

“A Study to Assess the Awareness Related to Green Campus Among Adults from Selected Educational Institutes of Pune City”

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ABSTRACT

Introduction: Universal environmental issues like pollution due to change in weather is real problem today. Main objectives of the study to assess the awareness regarding green campus among adults which can save life of environmental as well as human being from suffering the environmental hazardous. **Purpose of study:** The purpose of the study to assess the awareness related to green campus among adults from selected educational institute of Pune city. **Methodology:** This quantitative research approach adapted for the study is non experimental descriptive research design. sample collected from a selected educational institute in Pune City. Sample size was 300 and non-probability purposive sampling technique was used. Data was gathered using Semi Structured Questionnaire to assess Awareness among adults. The validity of research study was done and the final tool were prepared and the proceed for reliability. The reliability was done by the Test Re-test method was used in this study to ensure that the tool was reliable. It was done by taking 10 samples from the selected hospital by following all criteria's by using Karl Pearsons formula reliability result value obtained was 0.84 so the tool is highly reliable. **Results:** The result of study to assess the awareness related to green campus show that among the 300 respondents about 59.8% of respondent are aware of green campus initiatives, while the remaining 40.2% are not aware about the green campus initiatives. **Conclusion** - With this analysis it can be conclude that there was high level of awareness is present in the adults related to green campus initiatives

Keywords: Awareness, green campus, educational institute, adults

INTRODUCTION

Global environmental problems like pollution due to climate change are a reality today.

According to the World Economic Forum, air pollution is the world's top killer, killing seven million people globally. In 2019, air pollution killed nearly 1.6 million Indians and water pollution killed 500,000 Indians and also reduced lifespan by up to 11 years in India, while comparatively by a year in the USA the ever-increasing population also adversely impacts the environment, requiring more shelter space and related resources, leading to: deforestation, whereby every year 18 million acres of trees are cut, resulting in destruction of ecosystems; creation of energy by burning fossil fuels, which emit harmful gases resulting in global warming; and waste pollution damaging the quality of water, land and air manufacturing of technological equipment implementing the two laws of thermodynamics creating “order” (infrastructure, buildings, industries) by creating “disorder” (environmental exploitation) negatively impacts the environment Water pollution due to dumping of waste (plastic, harmful chemicals) causes ocean acidification and destroys the coral reefs the adverse impact on water, waste, air, land and energy creation needs to be addressed urgently and sustainably by all - individuals, governments and global institutions like World Health Organization and United Nations.

NEED OF THE STUDY

Although university campuses cause several environmental impacts, they also provide a platform for the trial of new approaches or methods for sustainability. Despite the increasing awareness about green campuses, certain barriers against those projects are inevitable. Dahle and Neumayer for example, define four important barriers for green campuses such as; lack of environmental education lack of environmental attitude and lack of space for several environmental actions and put lack of financial resources barrier in first place. Later, however, Sharp claim that greening a campus can be achieved with a reasonable amount of cost and payback itself in a very short run as from the first years of green campus efforts, several initiatives and organizations were emerged globally and declared numerous implementations for green campuses. Among these, constructing green buildings into

campus or retrofitting existing campus facilities, promoting environmentally oriented actions such as energy conservation, water treatment or waste management and adapting sustainability subject into faculties' curriculum are mostly experienced implementations. Today, there are a large number of higher education institutions which have integrated themselves to those constitutions through diverse approaches. Hence the increasing number of green campus projects in different countries, most studies suffer from the unsatisfactory performance of those efforts. In order to achieve desired success from sustainability programs, students' perceptions and willingness to contribute sustainability are claimed as the most important factors.

AIM OF THE STUDY

The main aim of this study was to find out how much adults in selected educational institutes of Pune City they know about Green campus initiatives. These initiatives include actions like using solar energy, saving water, recycling waste, and using eco-friendly materials, which help protect the environment and make campuses more sustainable.

MATERIALS AND METHODS

Study Design: Non experimental, descriptive research design was used.

Study Duration: The present study was carried out during the period between September 2024 to April 2025.

Place of study: research study was done in selected educational institute of Pune city.

Sample size: sample size consists of 300 samples.

Sampling technique: In the current study, samples were selected by Non probability purposive sampling technique.

Consent: Written informed consent was obtained from all the participants after explaining to them all the contents of the patient information sheet, before data collection.

Privacy and confidentiality: Efforts were taken to ensure the privacy & confidentiality of all the information collected from the participating caretakers. Data was collected after explaining the purpose of the research study in the local language (Marathi).

Inclusion criterion:

1. Adults (age 18 and above) associated with Bharati Vidyapeeth College
2. Participants who have been part of the educational institute for at least six months (to ensure familiarity with the campus environment)
3. Individuals capable of understanding and responding to the study questionnaire.

Exclusion criterion:

1. Adults who are not associated with the Bharati Vidyapeeth college
2. Participants who are temporarily visiting the institute (e.g., guest lecturers or visiting faculty) and do not have regular involvement with campus activities.
3. Individuals with significant cognitive or communication impairments that prevent them from participating effectively.

Data collection:

Method of data collection refer to the various steps use for collecting and analysis data. The topic was explained to all the care takers for their better understanding and reassure that the data collected will be personally and used only for the study goal. The research consent was taken from participants for the study. The data was collected full-fill the sampling criteria by giving time after providing them the data collection. Confidentiality was maintained.

Statistical Analysis:

Analysis is a process of organizing and synthesizing data in such a way that research questions can be answered, and hypothesis tested. This chapter deals with the analysis and interpretation of the data collected from 300 samples through a quantitative research approach; non experimental survey design convenient sampling was used for selection of high school students with the objective of assessing the awareness regarding green campus among the adults in selected educational institutions of Pune city.

RESULTS

Table No: 1 To assess the awareness related to green campus among adults from selected educational institute of Pune city.

n=300			
Sr. No	Variable	Frequency	
		Yes	No
A	Green and Solar Root		
1	Do you know that terrace farming can reduce building temperatures and improve insulation?	256	44
2	Are you aware that solar roofing can help reduce electricity costs?	275	25
	Total	88.5%	11.5%
B	LED, CFC, and Solar Bulbs		
3	Do you know that LED bulbs consume less energy than traditional bulbs?	267	33
4	Are you aware that CFC-free appliances are environmentally safer?	187	113
	Total	75.66%	24.33%
C	Green Construction		
5	Are you familiar with the use of fly ash in construction as a substitute for cement?	107	193
6	Do you know that using local construction materials can reduce carbon emissions from transportation?	166	134
7	Did your campus having eco-friendly construction practices?	186	114
	Total	51%	49%
D	Sustainable Development Goals (SDG)		
8	Do you know about the United Nations' Sustainable Development Goals (SDGs)?	191	109
9	Are you aware that SDGs include objectives related to climate action and sustainable cities?	188	112
10	Do you have access to clean water and sanitation at your campus?	227	73
11	Did your campus participated in any beach clean-up activities?	110	190
12	Did your campus have access to reliable and affordable waste management	200	100
	Total	61.06%	38.93%
E	Green Urinals		
13	Do you know that green urinals use air instead of water for flushing?	114	186

14	Are you aware that waterless urinals can help save thousands of litters of water annually?	165	135
	Total	46.5%	53.5%
F	Bamboo Flooring		
15	Do you know that bamboo flooring is a renewable resource?	299	01
16	Are you aware that bamboo flooring is as strong and durable as hardwood?	207	93
	Total	84.33%	15.66%
G	Plastic Lumber		
17	Do you know that plastic lumber is made from recycled plastics?	209	91
18	Are you aware that plastic lumber resists oil, salt, and chemicals?	171	129
19	Do you think using plastic lumber is a good way to repurpose plastic waste?	140	160
	Total	57.77%	42.22%
H	Eco Surfaces		
20	Do you know that eco surfaces are made from recycled tires?	158	142
21	Are you aware that these eco-surfaces are weather-resistant and slip-resistant?	152	148
	Total	51.66%	48.33%
I	Low VOC Paints		
22	Do you know that low VOC paints are better for indoor air quality?	120	179
23	Have you seen low VOC paints being promoted for residential use?	97	203
	Total	36.16%	63.66%
J	Reduce, Reuse, Recycle		
24	Do you actively participate in reducing, reusing, or recycling waste?	232	68
25	Are you aware of recycling programs in your local area or institution?	173	127
	Total	67.5%	32.5%
K	Plastic Materials and Bottles		
26	Do you use reusable water bottles instead of single-use plastic bottles?	238	62
27	Are you aware of the environmental hazards of single-use plastics?	239	61
28	Do you think switching to biodegradable alternatives for plastic is feasible?	240	60

29	Have you observed plastic waste reduction initiatives in your institution?	170	130
30	Do you actively avoid using plastic bags or utensils?	229	71
31	What you think you 50 microns plastic are good?	133	167
	Total	69.38%	30.61%
L	Sealtech Blocks		
32	Do you know that Sealtech blocks are stronger and lighter than concrete?	120	180
33	Are you aware that these blocks are non-porous and durable?	106	194
	Total	37.66%	62.33%
M	Maze Nails		
34	Are you aware that Maze nails are made from recycled steel?	100	200
35	Do you know that Maze nails are durable and sustainable for construction?	105	195
	Total	34.16%	65.83%

Table no 1. Shows that the green and solar roof shows the 88.5% of awareness and 11.5% are not aware about the green and solar roof ,LED,CFC and solar bulbs shows the 75.66% of awareness and 24.33% are not aware about LED,CFC and solar bulbs, green construction shows the 51% of awareness and 49% are not aware about green construction, sustainable development goals shows the 61.06% of awareness and 38.93 are not aware about sustainable development goals, green urinals shows the 46.5% of awareness and 53.5% are not aware about the green urinals, bamboo flooring shows the 84.33% of awareness and 15.66% are not aware about bamboo flooring, plastic lumber shows the 57.77% of awareness and 42.22%are not aware about the plastic lumber , eco surfaces shows the 51.66% of awareness and 48.33% are not aware about eco surfaces , low VOC paints shows the 36.16% of awareness and 63.66% are not aware about low VOC paints, reduce ,reuse, recycle shows the 67.5% of awareness and 32.5% are not aware about the reduce, reuse and recycle, plastic material and bottles shows the 69.38% of awareness and 30.61% are not aware about the plastic material and bottles, sealtech blocks shows the 37.66 of awareness and 62.33 are not aware about the sealtech blocks, maze nails shows the 34.16% of awareness and 65.83% are not aware about maze nails.

Table no: 2 Item Analysis

n=300			
Sr. No	Variable	Frequency	Percentage
A	Green and Solar Roofs		
1	Do you know that terrace farming can reduce building temperatures and improve insulation?		
A	Yes	256	85.03 %
B	No	44	14.07 %
2	Are you aware that solar roofing can help reduce electricity costs?		
A	Yes	275	91.07 %
B	No	25	08.03 %
B	LED, CFC, and Solar Bulbs		
3	Do you know that LED bulbs consume less energy than traditional bulbs?		
A	Yes	267	89.00 %

B	No	33	11.00 %
4	Are you aware that CFC-free appliances are environmentally safer?		
A	Yes	187	62.03 %
B	No	113	37.07 %
C	Green Construction		
5	Are you familiar with the use of fly ash in construction as a substitute for cement?		
A	Yes	107	35.04
B	No	193	64.06
6	Do you know that using local construction materials can reduce carbon emissions from transportation?		
A	Yes	166	55.03 %
B	No	134	44.07 %
7	Did your campus having the eco-friendly construction practices?		
A	Yes	186	62.03 %
B	No	114	37.07 %
D	Sustainable Development Goals (SDG)		
8	Do you know about the United Nations' Sustainable Development Goals (SDGs)?		
A	Yes	191	63.07
B	No	109	36.03
9	Are you aware that SDGs include objectives related to climate action and sustainable cities?		
A	Yes	188	62.07 %
B	No	112	37.03 %
10	Do you have access to clean water and sanitation at your campus?		
A	Yes	227	75.07 %
B	No	73	24.03 %
11	Did your campus participated in any beach clean-up activities?		
A	Yes	110	36.03 %
B	No	190	63.07 %
12	Did your campus have access to reliable and affordable waste management		
A	Yes	200	66.07 %
B	No	100	33.03 %
E	Green Urinals		
13	Do you know that green urinals use air instead of water for flushing?		
A	Yes	114	37.07 %
B	No	186	62.03 %
14	Are you aware that waterless urinals can help save thousands of liters of water annually?		
A	Yes	165	55.00 %
B	No	135	45.00 %
F	Bamboo Flooring		
15	Do you know that bamboo flooring is a renewable resource?		
A	Yes	299	99.06 %

B	No	01	00.07 %
16	Are you aware that bamboo flooring is as strong and durable as hardwood?		
A	Yes	207	69.00 %
B	No	93	31.00 %
G	Plastic Lumber		
17	Do you know that plastic lumber is made from recycled plastics?		
A	Yes	209	69.66 %
B	No	91	30.34 %
18	Are you aware that plastic lumber resists oil, salt, and chemicals?		
A	Yes	171	57.00 %
B	No	129	43.00 %
19	Do you think using plastic lumber is a good way to repurpose plastic waste?		
A	Yes	140	46.66 %
B	No	160	53.04 %
H	Eco Surfaces		
20	Do you know that eco surfaces are made from recycled tires?		
A	Yes	158	52.66 %
B	No	142	47.04 %
21	Are you aware that these eco-surfaces are weather-resistant and slip-resistant?		
A	Yes	152	50.07 %
B	No	148	43.03 %
I	Low VOC Paints		
22	Do you know that low VOC paints are better for indoor air quality?		
A	Yes	120	40.00 %
B	No	179	60.00 %
23	Have you seen low VOC paints being promoted for residential use?		
A	Yes	97	32.33 %
B	No	203	67.07 %
J	Reduce, Reuse, Recycle		
24	Do you actively participate in reducing, reusing, or recycling waste?		
A	Yes	232	77.03 %
B	No	68	22.07%
25	Are you aware of recycling programs in your local area or institution?		
A	Yes	173	57.07 %
B	No	127	42.03 %
K	Plastic Materials and Bottles		
26	Instead of plastic bottles do you use reusable bottles?		
A	Yes	238	79.03 %
B	No	62	20.07 %
27	Are you aware of the environmental hazards of single-use plastics?		
A	Yes	239	79.07 %
B	No	61	20.03 %

28	Do you think switching to biodegradable alternatives for plastic is feasible?		
A	Yes	240	80.00 %
B	No	60	20.00 %
29	Have you observed plastic waste reduction initiatives in your institution?		
A	Yes	170	56.07 %
B	No	130	43.03 %
30	Do you actively avoid using plastic bags or utensils?		
A	Yes	229	76.03 %
B	No	71	23.07 %
31	What you think you 50 microns plastic are good?		
A	Yes	133	44.03 %
B	No	167	55.07 %
L	Sealtech Blocks		
32	Do you know that Sealtech blocks are stronger and lighter than concrete?		
A	Yes	120	40.00 %
B	No	180	60.00 %
33	Are you aware that these blocks are non-porous and durable?		
A	Yes	106	35.03 %
B	No	194	64.07 %
M	Maze Nails		
34	Are you aware that Maze nails are made from recycled steel?		
A	Yes	100	33.03 %
B	No	200	66.07 %
35	Do you know that Maze nails are durable and sustainable for construction?		
A	Yes	105	35.00 %
B	No	195	65.00 %

The results indicate high awareness in areas like solar energy, LED bulbs, and bamboo flooring but significant gaps in areas like green urinals, eco-friendly construction materials, and low VOC paints. These insights can help educational institutions develop targeted awareness campaigns to improve sustainability efforts.

n = 300

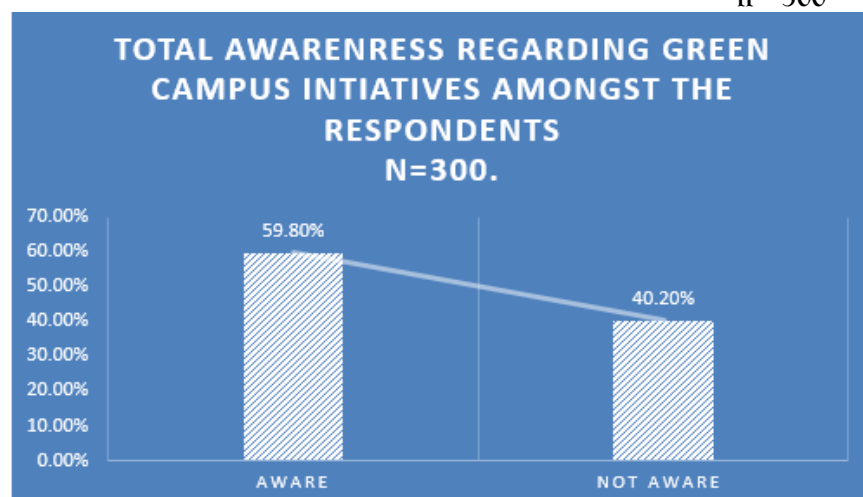


Fig. no 1 A clustered column chart illustrating about the awareness regarding green campus amongst the respondents.

DISCUSSION

Engineering College has undertaken extensive green campus initiatives to promote sustainability and environmental consciousness. The institution encourages the use of management-provided transport, vehicle pooling and bicycles to reduce pollution, while electric cars support eco-friendly mobility within the campus. The campus maintains a rich biodiversity, covering 40% of its area with greenery and incorporates green construction practices.

A present study to assess the awareness related to Green Campus among adults from selected educational institute of Pune city. Amongst the given number of respondents n=300, About 59.8% of respondents are aware of green campus initiatives, while the remaining 40.2% are not aware about the green campus initiatives.

CONCLUSION

The research aimed to know awareness about green campus initiatives among students in selected educational institutions in Pune and analyse its association with various demographic variables. The findings revealed that Gender and Duration of Association with the Institution had a significant impact on awareness levels, whereas other factors such as Age, Qualification, Type of Institution, and Residence on Campus did not show a statistically significant relationship. This suggests that certain demographic groups are more likely to be aware of sustainability initiatives, emphasizing the need for targeted awareness programs to ensure inclusivity and equal engagement in green campus efforts. A notable finding was that females exhibited higher awareness levels compare to males, indicating a possible gender-based difference in environmental consciousness within educational institutions. Additionally, individuals who had been associated with their institutions for more than three years demonstrated the highest levels of awareness, whereas those with less than one year of association had the lowest awareness levels. This highlights the role of long-term exposure to institutional sustainability programs in fostering greater environmental awareness.

Interpretation

Amongst the given number of respondents n=300, About 59.8% of respondents are **aware** of green campus initiatives, while the remaining 40.2% are **not aware** about the green campus initiatives.

DECLARATION BY AUTHORS:

Ethical Approval: The study was approved by the institutional ethics committee of Bharati Vidyapeeth (Deemed to be University), Pune. The study participants were briefed about the purpose and nature of the study and written informed consent was obtained before data collection.

Human subjects: Authors have confirmed that human participants involved in this study

Animal subjects: All authors have confirmed that this study did not involve animal subjects or tissue.

Conflicts of interest: The authors declare that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper

Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.

Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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