

# Promoting Environmental Awareness among Secondary School Girl Students of Pune District: A Comprehensive Study on Education and Empowerment

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**ABSTRACT:** This research study delves into the critical issue of promoting environmental awareness among secondary school girl students. In recent years, environmental concerns have gained prominence on the global stage, urging the need for comprehensive educational initiatives to empower the youth, particularly girls, with the knowledge and skills necessary to address environmental challenges. This paper explores the multifaceted aspects of environmental awareness within the context of secondary education for girls, aiming to shed light on the strategies and approaches that can effectively nurture a generation of environmentally conscious and responsible citizens.

The study begins by highlighting the significance of targeting secondary school girl students specifically. Research has shown that girls often face unique societal pressures and stereotypes that may deter them from pursuing environmental interests. However, when properly encouraged and educated, they can become powerful advocates for environmental causes.

The research identifies various components of environmental awareness, including knowledge acquisition, attitudinal changes, and behavioral shifts. It delves into the role of school curricula, extracurricular activities, and community involvement in shaping the environmental consciousness of secondary school girls. Moreover, it explores the impact of role models, peer interactions, and parental support in fostering a deep and lasting commitment to environmental sustainability.

Additionally, this study reviews existing educational programs and initiatives that have successfully promoted environmental awareness among secondary school girls. These programs often employ experiential learning, interactive workshops, and real-world engagement to create meaningful connections between young girls and the environment.

Furthermore, the paper emphasizes the importance of integrating environmental education into the broader framework of sustainable development goals. It argues that by educating secondary school girls about environmental issues, we are not only enhancing their awareness but also equipping them with the skills and perspectives necessary for tackling a wide range of global challenges.

In conclusion, this research underscores the urgency of fostering environmental awareness among secondary school girl students. It advocates for a holistic approach that combines formal education, community engagement, and mentorship to empower girls to become agents of change in the realm of environmental sustainability. By investing in the environmental education of young girls, we can pave the way for a more sustainable future, where informed and passionate individuals actively contribute to preserving our planet.

## Introduction

Over recent decades, global problems relating to degradation of natural resources and pollution have increased dramatically. Environmentalist has repeatedly pointed out that a solution to environmental crisis will require and environmental awareness which should be deeply rooted in the education system at all levels of school education. Today, environmental awareness is very important issue. On the other hand, without a positive attitude towards environmental education as subject, our Secondary schools will not be able to motivate our future generation to take environment related problems as challenge. Thus environmental education and awareness as well as induced public participation in environmental protection become paramount to attaining environmental sustainability. So the investigator selected the present study to study the Environmental awareness among secondary school girl students.

Environmental awareness among girl children is of paramount importance in today's world. It not only empowers them with knowledge about the environment but also equips them to be responsible global citizens. Here are some key concepts related to environmental awareness for girl children:

**Education:** Education plays a pivotal role in raising environmental awareness among girl children. Schools should incorporate environmental studies into their curriculum, teaching girls about ecosystems, climate change, conservation, and sustainable practices.

**Empowerment:** Environmental awareness empowers girl children to take an active role in preserving the planet. When they understand the impact of their actions, they can make informed choices, such as reducing waste, conserving water, and practicing energy efficiency.

**Gender Equality:** Promoting environmental awareness among girls contributes to gender equality. It ensures that they have equal opportunities to engage in environmental discussions and careers, traditionally dominated by men.

**Health and Well-being:** Girl children need to comprehend the direct link between a healthy environment and their well-being. This awareness can lead to a healthier lifestyle, including choices like eating sustainably and reducing exposure to environmental pollutants.

**Advocacy and Leadership:** Environmental awareness encourages girls to become advocates and leaders in their communities. They can participate in initiatives to

address issues like plastic pollution, deforestation, or water conservation, influencing positive change.

**Role Models:** Exposure to female environmental role models can inspire girls. Learning about women scientists, conservationists, and activists can motivate them to pursue careers in environmental science or activism.

**Climate Change:** Understanding the basics of climate change is crucial for girl children. They should grasp the importance of reducing greenhouse gas emissions and adapting to a changing climate for a sustainable future.

**Conservation Ethics:** Teaching girls about the ethical aspects of conservation, including the importance of biodiversity and the interconnectedness of all life forms, instills a sense of responsibility towards the environment.

**Sustainable Practices:** Girls should be encouraged to adopt sustainable practices in their daily lives, such as recycling, using eco-friendly products, and supporting local and organic agriculture.

**Global Perspective:** Environmental awareness should expand beyond local concerns. Girls should learn about global environmental issues and the interconnectedness of ecosystems worldwide.

In **conclusion**, fostering environmental awareness among girl children is essential for a sustainable future. By educating and empowering them, we can ensure that they become active participants in the protection and preservation of our planet. This awareness equips them with the knowledge and motivation to address environmental challenges and make informed choices for a greener, healthier world.

### Review of Related Literature

1. Smitha Bhawalker (2003) the topic on “An analysis of school syllabus in contest of environmental education”
2. C. N. Sunitha (2001) the topic: “Developing supplementary curricular programme on Environmental Education for higher primary schools”
3. Gupta Et. al (1981) studied the awareness of environment among rural and urban areas and non-formal education centres with the help of 20 rural, 35 urban and 60 non-formal centres students of class 12.
4. Shahnwal (1990) he worked on the environmental Education and awareness, attitudes towards environmental issues of the secondary school children at Udaypur.
5. Adebisi Adedayo & J. A. Olawepo (1997) Integration of Environmental Education in Social Science Curricula at the Secondary School Level in Nigeria: problems and prospects, Nigeria.

6. Davedaya (1997) the topic entitled “Environmental Education in Vedas”, the objectives: To study the concept of environment in Vedic literature.
7. Ghoses G. R. (1988) has made a similar study independently under the aegis of NCERT and Khatter. N (1988) studied the familiar in and around Bhuvanewar,
8. Gopalkrishna. S (1992) the next aspect of environmental education is in regard to school children. Gopalkrishnan selected 1451 students of classes V from 10 different schools of Nilgiris, Madras
9. Rajput J. S. (1988) he studied the teaching skill and training strategies for implementing the environmental approaches of parisar Asha in municipal schools on Greater Bombay.
10. Santosh Kumar Rout and Sukirthi Agarwal (2006) conducted a study on environmental awareness and environmental attitude of students of high school level.
11. Umadevi, D and Adinarayana Reddy (2006) conducted a study on knowledge and educational needs in environmental aspects among rural adults.
12. Sarojini, K (2010) conducted a study on level of environmental awareness among the school students.
13. Arun Kumar, J (2012) conducted a study on assessment of environmental awareness among teacher trainees in teacher training institutes in Tiruchirapalli district Tamilnadu.

Mudita, K Bhatnagar (2012) conducted a study on environmental awareness among secondary school students in relation to their gender and locality.

## **Research Gap**

The present study is entirely different from the above studies. There are so may researches towards Environmental Education. But nobody conducted research on knowledge of environmental protection among secondary school children. That is why the investigators want to conduct research on knowledge of environmental protection among the secondary school girl children.

## **Methodology**

### ***Operational Definitions of the Term: Environmental Awareness***

Environmental awareness is the ultimate driving force that stimulates knowledge on environmental matters. The acknowledgement that an environmental problem exists entails being more cognizant of the facts about the state of the environment. The power

behind the awareness can be categorized into three i.e. basic beliefs of an environmental problem, factual and scientific knowledge, and a commitment to solve environmental problems.

### *Locale and Sample of the Study*

The locale of the study was Pune district of Maharashtra. There are around 4 Zilla Parishad secondary schools, 4 Private management secondary schools, 2 Aided secondary schools in Ambegove block, having 40 students in each school on an average. Thus the total schools are around 10 schools and by using Simple Random Sampling Technique and the students studying in the selected schools were the sample of the study. Thus the total sample of the study will be 400 students (10 schools x 40 students in each school = 400).

### *Tools Used in the Study*

The tools used in the present study are shown here under:

#### *Environmental Awareness*

Environmental awareness is the ultimate driving force that stimulates knowledge on environmental matters. The acknowledgement that an environmental problem exists entails being more cognizant of the facts about the state of the environment. The power behind the awareness can be categorized into three i.e. basic beliefs of an environmental problem, factual and scientific knowledge, and a commitment to solve environmental problems.

#### *Preparation of the Tool*

The review of related literature clearly indicated that there were no specific measures to assess the awareness of secondary school students on environmental education / aspects on selected areas of the study. This necessitated the need for developing a tool on the part of the investigator. In order to study the awareness of secondary school students on environmental education / aspects tools like schedule, checklist, interview, observation, rating scale, etc., can be used. Keeping in view the previously employed instruments for assessing the awareness of different groups on environmental aspects, the investigator has developed schedules for assessing the environmental awareness of secondary school students on different aspects.

For this purpose, the investigator contacted 50 students, 50 teachers working in the secondary school, 50 members representing the local voluntary organizations working with environment activities, 15 head masters / mistress, 10 professor who are

working in university and government institutions to gather necessary information on environment aspects. Further, the environment education materials used by the personnel, teachers at secondary level materials dealing with environment issues were studied by the investigator. In addition to that the investigator visited 15 secondary schools, which provided a lot of experience for the development of the tool.

The questions relating to environment awareness from different sources review of related literature, interaction with teachers, school education functionaries, members of voluntary agencies, content of secondary education materials, etc., were pooled together. The ambiguous, repetitive and irrelevant ones were deleted.

A preliminary form thus prepared consisted of 170 items. This was presented to a panel of 10 experts (comprising of 4 teachers representing secondary schools; 4 university level teachers in the field of environment education and 2 head masters who handle the environmental education issues.) with a request to go through the list of items and to suggest omissions, modifications, presentation method, scoring procedure, etc. The following suggestions were provided.

1. Rewriting of the items in the form of questions.
2. Providing multiple choice questions, filling the blanks and true or false statements.
3. Avoiding technical terms not used in the secondary school syllabus.
4. Avoiding matching forms, comprehension questions etc.,.
5. Categorisation of items under different sub-areas.
6. Clubbing of the items into one area depending on the need.
7. Limiting the questions all together 100 for 100 marks.
8. One mark should be allotted to each correct answer and no marks for wrong answer.
9. Laying emphasis on aspects namely, knowledge, about the environment, pollution its relevant question and curative measures as far as possible.

The suggestions of the experts were duly carried out. In all 160 items remained. Further, in order to know whether the questions were easily understood by the subjects and whether they possessed clarity or not with regard to local language (Marathi) the form was administered to 50 students attending the secondary school.

### **Data Collection**

The data will be collected from the selected sample of students studying in the secondary schools. The Awareness scale and administrated to the students studying in the respective secondary schools. A Questionnaire developed to identify the personal

and demographic variables and other related information of secondary school students. The investigator visited the secondary schools in person and collected the relevant data needed for the study.

### Data Analysis

The collected data analysed by using appropriate statistical techniques such as Mean, SD, Mean  $\pm$  1/2 SD, t-test, f-test and stepwise multiple regression analysis.

### Profile of the Data

**TABLE 1: Profile of the Sample Respondents**

Sl. No.	Variable	Group	N	%
1.	Studying Class	8 <sup>th</sup>	118	29.5
		9 <sup>th</sup>	138	34.5
		10 <sup>th</sup>	144	36.0
2.	Age	13 Years	86	21.5
		14 Years	147	36.8
		15 Years	135	33.8
		16 Years	32	8.0
3.	Caste	O.C.	85	21.3
		B.C.	159	39.8
		S.C.	133	33.3
		S.T.	23	5.8
4.	Residing Locality	Urban	190	47.5
		Rural	210	52.5
5.	Religion	Hindu	199	49.8
		Muslim	85	21.3
		Christian	116	29.0
6.	Medium	Marathi	218	54.5
		English	182	45.5
7.	School Location	Urban	190	47.5
		Rural	210	52.5
8.	Family type	Joint	184	46.0
		Nuclear	216	54.0
9.	Parent Income	Below Poverty Line	250	62.5
		Above Poverty Line	150	37.5

**TABLE 2: Distribution of Environmental Awareness Scores of the Secondary School Girl Students**

<i>Class Interval</i>	<i>Frequency</i>	<i>Cumulative Frequency</i>	<i>Mid-Point</i>
50 and below	6	6	47.5
50 – 55	25	31	52.5
55 – 60	85	116	57.5
60 – 65	137	253	62.5
65 – 70	122	375	67.5
70 – 75	24	399	72.5
75 and above	1	400	77.5

The distribution of awareness scores of secondary grade girl students towards environment is as shown in Table 1. It can be observed from the table that the scores are more or less normally distributed. The mean, median and mode of the distribution are 64.50, 63.00 and 65.00. The range of the attitude scores is 37, the lowest and highest scores being 41 and 78. The quartile deviation and standard deviation of the distribution are 23.68 and 34.23. The relation between quartile deviation and standard deviation  $2/3$  standard deviation = quartile deviation i.e.,  $2/3 (34.23) = 22.82$  indicates that the distribution is slightly skewed. The skewness and kurtosis values of the distribution are 0.48 and 2.69 whereas the co-efficient of variation is 14.72. The distribution is slightly positively skewed since mode is maximum and the value of arithmetic mean is the least. The value of median is less than mode but greater than mean.

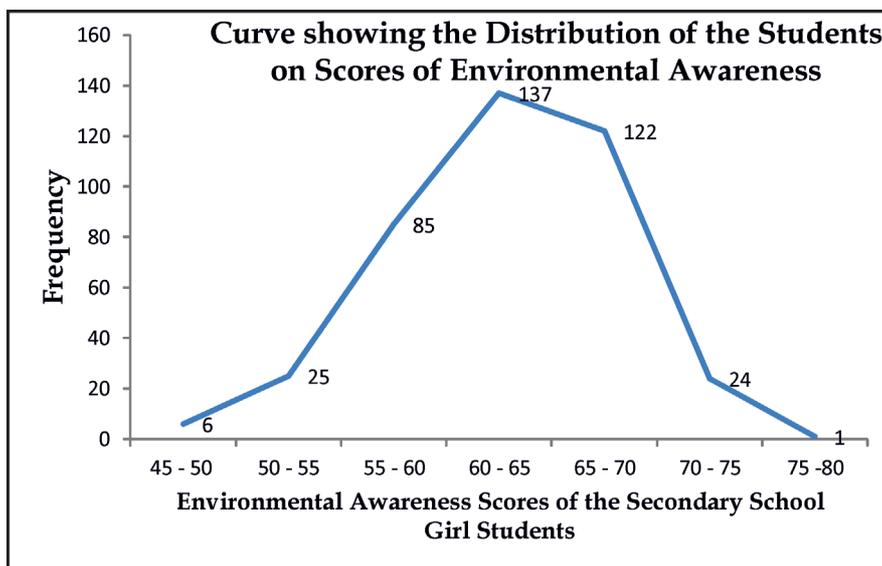


Figure 1

**TABLE 3 : Influence of Personal and Demographic Variables on Environmental Awareness**

Sl. No.	Character	Variable	N	Mean	SD	t / F Value
1.	Studying Class	8 <sup>th</sup>	118	61.5169	5.69560	5.298*
		9 <sup>th</sup>	138	61.4783	4.75720	
		10 <sup>th</sup>	144	63.2569	5.16409	
2.	Age	13 Years	86	61.9535	5.90694	4.683*
		14 Years	147	61.0680	4.88731	
		15 Years	135	62.9407	5.05162	
		16 Years	32	64.0625	4.90515	
3.	Caste	O.C.	85	62.8353	5.03050	1.24 <sup>@</sup>
		B.C.	159	62.0189	5.55122	
		S.C.	133	61.6316	5.20995	
		S.T.	23	63.1739	3.78576	
4.	Residing Locality	Urban	190	62.2895	5.09023	0.577 <sup>@</sup>
		Rural	210	61.9857	5.39757	
5.	Religion	Hindu	199	62.3719	5.59874	5.298*
		Muslim	85	62.4000	4.34851	
		Christian	116	61.5172	5.22450	
6.	Medium	Marathi	218	62.1835	5.24192	0.223 <sup>@</sup>
		English	182	62.0659	5.27226	
7.	Family type	Joint	184	62.2554	5.18773	0.441 <sup>@</sup>
		Nuclear	216	62.0231	5.31119	
8.	Parent Income	B P L	250	62.3680	5.28320	1.171 <sup>@</sup>
		A P L	150	61.7333	5.18602	

\* Significant at 0.01 level \*\* Significant at 0.05 level <sup>@</sup> Not significant

### **1. Environmental Awareness V/s Studying Class**

In the present study, an attempt was made to find out whether the secondary school girl students belonging to different studying classes differ significantly in their awareness towards environmental education activities. As the table reveals, the mean awareness scores obtained by 10<sup>th</sup> class group is somewhat better than the mean awareness score secured by the 8<sup>th</sup> and 9<sup>th</sup> classes students. The mean differences are less. The calculated 'F' value also indicates that the mean differences are statistically significant at 0.05 level.

### **2. Environmental Awareness V/s Age**

In order to see the influence of age on the awareness, the secondary school girl students of the study were categorised into four groups namely, 13 years, 14 years, 15 years and 16 years. The details as shown in the Table 3 indicate that the secondary school

girl students belonging to 16 years age group have secured a mean awareness score of 64.0189 with a standard deviation of 4.78576. The secondary school girl students, representing 14 years of age group have secured a mean awareness score of 61.068 with a standard deviation of 4.88731. The calculated 'F' value (4.683) is found to be statistically significant at 0.01 level.

### ***3. Environmental Awareness V/s Caste***

The secondary school girl students of the study were categorised into four groups based on their caste background status i.e., General category, Backward Castes, Scheduled Castes and Scheduled Tribes. It is evident from the table that the Scheduled Caste student group have obtained a more favourable mean awareness score on environmental education activities in relation to other group (ST, 63.1739 > OC, 62.8353 > BC, 62.0625 > SC, 61.6316). 'F' test was employed to find out the significance of difference among the means and the calculated 'F' value is found to be statistically not significant.

### ***4. Environmental Awareness V/s Residing Locality***

In the present study an attempt was made to know the influence of residing locality on the awareness attitude of secondary school girl students towards the environmental education activities. The details as presented in the table reveal that the secondary school girl students belonging to the urban students group have secured a better mean awareness score in relation to the Rural student groups (62.2895 > 61.9857). The calculated 't' value is statistically not significant.

### ***5. Environmental Awareness V/s Religion***

The details pertaining to the influence of availability of religion on the awareness of secondary school girl students towards environmental education activities reveals that the group from Hindu members obtained a better mean awareness score towards environmental education activities in relation to their counterparts. 'F' test was employed to find out the significance of difference among the means and the calculated 'F' value of 5.298 is found to be statistically significant at 0.01 level.

### ***6. Environmental Awareness V/s Medium***

In the present study, an attempt is made to find out the influence of medium of secondary school girl students on their awareness towards environmental education activities. The secondary school girl students who are from Marathi medium students have obtained a more favourable mean awareness score towards the environmental education activities in relation to others (English Medium). The respective mean awareness scores of

the groups are 62.1835, 62.0659 (vide Table 3). 't' test was employed to find out the significance of difference between the mean scores and the calculated 't' value of 0.223 is statistically not significant.

### **7. Environmental Awareness V/s Family Type**

In the present study an attempt was made to know the influence of family type on the awareness attitude of secondary school girl students towards the environmental education activities. The details as presented in the table reveal that the secondary school girl students belonging to the joint family students group have secured a better mean awareness score in relation to the nuclear family student groups (62.2554 > 62.0231). The calculated 't' value is statistically not significant.

### **8. Environmental Awareness V/s Parent Income**

In the present study an attempt was made to know the influence of parental income on the awareness attitude of secondary school girl students towards the environmental education activities. The details as presented in the table reveal that the secondary school girl students belonging to the BPL students group have secured a better mean awareness score in relation to the APL student groups (62.368 > 61.7333). The calculated 't' value is statistically not significant.

Hence, the null hypothesis that 'personal variables do not significantly influence the awareness of secondary school girl students towards environmental education activities' is accepted with respect to studying class, age and religion and rejected in the case of other variables namely, caste, residing locality, medium of instruction, family type and parental income.

## **Data Analysis and Discussions**

**Studying Class:** The study found that there is a significant difference in the environmental awareness of secondary school girl students based on their studying class. Specifically, 10th-grade students exhibited slightly better awareness compared to 8th and 9th graders. This suggests that as students progress through higher classes, their environmental awareness tends to increase. Implication: Schools should consider integrating environmental education activities into the curriculum across all grade levels to ensure consistent awareness.

**Age:** Age was also found to influence environmental awareness, with 16-year-old students exhibiting the highest awareness scores. This suggests that older students may have a better grasp of environmental issues. Implication: Tailored environmental education programs for different age groups could be beneficial in fostering awareness.

**Caste:** The study found that Scheduled Caste students had a more favorable mean awareness score compared to other caste groups. However, the difference was not statistically significant. Implication: While there may be some variation in awareness based on caste, it's important to continue promoting environmental awareness universally, regardless of caste background.

**Residing Locality:** Urban students displayed slightly better environmental awareness than rural students, although the difference was not statistically significant. Implication: Environmental education efforts should be extended to rural areas to bridge this gap in awareness.

**Religion:** Hindu students had a better mean awareness score towards environmental education activities. This difference was statistically significant. Implication: Consideration of religious and cultural factors in designing environmental education programs may be important for maximizing their effectiveness.

**Medium:** Marathi medium students had a slightly higher mean awareness score compared to English medium students, but this difference was not statistically significant. Implication: The medium of instruction may not significantly impact environmental awareness, so programs can be conducted in either language as long as they are well-designed and engaging.

**Family Type:** Joint family students exhibited slightly better environmental awareness compared to nuclear family students, although the difference was not statistically significant. Implication: Family dynamics may have a limited impact on environmental awareness, but it's important to involve families in promoting environmental education.

**Parental Income:** The study found that students from Below Poverty Line (BPL) families had a better mean awareness score compared to Above Poverty Line (APL) families. This difference was not statistically significant. Implication: Parental income may not be a significant factor in environmental awareness, suggesting that awareness programs can be inclusive.

In summary, this study highlights that personal variables like studying class, age, and religion have varying degrees of influence on environmental awareness among secondary school girl students. While some variables did not show statistically significant differences, it is important to consider a holistic approach to environmental education that addresses the diverse backgrounds and contexts of students. Tailored programs, irrespective of these variables, can contribute to fostering greater environmental awareness among young girls.

### Summary and Conclusions of the study are as follows

**Studying Class:** Schools should consider integrating environmental education activities into the curriculum across all grade levels to ensure consistent awareness, as students

tend to exhibit increased environmental awareness as they progress through higher classes.

**Age:** Tailored environmental education programs for different age groups could be beneficial in fostering awareness, especially since older students, such as 16-year-olds, showed higher environmental awareness scores.

**Caste:** While there may be some variation in awareness based on caste, it's important to continue promoting environmental awareness universally, regardless of caste background, to ensure equitable education.

**Residing Locality:** Efforts should be made to extend environmental education to rural areas to bridge the gap in awareness between urban and rural students.

**Religion:** Consideration of religious and cultural factors in designing environmental education programs may be important for maximizing their effectiveness, especially since Hindu students showed better awareness in this study.

**Medium:** The medium of instruction may not significantly impact environmental awareness, so programs can be conducted in either language as long as they are well-designed and engaging.

**Family Type:** While family dynamics may have a limited impact on environmental awareness, it's important to involve families in promoting environmental education to reinforce awareness in students.

**Parental Income:** Parental income may not be a significant factor in environmental awareness, suggesting that awareness programs can be inclusive and accessible to students from both Below Poverty Line (BPL) and Above Poverty Line (APL) families.

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