towards a particular class of objects, people or events is influenced by the internal states acquired over time. Thus, the affective learning domain shapes attitude, whereas the cognitive learning domain shapes perception.

This study explores how people's perceptions of sustainability concerns are constructed and influenced by learned internal states (Idris and Balakrishn, 2019). A favourable attitude towards sustainability can be fostered through accurate perceptions of sustainability. Esa (2010) highlights a significant relationship between information and attitude, stating that greater knowledge results in a more optimistic attitude (Idris and Balakrishn, 2019).

This study focuses on understanding the attitudes and perceptions of aspiring educators towards sustainable development and the role of education in promoting it. Sustainable development is essential for the well-being of both present and future generations. Given the limited availability of relevant material, it is essential to understand how the younger generation and future educators perceive sustainable development.

The United Nations promotes sustainable development through education, recognising it as a powerful tool for societal change. In line with this idea, a paper titled Environment, Peace, Health and Values for Quality Life has been introduced as a part of the B.Ed curriculum. For prospective teachers, understanding sustainability is particularly important, as teachers serve as role models for students. Acquiring knowledge, skills and awareness of sustainability empowers future teachers to positively shape society, economy and environment (Haldar, et al., 2022). Understanding their views on sustainable

development can provide valuable insights into how they may contribute to fostering sustainable practices.

Research Questions

4. What is the perception of prospective teachers towards sustainable development?
5. What is the attitude of prospective teachers towards sustainable development?

Research Objectives

This paper explores the attitudes and perceptions of prospective teachers towards sustainable development. The study examines prospective teachers' perceptions towards sustainable development based on the following variables.

- Gender (Male/Female)
- Resident (Rural/Urban)

Additionally, the study analyses the attitude of prospective teachers towards sustainable development based on the following variables.

- Gender (Male/Female)
- Resident (Rural/Urban)

Research Method

For this investigation, a descriptive survey approach was used.

Sample

A total of 146 prospective teachers were selected as sample using the simple random sampling technique from the Faculty of Education, Banaras Hindu University, Varanasi. These teachers have received environmental education as part of their B.Ed curriculum.

Tool

This study utilised a perception and attitude e-questionnaire developed by Sultan and Kanazawa (2019). The researchers assessed its validity at the ground level. The questionnaire included four options—strongly agree, agree, disagree and strongly disagree. The 24-item e-questionnaire covered three important dimensions—social, economic and environmental sustainability. It consisted of 12 statements for perception and 12 for attitude, with a minimum score of 12 and the maximum of 48 for each criterion. The e-questionnaire link was sent to the respondents through email and shared on their mobile phones.

Data Analysis

The data were analysed using the mean value, standard deviation (SD) and t-Test.

Result and Discussion

Table 1: Scores on e-Questionnaire of Prospective Teachers

Scores on Questionnaire	Perception	Attitude
25–28	0	2
29–32	2	0
33–36	22	42
37–40	50	52
41–44	52	34
45–48	20	16
Total	146	146

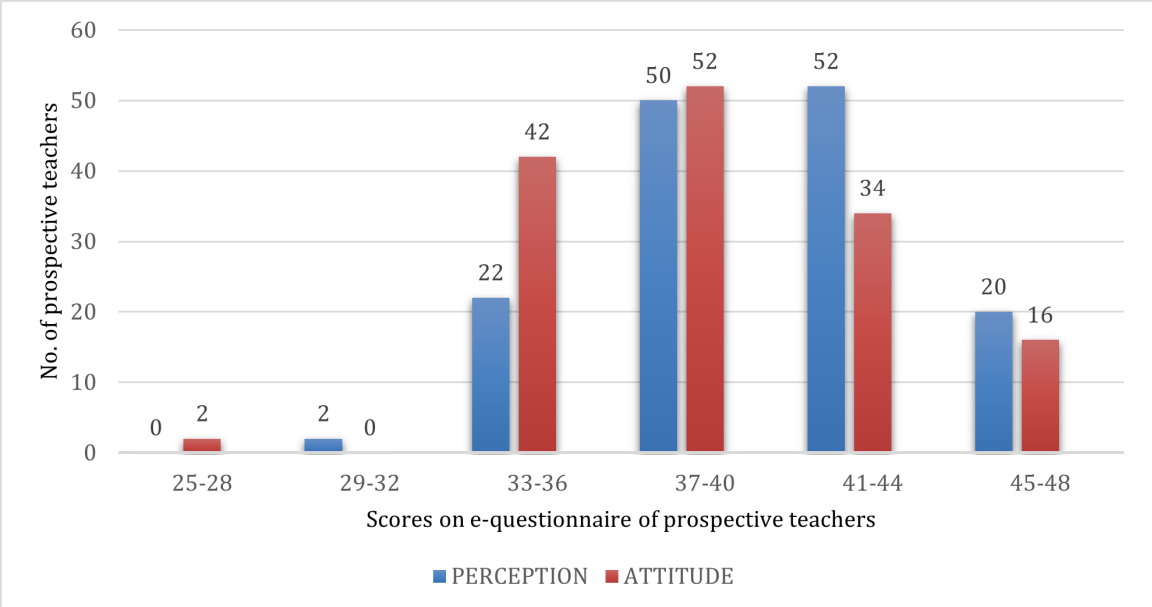

Figure 1: Histogram presenting the perception and attitude scores of prospective teachers towards sustainable development

Table 2 presents the mean values and standard deviations of the prospective teachers. The scale range used to gauge the prospective teachers' perceptions and attitudes is as follows: 1.81–2.60 indicates inadequacy, 2.61–3.40 represents a moderate scale, 3.41–4.20 signifies a favourable or positive perception, and 4.21–5.00 denotes a highly favourable or highly positive (adapted from Orlanda-Ventayen and Ventayen, 2017).

Table 2: Mean Value and SD of Prospective Teachers on each items of Perception and Attitude

Statement No.	Statements	Mean Value	SD
Section A: Perception			
A1	Persons ought to have a proper education that instils the values, information and skills necessary for everyday living.	3.76	0.42
A2	It is the responsibility of the present generation to ensure that the future generation inherits the same health level as them.	3.56	0.66
A3	In today's world, gender equality is crucial.	3.69	0.54
A4	Future generations should benefit from a society's sociocultural heritage.		
3.16	0.68		
A5	It is imperative to safeguard the ecosystem for the benefit of present and future generations.	3.79	0.43
A6	Biodiversity conservation is essential.	3.78	0.41
A7	The responsibility for maintaining the environment and its resources rests with people.	3.63	0.51

A8	Everyone ought to take necessary actions to counteract the consequences of global warming.	3.52	0.57
A9	High standards of life should be offered by industrialised nations to their citizens.	3.13	0.67
A10	The overuse of natural resources for economic growth does not pose a threat to the well-being of future generations.	1.54	0.71
A11	There should be less of a financial divide between the wealthy and the impoverished.	3.39	0.56
A12	The success of commercial operations depends on equality in society.	3.32	0.62
Section B: Attitude			
B1	In society, men and women need to have equal access to opportunities.	3.66	0.58
B2	The interaction of several cultures is fascinating and enlightening.	3.16	0.62
B3	Citizens should have access to quality government healthcare services.	3.56	0.57
B4	Education for all should be the government's responsibility.	3.64	0.51
B5	When individuals alter the environment, it frequently has devastating results.	3.45	0.55
B6	There is a tight relationship between the preservation of the environment and people's level of living.	3.47	0.60
B7	Protecting the environment and biodiversity is more vital than industrial development.	2.86	0.67
B8	Intense agricultural productivity should be sacrificed in order to preserve biodiversity.	2.97	0.62
B9	Even if it requires more funding, government-implemented economic policies should support sustainable manufacturing.	3.02	0.68
B10	To reduce disparities in economic status between populations, additional sacrifices from people are required.	2.64	0.76
B11	If a country is squandering its natural resources, then economic measures ought to be put in place by the government.	3.42	0.60
B12	Greater emphasis should be placed on reducing poverty than improving general economic well-being.	3.17	0.71

For the first research question, which examined how prospective teachers perceive sustainable development, the mean scores for statements A1 through A12 (as shown in Table 2, Section A) ranged from 1.54 (SD = 0.71) to 3.79 (SD = 0.43). The second research question (as presented in Table 2, Section B) assessed the respondents' opinions on

standard development, with mean scores for statements B1–B12 ranging from 2.64 (SD = 0.76) to 3.66 (SD = 0.58).

The respondents' positive attitudes and perceptions of education for sustainable development are reflected in the high average mean scores (above 3.4) for questions A1 and B4. Similarly, their positive attitudes and perceptions towards social equality are evident from their high average scores (above 3.4) on statements A3 and B1.

In contrast, Section B statements—B7 and B8 had low average scores (below 3.4) and statements B6, B5 and B11 had high average scores (above 3.4). Also, statements A5, A6 and A7 recorded high mean scores (above 3.4). Based on the previously described inquiries, which assessed viewpoints and sentiments concerning environmental sustainability, the respondents clearly had a favourable perception towards environmental protection and biodiversity conservation. However, their attitude towards biodiversity conservation was not favourable.

For statements A2 and B3, the respondents' perceptions and attitudes towards good health and healthcare services were found to be inadequate, indicating a lack of prioritisation of social and economic equality. To achieve SDG 2030 goals, educators should raise these concerns.

Statement A10 in Table 2 assessed the respondents' opinions on the balance between environmental conservation for future generations and economic development. It received the lowest average score (Mean Value = 1.54, SD = 0.71). The findings indicate that the respondents generally hold favourable opinions on environmental protection. This suggests that prospective teachers have been made aware of the importance of environmental sustainability through education in their educational institutions. As a result, they believe that environmental sustainability should take precedence over economic development.

Statements A12 and B10 focus on the economic and social aspects of sustainable development. The average scores for these statements are 3.32 and 2.64, respectively, indicating that the prospective teachers consider themselves less responsible for promoting a fair and equitable society for economic development. Additionally, they do not exhibit a sufficiently positive attitude towards efforts being made by people at reducing economic inequalities. One reason for this may be that social and economic equality have not been given enough attention in education for sustainable development (Saiz and Donald, 2017). To accomplish the SDG 2030 goals, educators in sustainable development education need to make serious efforts to highlight these concerns and raise awareness among prospective teachers.

The above table shows that the scores obtained by the prospective teachers on the statements in section A and B have high average scores and SDs, except for certain aspects of sustainability related to economic and environmental issues. This suggests that they have a generally favourable perception and attitude towards sustainable development, particularly in the areas of education for sustainable development, environmental protection and social equity. However, the prospective teachers exhibit an unfavourable attitude towards statements related to biodiversity conservation, indicating a lack awareness in this aspect. These findings align with those of Idris and Balakrishn (2019), who found that Malaysian undergraduate students had favourable perceptions and attitudes towards sustainable development, especially concerning environmental issues.

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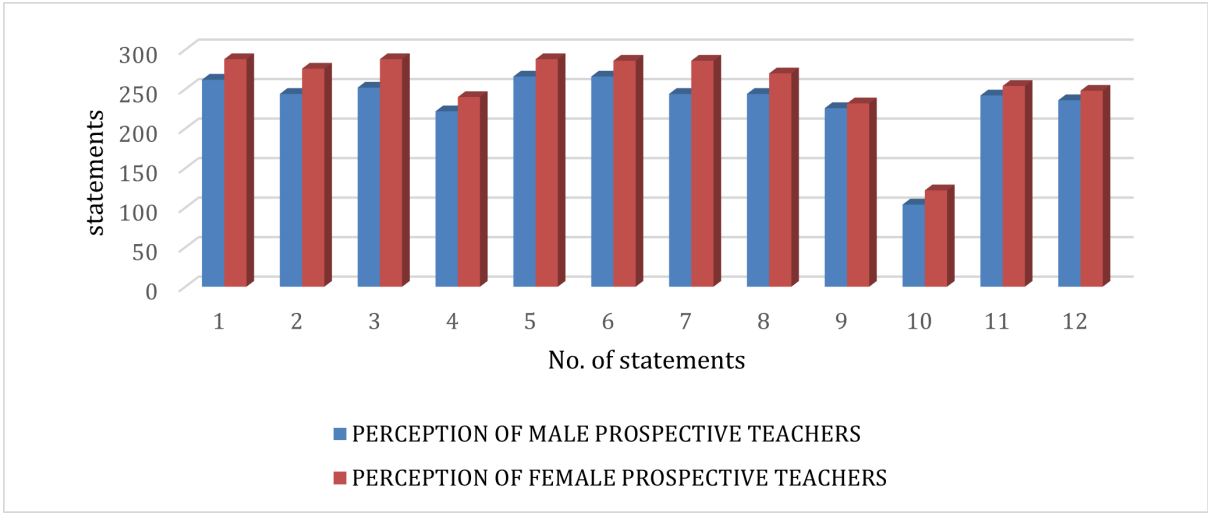

Figure 2: A histogram showing the perception of prospective teachers towards sustainable development on the basis of gender

Table 3: Gender-Based Perception of Prospective Teachers on Sustainable Development

S. No.	Gender	No. of Prospective Teachers	Mean Score	Degree of Freedom	t-Calculated Value	t-Tabulated Value	Result
1.	Male	68	41.29	142	3.29	1.98	Significant*
2.	Female	78	39.46				

**At* 0.05 significance level

Table 3 shows that the value is 3.29, which is greater than the critical value of 1.98 at 0.05 level of significance. Therefore, it suggests that there is a significant difference in the perception of prospective teachers on sustainable development based on gender. Male prospective teachers demonstrate greater awareness of sustainability compared to their female counterparts. This result contradicts the findings of Leal, et al., (2024), who reported that female students had higher mean scores on sustainable development than males.

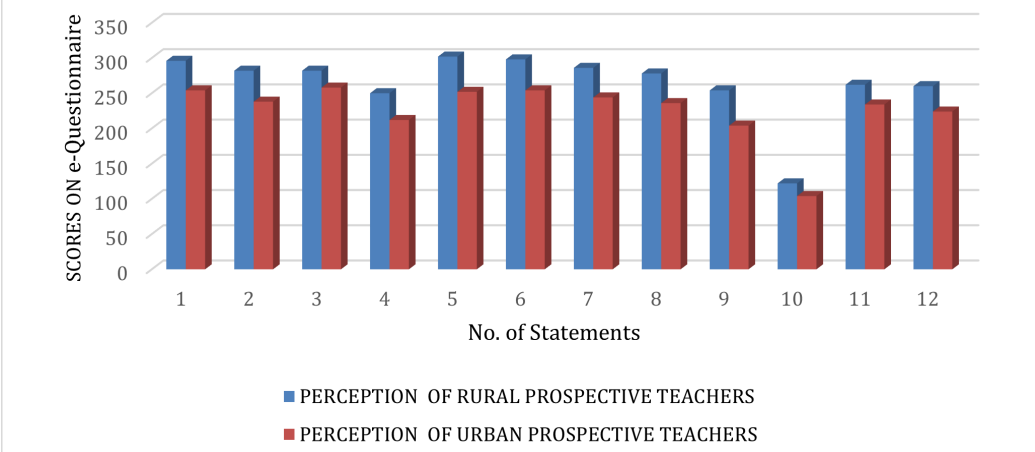

Figure 3: A histogram presenting the perception of prospective teachers towards sustainable development on the basis of residence

Table 4: Prospective Teachers' Perception towards Sustainable Development on the basis of Residence (Rural/Urban)

S. No.	Residence	No. of Prospective Teachers	Mean Score	Degree of Freedom	t-Calculated Value	t-Tabulated Value	Result
1.	Rural	78	40.67	125	1.29	1.98	Not significant*
2.	Urban	68	39.91				

**At* 0.05 significance level

The computed t-value is 1.29, which, at a significance level of 0.05, is lower than the critical value of 1.98, as shown in Table 4. This indicates that there is no significant difference in how prospective teachers from rural and urban areas perceive sustainable development.

Table 5: Attitude of Prospective Teachers towards Sustainable Development on the Basis of Gender

S. No.	Gender	No. of Prospective Teachers	Mean Score	Degree of Freedom	t-Calculated Value	t-Tabulated Value	Result
1.	Male	68	39.97	143	2.66	1.98	Significant*
2.	Female	78	38.28				

**At* 0.05 significance level

The computed t-value is 2.66, which is higher than the critical value of 1.98 at 0.05 level of significance, as shown in Table 5. This indicates a significant difference in the attitudes of male and female prospective teachers about sustainable development. Compared to male prospective teachers, female prospective teachers were less aware of environmental issues and the government's responsibility towards people, contributing to this disparity. This result does not align with the findings of Sarkar (2023), who reported females had a slightly more favourable attitude towards sustainable development than their male counterparts.

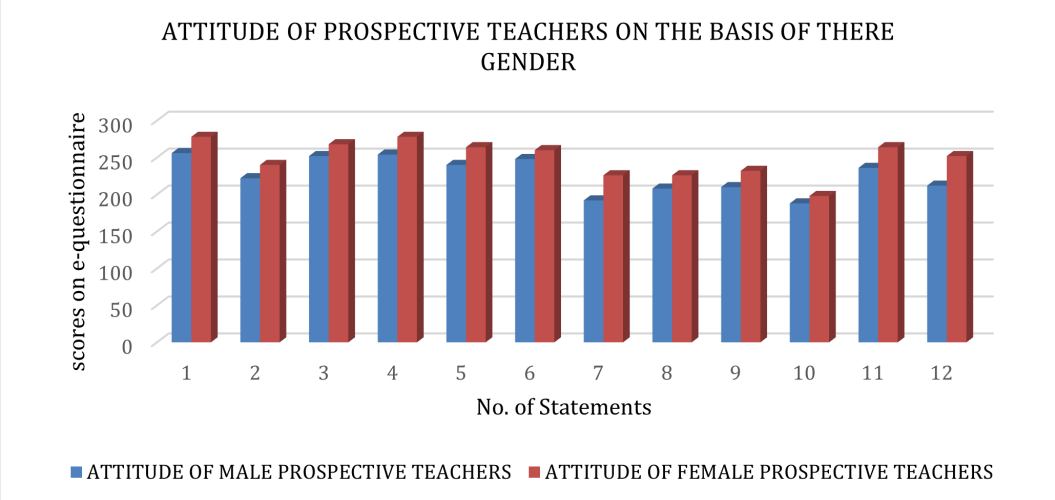

Figure 4: A histogram presenting the attitude of female and male prospective teachers towards sustainable development

Table 6: Attitude of Prospective Teachers towards Sustainable Development on the Basis of Residence (Rural/Urban)

S. No.	Residence	No. of Prospective Teachers	Mean Score	Degree of Freedom	t-Calculated Value	t-Tabulated Value	Result
1.	Rural	78	39.29	138	0.98	1.98	Not significant*
2.	Urban	68	38.66				

**At* 0.05 significance level

Table 6 shows that at 0.05 level of significance, the computed t-value is 1.98, which is lower than the critical value of 0.98. Consequently, the research suggests that there is no significant difference between prospective teachers in rural and urban areas regarding sustainable development. This result contrasts with the study by Sarkar (2023), which concluded that rural students had more attitude towards sustainable development than urban B.Ed. students.

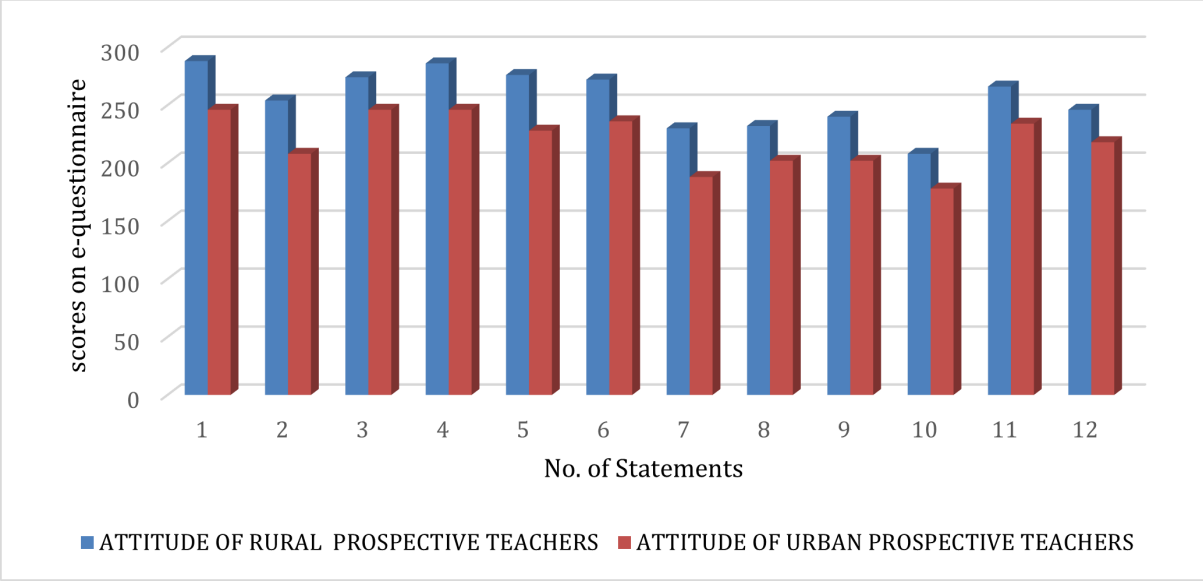

Figure 5: A histogram presenting the attitude of prospective teachers towards sustainable development on the basis of residence (rural and urban)

Conclusion

This study has shown that prospective teachers have positive perspectives and attitudes towards sustainable development. However, due to the lack of information, male and female prospective teachers hold differing views on sustainable development, except for sustainability aspects related to economic and environmental challenges. The findings demonstrate the effectiveness of higher education institutions' environmental education programmes in educating prospective teachers about sustainability issues.

The Direct Perception Theory (Hacker, 1991) and the Theory of Instruction (Gagne and Dick, 1983) suggest that perception and attitude are shaped through knowledge acquisition, which, in this case, was facilitated by education on sustainable development.

This underscores the need for environmental educators to incorporate similar topics in sustainability education for aspiring instructors. The knowledge, skills and values acquired through Education for Sustainable Development play a crucial role in influencing how people perceive and approach sustainability, ultimately contributing to the achievement of SDG 2030.

This study is limited to the prospective teachers those studying in education faculty and colleges affiliated to BHU and employs a quantitative approach for data analysis. However, this method does not provide a comprehensive understanding of prospective teachers' perspectives and attitude. Therefore, future research could adopt a mixed-method or qualitative approach to gain deeper insights.

References

Abenu, A., et al. (2023). Perception and Attitudes of Nigerian Undergraduates to Sustainable Development in Some Selected Universities. *Rawandan journal of Education, 6*(2). https://www.ajol.info/index.php/rje/article/view/242283

Aleixo, A. M. et al. (2021). Higher Education Students' perception of Sustainable Development in Portugal. *Journal of Cleaner Production, 327*. https://www.sciencedirect.com/science/article/abs/pii/S0959652621036106#:~:text=Most%20of%20the%20students%20are,organisations%20or%20the%20higher%20education

Gagne, R. M., & Dick, W. (1983). Instructional psychology. *Annual review of psychology, 34*(1), 261-295. https://doi.org/10.1146/annurev.ps.34.020183.001401

Haldar, P., Roy, S., Gorain, S. C., Adhikari, A. & Saha, B. (2022). Measuring Attitude towards Sustainable Development among Trainee Teachers in Purulia District of West Bengal. *American Journal of Educational Research, 10*(12), pp. 682–696. https://www.researchgate.net/publication/369088316_Measuring_Attitude_towards_Sustainable_Development_among_Trainee_Teachers_in_Purulia_District_of_West_Bengal

Idris, S. & Balakrishn, B. (2019). Perception and Attitude toward Sustainable Development among Malaysian Undergraduates. *International Journal of Higher Education, 9*(1), pp. 44–51. https://files.eric.ed.gov/fulltext/EJ1234487.pdf

Khalil, D., Ramzy, O. & Mostafa, R. (2013). Perception towards Sustainable Development Concept: Egyptian Students' Perspective. *Sustainability Accounting Management and Policy Journal, 4*(3), pp. 307–327. https://www.researchgate.net/publication/263567726_Perception_towards_sustainable development_concept_Egyptian_students'_perspective.

Kougias, K., Sardianou, E. & Saiti, A. (2022). Attitudes and Perceptions on Education for Sustainable Development. *Circular Economy and Sustainability,* 3, pp. 425–445. https://link.springer.com/article/10.1007/s43615-022-00174-w

Leal, S. et al. (2024). Exploring Sustainable Development Perceptions among Higher Education Students: An Empirical Study on Knowledge, Attitudes, and Behaviours. *Cleaner and Responsible Consumption, 14*, pp. 100223. https://doi.org/10.1016/j.clrc.2024.100223

Saidatulakmal, M., et al. (2022). Students' Attitude and Perception towards Sustainability: The Case of Universiti Sains Malaysia. *Sustainability, 14*(7). https://www.mdpi.com/2071-1050/14/7/3925.

Saiz, I., & Donald, K. (2017). Tackling inequality through the Sustainable Development Goals: human rights in practice. *The International Journal of Human Rights, 21*(8), 1029-1049. https://doi.org/10.1080/13642987.2017.1348696

Sarkar, P. (2023). Attitude of Government B.Ed Trainee Students toward Sustainable Development in West Bengal. *International Journal of Research and Review, 10*(5), pp. 59–65. https://doi.org/10.52403/ijrr.20230510

Sulaiman, M. (2019). Education for Sustainable Development. *International Journal of Creative Research Thoughts, 7*(4), pp. 813–823. https://ijcrt.org/papers/IJCRT1133862.pdf

United Nations. (20 March 1987) Report of the World Commission on Environment and Development: Our Common Future". Oxford University Press. https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

UNESCO. (10 August 2024) Education for Sustainable Development. UNESCO. Retrieved, from https://www.unesco.org/en/sustainable-development/education.

Orlanda-Ventayen, C. and Ventayen, R. (2017). Role of social media in education: A teachers' perspective. *ASEAN Journal of Open Distance Learning. 9(2)*, pp 1-9. https://ajodl.oum.edu.my/document/Previous/Volume9,No.2_2017/Article_1_Vol9,No.2_2017.pdf