

13.0 Environmental Awareness among Secondary School Students: Insights about Behavioural, Emotional, and Sustainability Practices

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Abstract

There has been interconnectedness between human actions and environmental changes. To create a sustainable living environment and to balance the ecological systems of the world, there should be awareness among the humans. In order to sustain the world we live in and prosper towards a future that is safe for everyone, we need to educate the future generation. Embedding sustainability awareness in the education system will enhance students' awareness of issues along with empowering them to make eco-friendly practices in their daily lives. This research explores the level of sustainability awareness among secondary school students in New Delhi. A sample of 240 secondary school students was taken to study the behavioural and attitude awareness, emotional awareness, and sustainability awareness. While investigating these factors, the study aims to highlight the strategies for cultivating sustainability mindsets among the students and foster their thinking towards advocating for the environment. The findings show that there is high sustainability awareness among secondary school students. An independent samples t-test was employed to find the significant difference between mean scores of female and male students. The study highlights there is no significant difference between awareness levels between male and female students. The findings emphasise the need for educational interventions that bridge the gap between awareness and action.

Keywords: Sustainability, Education for Sustainable Development, Climate Change, ESD

Introduction

Among the developing nations, one of the prevalent problems is sustainability (Griffin et al., 2022). The industrial revolution in the 20th has negatively affected the environment; urbanisation along with rapid population growth has influenced the future of the planet (Atmaca et al., 2019). The world is hence moving towards a sustainable future. For the world to transition to sustainable development, education plays a critical role; the principles of sustainability need to be incorporated in the educational strategies (UNESCO, 2019). Sustainability is a concept that ensures the resources are equitably and efficiently distributed among different generations, along with the limited use of the ecosystem where social and economic activities happen (Stoddart et al. 2011).

UNSECO (2017) highlights the importance of Education for Sustainable Development (ESD) for students in order to develop “knowledge, skills, values, and behaviours needed for sustainable development.” For the implementation of sustainable development, education serves as a crucial means. It integrates economic, social, and environmental progress into a unified concept and creates harmony to achieve the pursuit of sustainability. There is a necessity to comprehend the deeper role of education as it is a multifaceted instrument to achieve the other goals and not just as a single SDG (Didham & Ofei-Manu, 2015). Thus, the implementation of education for sustainable development should be inspired by the local context of the society.

Researchers, academics, and practitioners connote the word sustainability as a concept to improve and maintain a healthy social, economic, and ecological system for human progress (Mensah, 2019). According to Stoddart (2011), as cited in Mensah (2019), sustainability is the efficient way to fairly distribute the resources present in a finite ecosystem among humans and across generations. The current concept of sustainability is persuasive of cross-generational equity, which means to sustain resources for the generation whose needs are not always known. Therefore, we can understand sustainability as an established equilibrium between the population's interaction and the environment's carrying capacity. The population should not adversely and irreversibly affect the environment upon which it is dependent (Ben-Eli, 2015). A discourse on the interaction between population and environment is incomplete without discussing the population's needs and wants. Thomas (2015) argues that sustainability involves human activities to fulfil needs and wants without exhausting the available resources. Hence, sustainability is a concept that promotes using resources with sensitivity and leading a mindful life that is aware of the irreversible effects on the environment.

Every responsible citizen of a country needs to internalise the practice of sustainability. We must realise the equitable distribution of resources across generations and use the available resources mindfully. The making of a responsible citizen starts in a classroom; therefore, it is important to inculcate students with awareness of sustainability practices, the adverse effects on the environment, and the current ongoing challenges at global and local levels.

To address issues that arise from these interactions, we must understand how nature influences society and vice versa. In a society, there needs to be an awareness to overcome the issues that scale from global to local. Students are the future of our society; henceforth, fundamental learning in their curriculum to assure that they are aware of the forthcoming challenges related to the environment is required. Students are required to be aware of the sustainable practices and inculcate them in their daily lives.

There have been studies related to the importance of environmental education, but there is a lack of literature particularly relating to sustainability awareness among students. Although, there are a few studies based out of India that have studied the sustainability awareness of students across different categories. The current study is an analysis of sustainability awareness among secondary school students. The sustainability awareness is divided among three categories, namely behavioural and attitude awareness, emotional awareness, and sustainability awareness.

Methodology

This section contains the research design, population, sample, data collection tool, and analysis of the data.

Objectives of the study

1. To study the sustainability behaviour and attitude awareness among secondary school students
2. To study the sustainability emotional awareness among secondary school students
3. To study the sustainability practice awareness among secondary school students
4. To compare the level of sustainability awareness among female and male students across the three categories.

H₀: There is no significant difference in the level of sustainability awareness between female and male students across the three categories.

Research Design

The research design of the study is descriptive. The study uses quantitative methods of data analysis.

Population of the Study

The population includes all secondary school students studying in the government schools of New Delhi.

Sample of the Study

The sample of the study includes 240 secondary school students from the four schools of Jamia Millia Islamia, New Delhi. A random sampling technique was used for data collection.

Data Collection Tool

The data for the study was collected using a questionnaire. The questionnaire was a sustainability awareness profile developed by Saptaji et al. (2020), consisting of a total of 20 statements. The questionnaire was accessed from the study of Nuroso, H. & Rini, N.W. (2022). Before administering the questionnaire, adequate permission was requested from the authors. The questionnaire was originally in Indonesian, which was translated into English using online translation tools with the permission of authors. To add relevance to the study, minor modifications in the demographic questions were made. The questionnaire sustainability awareness profile consists of three indicators, namely “behavioural and attitude awareness,” “emotional awareness,” and “sustainability practice awareness.”

Procedure of Data Collection

The questionnaire was converted to a Google form with a five-point Likert scale. After seeking permission from the principals of the four schools of Jamia Millia Islamia, the Google form was circulated online to the students via class teachers.

Analysis of the Data

The 20 statements of the questionnaire were assessed on a five-point Likert scale ranging from “strongly agree,” “agree,” “neutral,” “disagree,” to “strongly disagree.” On this Likert scale, the highest score given was 5, and the lowest score given was 1.

Demographics of the Sample

Gender

From a total of 240 students in the sample, 92 were female and 148 were male.

Sustainability Awareness Profile

The sustainability awareness profile was classified into three categories, namely:

Behaviour and Attitude Awareness: This category determines the understanding and behavioural tendencies of students towards the environment and the issues around them, also focusing on their attitudes.

Emotional Awareness: This category determines the feelings and emotions of the students towards environmental challenges.

Sustainability Practice Awareness: This category determines the contribution of students to environmental conservation from their habits and actions.

The Likert scale responses were distributed in three levels—low, medium, and high. The total mean of the statement-wise response was calculated to be 3.97, and the standard deviation calculated was 0.4. The three categories calculated using the mean and standard deviation are as follows:

Table 1: Categorisation of awareness level based on mean and SD.

Mean Range	Awareness Level
< 3.57	Low
3.57 to 4.37	Medium
> 4.37	High

Results and Discussion

A statement-wise analysis was done across the three categories to describe the level of sustainability awareness among students in their everyday lives. The tables below show the mean score and total percentage of responses according to the statements, which are divided into “behavioural and attitude awareness,” “emotional awareness,” and “sustainability awareness.” Concerning Table 1, the three levels of sustainability awareness are low, medium, and high. The total mean of responses in the “behavioural and attitude awareness” category is 3.82. The total mean of responses in the “emotional awareness” category is 4.24. The total mean of responses in the “sustainability practice awareness” category is 3.84. This describes that the awareness among students in all the three categories is medium. Students understand and believe the balance between the environment and society only to an extent and not to a satisfactory level.

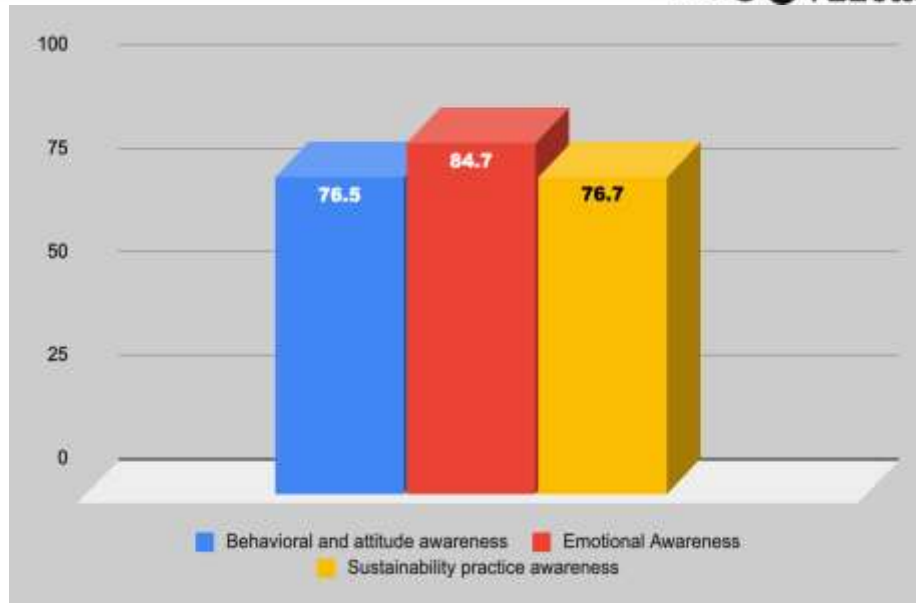


Figure 1: The percentage score of students in each category

Based on the graph in Figure 1, the percentage score of students in “behaviour and attitude awareness” is 76.5%, the percentage score in “emotional awareness” is 84.7%, and the percentage score in “sustainability practice awareness” is 76.7%. This shows that the statements given for sustainability practices are most likely done by the students. Moreover, the emotional awareness among students is also high, as the percentage score corresponds to feelings that are most likely one concerning sustainability awareness.

Analysis for objective 1

The “behavioral and attitude awareness” category analyses the students’ behaviour towards the environment. Students show awareness about limited underground water and that appliances like air conditioners and refrigerators contribute to ozone layer depletion. However, students lack engagement with environmental information online and they practice using plastic bags for packing lunch.

Analysis for objective 2

The category “emotional awareness” shows the feelings of students towards the environmental challenges. The highest percentage score was recorded for the statement regarding air pollution that comes from industrial smoke and pollutants, which was 91.2%. This shows that students are concerned about the air pollution in their surroundings. The students’ emotional awareness based on the average percentage score is satisfactory, but it is not continuous. They do feel disappointed with the smoke and air pollution but are lacking in the awareness to reduce electricity use.

Analysis for objective 3

The third category, “sustainability practice awareness,” shows an average percentage score of 76.7%. A score of 59.8% has been recorded for the use of AC to cool the room, and a score of 77.2% for the responsibility of caring for the environment reflects that the level of sustainability practice awareness is less than optimum among students.

Across all three categories, “emotional awareness” has the highest percentage score, which reflects that the students feel an emotional connection to the environment and are concerned about their surroundings. This finding is in consistency with the study of Agusti et al. (2019), Nur et al. (2020), and Zulkarnaen et al. (2023). The studies have also found out that the emotional awareness among students is comparatively higher.

Analysis for objective 4

The next analysis of the sustainability awareness is done through the lens of gender variable. Figure 2 shows a comparison of overall percentage score of female and male students. The sustainability awareness comparison across the three categories for female and male students is shown in figure 3.

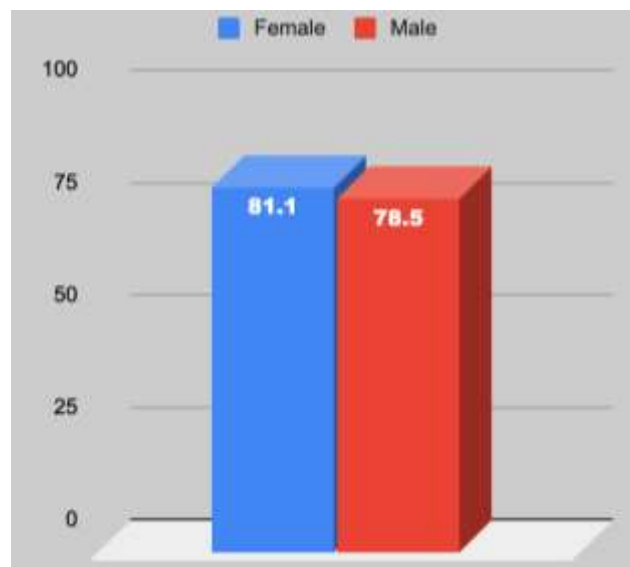


Figure 2. Percentage score distribution of female and male students

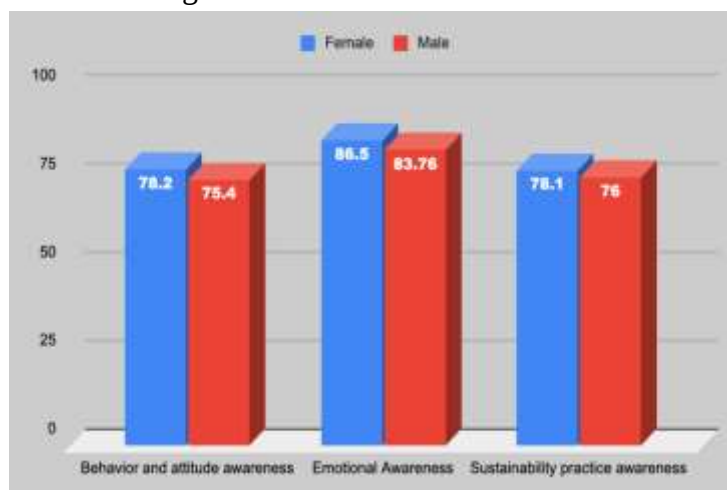


Figure 3. Percentage score distribution of female and male students across the three categories

The average scores of the students' sustainability awareness is summarized in Table 3, and the results of independent samples t-test is presented in Table 4.

Table 3. Average Scores of sustainability awareness of students

Gender	N	Mean	Std. Deviation	Std. Error Mean
Female	92	81.12	10.33	1.08
Male	148	78.58	10.97	0.90

Table 4. Independent Samples t-test results

Variable	t	df	Sig. (2-tailed)	Mean Difference
Sustainable Awareness	1.83	238	.068	2.57

An independent samples t-test was conducted to find the gender difference in sustainability awareness. Female students (M=81, SD=10.33) scored slightly higher than male students (M=78.58, SD=10.96). However, the difference inferred was not statistically significant, $t(238)=1.83$, $p=.068$.

Interpretations

The analysis of the sustainability awareness profile of secondary school students of Jamia Millia Islamia, New Delhi, has provided several key insights into the attitudes, emotions, and practices related to environmental sustainability. The insights from the category of behavioural attitude awareness show that the secondary school students exhibit a strong awareness of environmental challenges like depletion of the ozone layer and the importance of using energy mindfully. However, the conflicting areas in this category are the use of disposable plastic bags. There is a need to target this area of behavioural practices in students' daily lives. In the category of emotional awareness, the awareness among students is significant, reflecting their concern towards environmental issues like air pollution. Students are disappointed with the industrial smoke, which highlights their sensitivity towards the environmental damage that is being done. The third category of sustainability practice awareness shows positive habits of students, like turning off lights to save energy, but practices like excessive reliance on air conditioners and a low awareness about CFC goods and their relation with global warming reflect a scope of improvement in the actionable practices that affect the environment.

The highest score observed across the three categories is in emotional awareness; this often motivates students to take actions that are aligned with their feelings. Disappointment with pollution and concern for resource depletion may lead to actions and behaviours that are more eco-friendly. This high emotional awareness can be leveraged to drive behavioural changes among students when accompanied by proper guidance from teachers.

Reflecting upon the gender variable, the study informs that both genders share a comparable level of sustainability awareness. However, female students have demonstrated a slightly higher inclination towards sustainability practices including advocacy for environmental issues and discussion with peers and family. An independent samples t-test was conducted to examine whether the difference in mean of male and female students was significantly significant or not. The results indicate that female students have scored a marginally higher mean score than male students, the difference between mean was not statistically significant ($t(238)=1.83, p=.068$). This indicates that sustainability awareness level of both male and female students is shared and they demonstrate a similar level of understanding and concern towards environmental sustainability. The p-value obtained from the independent samples t-test is greater than the significance level of 0.05, the null hypothesis stating that there is no significant difference in the level of sustainability awareness between male and female students across the three categories is accepted.

Implications of the Study

The insights from the study reflect that there is a gap in understanding and behaviour of students that needs to be fulfilled by educational campaigns that focus on their environmental awareness and foster in them a care for it. These campaigns can be done by teachers inside and outside the classrooms. Teachers play a crucial role in fostering a deep connection with the environment. Some of the strategies that teachers can use in the classrooms are real-life case studies from around the world that compel students to understand the importance of environment and preservation of its resources.

A discussion among students can be done periodically to ponder over the local environmental problems, and encouraging students to articulate their thoughts on this may help in increasing their practice awareness. Experiential learning which involves field trips, planting trees, cleaning drives, use of images and videos in the classroom, increases the reach of students. Further, teachers can relate the discussions of environmental issues with the daily lives of students which emphasises their concern for the environment and helps them in fostering critical thinking skills which in turn will make them future advocates of the environment.

Concluding Remarks

This study investigated the sustainability awareness among secondary school students of four schools of Jamia Millia Islamia, New Delhi. The findings reveal a moderate level of awareness across three key areas: behavioural and attitude awareness, emotional awareness, and sustainability practice awareness. While students demonstrated an understanding of environmental challenges and expressed concerns about issues like pollution, a gap was observed between awareness and actual practice. Key findings indicate that students are aware of the impact of factors like air conditioning use on the ozone layer and the importance of conserving water. However, practices such as excessive reliance on disposable plastics and a lack of awareness regarding CFCs and their impact on global warming require further attention.

The study also highlights a slight difference in awareness levels between male and female students, with females generally exhibiting a higher level of awareness across all three categories. The findings emphasise the need for educational interventions that bridge the gap

between awareness and action. Integrating real-life case studies, fostering discussions on local environmental issues, and encouraging experiential learning through field trips and community engagement can significantly enhance students' sustainability practices. By empowering students with knowledge and fostering a deeper connection with the environment, educators can play a crucial role in cultivating a generation of responsible citizens committed to environmental sustainability.

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