CHAPTER - 4
RESULTS AND DISCUSSION

The present study was undertaken to study the environmental knowledge and values of the undergraduate students of the Maharaja Sayajirao University of Baroda, Vadodara. This chapter presents the findings based on the data collected by using quantitative methods of data collection. The findings are reported under the following sections:

4.1 Profile of The Respondents.

4.1.1 Faculty wise Distribution of The Respondents

4.1.2 Year of Study wise Distribution of The Respondents

4.1.3 Gender wise Distribution of The Respondents

4.1.4 Family Type wise Distribution of The Respondents

4.1.5 Family Size wise Distribution of The Respondents

4.1.6 Monthly Family Income wise Distribution of The Respondents

4.1.7 Place of Residence wise Distribution of The Respondents

4.1.8 Mother's Education wise Distribution of The Respondents

4.1.9 Father's Education wise Distribution of The Respondents

4.1.10 Board of Education in School wise Distribution of The Respondents

4.1.11 Medium of Instruction in School wise Distribution of The Respondents

4.1.12 Participation in Environment Related Activities in School wise Distribution of The Respondents

4.1.13 Environment as A Subject in School wise Distribution of The Respondents

4.1.14 Mass Media Exposure wise Distribution of The Respondents

4.1.15 Civic Responsibility wise Distribution of The Respondents

4.2 **Overall Environmental Knowledge and Environmental Values of The Respondents.**

4.2.1   Overall Environmental Knowledge of The Respondents.

4.2.2   Overall Environmental Values of The Respondents.

4.3 **Variable wise Environmental Knowledge and Environmental Values of The Respondents.**

4.3.1 **Faculty wise Environmental Knowledge and Environmental Values of The Respondents.**

4.3.1.1   Faculty wise Level of Environmental Knowledge of The Respondents.

4.3.1.2   Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Faculty.

4.3.1.3   Faculty wise Level of Environmental Values of The Respondents.

4.3.1.4   Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Faculty.

4.3.2 **Year of Study wise Environmental Knowledge and Environmental Values of The Respondents.**

4.3.2.1   Year of Study wise Level of Environmental Knowledge of The Respondents.

4.3.2.2   Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to Their Year of Study.

4.3.2.3   Year of Study wise Level of Environmental Values of The Respondents.

4.3.2.4   Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Year of Study.

4.3.3 **Gender wise Environmental Knowledge and Environmental Values of The Respondents.**

4.3.3.1   Gender wise Level of Environmental Knowledge of The Respondents.

4.3.5.4   Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Monthly Family Income.

4.3.6   Place of Residence wise Environmental Knowledge and Environmental Values of The Respondents.

4.3.6.1   Place of Residence wise Level of Environmental Knowledge of The Respondents.

4.3.6.2   Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Place of Residence.

4.3.6.3   Place of Residence wise Level of Environmental Values of The Respondents.

4.3.6.4   Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Place of Residence.

4.3.7   Mother's Education and Father's Education wise Environmental Knowledge and Environmental Values of The Respondents.

4.3.7.1   Mother's Education wise Level of Environmental Knowledge of The Respondents.

4.3.7.2   Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Mother's Education.

4.3.7.3   Mother's Education wise Level of Environmental Values of The Respondents.

4.3.7.4   Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Mother's Education.

4.3.7.5   Father's Education wise Level of Environmental Knowledge of The Respondents.

4.3.7.6   Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Father's Education.

4.3.10.1 Participation in Environment Related Activities in School wise Level of Environmental Knowledge of The Respondents.

4.3.10.2 Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Level of Participation in Environment Related Activities in School.

4.3.10.3 Participation in Environment Related Activities in School wise Level of Environmental Values of The Respondents.

4.3.10.4 Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Participation in Environment Related Activities in School.

4.3.11 Environment as a Subject in School wise Environmental Knowledge and Environmental Values of The Respondents.

4.3.11.1 Environmental Education in School wise Level of Environmental Knowledge of The Respondents.

4.3.11.2 Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Environmental Education in School.

4.3.11.3 Environmental Education in School wise Level of Environmental Values of The Respondents.

4.3.11.4 Mean Comparisons and Tests of Significance of Environmental Values of The Respondents in Relation to their Environmental Education in School.

4.3.12 Environmental Knowledge and Environmental Values of The Respondents According to their Level of Mass Media Exposure.

4.3.12.1 Mass Media Exposure Wise Level of Environmental Knowledge of The Respondents.

4.3.12.2 Mean Comparisons and Tests of Significance of Environmental Knowledge of The Respondents in Relation to their Mass Media Exposure.

4.1 Profile of The Respondents.

Table 7: Variable wise Percentage Distribution of The Respondents.

n = 900

Variables	Category	Frequency	Percentage (%)
Faculty	Science	180	20
	Technology	180	20
	Arts and Commerce	180	20
	Family and Community Sciences	180	20
	Medicine	180	20
Year of study	First Year	300	33.3
	Second Year	300	33.3
	Final Year	300	33.3
Gender	Female	532	59
	Male	368	41
Family Type	Nuclear Family	628	70
	Joint Family	272	30
Family size	Large	100	11.1
	Medium	365	40.6
	Small	435	48.3
Monthly family income	High	300	33.3
	Medium	295	32.8
	Low	305	33.9
Place of residence	Urban	620	69
	Rural	280	31
Mother's Education	High education	355	39
	Medium education	360	40
	Low education	185	21
Father's Education	High education	439	49
	Medium education	385	43
	Low education	76	8
Board of education in school	State Board	750	83.3
	Central board	150	16.7

Medium of the instruction in school	Vernacular	572	63.6
	English	328	36.4
Level of participation in environment related activities in school	More Participation	241	26.8
	Less Participation	659	73.2
Environment as a subject in school	Studied environment as a subject in school	788	88
	Did not studied environment subject in school	112	12
Mass Media Exposure	More Exposure	380	42.2
	Less Exposure	520	57.8
Civic Responsibility	Highly Responsible	738	82.0
	Moderately Responsible	162	18.0

Table 7 reveals that there were equal numbers of respondents from all the categories of faculties i.e. 20 percent from each group of faculty (Science, Technology, Arts and Commerce, Family and Community Sciences and Medicine). (Figure 2)

Equal numbers of students were from first year, second year and final year that is 33.3 percent from each year of study. (Figure 3)

There was more number of female respondents (59%) than male respondents (41%). (Figure 4)

Majority of the respondent's belonged to nuclear family (70%) followed by less than one third of students living in joint family. (Figure 5)

About half of the respondents were part of small family (48.3 %) followed by medium family (40.6 %) and only 11.1 percent were from large family. (Figure 6)

Near one third of the respondent's monthly family income was low (33.9 %) followed by nearly equal number of respondents having high family income (33.3 %) and medium monthly family (32.8 %). (Figure 7)

Majority of the respondents were living in urban area (69 %) followed by about one third of the respondents living in rural areas. (Figure 8)

More than one third of the respondent's mothers had medium level of education (40 %) i.e. up to higher secondary and diploma followed by nearly equal number of the respondent's mothers had high level of education (39 %) i.e. graduation and above and only one fifth had low level of education i.e. upto primary school. (Figure 9)

Similarly, nearly half of the respondent's fathers had high level of education (49 %) followed by more than one third had medium level of education (43 %) and only eight percent had low level of education. (Figure 10)

Majority of the respondents (83.3 %) studied in state board schools (Gujarat board and other state boards) followed by very low percentage of the respondents from CBSE board schools (16.7 %). (Figure 11)

Majority of the respondents studied in vernacular medium of instruction in school (63.3 %) which included Gujarati, Hindi and other languages followed by those studied in English medium (36.4 %) schools. (Figure 12)

Majority of the respondents participated less in environmental activities (73.2 %) and only about one fourth of respondents (26.8%) participated more in environment related activities at school level. (Figure 13)

A large majority of the respondents studied environment as a subject in school (88 %) and only 12 percent did not studied environment as a subject in school. (Figure 14)

More than half of respondents were having low mass media exposure (57.8 %) and less than half of the respondents (42.2%) were having high mass media exposure. (Figure 15)

A large majority of the respondents were highly civic responsible (82 %) and only 18 percent were moderately responsible. (Figure 16)

Figure 2: Faculty wise Percentage Distribution of The Respondents.
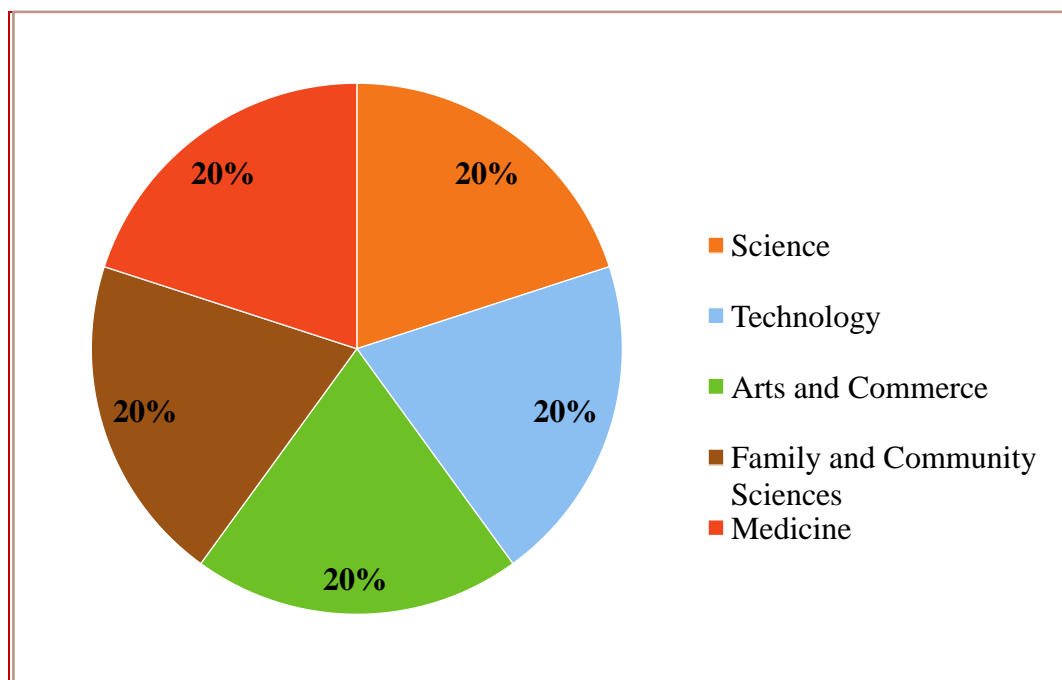
Figure 3: Year of Study wise Percentage Distribution of The Respondents
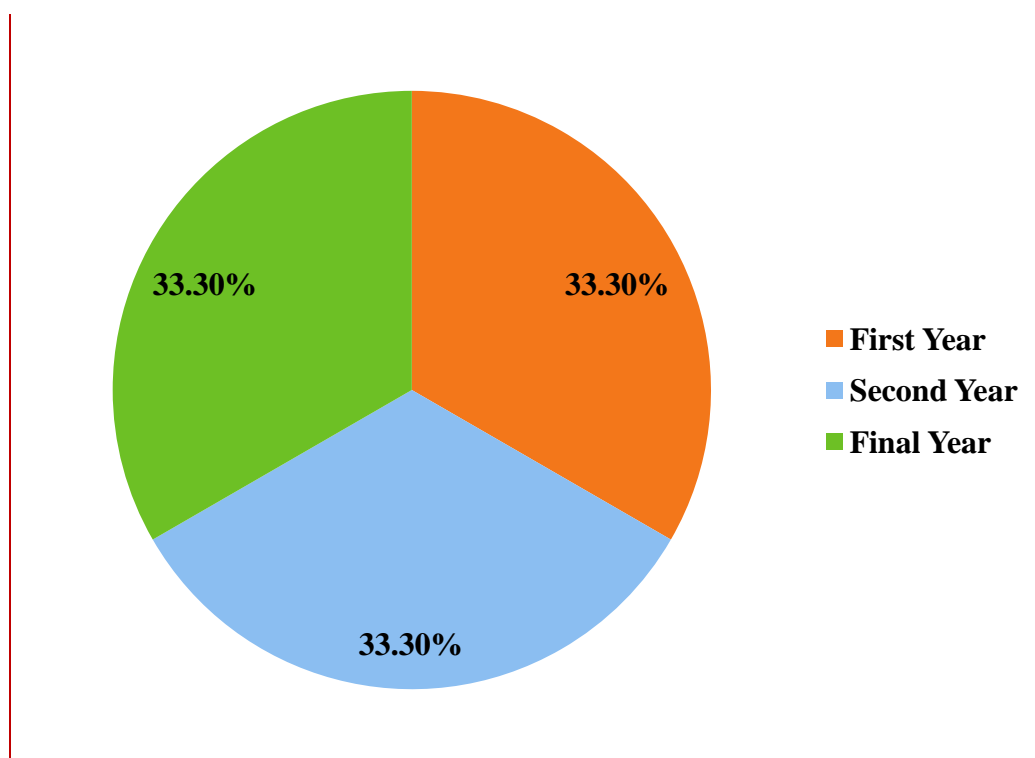
Figure 4: Gender wise Percentage Distribution of The Respondents.
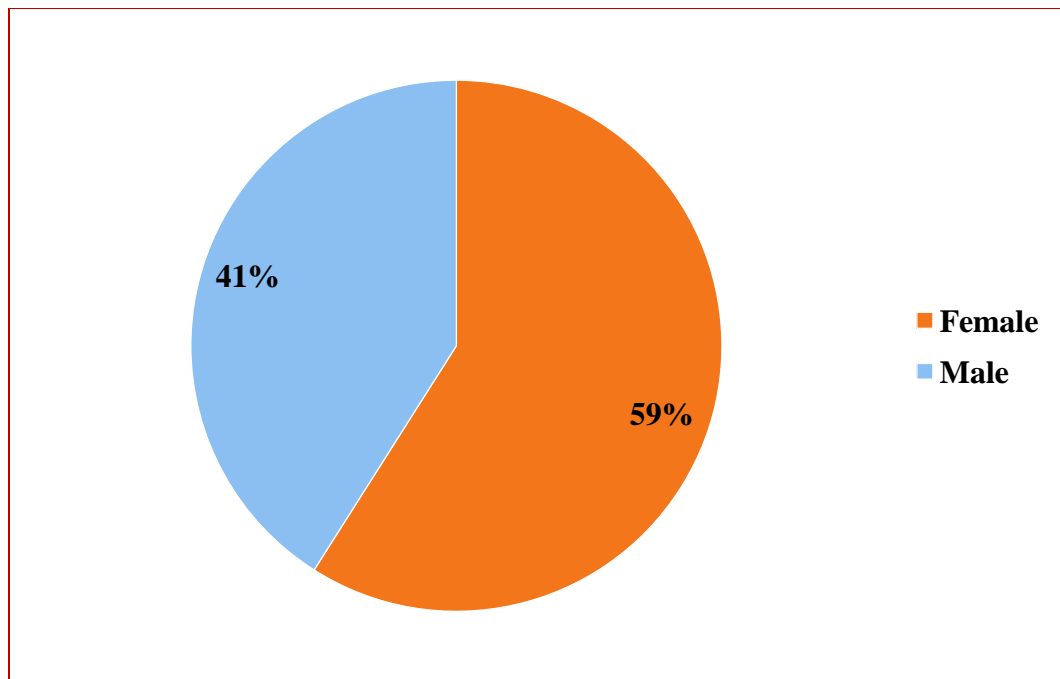
Figure 5: Family Type wise Percentage Distribution of The Respondents
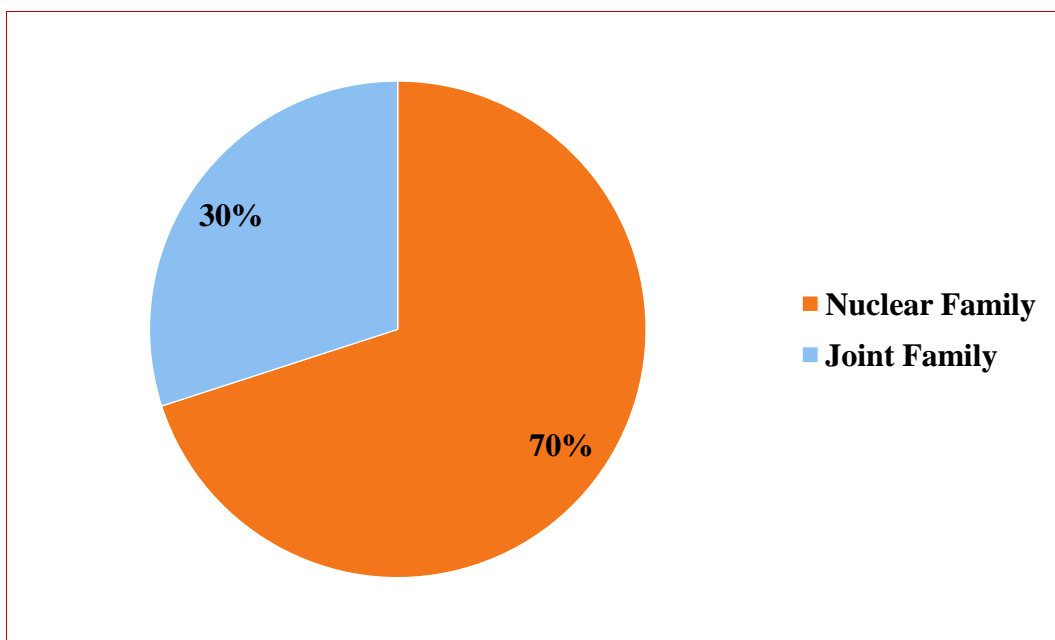
Figure 6: Family Size wise Percentage Distribution of The Respondents
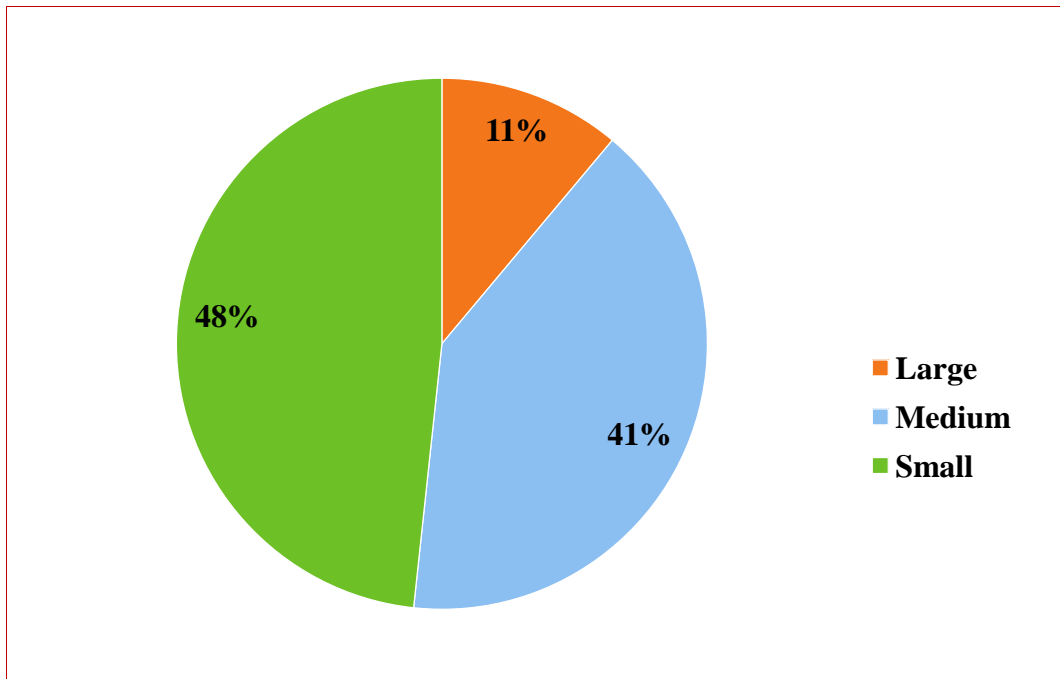
Figure 7: Family Income   wise Percentage Distribution of The Respondents
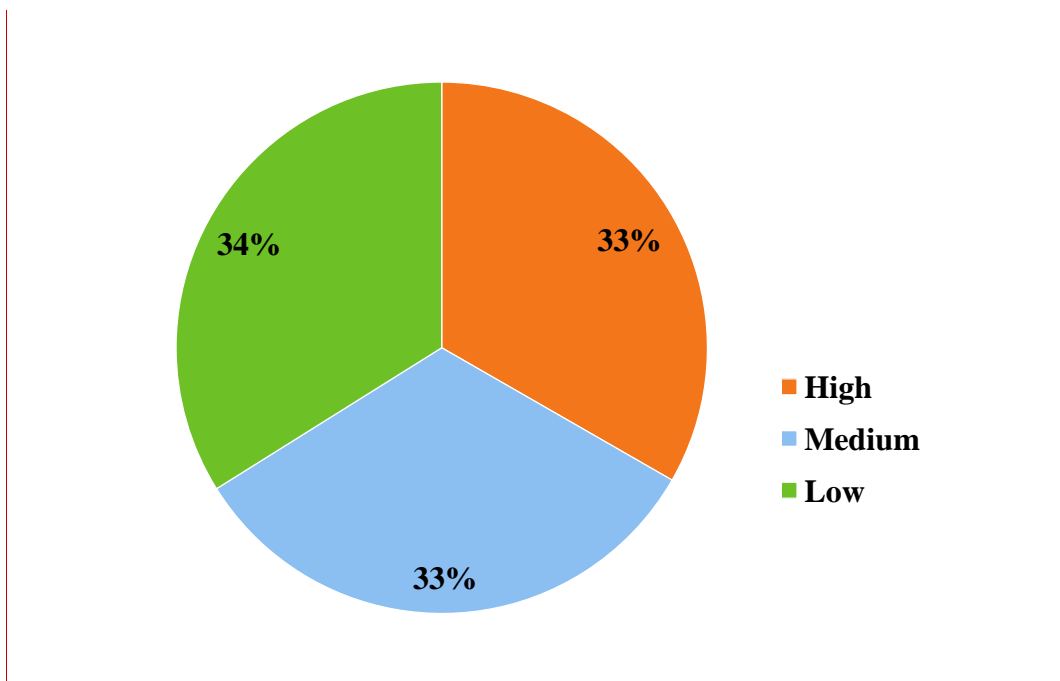
Figure 8: Place of Residence   wise Percentage Distribution of The Respondents
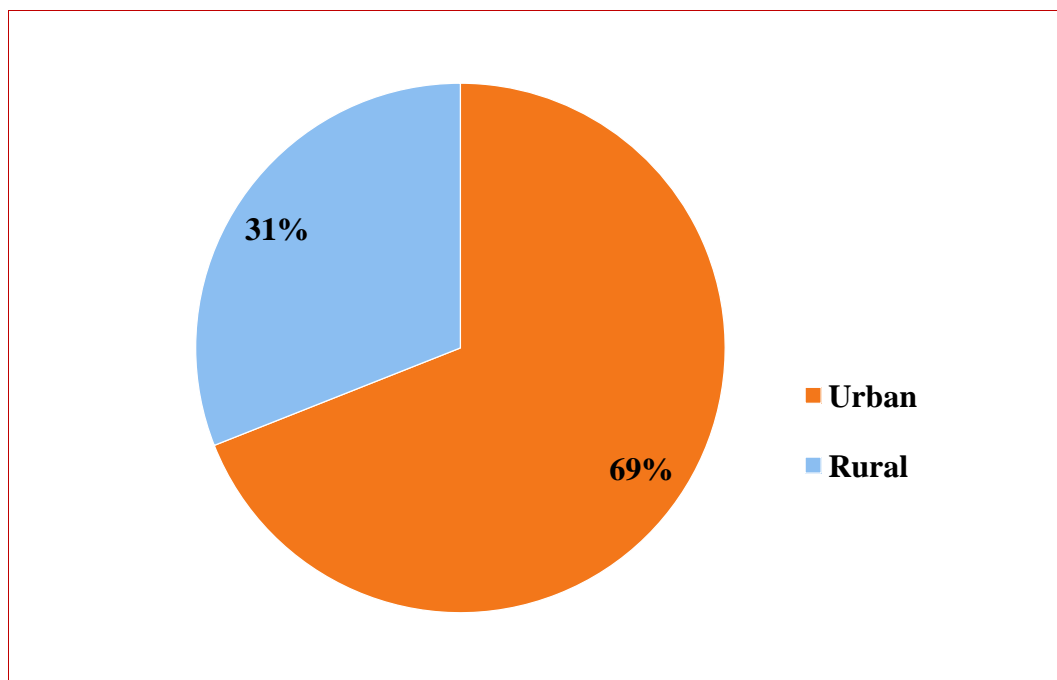
n = 900

Figure 9: Mother's Education wise Percentage Distribution of The Respondents.
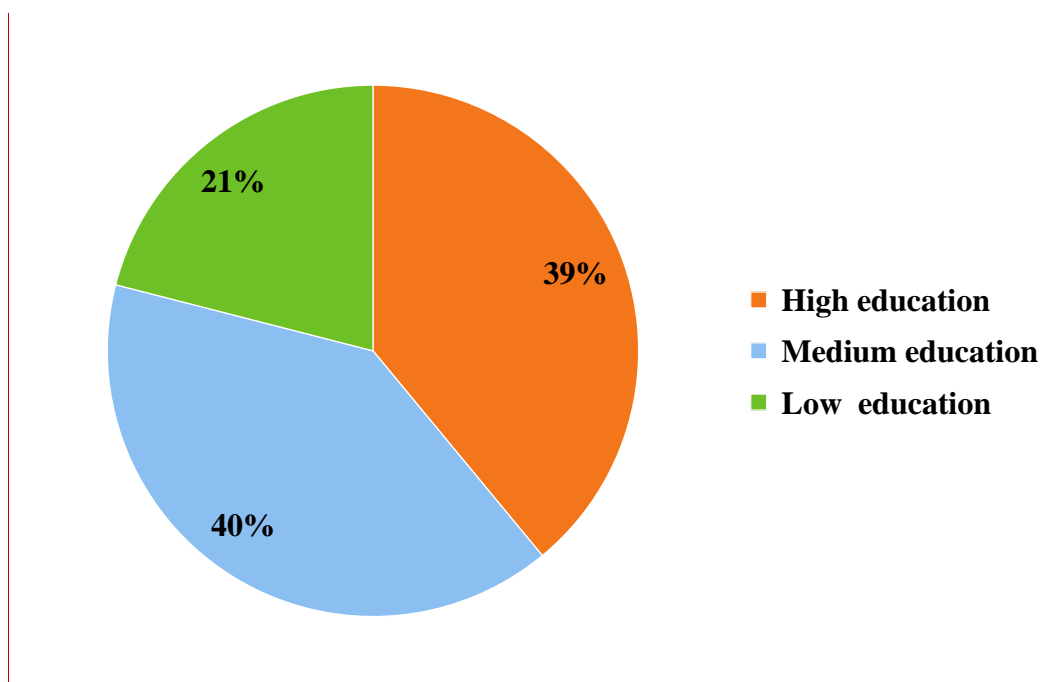
n = 900

Figure 10: Father's Education wise Percentage Distribution of The Respondents

n = 900

- **High education**
- **Medium education**

8%

49%

43%
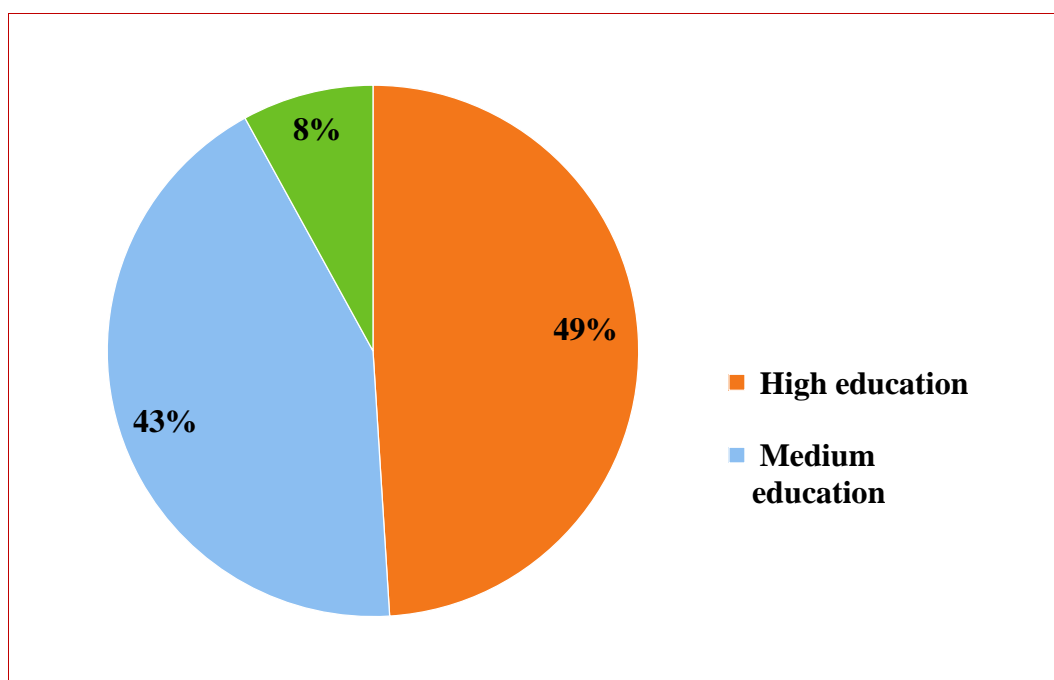
Figure 11: Percentage Distribution of The Respondents According to their Board of Education in School.

n = 900

- **State Board**
- **Central board**

17%

83%
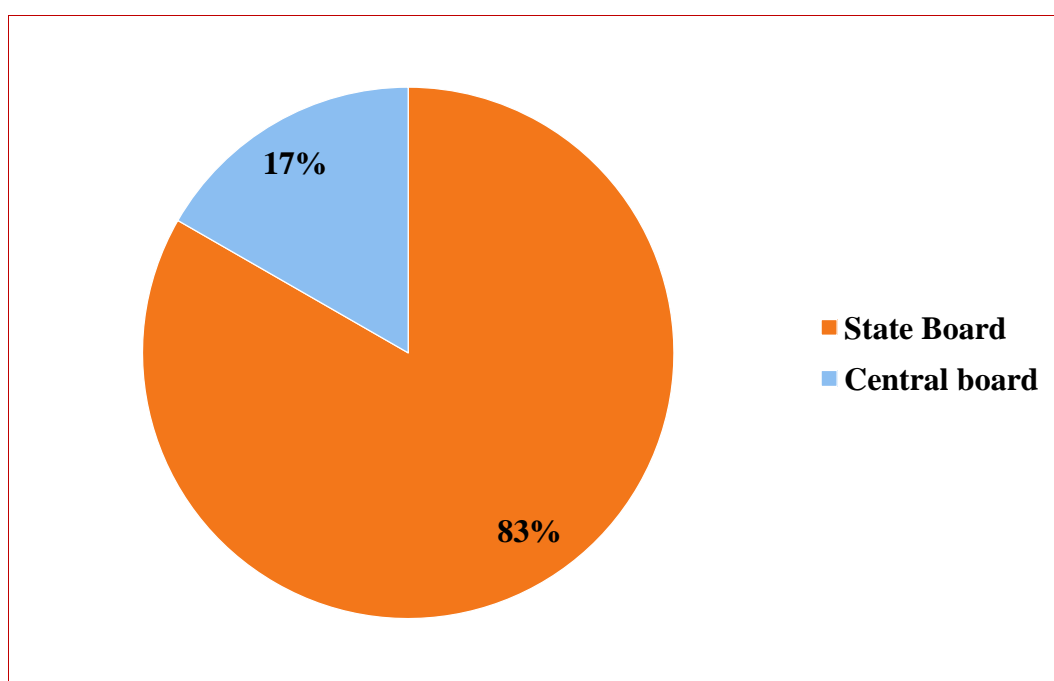
Figure 12: Percentage Distribution of The Respondents According to Their Medium of Instruction in School.
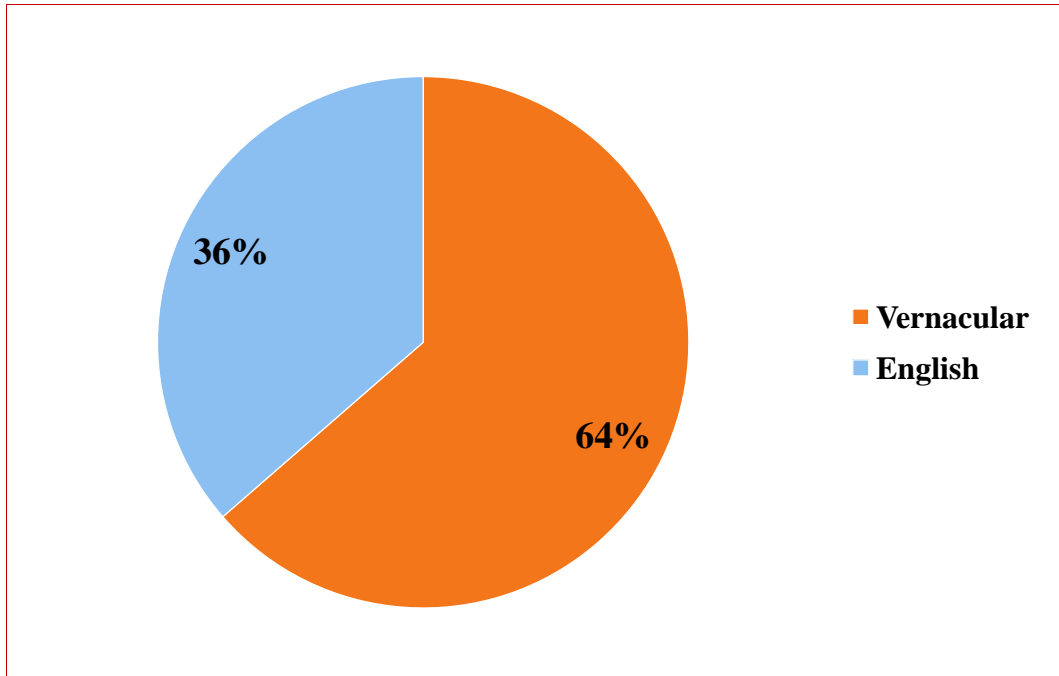
Figure 13: Percentage Distribution of The Respondents According to Their Level of Participation in Environment Related Activities
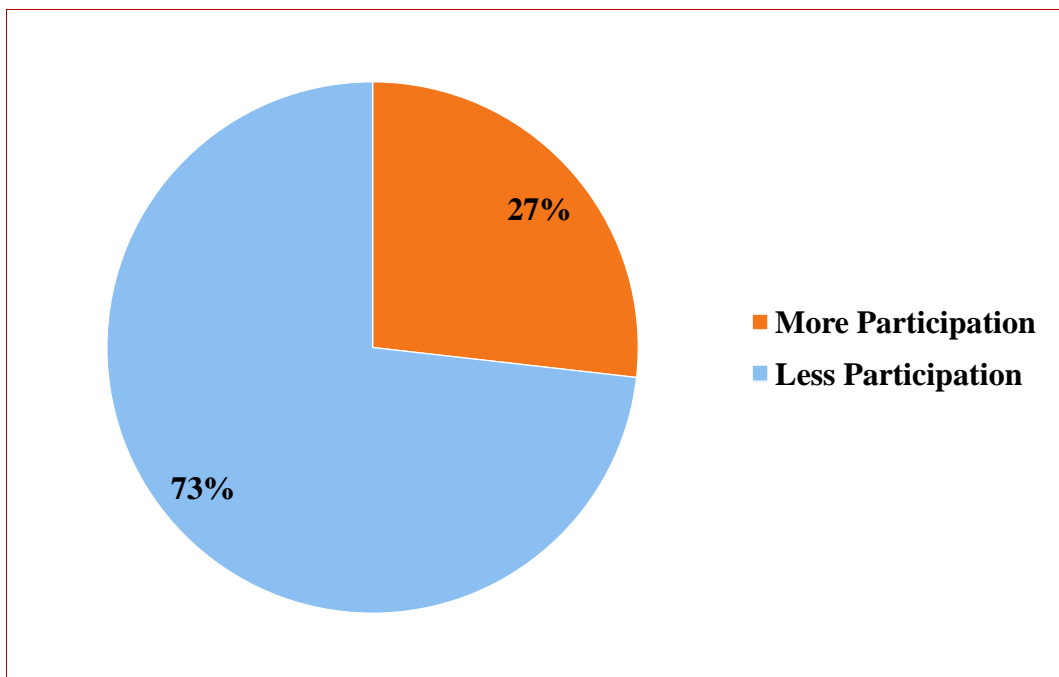
Figure 14: Percentage Distribution of The Respondents According to Their Having Environment as a Subject in School

Studied environment as a subject in school

Did not studied environment subject in school

12%

88%
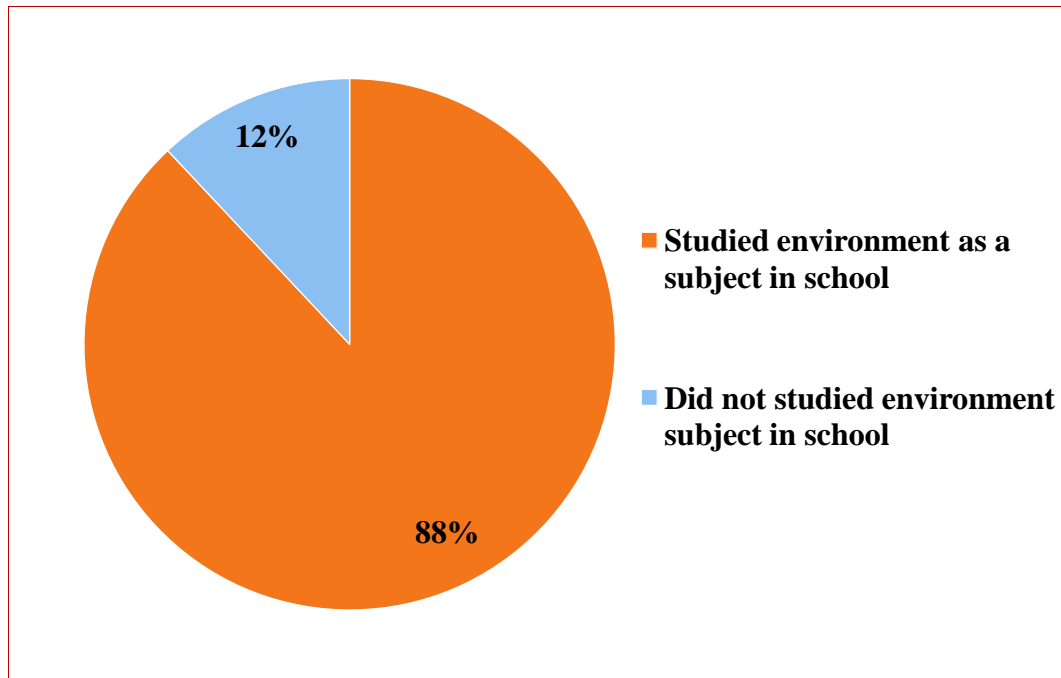
Figure 15: Percentage Distribution of The Respondents According to Their Level of Mass Media Exposure

More Exposure

Less Exposure

42%

58%
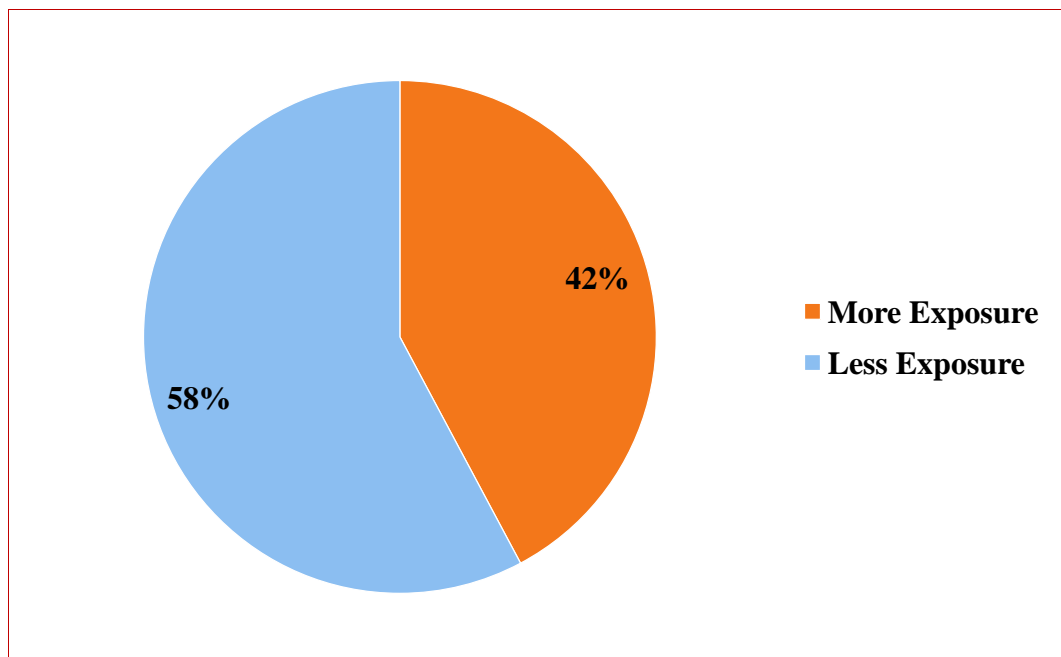
Figure 16: Percentage Distribution of The Respondents According to Their Level of Civic Responsibility
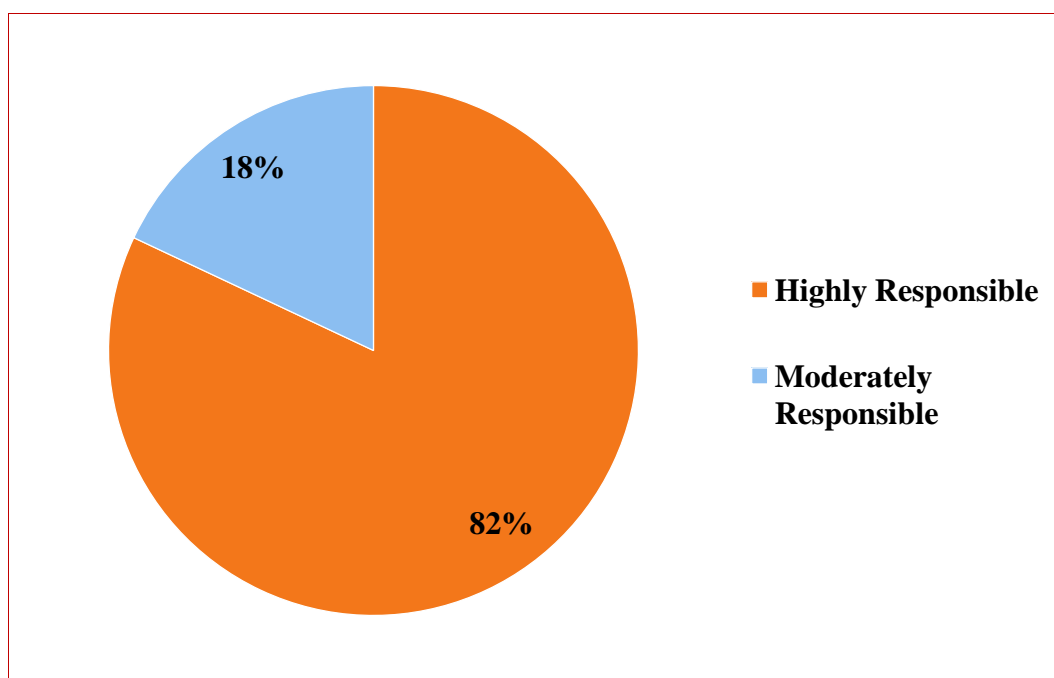
4.2 Overall Environmental Knowledge and Environmental Values of The Respondents.

Table 8: Overall Level of Environmental Knowledge of The Respondents.

Level of environmental knowledge	Frequency	Percentage
High	327	36.3
Moderate	365	40.6
Low	208	23.1
Total	**900**	**100**

Table 9: Overall Level of Environmental Values of The Respondents.

Level of environmental values	Frequency	Percentage
High	639	71
Moderate	261	29
Total	**900**	**100**

Figure 17: Overall Environmental Knowledge and Environmental Values of The Respondents
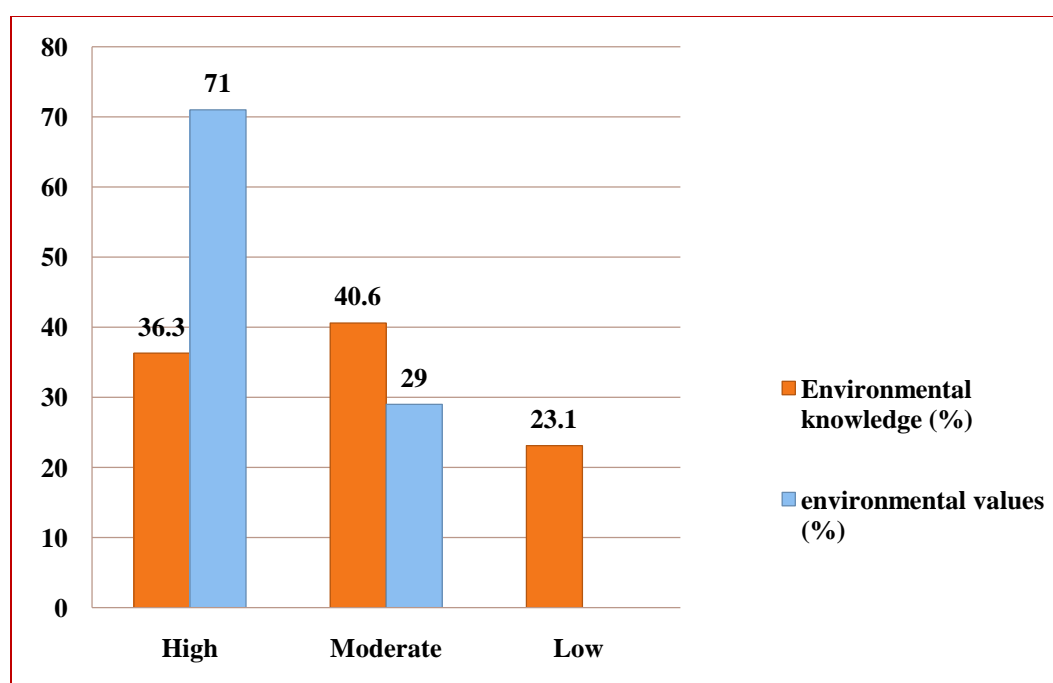
Table 8 reveals that higher percentage of the respondents showed moderate level of environmental knowledge, followed by about one third of the respondents having high level of environmental knowledge and nearly one fourth of the respondents having low level of environmental knowledge.

Table 9 reveals that majority of the respondents had high level environmental values and only about one third of the respondents held moderate level of environmental values.

It can be interpreted from the table 8 that respondents showed moderate to high level of knowledge regarding environmental problems and conservation. Thus there is scope for strengthening respondent's knowledge regarding environment and its conservation through strategic efforts so that they become environment conscious and friendly and actively involve in environment conservation practices.

 It is a positive trend that only nearly one fourth of the respondents had low level of knowledge regarding environment and its conservation. The respondents who had low level of knowledge regarding environment need to be educated to raise their level of environment knowledge and raise it to higher level through conscious educational efforts. This is because knowledge has impact on one's decision making and behavioral patterns.

Bradley, Waliczek & Zajicek (2010) found in a study that students' environmental knowledge was gained and their environmental attitudes became more favorable after exposure to environmental course. Students having higher knowledge scores had more favorable environmental attitude compared with students with lower knowledge scores.

All the respondents showed high and moderate environmental values (table 9). We can also say that although nearly one third of the respondents showed low environmental knowledge, no respondent showed low environmental values (Figure 17). Therefore, it can be interpreted that although high environmental knowledge will lead to high environmental values, but respondents having low knowledge can also have high values. Values formed from ethics and practices also, so they can be formed without having knowledge. Thus we can say that there may be other factors than environmental knowledge which helps in inculcating environmental values in the respondents.

Mondal (2015) reported that human values, socio-cultural, ethical, spiritual and global values incorporated into environmental education can go a long way in attaining the goals of sustainable development and environmental conservation. Value-based environmental education can bring in a total transformation of our mind-set, our attitudes and our lifestyles. Preparation of textbooks and resource materials about environmental education can play an important role in building positive attitudes about environment. The basic human value 'man in nature' rather than 'nature for man' needs to be infused through the same.

4.3   Variable wise Environmental Knowledge and Environmental Values of The Respondents.

4.3.1   Faculty wise Environmental Knowledge and Environmental Values of the respondents.

Table 10: Faculty Wise Level of Environmental Knowledge of The Respondents.

n = 900

Faculty	N	Environmental knowledge (%)		
		High	Moderate	Low
Science	180	53.3	33.8	12.78
Technology	180	35	50	15
Arts and Commerce	180	16.7	52.2	31.1
Family and Community Sciences	180	11.7	48.8	39.4
Medicine	180	65	17.7	17.2

]**Figure 18 : Faculty Wise Level of Environmental Knowledge of The Respondents.**

n = 900
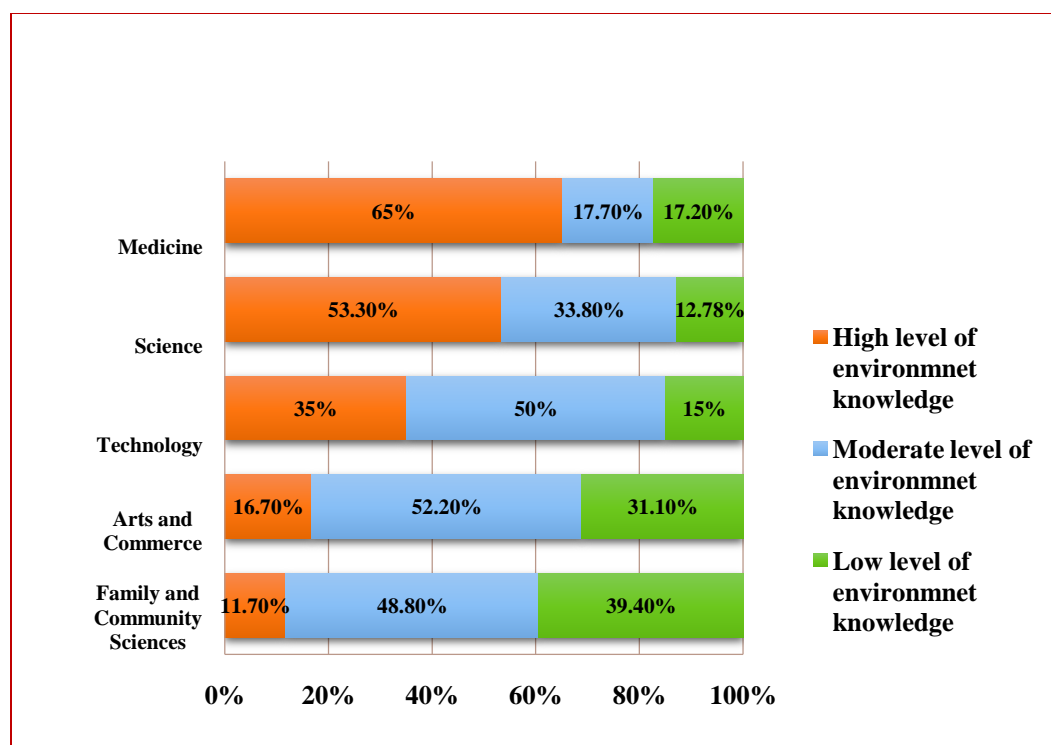
Table 10 reveals that majority of the respondents from the faculty of medicine showed high level of environmental knowledge followed by more than half of the respondents from faculty of science and little more than one third of respondents from the faculty of technology.

About half of the respondents from faculty of Technology, Arts and commerce and Family and community sciences showed moderate level of environmental knowledge followed by one third of the respondents from faculty of Science and only 17.78 percent of respondents from faculty of Medicine. Higher percentage of respondents from the faculty of Family and community sciences and faculty of Arts and commerce showed low level of environmental knowledge.(Figure 18)

Table 11: ANOVA of Environmental Knowledge of The Respondents in Relation to Their Faculty.

n = 900

Faculty	Environmental knowledge			F-Value	P-Value
	Mean	SD	No.		
Science	33.84	10.30	180		
Technology	30.96	9.92	180		
Arts and Commerce	25.21	10.40	180	43.31	0.01
Family and Community Sciences	22.82	9.40	180		
Medicine	34.69	13.22	180		
Pairs having significant difference: (1,3), (1,4), (2,3), (2,4), (2,5),(3,5), (4,5)					

ANOVA result indicated a significant difference in the environmental knowledge of the respondents in relation to their faculty (Table 11). Using post - hoc statistics, the following pairs showed significant difference in their environmental knowledge:

- Science and Arts and Commerce

- Science and Family and Community sciences

- Technology and Arts and Commerce

- Technology and Family and Community Sciences

- Technology and Medicine

- Arts and Medicine

- Medicine and Faculty of Family and Community Studies

This means that faculty of the respondents made a difference in their gaining of environmental knowledge. Hence, the null hypothesis is not accepted.

Table 12: Faculty Wise Level of Environmental Values of The Respondents.

n = 900

Faculty	N	Environmental Values (%)	
		High	**Moderate**
Science	180	75.55	24.4
Technology	180	89.44	10.56
Arts and Commerce	180	60	40
Family and Community Sciences	180	52.22	47.78
Medicine	180	77.78	22.22

Figure 19: Faculty Wise Level of Environmental Values of The Respondents.

n = 900
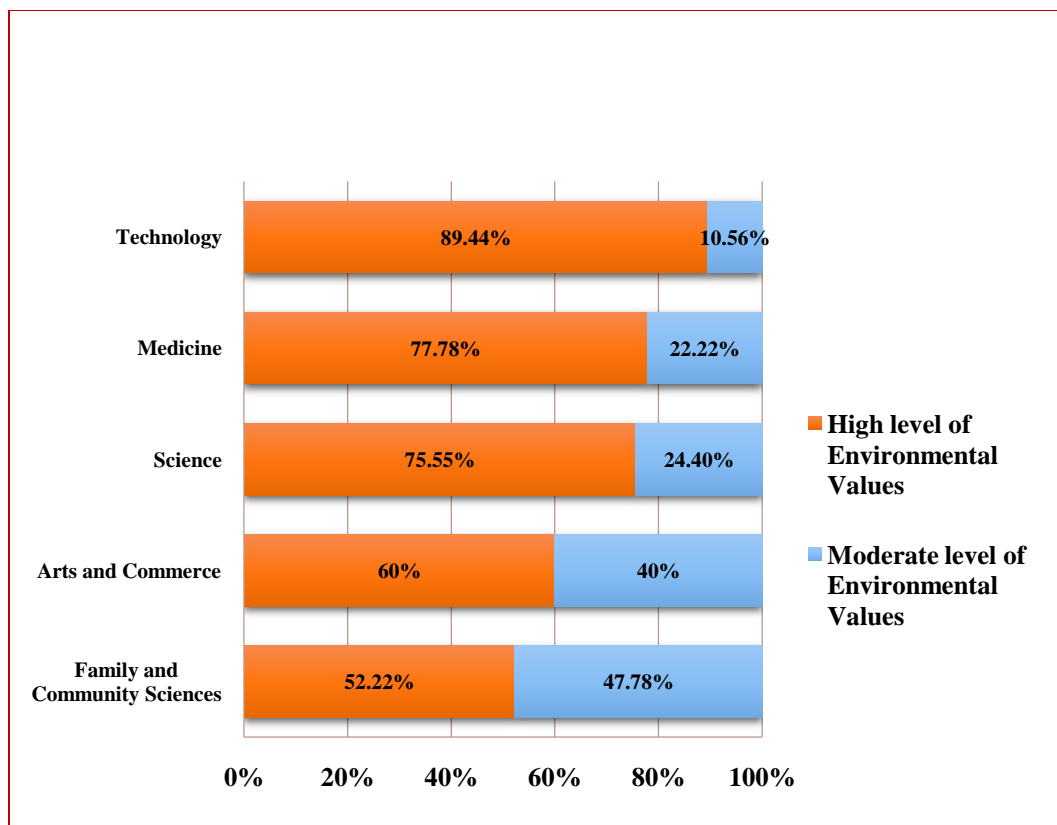
Table 12 indicates that higher percentage of the respondents from all the faculties showed high level of environmental values. However, highest percentage of the respondents from the faculty of Technology showed high level of environmental values followed by the respondents from the faculty of Medicine, the faculty of Science and the faculty of Arts and Commerce. Surprisingly, lowest percentage of the respondents from the faculty of Family and community sciences showed high level of environmental values.(Figure 19)

Table 13: ANOVA of Environmental Values of The Respondents in Relation to Their Faculty.

n = 900

Faculty	Environmental values			F- Value	P- Value
	Mean	SD	No.		
Science	64.6	9.97	180		
Technology	65.93	7.80	180		
Arts and commerce	58.93	11.80	180	25.12	0.01
Family and Community sciences	58.32	8.34	180		
Medicine	65	10.07	180		
Pairs having significant difference: (1,3), (1,4), (2,3), (2,4), (3,5), (4,5)					

ANOVA result indicated a significant difference in the environmental values of the respondents in relation to their faculty (Table 13). Using post - hoc statistics, the following pairs showed significant difference in their environmental values:

- Science and Arts and Commerce

- Science and Family and Community sciences

- Technology and Arts and Commerce

- Technology and Family and Community Sciences

- Arts and Commerce and Medicine

- Medicine and Faculty of Family and Community Studies

This means that faculty of the respondents made a difference in development of their environmental values and hence null hypothesis is not accepted.

The tables 11 and 13 above can be concluded that there was a significant difference in environmental knowledge and values of the respondents in relation to their faculty. These findings revealed that faculty of the respondents made difference in their gaining of environmental knowledge and values. The subjects taught in different faculties may lead to different orientations of the respondents towards the environment.

Sharma (2014) revealed in a study that there was significant difference in environmental awareness in relation to academic stream.

It can be seen that the respondents from the faculty of medicine showed highest environmental knowledge followed by the faculty of science, technology, arts and commerce. Surprisingly, respondents from the faculty of family and community science showed lowest environmental knowledge (Table 10, 11).

Gupta. S & Gupta. S (2014) found similar results in their study. They found that Science stream college students were more aware about electronic waste disposal methods than humanities stream college students. Nikhat and Shafeeq (2014) also found that Science students were more aware than arts and commerce students.

 The reason behind such findings can be that respondents who are from medical, science and technology streams are from science background i.e. they study science as main subject in their schools. And this could be reason behind their having more environmental knowledge. As respondents from medicine, and science had studied subjects like biology, physics, chemistry in their higher secondary school, so they may be more knowledgeable about the life processes and how different physical and chemical reactions takes place in the environment. Respondents from faculty of technology also study about the physical and chemical changes happening in the environment.

At college level in The Maharaja Sayajirao University of Baroda, also, students study environment related courses. In medicine faculty, they study effects of environment on human body. In science stream. In biology department, students study topics like, "Concepts and components of environment" and "Biogeography and Biodiversity of plants and animals" in their courses. In chemistry department, there is unit in their course "Environmental Chemistry". This unit covers topics like segments of the

atmosphere, Air Pollutants and their effects- Green House Effect Ozone Depletion, Photochemical smog, Acid Rain and other effects, Water pollutants and their general effects. In the subjects like geology and physics, students study about solar system, evolution of earth and its components. There is also a different department in science faculty "Environmental Studies" which offer environmental studies at graduate and post graduate level. In faculty of technology and engineering also, courses like environmental engineering are offered. Therefore, we can say that students from medicine, science and technology faculties are inclined towards environment due to the component of environmental studies in their syllabus.

In contrast, the respondents who are not from science background like arts and commerce and family and community sciences face problems in understanding the basic structure of environment and the facts related to the environmental degradation. Although they participate in environment saving campaigns and come in contact with media making them aware of environment related issues but findings showed that there is lack of specific body of knowledge in the form of subject on environment. Moreover, majority of the students enrolled in these faculties are from general stream.

It is also evident from the findings that respondents from the faculty of technology showed highest environmental values followed by respondents from the faculty of medicine, the faculty of science and the faculty of arts and commerce. Surprisingly, the respondents from the faculty of family and community sciences showed lowest environmental values. Similar trends in environmental knowledge and values can be seen that the respondents from science background showed more environmental values than respondents from non science background. (Table 12,13)

The difference is that respondents from faculty of medicine showed highest environmental knowledge whereas respondents from faculty of technology showed highest environmental values but if we look at the post hoc statistics, we can see (Table 13) that there was no significant difference in the environmental values of students from faculty of medicine, science and technology.

Therefore, we can say that students, who were from science background or who are studying environment as their component of course curriculum are more knowledgeable and more valuing environment as compared to students who are from general stream like arts, commerce and Family and community science. The findings reveal an urgent need of inculcating environment courses at undergraduate level in all the college and faculties especially in non science colleges.

Environmental education needs to be imparted through formal and informal ways to all sections of the society. Everyone needs to understand it because 'environment belongs to all' and 'every individual matters' when it comes to conservation and protection of environment.' Environmental education must be imparted to the students right from the childhood stage. It is a welcome step that now all over the country we are introducing environmental studies as a subject at all stages including school and college level, following the directives of the Supreme Court. (Mondal, 2015)

4.3.2 Year of study wise Environmental Knowledge and Environmental Values of the respondents.

Table 14: Year of Study wise Level of Environmental Knowledge of The Respondents.

n = 900

Year of study	N	Environmental knowledge (%)		
		High	Moderate	Low
First Year	300	37.0	38.0	25
Second Year	300	34.7	35.3	30
Final Year	300	37.3	48.3	14.3

Figure 20: Year of Study wise Level of Environmental Knowledge of The Respondents.

n = 900
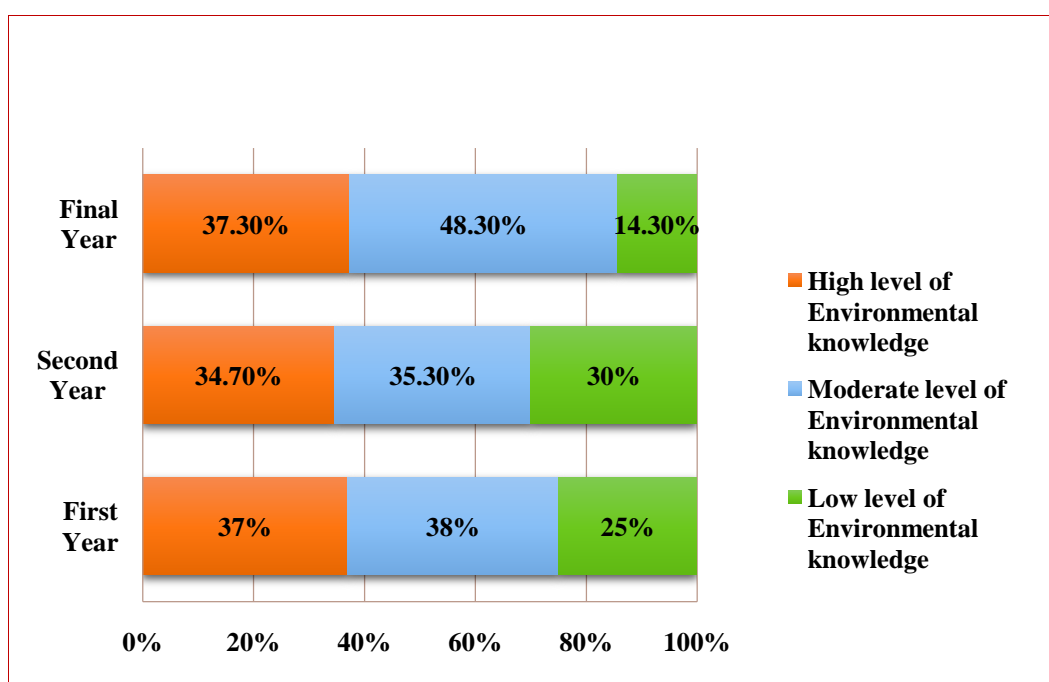
Table 14 indicates that about one third of the respondents from each, first year, second year and final year had high level of environmental knowledge. Nearly half of the respondents from final year had moderate level of environmental knowledge followed by about one third of the respondents from first and second year. Lowest percentage i.e. less than one fifth of the respondents from the final year showed low level of environmental knowledge. (Figure 20)

Table 15: ANOVA of Environmental Knowledge of The Respondents in Relation to their Year of Study.

n = 900

Year of study	Environmental knowledge			F- Value	P- Value
	Mean	**SD**	**No.**		
1.First Year	29.11	12.11	300		
2.Second Year	28.46	12.28	300	3.59	0.28
3.Final year	30.93	10.54	300		

Table 15 indicated that there was no significant difference in the environmental knowledge of the respondents in relation to their year of study. This means that year of study did not make any difference in the gaining of environmental knowledge of the respondents. Hence, the null hypothesis is accepted.

Table 16: Year of Study Wise Level of Environmental Values of The Respondents.

n = 900

Year of study	N	Environmental Values (%)	
		High	**Moderate**
First Year	300	68.3	31.7
Second Year	300	67.7	32.3
Final Year	300	77.0	23.0

Figure 21: Year of Study Wise Level of Environmental Values of The Respondents.
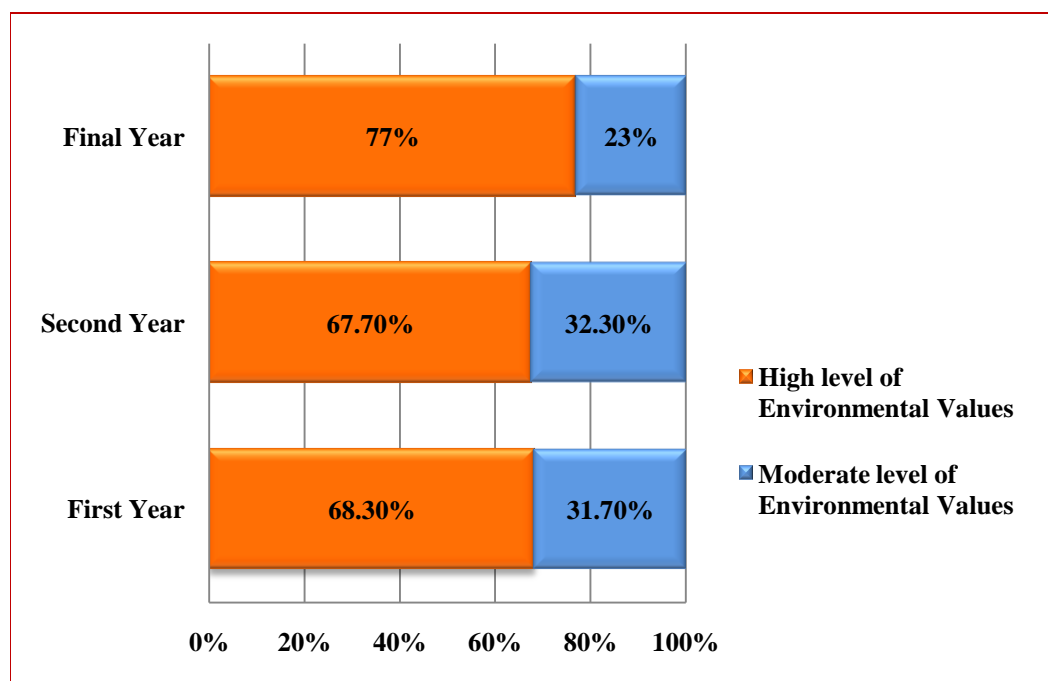
It is revealed from the table 16 that highest percentage of the respondents from final year showed high level of environmental values (77%) followed by nearly equal percentage of the respondents from first year (68.3%) and second year (67.7%). (Figure 21)

Table 17: ANOVA of Environmental Values of The Respondents in Relation to Their Year of Study.

Year of study	Environmental values			F- Value	P- Value
	Mean	SD	No.		
First Year	61.64	9.54	180		
Second Year	61.82	10.65	180	6.01	0.03
Final Year	64.22	10.25	180		
Pairs having significant difference: (1,3), (2,3)					

In table 17 ANOVA result indicated a significant difference in the environmental values of the respondents in relation to their year of study. Looking to the mean values, respondents from the final year showed highest environment values followed by nearly equal mean value of environment values of the respondents from second and first year. Using post - hoc statistics, the following pairs showed significant difference in the environmental values:

- First year and Final year

- Second year and Final year

This means that year of study made a difference in the environmental values of the respondents. Hence, the null hypothesis is not accepted.

It was found (table 15) that there was no significant difference in the environmental knowledge of the respondents in relation to their year of study. This result suggests that the current curriculum in different faculties of the university appears to be not generating any significant impact with regards to the environmental knowledge of students. There is no separate course or activities carried out at different levels which are supposed to impart environmental knowledge to the respondents in The Maharaja Sayajirao University of Baroda. It can be said that current curriculum format has no effect on the knowledge related to environment amongst students. Hence, if students from this university are to be made sensitive and responsible to the environmental issues, environmental education should be integrated into the curriculum across the various faculties of The Maharaja Sayajirao University of Baroda, Vadodara.

Many universities and colleges consider environment education as an "add on", "non-credit" course, there is no political and legislative support also for making it an integral part of curriculum at all levels. There is still a long way to go in the direction of institutionalizing environment education at college level and make it a priority component at national level.

Also, imparting environmental education poses many issues and challenges such as lack of recourses to offer and sustain the programme gaps in the content of programmes offered, and inadequately prepared teachers to teach the environment related content. It is often not well integrated into the curriculum or education reforms. (National Environmental Education Advisory Council, 1996).

Thus, knowledge regarding environment will advance and improve if systematic efforts will be made towards teaching environment education at all levels of college education.

As far as environmental values were concerned, there was a significant difference in the environmental values of the respondents in relation to their year of study (table 17). Respondents from the third year showed the highest level of environmental values. This can be justified with the fact that love for nature is a universal value, indigenous peoples respect and love the land as a mother, treating it as sacred, believing that people, plants, animals, water, the land and the sky are all part of the same on-going cycles of life. These beliefs that flows from them has been passed down through the generations through a wide range of cultural practices, including direct instruction, stories, dances, ceremonies and art as well as networks of sacred places. All are part of indigenous approaches to education that link people to the land through culture — and through culture to the land. (World Summit on Sustainable Development, 2002).

Further, there have been efforts to cover environment education in non formal education programmes which take place in a variety of settings. Often non formal environment education programmes and activities compliment and supplement formal education programmes. These programmes are designed for various target groups. The activities under non formal environment education involve campaigns, community action projects, wild life conservation programmes, awareness programmes through mass media and forest camps.

Many NGO's have taken initiatives in environment education; many social advertisements related to citizen's role in environment protection are broadcasted on television and radio. Although, these happenings around us may not be helping in increasing theoretical knowledge related to environment, but they somewhere help in increasing sensitivity towards environment and there by environmental values.

As the years passed by in college, this value system may have been strengthened because of further mass media exposure or through participation in seminar and conferences carried out in colleges along with some extracurricular activities organized related to the environment.

Thus we can conclude that there is a need for a core course to be introduced related to environment in different years of study as "education is critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making." (World Summit on Sustainable Development, 1992)

4.3.3 Gender wise Environmental Knowledge and Environmental Values of the respondents.

Table 18: Gender wise Level of Environmental Knowledge of The Respondents.

Gender	N	Environmental knowledge (%)		
		High	Moderate	Low
Female	532	33.5	43.8	22.7
Male	368	40.5	35.9	23.6

Figure 22: Gender Wise Level of Environmental Knowledge of The Respondents.

n = 900
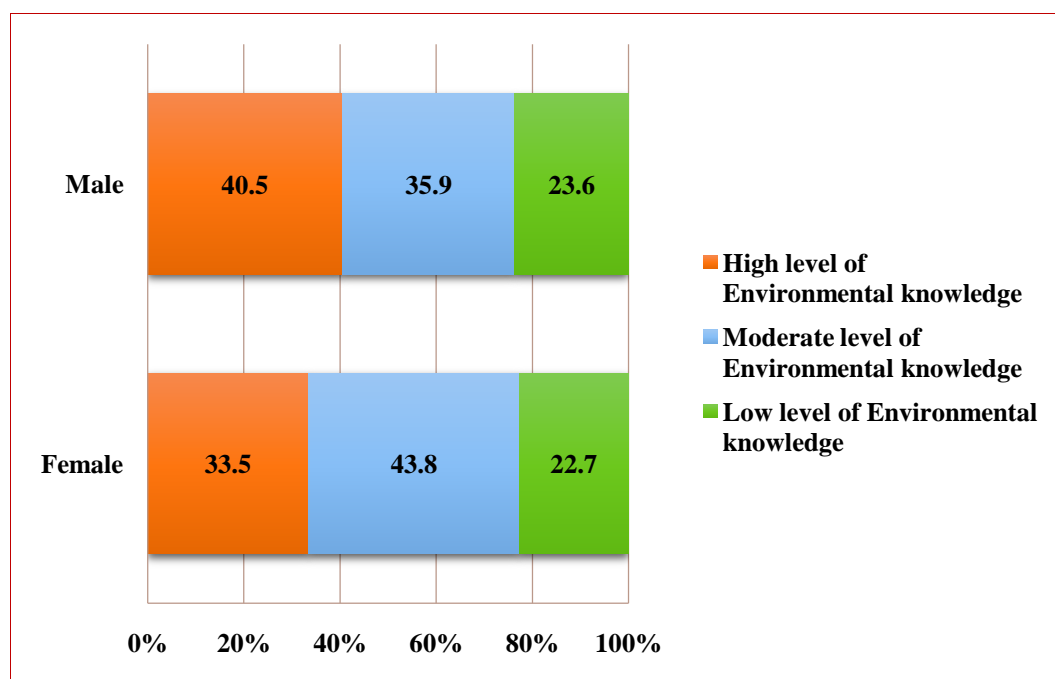
Table 18 reveals that higher percentage of the male respondents showed high level of environmental knowledge than the female respondents. Higher percentage of the female respondents showed moderate level of environmental knowledge than male respondents. Nearly equal number of male and female respondents showed low level of environmental knowledge. (Figure 22)

Table 19: T-Test of Environmental Knowledge of The Respondents in Relation to their Gender.

Gender	Environmental knowledge			t- Value	P- Value
	Mean	**SD**	**No.**		
1. Female	29.14	11.42	532	2.63	0.25
2. Male	30.03	12.09	368		

T- test results showed that there was no significant difference in the level of environmental knowledge of the male and female respondents (Table 19). Hence, the null hypothesis is accepted

Table 20: Gender wise Level of Environmental Values of The Respondents.

Gender	N	Environmental Values (%)	
		High	**Moderate**
Female	532	70.9	29.1
Male	368	71.2	28.8

Figure 23: Gender wise Level of Environmental Values of The Respondents
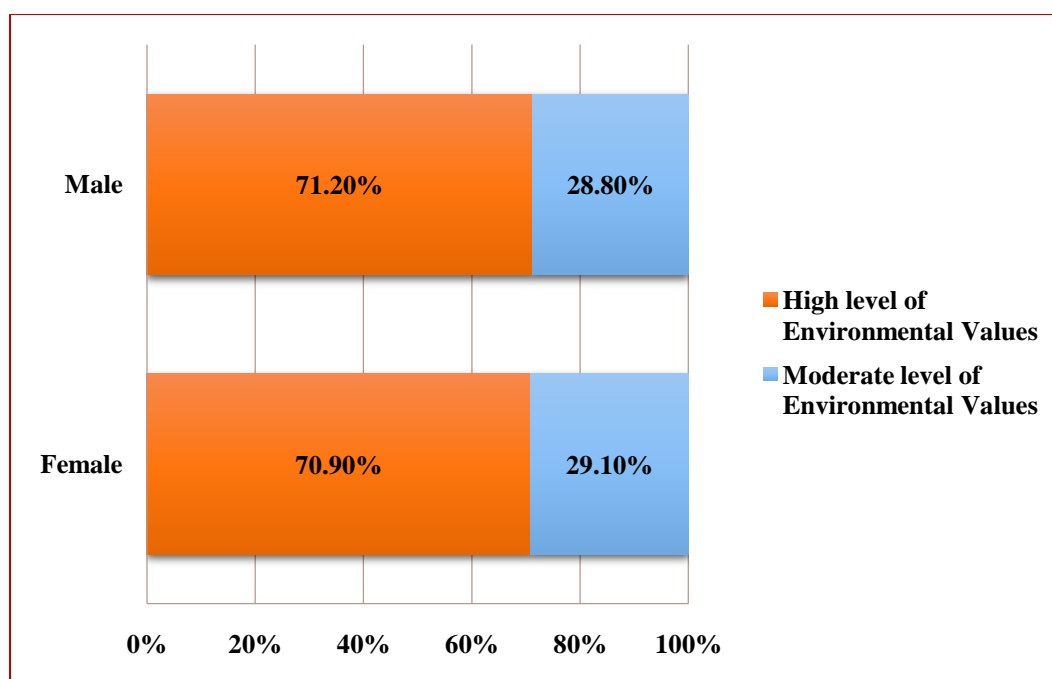
It is revealed form table 20 that majority of the male and female respondents showed high level of environmental values and less than one third of the male and female respondents showed moderate level of environmental values.(Figure 23)

Table 21: T- Test of Environmental Values of The Respondents in Relation to their Gender.

<div align="right">**n = 900**</div>

Gender	Environmental values			t- Value	P- Value
	Mean	**SD**	**No.**		
Female	62.67	11.42	532	0.04	0.75
Male	62.48	0.442	368		

T- test results showed that there was no significant difference in the environmental values of the male and female respondents (Table 21). Hence, the null hypothesis is accepted.

It was found that both the male and female respondents showed high level of environmental values. There was no significant difference in the environmental knowledge and values of the male and female respondents; this means that gender did not make any difference in the level of environmental knowledge and values of the students of the Maharaja Sayajirao University of Baroda, Vadodara.

The findings were consistent with the studies by Chutia (2014), Gupta and Sakshi (2014) and Sharma (2014) which also revealed that behavior pattern showed by undergraduate students about environment were irrespective of their gender.

These days both boys and girls get equal opportunities at schools and college level to learn about environment and participate in environment related activities. They get same exposure to informal education, non formal education and mass media to learn about issues related to the environment. There are many women as well as man activist working in environment awareness and conservation programmes. Thus, gaining knowledge or inculcation of values related to environment was not found to be dependent on gender as a variable.

4.3.4   Family type and Family size wise Environmental Knowledge and Environmental Values of the respondents.

Table 22: Environmental Knowledge of The Respondents According to their Type of Family.

<div align="right">n = 900</div>

Family type	N	Environmental knowledge (%)		
		High	**Moderate**	**Low**
Nuclear Family	628	39.5	41.2	19.3
Joint Family	272	29.0	39.0	32.0

Figure 24 : Environmental Knowledge Of The Respondents According To Their Type Of Family.

<div align="right">n = 900</div>
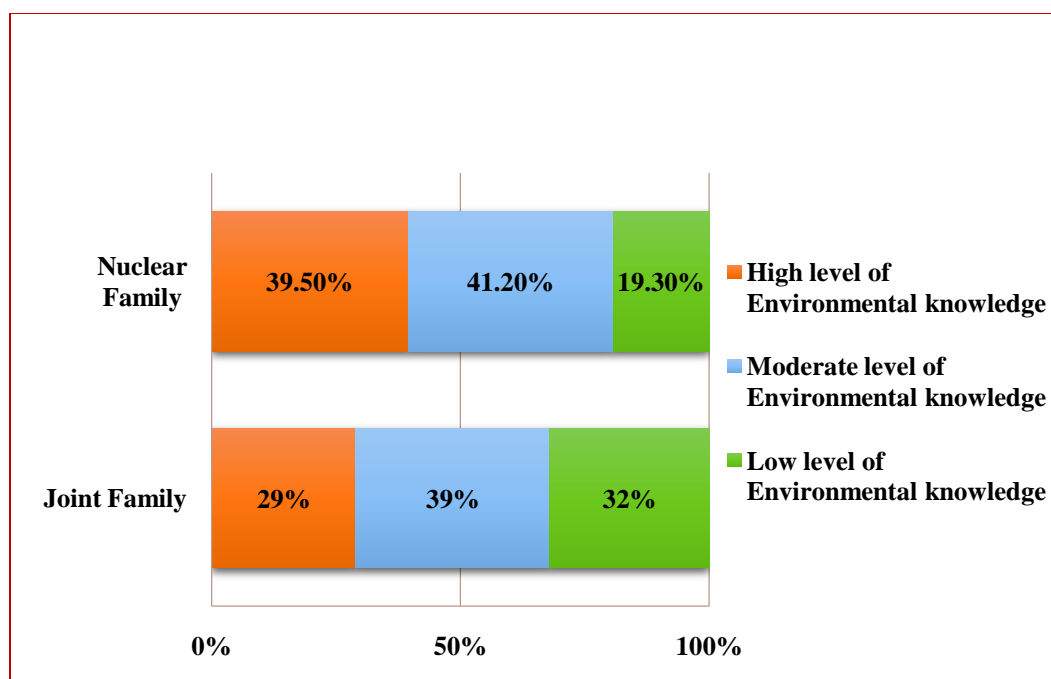
It is revealed from the table 22 that higher percentage of the respondents from both nuclear and joint families showed moderate level of environmental knowledge. About forty percent of the respondents from nuclear families showed high and moderate level of environmental knowledge. Nearly one third of the respondents from joint families showed low level of environmental knowledge. (Figure 24)

Table 23: T-Test of Environmental Knowledge of The Respondents in Relation to their Type of Family.

Family type	Environmental knowledge			t- Value	P- Value
	Mean	SD	No.		
Nuclear Family	30.40	11.54	628	0.68	0.01
Joint Family	27.43	11.84	272		

T- test results showed a significant difference in the environmental knowledge of the respondents in relation to their family type (Table 23). Mean scores of the environmental knowledge of the respondents from nuclear families was higher than environmental knowledge of the respondents from joint families. This means that type of family made a difference in the building up of the environmental knowledge in the respondents. Hence null hypothesis is not accepted.

Table 24: Level of Environmental Values of The Respondents According to Their Family Type.

n = 900

Family type	N	Environmental Values (%)	
		High	Moderate
Nuclear Family	628	75.2	24.8
Joint Family	272	61.4	38.6

Figure 25 : Level of Environmental Values of The Respondents According to their Family Type.
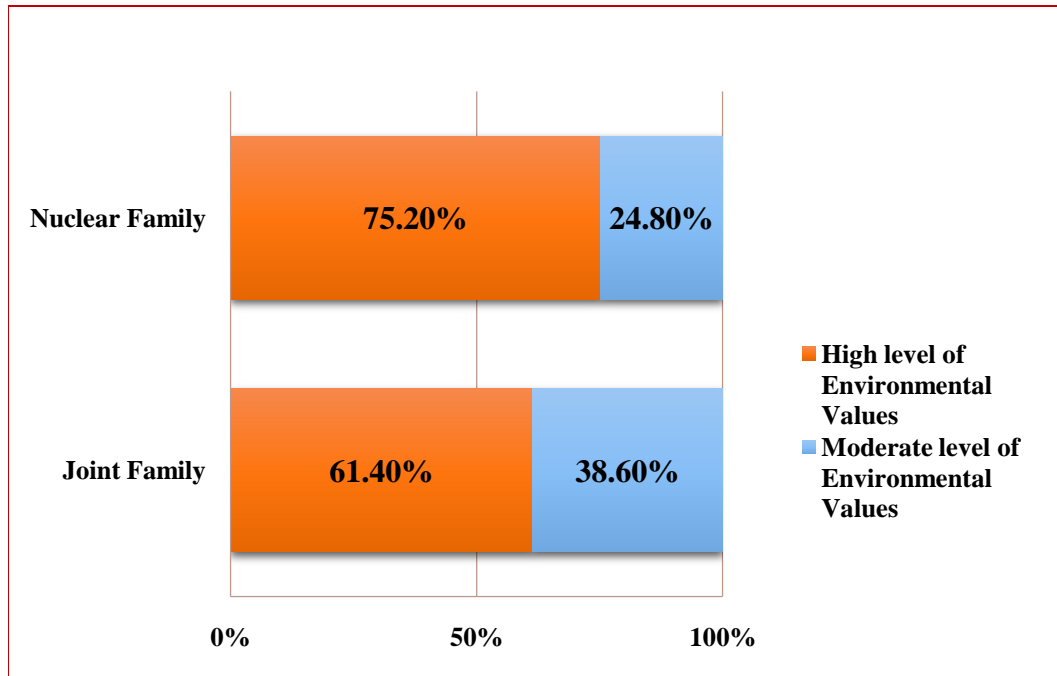
Table 24 indicates that three fourth of the respondents belonging to nuclear families showed high level of environmental values followed by more than half of the respondents belonging to joint families. (Figure 25)

Table 25: T- Test of Environmental Values of The Respondents in Relation to their Type of Family.

n = 900

Family type	Environmental values			t- Value	P- Value
	Mean	**SD**	**No.**		
Nuclear Family	63.08	10.04	628	2.21	0.02
Joint Family	61.36	10.50	272		

T- test results showed a significant difference in the environmental values of the respondents in relation to their type of family (Table 25). This means that family type made a difference in the building up of the environmental values in the respondents. Hence null hypothesis is not accepted.

Table 26: Environmental Knowledge of The Respondents According to Their Family Size.

n = 900

Family size	N	Environmental knowledge (%)		
		High	**Moderate**	**Low**
Large	100	20.0	50.0	30.0
Medium	365	34.0	40.3	25.8
Small	435	42.1	38.6	19.3

Figure 26 : T- Test Of Environmental Values of The Respondents in Relation to their Type of Family.

n = 900
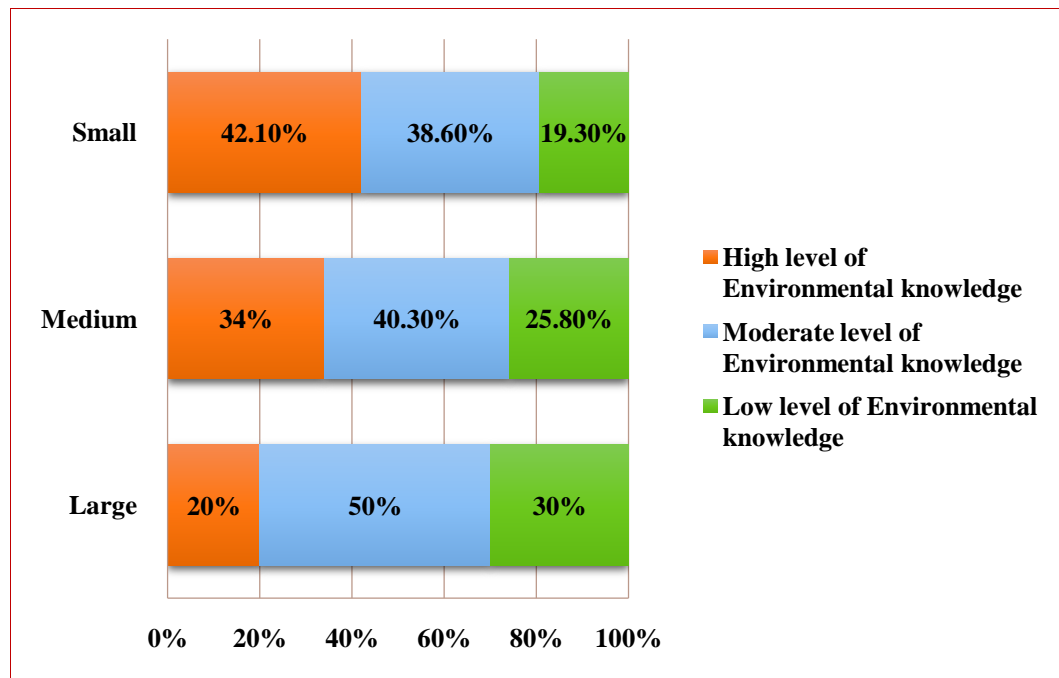
It is revealed from table 26 shows that higher percentage of the respondents from small families showed high level of environmental knowledge followed by the respondents from medium size families. Only one fifth of the respondents from large families showed high level of environmental values. Half of the respondents from large families showed moderate level of environmental knowledge. Higher percentage of the respondents (40.3%) from medium size family showed moderate level of environmental knowledge. Only one fifth of the respondents (19.3%) from small size families showed low level of environmental knowledge. (Figure 26)

Table 27: ANOVA of Environmental Knowledge of The Respondents in Relation to their Family Size.

<div align="right">n = 900</div>

Family size	Environmental knowledge			F- Value	P- Value
	Mean	SD	No.		
Large	26.85	11.16	100		
Medium	28.77	11.77	365	5.717	0.03
Small	30.73	11.64	435		
Pairs having significant difference: (1,2), (1,3), (2,3),					

ANOVA result indicated that there was a significant difference in environmental knowledge of the respondents in relation to their family size (Table 27). Using post - hoc statistics, the following pairs showed significant difference in environmental knowledge:

- Large and medium size families

- Large and small size families

- Medium and small size families

This means that gain in environmental knowledge in the respondents was influenced by the size of their family. Hence null hypothesis is not accepted.

Table 28: Level of Environmental Values of The Respondents According to their Family Size.

<div align="right">n = 900</div>

Family size	N	Environmental Values (%)	
		High	Moderate
Large	100	57.0	43.0
Medium	365	71.2	28.8
Small	435	74.0	26.0

Figure 27: Level of Environmental Values of The Respondents According to their Family Size.

n = 900
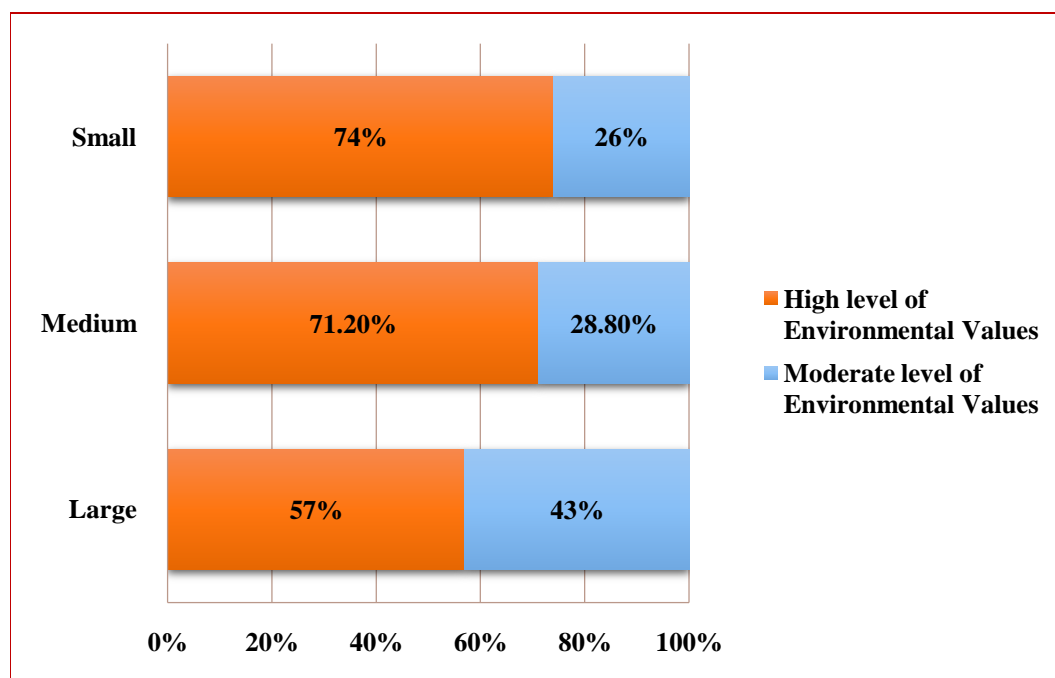
It is revealed from the table 28 that near three fourth of the respondents from small family size showed high level of environmental values followed by respondents from medium size family. More than half of the respondents from large families showed high level of environmental values. (Figure 27)

Table 29: ANOVA of Environmental Values of The Respondents in Relation to Their Family Size.

n = 900

Family size	Environmental values			F- Value	P- Value
	Mean	SD	No.		
Large	61.40	9.621	100		
Medium	62.10	10.742	365	1.926	.146
Small	63.22	9.860	435		

ANOVA result indicated that there was no significant difference in environmental values of the respondents with respect to their family size (Table 29). Hence null hypothesis is accepted.

167

Thus, we can see that environmental knowledge and values of the respondents were influenced by the type and size of family. Student's belonging to the nuclear and small size families were found having more environmental knowledge and values as compared to the students from joint and large size families.

A child's family and home environment has a strong impact on his/her language and literacy development and educational achievement. This impact is stronger during the child's early years but continues throughout their school and college years. (Cole, J. 2011)

The nuclear family is generally believed to be the ideal arrangement to raise a family. Parenting interventions are different in nuclear families as they are more focused and specific to the children's needs. Nuclear families enjoy more freedom in discovering and taking advantage of opportunities for the development of the family members. The child rearing practices in nuclear families are better as parents influence more due to close interactions.

In small size families, the child is in direct contact with his or her parent and the number of adult role model decreases. Children in such families are encouraged to function in an individualized manner, take initiative, and act independently. Thus, children's experiences in growing up in nuclear and small size families can be influenced deeply by the parent's beliefs, values and attitudes.

In today's families, it is common to have dual incomes. Both parents work to provide financial stability for the household, creating a larger cash flow to supply the basic family needs of housing, food and healthcare. The parent's concern for saving resources like electricity water, their consumer behavior, recycling habits and other environment friendly habits get transferred into their children because of their close interactions.

 By reaching agreements on discipline and modeling appropriate behavior, parents act as a team to strengthen and reinforce child behavior. Children get consistent messages about behavioral expectations toward environment. Nuclear families have more daily routines, like eating dinner together, adding to consistency of passing on knowledge and values related to their lives. (study.com, 2003)

Therefore, these may be the reason that level of environmental knowledge and values in nuclear and small size families found higher. The close parental interactions, economic stability and better opportunities provided in to the family set up and freedom to perform environment friendly practices may have contributed in their enhancement of environmental knowledge and values related to environment.

4.3.5 Monthly Family Income wise Environmental Knowledge and Environmental Values of The Respondents

Table 30: Environmental Knowledge of The Respondents According to their Monthly Family Income.

n = 900

Monthly family income	N	Environmental knowledge (%)		
		High	Moderate	Low
High	300	39.3	37.3	23.3
Medium	295	44.1	36.3	19.7
Low	305	25.9	47.9	26.2

Figure 28 : Environmental Knowledge of The Respondents According to their Monthly Family Income.

n = 900
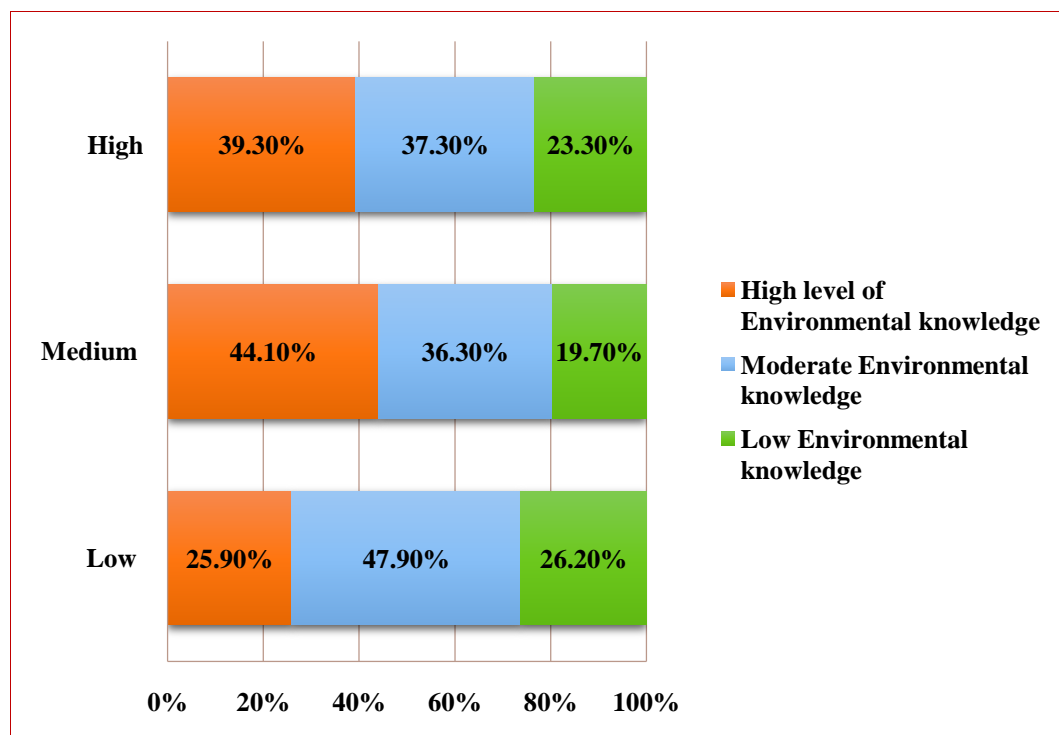
Table 30 indicates that higher percentage of the respondents from medium income group showed high level of environmental knowledge followed by respondents from high income group. Only one fourth of the respondents from low income group showed high level of environmental knowledge. About half of the respondents from low income group showed moderate level of environmental values followed by nearly one third of the respondents from high and medium income group. Higher percentage of respondents from low family income group showed low level of environmental knowledge as compared to the respondents from high and medium income group.(Figure 28)

Table 31: ANOVA of Environmental Knowledge of The Respondents in Relation to their Monthly Family Income.

n = 900

Monthly Family Income	Environmental Knowledge			F- Value	P- Value
	Mean	**SD**	**No.**		
High	30.40	11.94	300		
Medium	31.38	11.66	295	13.28	0.01
Low	26.78	11.03	305		
Pairs having significant difference: (1,3), (2,3)					

ANOVA result indicated that there was a significant difference in environmental knowledge of respondents in relation to their income group (Table 31). Using post - hoc statistics, the following pairs showed significant difference in environmental knowledge:

- High and low family income

- Medium and low family income

This means that income groups made a difference in the gaining of environmental knowledge in the respondents. Thus, null hypothesis is not accepted.

Table 32: Level of Environmental Values of The Respondents According to their Monthly Family Income.

Monthly family income	N	Environmental Values (%)	
		High	**Moderate**
High	300	72.7	31.1
Medium	295	71.5	28.5
Low	305	68.9	27.3

Figure 29: Level of Environmental Values of The Respondents According to their Monthly Family Income.
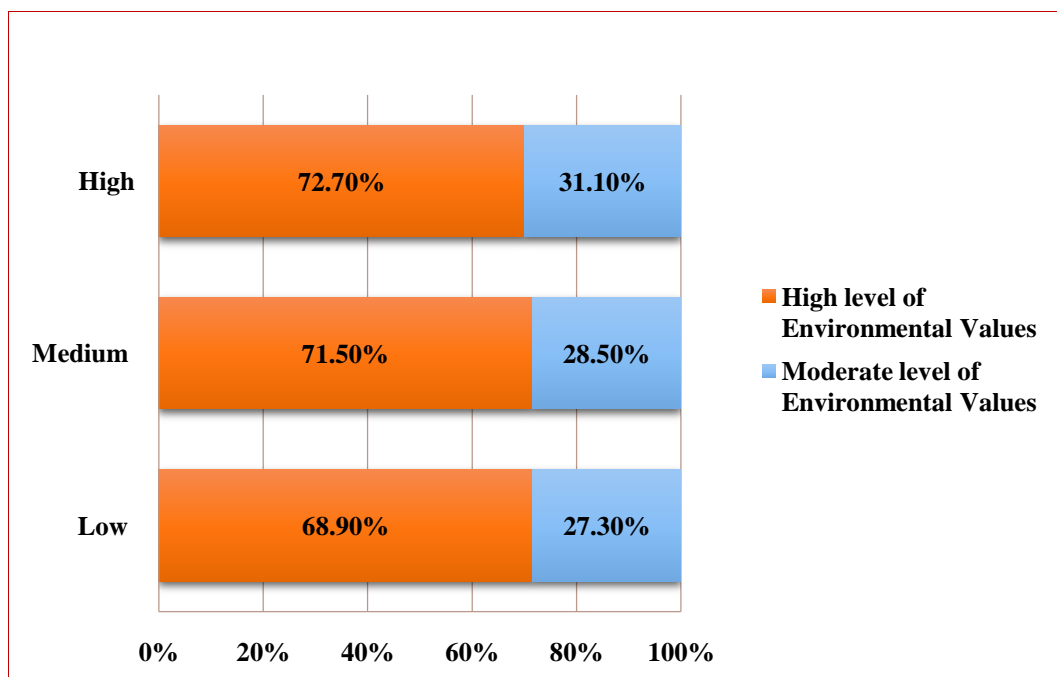
Table 32 indicates that almost equal percentage of the respondents from high, medium and low family income group showed high and moderate level of environmental values. However, higher percentage of the respondents from all the categories of income groups showed high level of environmental values. (Figure 29)

Table 33: ANOVA of Environmental Values of The Respondents in Relation to their Monthly Family Income.

Monthly family income	Environmental values			F- Value	P- Value
	Mean	SD	No.		
1. High	63.47	10.29	300		
2. Medium	63.34	10.19	295	6.15	0.02
3. Low	60.90	9.95	305		
Pairs having significant difference: (1,3), (2,3)					

ANOVA result indicated a significant difference in the environmental values of the respondents in relation to their family income (Table 33). Using post - hoc statistics, the following pairs showed significant difference in the environmental values:

- High income and low income

- Medium income and low income

This means that income groups made a difference in the development of environmental values. Thus, null hypothesis is not accepted.

Tables 30, 31, 32 and 33 show that family income of the respondents made the difference in the environmental knowledge and values of the students. The students from high family income showed higher level of environmental knowledge and values.

Similar results were found by Gupta and Gupta (2014) that high socio- economic status college students were more aware about electronic waste than low socio-economic status college students. A study by Kong, Ytrehus, Hvatum and Lin (2014) also showed that higher the family income of college students, the more priority was put on environmental concerns.

Maslow (1970) and Inglehart (1981) proposed theory of hierarchy of needs which states that an individual will place a higher priority on his or her unmet material needs such as food and shelter versus non physiological needs such environment protection. Therefore the students from lower income group may have felt less concerned about environment.

It can be argued that because members of the lower classes are more likely to live and work in places with poor physical conditions and environmental hazards, they have grown used to this environment and, as a result, are less aware that they inhabit in polluted, overcrowded conditions. On the other hand, both the middle and upper classes are more attuned to and concerned about the "deterioration of the physical environment" (Morrison et al. 1972)

Some scholars have found that because the upper and middle classes are more politically active than the lower classes and environmental concern is just one of the many instances of the upper classes' general concern regarding social problems (Martinson and Wilkening 1975; Althoff and Greig 1977).

Higher income means more and better access and availability of resources. With higher income the family is able to adopt practices which are eco friendly but costlier. This facilitates formation of certain behavioral traits and practices which contribute to the inculcation of values related to clean and safe environment and its conservation and sustainability. High income means better availability of resources and hence better quality of life. This can lead them to afford environment friendly behaviors and practices.

Thus, the students from higher family income showed higher level of environmental knowledge and values.

4.3.6   Place of Residence wise Environmental Knowledge and Environmental Values of The Respondents.

Table 34: Level of Environmental Knowledge of The Respondents According to their Place of Residence.

n = 900

Place of residence	N	Environmental knowledge (%)		
		High	Moderate	Low
Urban	620	35.3	40.0	35.3
Rural	280	38.6	41.8	38.6

Figure 30 : Level of Environmental Knowledge of The Respondents according to their Place of Residence.

n = 900
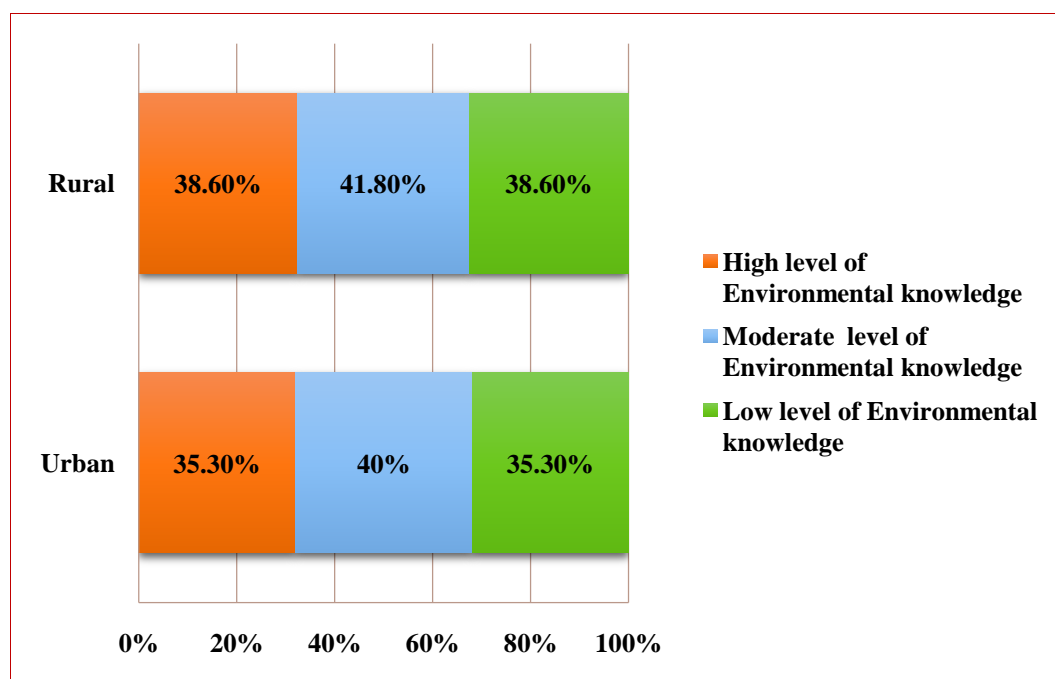
Table 34 reveals that almost equal percentages of the respondents from urban and rural place of residence showed high, moderate and low level of environmental knowledge.(Figure 30)

174

Table 35: T-Test of Environmental Knowledge of The Respondents in Relation to their Place of Residence.

Place of residence	Environmental knowledge			t- Value	P- Value
	Mean	SD	No.		
1.Urban	29.11	11.84	620	1.87	0.13
2. Rural	30.37	11.38	280		

T- test results showed that there was no significant difference in the environmental knowledge of the respondents in relation to their place of residence (Table 35). This means that place of residence did not make any difference in the building up of the environmental knowledge of the respondents. Hence, null hypothesis is accepted.

Table 36: Level of Environmental Values of The Respondents according to their Place of Residence.

Place of residence	N	Environmental Values (%)	
		High	Moderate
Urban	620	70.2	29.8
Rural	280	72.9	27.1

Figure 31: Level of Environmental Values of The Respondents according to their Place of Residence.
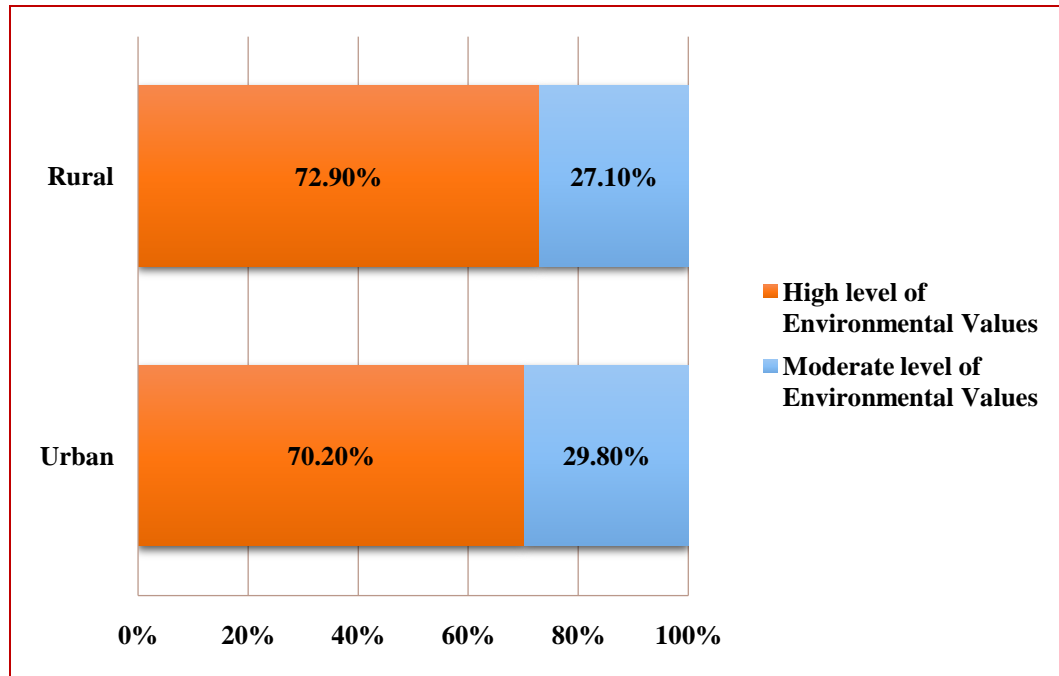
It is revealed from table 36 that less than three fourth of the respondents from urban and rural place of residence showed high level of environmental values. (Figure 31)

Table 37: T- Test of Environmental Values of The Respondents in Relation to their Place of Residence.

Place of residence	Environmental values			t- Value	P- Value
	Mean	**SD**	**No.**		
1.Urban	62.15	10.21	620	0.46	0.07
2. Rural	63.47	10.15	280		

T- test results showed that there was no significant difference in the environmental values of the respondents in relation to their place of residence (Table 37). Therefore it can be said that place of residence did not make any difference in the building up of the environmental values in the respondents. Thus, null hypothesis is accepted

We can see form the table 34, 35, 36 and 37 that environmental knowledge and values of the undergraduate students did not differ in relation to their place of residence.

The similar results were found by Gupta and Gupta (2014) that behavior pattern showed by undergraduate students about environment were irrespective of their locality. Muderrisoglu and Altanlar (2010) also showed that locality had no effect on environmental attitudes and behaviors of undergraduate students.

Regardless of where they live, the public appears to be sympathetic to the cause of the environment. Being raised in an urban or rural area might not be particularly important. The place of socialization is less of a factor than opportunity. These findings highlight the importance of providing services and facilities to facilitate public participation in Environmentally Supportive behaviour. (Huddert, Beckley and McFalane, 2009)

The urban versus rural residents can be studied under three principles: relationship to natural resources, a local-distant rationale (proximity to pollution versus nature), and post-materialistic satisfaction (emphasizing self-expression and the quality of life more than to give high priority to protecting the environment). (Inglehart 1995)

These days, both rural and urban people understand the importance of natural resources as they both face the problems in their living due to the scarcity of these resources. The villages are also facing pollution problems and urban people are trying to combat these problems in many ways. The standard of living of the rural people is also rising these days. There are people living in slums in urban areas also. Thus the gap between the rural and urban is getting reduced slowly. Both urban and rural students get same exposure of learning environment education through text books.

All the sources of non formal and informal sources of information are reaching to urban as well as rural areas. Mass media is reaching out equally to urban and rural area which may have nullified the effect of place of residence. Thus, no significance difference was found in environmental knowledge and values among the students from rural and urban areas.

4.3.7   Mother's education and Father's Education wise Environmental Knowledge and Environmental Values of the respondents.

Table 38: Environmental Knowledge of The Respondents according to their Mother's Education.

Mother's education	N	Environmental knowledge (%)		
		High	Moderate	Low
High education	355	46.5	33.2	20.3
Medium education	360	31.1	45.3	23.6
Low education	185	27.0	45.4	27.6

Figure 32: Environmental Knowledge of The Respondents according to their Mother's Education.

Table 38 indicates that higher percentage of the respondents whose mothers had high level of education showed high level of environmental knowledge (46.5%). Equal number of respondents whose mothers had medium and low level of education showed moderate level of environmental knowledge. Nearly equal number of the respondents whose mothers had high, medium and low level of education showed low level of environmental knowledge. (Figure 32)

Table 39: ANOVA of Environmental Knowledge of The Respondents in Relation to their Mother's Education.

<div align="right">n = 900</div>

Mother's education	Environmental knowledge			F- Value	P- Value
	Mean	**SD**	**No.**		
1. High education	32.04	12.16	355		
2. Medium education	28.25	11.05	360	14.87	0.01
3. Low education	27.06	11.19	185		
Pairs having significant difference: (1,2), (1,3)					

ANOVA result indicated that there was a significant difference in environmental knowledge of the respondents in relation to their mother's education (Table 39). Using post - hoc statistics, the following pairs showed significant difference in environmental knowledge in relation to mother's education:

- High and medium education

- High and low education

This means that gain in the environmental knowledge in the respondents was influenced by the level of their mother's education. Hence the null hypothesis is not accepted.

Table 40: Level of Environmental Values of The Respondents according to their Mother's Education

<div align="right">n = 900</div>

Mother's Education	N	Environmental Values (%)	
		High	**Moderate**
High education	355	74.9	25.1
Medium education	360	68.6	31.4
Low education	185	68.1	31.9

Figure 33: Level of Environmental Values of The Respondents according to their Mother's Education

n = 900

It is revealed from table 40 that nearly three fourth of the respondents whose mother's had high level of education showed high level of environmental values. Nearly equal percentage (68%) of the respondents whose mothers had medium and low level of education showed high level of environmental values. Nearly one third of the respondents whose mother's had medium and low level of education showed moderate level of environmental values. Only one fourth of the respondents whose mother's had high level of education showed moderate level of environmental values. (Figure 33)

Table 41: ANOVA of Environmental Values of The Respondents in Relation to their Mother's Education.

n = 900

Mother's education	Environmental values			F- Value	P- Value
	Mean	**SD**	**No.**		
1. High education	63.59	10.60	355		
2. Medium education	62.42	9.61	360	4.43	0.01
3. Low education	60.86	10.38	185		
Pairs having significant difference: (1,2)					

ANOVA result indicated a significant difference in environmental values of respondents in relation to their mother's education (Table 41). Using post - hoc statistics, the significant difference was found between the environmental values of the respondents whose mother's had high and medium level of education.

This means that development of environmental values in the respondents was influenced by the level of their mother's education. Hence the null hypothesis is not accepted

Table 42: Environmental Knowledge of The Respondents according to their Father's Education.

n = 900

Father's education	N	Environmental knowledge (%)		
		High	Moderate	Low
High education	439	46.9	31.4	21.6
Medium education	385	26.5	50.1	23.4
Low education	76	25.0	44.7	30.3

Figure 34: Environmental Knowledge of The Respondents according to their Father's Education.
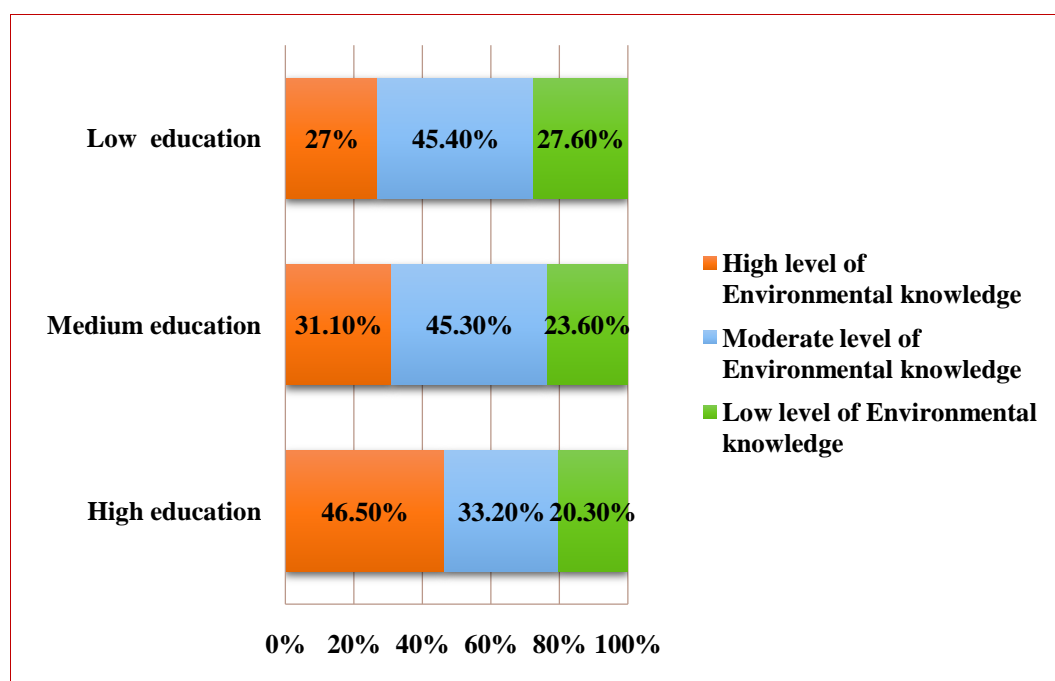
n = 900
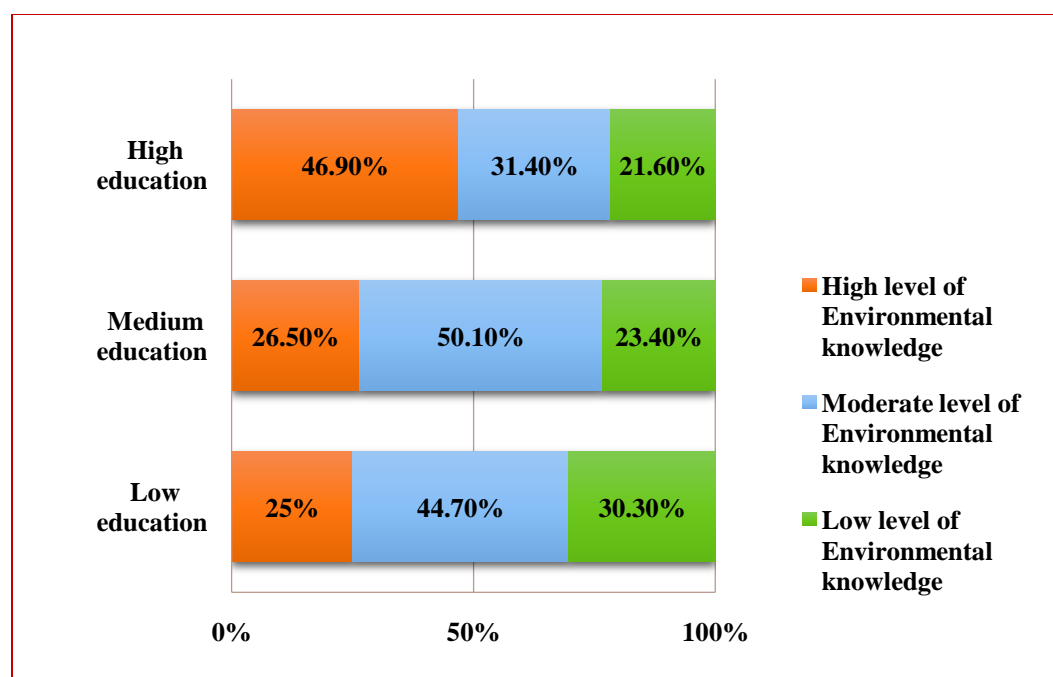
Table 42 indicates that higher percentage of the respondents whose fathers had high level of education showed high level of environmental knowledge (46.9%). Half of the respondents whose fathers had medium level of education showed moderate level of environmental knowledge. Higher percentage of the respondents whose fathers had low level of education showed moderate level of environmental knowledge (44.7%) followed by nearly one third showed low level of environmental knowledge.

Table 43: ANOVA of Environmental Knowledge of The Respondents in Relation to their Father's Education.

n = 900

Father's education	Environmental knowledge			F- Value	P- Value
	Mean	SD	No.		
1. High education	31.42	12.17	439		
2. Medium education	27.96	10.85	385	12.48	0.01
3. Low education	26.24	11.38	76		
Pairs having significant difference: (1,2), (1,3)					

ANOVA result indicated that there was a significant difference in the environmental knowledge of the respondents in relation to their father's education (Table 43). Using post - hoc statistics, the following pairs showed significant difference in the environmental knowledge in relation to father's education:

• High and medium education

• High and low education

This means that gain in environmental knowledge in the respondents was influenced by the level of their father's education. Hence the null hypothesis is not accepted.
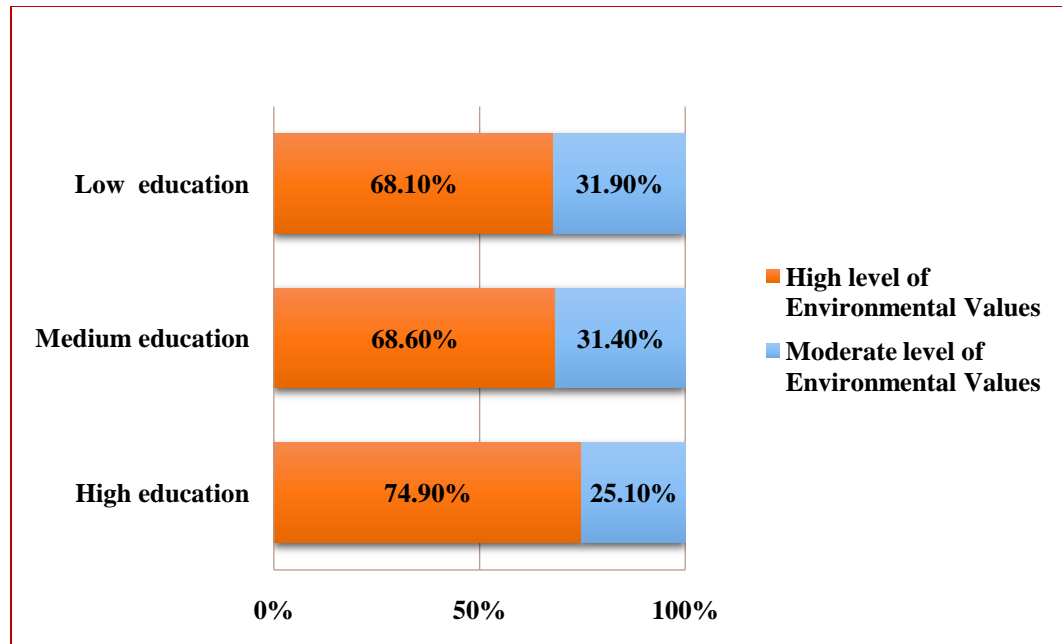
Table 44: Level of Environmental Values of The Respondents according to their Father's Education

n = 900

Father's education	N	Environmental Values (%)	
		High	**Moderate**
High education	439	72.2	27.8
Medium education	385	71.9	28.1
Low education	76	59.2	40.8

Figure 35: Level of Environmental Values of The Respondents According to their Father's Education

n = 900
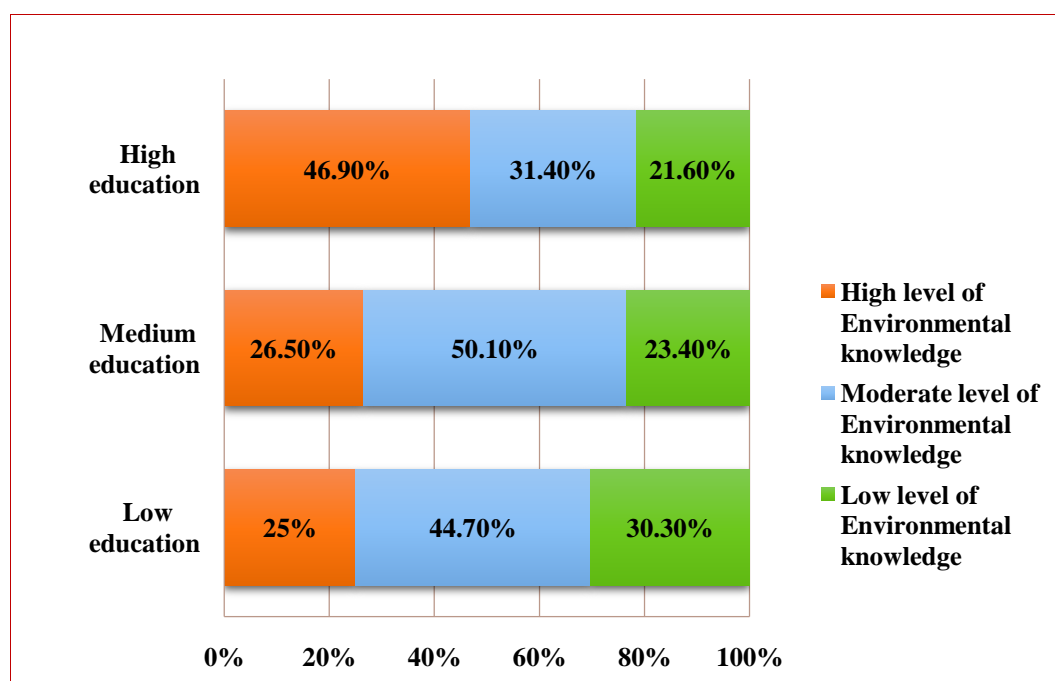
Table 44 reveals that less than three fourth of the respondents whose fathers had high and medium level of education showed high level of environmental values. More than half of the respondents whose fathers had low level of education showed high level of environmental values. Higher percentage of the respondents whose fathers had low level of education showed moderate level of environmental values.

Table 45: Anova of Environmental Values of The Respondents in Relation to their Father's Education.

n = 900

Father's education	Environmental values			F- Value	P- Value
	Mean	**SD**	**No.**		
1. High education	63.49	10.32	439		
2. Medium education	62.15	9.26	385	6.01	0.03
3. Low education	59.32	13.09	76		
Pairs having significant difference: (1,3), (2,3)					

ANOVA result indicated a significant difference in environmental values of the respondents in relation to their father's education (Table 45). Using post - hoc statistics, the following pairs showed significant difference in environmental knowledge in relation to father's education:

- High and low education

- Medium and low education

This means that development of environmental values in the respondents was influenced by the level of their father's education. Hence the null hypothesis is not accepted.

Thus, we can see from tables 39, 41, 43 and 45 that there was a significant difference in environmental knowledge and values of the undergraduate students of the Maharaja Sayajirao University of Baroda in relation to their father as well as mother's education level. Students, whose parental education level was higher, showed higher level of environmental knowledge and values.

It has been shown that mother's education increases the child's performance in school. Maternal education has positive impacts both on cognitive skills and behavioral problems of children, but the latter are more sustained than the former in college also. (Behrman and Rosenzweig, 2002).

Maternal education also reduces the incidences of behavioral problems. They are more likely to invest in their children through books, providing musical instruments, special lessons, or availability of a computer. Even more educated working mothers do help their children in their studies or taking them on outings.

A father's level of education is the strongest factor determining a child's future success at school, according to research. (Adams, 2014)

More educated fathers feel an increased sense of responsibility for the education of their children, and seem for the most part to be concerned that their children improve academically and socially.

When fathers become more involved in their children's school work and school activities, children feel better about themselves. The involvement of fathers, as well as mothers, in their children's schools is important for children's achievement and behaviour". Also, families with high parental involvement in their children's schools are "more likely to visit a library, museum or historical site with their children and are more likely to have high educational expectations for their children" (U.S. Department of Education, 1997).

The influence of a father's involvement on academic achievement extends into adolescence and young adulthood. Numerous studies find that an active and nurturing style of fathering is associated with better verbal skills, intellectual functioning, and academic achievement among adolescents. (Goldstine, H. S. 1982)

Fathers' (higher) commitment to their child's education and their involvement with the school are also associated with children's better behaviour at school, including reduced risk of suspension or expulsion (Goldman, 2005). Such behaviours will be carried with them to college level also.

Parent involvement in their child's education has long been attributed to positive effects in the classroom. Most often, mothers play the largest role in a child's education, but children need support from both parents to reach their academic potential. In fact, a father's involvement in their child's education leads to more learning, better performance in school and healthier behavior. Additionally, students whose father plays an active role in their education typically enjoy school more, have more positive peer relationships and become more responsible adults. (notredme, 2012)

The first institution of a child where he learns is his home. A child passes most of his time with his parents and learns from his parents and the environment provided to him by his parents in home. Parents play a vital role in the education of their child, whatever child's age is, (either he read in college or in school). (studyandexam,2010)

Parents are the first teachers and role models for their children, and therefore have a strong influence on their learning. This impact is stronger during the child's early years but continues throughout their school and college years.(Cole, J, 2011)

It was found that parents with low literacy levels are less likely to help their children with reading and writing; feel less confident in doing so (Williams et al., 2003); are less likely to have children who read for pleasure (Parsons and Bynner, 2007) and are more likely to have children with lower cognitive and language development levels (De Coulon, Meschi and Vignoles, 2008).

Both fathers and mothers, separately and together, impact on their children's environmental knowledge and values. As, more educated parents may be aware of the negative effects of environmental problems, such as air pollution, water pollution and garbage. They must be talking much about such problems with their children, to help the environment and believe it was important to live in harmony with nature. (Peter and Batya, 1998)

Thus, we can say that more educated parents are more likely to encourage their children for importance of following environment friendly practices. They can keep watch or become more involved in their children's school work, activities and behaviors. They may remain linked with their children through discussion about current issues related to environment. Educated parents have the ability to transform resources to achieve intended output. Therefore, this can be the reason for the finding that students with higher parental education were having high environmental knowledge and values.

4.3.8   School Board of Education wise Environmental Knowledge and Environmental Values of The Respondents.

Table 46: Environmental Knowledge of The Respondents according to Their Board of Education in School.

Board of education in school	N	Environmental knowledge (%)		
		High	**Moderate**	**Low**
State Board	750	32.7	42.3	25.1
Central board	150	54.7	32	13.3

Figure 36 : Environmental Knowledge of The Respondents According to Their Board of Education in School
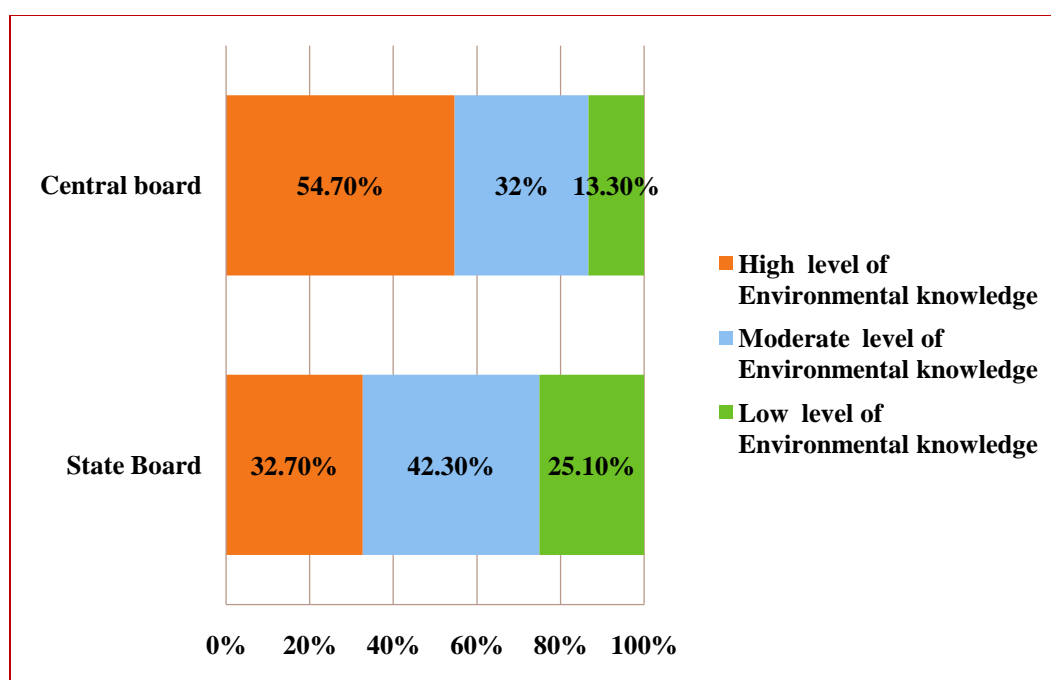
Table 46 reveals that more than half of the respondents from central board school showed high level of environmental knowledge whereas, higher percentage of the respondents who studied in the state board schools showed moderate and low level of environmental knowledge. (Figure 36)

Table 47: T-Test of Environmental Knowledge of The Respondents in Relation to Their Board of Education in School.

n = 900

Board of education in school	Environmental knowledge			t- Value	P- Value
	Mean	**SD**	**No.**		
1.State Board	28.58	11.68	750	8.55	0.01
2. Central board	34.11	10.75	150		

T- test results showed a significant difference in the environmental knowledge of the respondents in relation to their board of education in school (Table 47). This means that board of education in schools made a difference in the building up of the environmental knowledge of the respondents and hence, null hypothesis is not accepted. Mean scores of the environmental knowledge of the respondents studied in central board of education was higher than environmental knowledge of the respondents studied in the state board schools.

Table 48: Level of Environmental Values of The Respondents according to Their Board of Education in School.

Board of education in school	N	Environmental Values (%)	
		High	**Moderate**
State Board	750	69.2	30.8
Central board	150	80.0	20.0

Figure 37: Level of Environmental Values of The Respondents according to Their Board of Education in School.
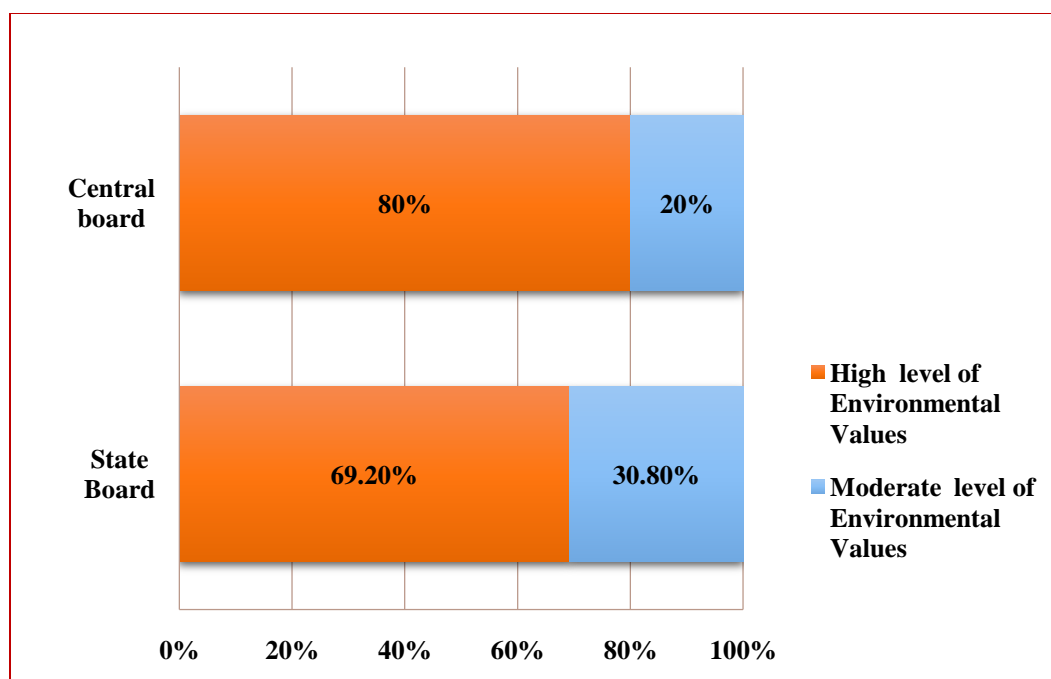
It is revealed from table 48 that the highest percentage of the respondents from Central board i.e. 80 percent showed high level of environmental values followed by nearly seventy percent of the respondents from state board schools. Nearly one third of the respondents from state board schools showed moderate level of environmental values followed by one fifth of the respondents from Central board schools. (Figure 37)

Table 49: T- Test of Environmental Values of The Respondents in Relation to their Board of Education in School.

<div align="right">n = 900</div>

Board of education in school	Environmental values			t- Value	P- Value
	Mean	SD	No.		
1.State Board	62.10	10.27	750	0.27	0.02
2. Central board	64.89	9.58	150		

T- test results showed a significant difference in the environmental values of the respondents in relation to their board of education in school (Table 49). This means that board of education in schools made a difference in the building up of the environmental values in the respondents.

Mean scores of the environmental values of the respondents studied in central board of education was higher than the environmental values of the respondents studied in the state board schools. Hence, null hypothesis is not accepted.

Therefore, it can be drawn from the table 46, 47, 48 and 49 that environmental knowledge and values are influenced by the board of education of the respondents at school level. The students from CBSE schools were having higher level of environmental knowledge and values as compared to the students from the state board schools.

Similar results were found in a study by Balachandran (2013) that the environmental awareness of the Secondary school students on the basis of education at different board showed significant difference. The mean score for awareness of the environment of CBSE board students is greater than state board students. He further discussed that the awareness of environment among the CBSE board students was greater than Maharashtra state board students. Even though the different boards have almost equalized the syllabus it is not exactly the same. The CBSE board has a better designed and comprehensive syllabus of environmental education across all the streams of study, relative to that of the state board and also presence of well trained teachers, improved teaching methodology and project based activities make the students more aware of the environment

The CBSE board schools have recent overhaul of teaching approach and curriculum is content relevant. It is easy to find tutors, books and activities for all classes. The focus is given on Science and Maths as well as application based subjects. Whereas, in state board schools, topics and content is more of local relevance. (School Country, 2011)

CBSE curriculum is geared towards developing student's application skills and problem solving abilities. Once a particular concept is taught, students are tested on the concept using various methodologies. This helps students learn how to apply the concepts in various contexts. Whereas, the general perception is that State Board curriculum promotes rote learning and does not give enough importance to application and critical thinking. (peshaa.com,2015).

Thus, we can say that teaching approaches and curriculum of CBSE schools, is better in imparting environmental knowledge and values to students as compared to the state boards.

This implies the need to revise curriculum of environment education under state boards and look towards a more application based learning approach.

4.3.9   Medium of Instruction in School Wise Environmental Knowledge and Environmental Values of The Respondents.

Table 50: Environmental Knowledge of The Respondents According to Their Medium of Instruction in School

n = 900

Medium of instruction in school	N	Environmental knowledge (%)		
		High	Moderate	Low
Vernacular	572	32.3	42.5	25.2
English	328	43.3	37.2	19.5

Figure 38: Environmental Knowledge of The Respondents According to Their Medium of Instruction in School

n = 900
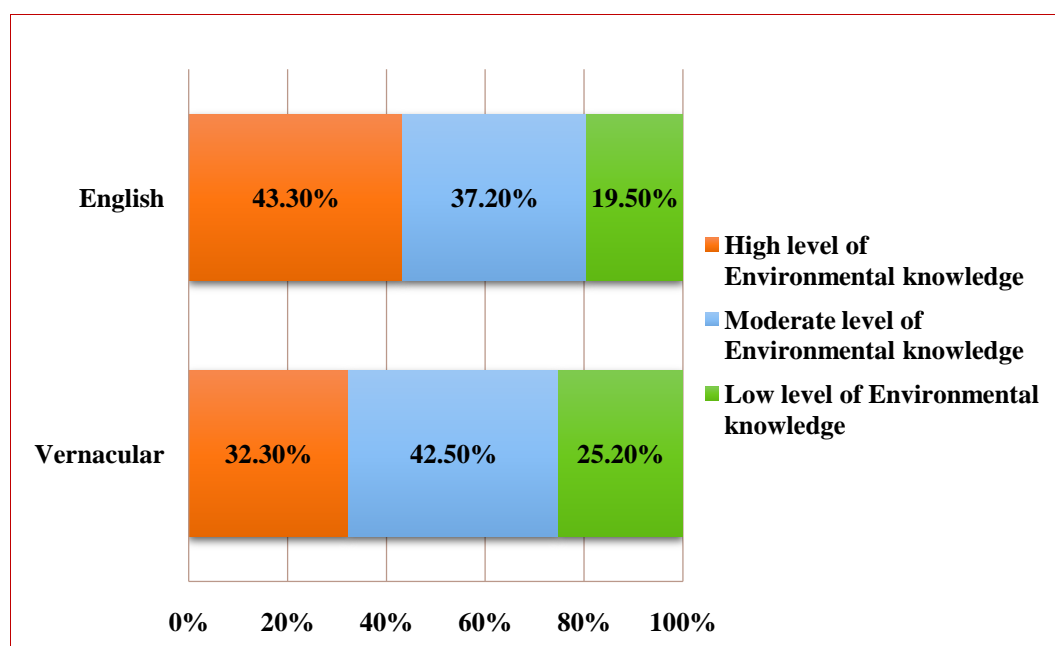
Table 50 indicates that higher percentage of the respondents who studied in English medium at school level showed high level of environmental knowledge as compared to the respondents from vernacular medium. Higher percentage of the respondents who studied in vernacular medium at school level showed moderate level of environmental knowledge as compared to the respondents from English medium. One fifth of the respondents from the English medium showed low level of environmental knowledge (Figure 38)

Table 51: T-Test of Environmental Knowledge of The Respondents in Relation to Their Medium of Instruction in School.

<div align="right">n = 900</div>

Medium of the instruction in school	Environmental knowledge			t-Value	P-Value
	Mean	**SD**	**No.**		
Vernacular	28.19	11.40	572	0.064	0.01
English	31.79	11.89	328		

Table 51 showed a significant difference in the environmental knowledge of the respondents in relation to medium of instruction in school. This means that medium of instruction in school does make a difference in the building up of the environmental knowledge in the respondents. Thus, null hypothesis is not accepted.

Level of environmental knowledge of the respondents from English medium was higher than level of environmental knowledge of the respondents from vernacular medium of instruction in school.

Table 52: Level of Environmental Values of The Respondents According to Their Medium of Instruction in School.

<div align="right">n = 900</div>

Medium of the instruction in school	N	Environmental Values (%)	
		High	**Moderate**
Vernacular	572	68.4	31.6
English	328	75.6	24.4

Figure 39 : Level of Environmental Values of The Respondents According to Their Medium of Instruction in School.

n = 900
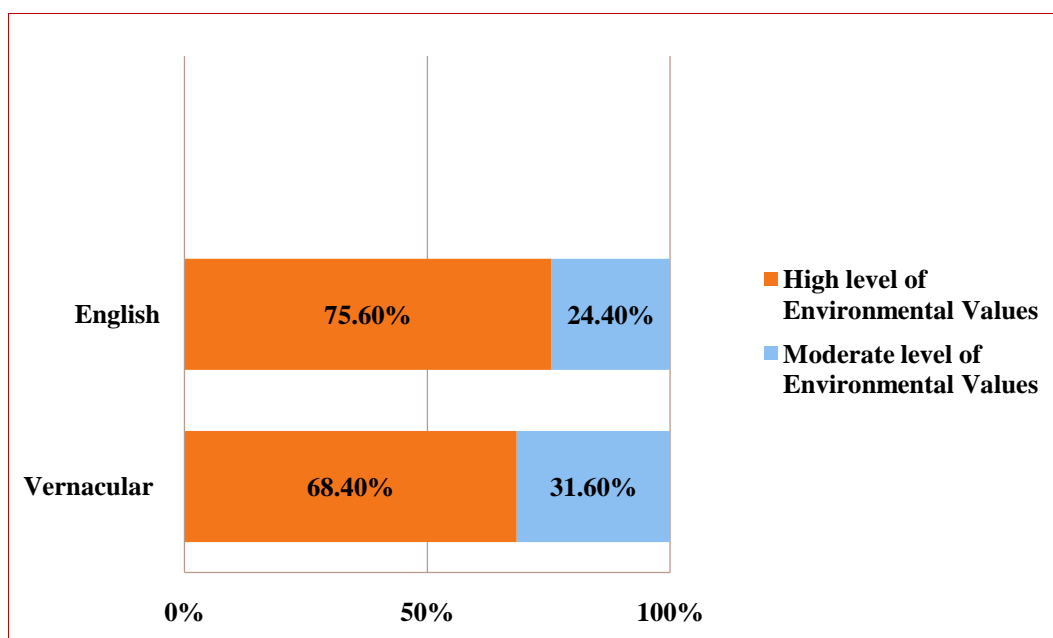
Table 52 reveals that majority of the respondents from English medium showed high level of environmental values followed by the respondents from the vernacular medium. Nearly one third of the respondents from vernacular medium showed moderate level of environmental values followed by one fourth of the respondents from English medium.(Figure 39)

Table 53: T- Test of Environmental Values of The Respondents in Relation to their Medium of Instruction in School.

Medium of the instruction in school	Environmental values			t- Value	P- Value
	Mean	SD	No.		
Vernacular	61.94	10.15	572	0.473	0.01
English	63.65	10.24	328		

Table 53 showed a significant difference in the environmental values of the respondents in relation to their medium of instruction in school. Thus, medium of instruction made a difference in the building up of the environmental values in the respondents. Thus, null hypothesis is not accepted. Level of environmental values of the respondents from English medium was higher than level of environmental values of the respondents from vernacular medium of instruction in school.

Thus, both level of environmental knowledge and values of the respondents from English medium were high as compared to the students from the Vernacular medium of instruction in school. This could be because most of the literature on environment, various global conventions, environment reports, researches, and presentations on environmental issues, discussions and news are found in English. Many international and national seminars and conferences on environment may have carried out in English language only. Therefore, students from English medium showed higher level of environmental knowledge and values as compared to the vernacular medium of instruction in schools. Their competency in English must have helped them grasp the knowledge and information better then the students from vernacular medium. Lot of material related to environment is published in the English as compared to the regional languages.

"Students learning in regional languages about environment do not have the kind of resources they need, as English books. They are not translated into their mother tongue, much of the knowledge related to environment is available only to those who understand English, and initiatives have not come from regional languages for translation". (Deepa, 2006).

Therefore, efforts should be made in the direction of making more literature available on environment in regional languages.

4.3.10 Environmental Knowledge and Environmental Values of The Respondents According to Their Level of Participation in Environment Related Activities in School.

Table 54: Environmental Knowledge of The Respondents According to Their Level of Participation in Environment Related Activities in School.

n = 900

Level of participation in environment related activities in school	N	Environmental knowledge (%)		
		High	**Moderate**	**Low**
More Participation	241	37.0	41.5	21.5
Less Participation	659	34.6	37.9	27.5

Figure 40: Environmental Knowledge of The Respondents According to Their Level of Participation in Environment Related Activities in School.

n = 900
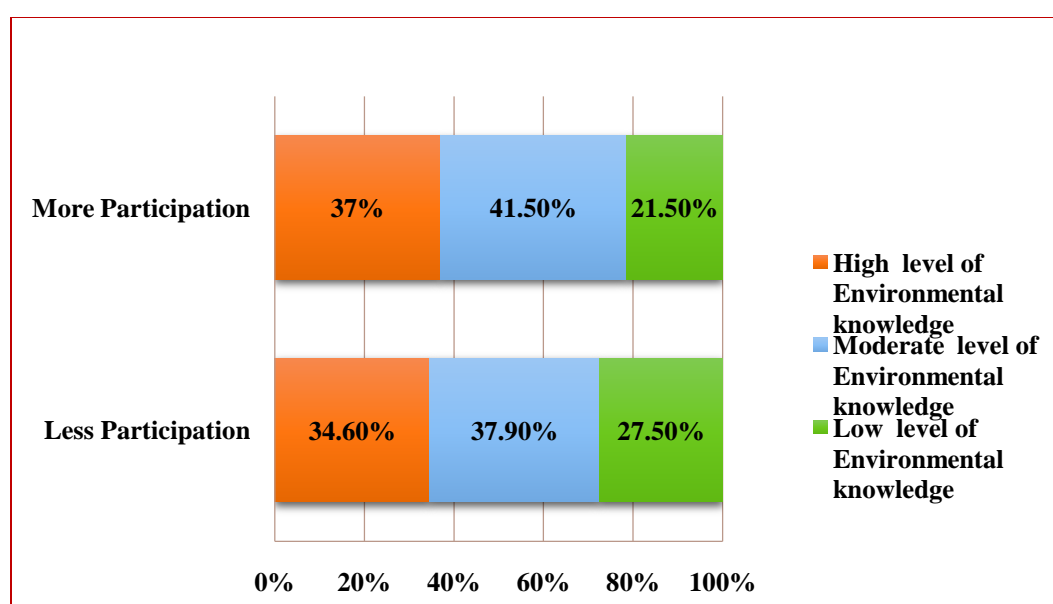
It is revealed from the table 54 that higher percentage of the respondents who participated more and less in environment related activities showed moderate level of environmental knowledge. More than one third of the respondents who participated more and less in environmental activities showed high level of environmental knowledge. More than one fourth of the respondents who participated less in environmental activities showed low level of environmental knowledge. (Figure 40)

196

Table 55: T-Test of Environmental Knowledge of The Respondents in Relation to Their Level of Participation in Environment Related Activities.

<div align="right">

n = 900

</div>

Level of participation in environment related activities in school	Environmental knowledge			t-Value	P-Value
	Mean	**SD**	**No.**		
More Participation	28.64	11.84	241	0.32	0.184
Less Participation	29.82	11.65	659		

T- test results showed no significant difference in the environmental knowledge of the respondents in relation to level of participation in environment related activities. (Table 55) This means that level of participation in environment related activities did not make any difference in the building up of the environmental knowledge in the respondents and hence null hypothesis is accepted.

Table 56: Level of Environmental Values of The Respondents According to Their Level of Participation in Environment Related Activities

n = 900

Level of participation in environment related activities in school	N	Environmental Values (%)	
		High	**Moderate**
More Participation	241	71.8	28.2
Less Participation	659	68.8	31.3

Figure 41 : Level of Environmental Values of The Respondents According to Their Level Of Participation in Environment Related Activities

n = 900
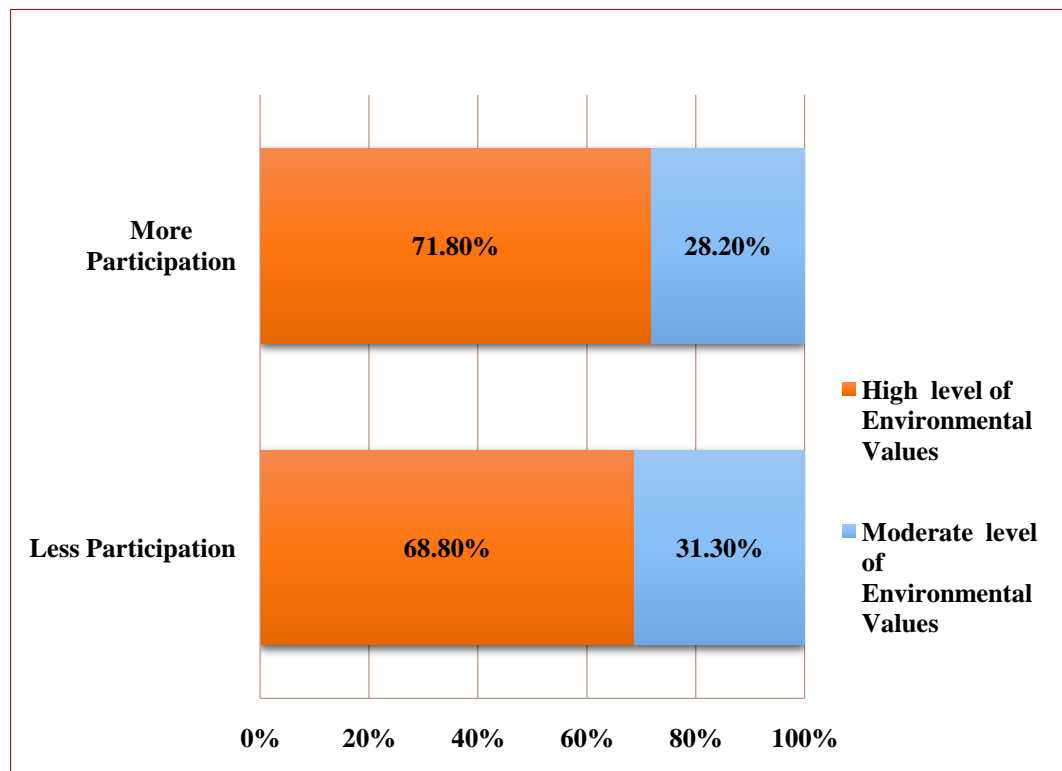
It is revealed from the table 56 that less than three fourth of the respondents who participated more in environmental related activities showed high level of environmental values (71.8%) compared to respondents who participated less in environment related activities (68.8%). (Figure 41)

Table 57: T- Test of Environmental Values of The Respondents in Relation to Their Level of Participation in Environment Related Activities.

<div align="right">n = 900</div>

Level of participation in environment related activities in school	Environmental values			t- Value	P- Value
	Mean	SD	No.		
More Participation	64.26	10.70	241		0.04
Less Participation	62.67	10.03	659	0.498	

T- test results showed a significant difference in the environmental values of the respondents in relation to their participation in environment related activities (Table 57). Environmental values of the respondents who participated more in environment related activities was higher than those who participated less in environment related activities. Therefore this can be said that participation in environment related activities made a difference in the building up of the environmental values in the respondents. Thus, null hypothesis is not accepted.

It was seen that level of participation in environment related activities in school was making difference in the level of environmental values of the students of The Maharaja Sayajirao University of Baroda. (Tables 56 and 57).

Coertjens et al. (2010) found that students who attended schools that organize environmental learning activities, display more pro- environmental values. There is evidence that short term interventions can have educational gains.

Johnson and Monali (2008) showed that children participating in an earth education programme (as compared to a control group) displayed an increase in their environmental attitudes.

Participation in an activity also provides scope on various learning encounters in which the participants have to work for the solution of the problems. Thus, participation in the environmental activities at school level also must have provided them the opportunity to think about the environmental issues and the solutions. Value is formed through interactive activities and participation provides for the interactions.

Value formation is a multifaceted phenomenon which requires multidimensional approach for its formation. Therefore, apart from learning environment education

through the school curriculum and media exposure, the participation in environmental related school activities must have provided for the multidimensional approach in the formation of environmental values of the students.

These justify significant difference in the environmental values of the students in relation to their participation in environment related activities.

4.3.11 Environment as A Subject in School Wise Environmental Knowledge and Environmental Values of The Respondents.

Table 58: Environmental Knowledge of The Respondents According to Their Having Environment as a Subject at School Level.

n = 900

Environment as a subject in school	N	Environmental knowledge (%)		
		High	Moderate	Low
Studied environment as a subject in school	788	37.2	40.2	22.6
Did not studied environment as a subject in school	112	30.4	42.9	26.8

Figure 42 : Environmental Knowledge of The Respondents According to Their Having Environment as a Subject at School Level.

n = 900

200
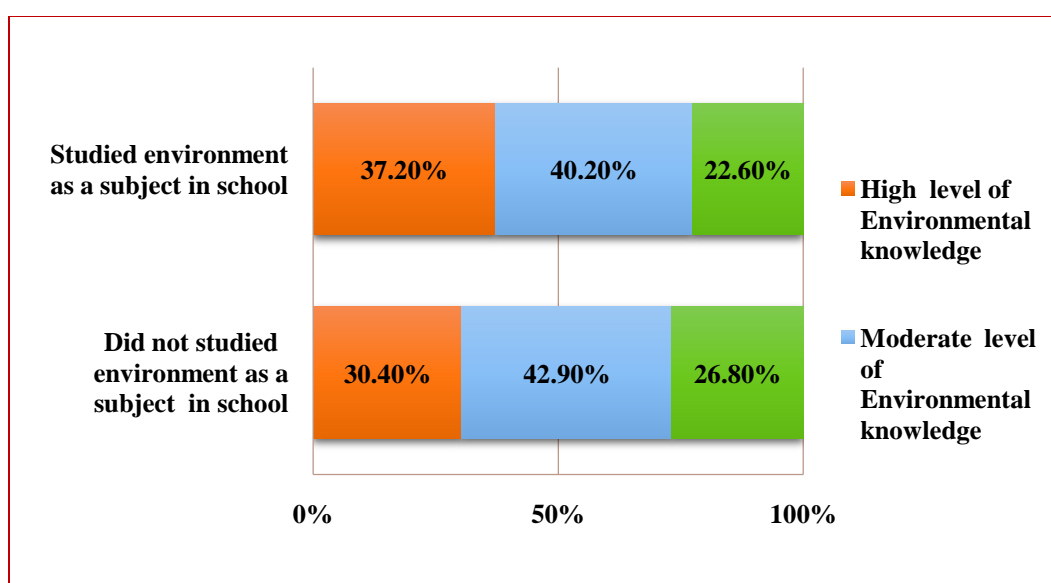
Table 58 reveals that higher percentage of the respondents who studied and who did not studied environment as a subject in school showed moderate level of environmental knowledge. More than one third of the respondents who studied environment as a subject in school showed high level of environmental knowledge followed by little less than one third of those who did not studied environment as a subject in school. Nearly one fourth of the respondents from both the categories showed low level of environmental knowledge. (Figure 42)

Table 59: T-Test of Environmental Knowledge of The Respondents in Relation to Their Having Environment as a Subject in School.

n = 900

Environment as a subject in school	Environmental knowledge			t-Value	P-Value
	Mean	**SD**	**No.**		
1. Studied environment as a subject in school	29.68	11.69	788	0.086	0.22
2. Did not studied environment subject in school	28.22	11.75	112		

T- test results showed no significant difference in the environmental knowledge of the respondents in relation to having environment as a subject in school (Table 59). Hence, null hypothesis is accepted.

Table 60: Level of Environmental Values of The Respondents According to Having Environment As A Subject in School

Environment as a subject in school	N	Environmental Values (%)	
		High	Moderate
Studied environment as a subject in school	788	72.1	27.9
Did not studied environment subject in school	112	63.4	36.6

Figure 43 : Level of Environmental Values of The Respondents According to Having Environment As A Subject in School

n = 900
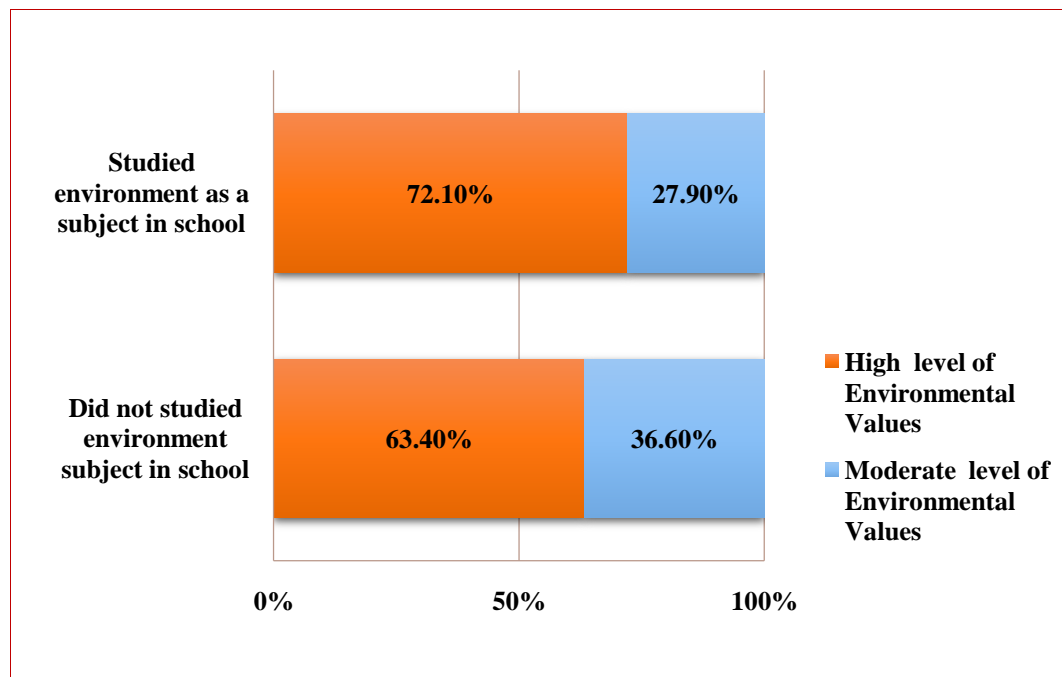
Table 60 indicates that less than three fourth of the respondents who had studied environment as a subject in school showed high level of environmental values followed by the respondents who did not study environment subject in school. (Figure 43)

Table 61: T- Test of Environmental Values of The Respondents in Relation to Their Having Environment As A Subject in School.

n = 900

Environment as a subject in school	Environmental values			t-Value	P-Value
	Mean	**SD**	**No.**		
1. Studied environment as a subject in school	62.93	9.8	788	0.076	0.04
2. Did not studied environment subject in school	59.96	12.4	112		

T- test results showed a significant difference in the environmental values of the respondents in relation to their having environment as a subject in school (Table 61). Environmental values of the respondents who had studied environment as a subject in school was higher than environment values of those who had not studied environment as a subject in schools. Therefore it can be said that studying environment at school level made a difference in the building up of the environmental values in the respondents. Hence, null hypothesis is not accepted.

The findings from the table 58, 60 and 61 reveal that students who had studied environment as a subject in school had higher level of environmental knowledge and values as compared to those who had not studied environment as a subject in school.

Smit et.al (2006) also found that more environment education at school level results in students being more knowledgeable about the environment and displaying higher environmental values.

Krnel and Naglic (2009) studied the differences in environmental literacy between ordinary and eco- schools. They illustrated that the students from eco-schools were found to be more knowledgeable about environmental topics and issues.

The students who have studied environment subject in their schools are more likely to retain the knowledge because they are likely to spend more time in studying and remembering it. This can develop their interest about knowing the environment and hence this can lead to development of values for keeping it safe and healthy. They will understand better the importance of healthy environment in their life if they are specifically taught this subject. Thus students who had studied a variety of topics in relation to environment are more likely to have higher levels of knowledge as compared to those who did not.

4.3.12 Environmental Knowledge and Environmental Values of The Respondents According to Their Level of Mass Media Exposure.

Table 62: Environmental Knowledge of The Respondents According to Their Level of Mass Media Exposure

<div align="right">

n = 900

</div>

Level of mass media exposure	N	Environmental knowledge (%)		
		High	**Moderate**	**Low**
More Exposure	380	37.1	39.5	23.4
Less Exposure	520	35.8	41.3	22.9

Figure 44 : Environmental Knowledge of The Respondents According to Their Level of Mass Media Exposure

<div align="right">

n = 900

</div>
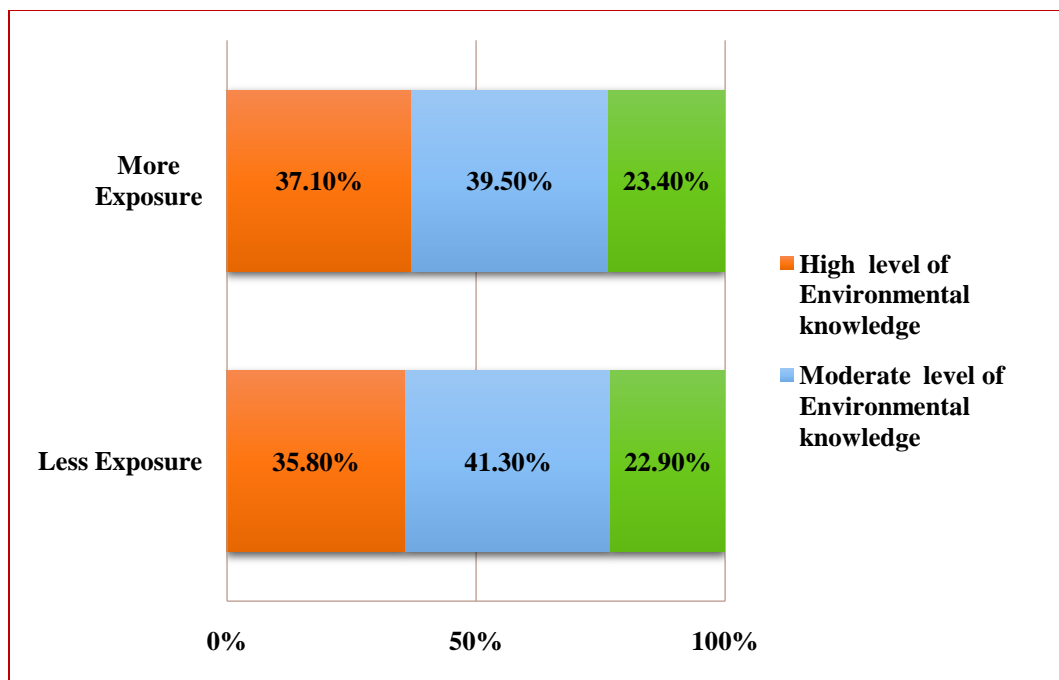
Table 62 reveals that nearly equal percentage of the respondents from both the categories of mass media exposure i.e. more and less exposure showed high, moderate and low level of environmental knowledge. However, higher percentage of the respondents from both the categories showed moderate level of environmental knowledge followed by high and low level of environmental knowledge. (Figure 44)

Table 63: T-Test of Environmental Knowledge of The Respondents in Relation to Their Level of Mass Media Exposure.

<div align="right">

n = 900

</div>

Level of mass media exposure	Environmental knowledge			t- Value	P- Value
	Mean	**SD**	**No.**		
More Exposure	29.51	11.71	380	0.15	0.98
Less Exposure	29.50	11.71	520		

T- test results showed no significant difference in the environmental knowledge of the respondents in relation to their level of mass media exposure (Table 63). This means that level of mass media exposure did not make any difference in the gaining of the environmental knowledge in the respondents. Hence, null hypothesis is accepted.

Table 64: Level of Environmental Values of The Respondents According to Their Level of Mass Media Exposure.

Level of mass media exposure	N	Environmental Values (%)	
		High	**Moderate**
More Exposure	380	72.3	27.7
Less Exposure	520	69.2	30.8

Figure 45 : Level of Environmental Values of The Respondents According to Their Level of Mass Media Exposure.

n = 900
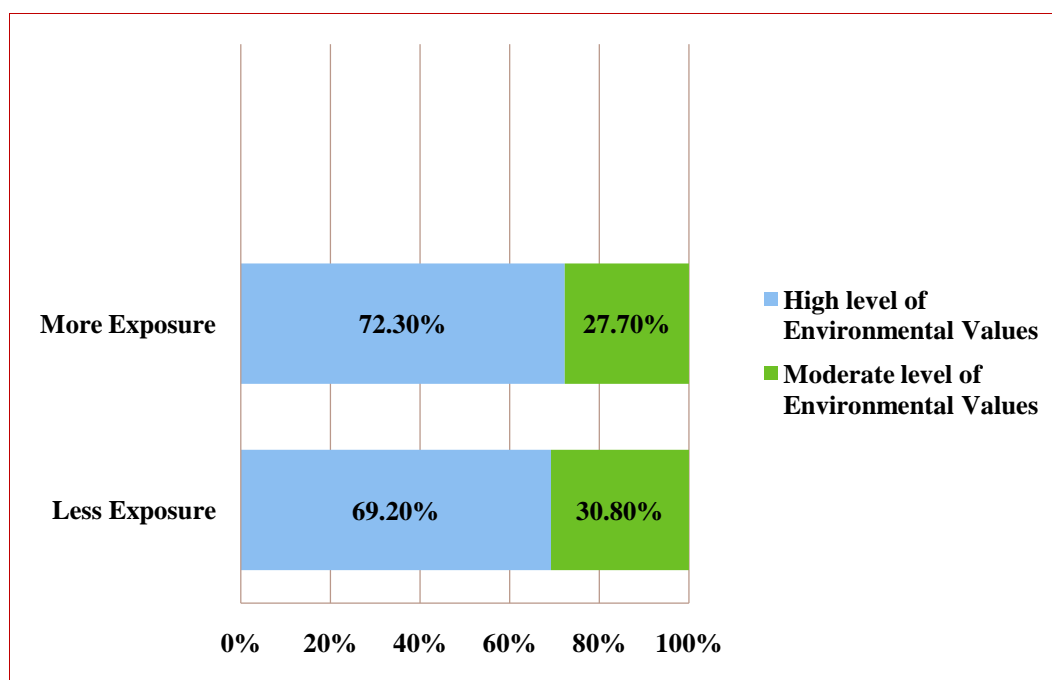
It is reveled from the table 64 nearly equal percentages of the respondents from both the categories of mass media exposure showed high and moderate level of environmental values. However, less than three fourth of the respondents who had more mass media exposure showed high level of environmental values followed by the respondents who had less mass media exposure. (Figure 45)

Table 65: T- Test of Environmental Values of The Respondents in Relation to Their Level of Mass Media Exposure.

<div align="right">n = 900</div>

Level of mass media exposure	Environmental values			t- Value	P- Value
	Mean	SD	No.		
More Exposure	62.90	9.98	380	0.824	0.400
Less Exposure	62.32	10.37	520		

T- test results showed no significant difference in the environmental values of the respondents in relation to their level of mass media exposure (Table 65). Therefore it can be interpreted that level of mass media exposure made a difference in the building up of the environmental values in the respondents. Hence, null hypothesis is accepted.

It can be seen from the tables 62, 63, 64 and 65 that there was no significant difference in the environmental knowledge and values of the respondents in relation to their level of mass media exposure.

Mass media have to reach out widely to the large, heterogeneous audience. Therefore, there content focuses more on the general information or issues rather than the specific once. They limit more to providing general knowledge as compared to the scientific and technical knowledge.

Commercialization of various forms of mass media might conflict with the priority of interest and may fail to fulfill the original, noble goal of the mass media. The environmental messages in the mass media are more of general nature than being region or locality specific or depending on the specific priorities of local environmental needs. Thus, communicating for the change, mass media have to set explicit communication objectives with specific information and inputs.

One of the challenges in the realm of environmental sustainability is to keep traditional attitudes and values alive by strengthening the link between environmental conservation and the conservation of cultural heritage. The media, on the contrary, could prove to be fatal to environmental consciousness by successfully obliterating the harmonious link that exists between nature and culture. (Bhutan:2020, 1999).

Growing concern in pollution problems gave rise to intensive coverage of the media, but the environment issues have been expanding in an ever more complex way. Stories about the risks associated with ongoing environmental public policy debates or particular individual-level environmental behaviors receive substantially less coverage. Generally, the media's regard of environmental issues is rather dramatic and often negative way. Environmental issues seem to offer their own questioning of technological achievement, and mostly involve non-success stories for a particular problem. Several studies have found that journalists tend to cover specific, dramatic environmental events, most often those with negative consequences (Holbert et al., 2003)

Many advocate that, while media can be adapted to play a positive role, it has not been exploited to the fullest extent in developing countries. It is crucial to exercise appropriate discretion in the use of mass media, so that mass media resurrect and supports, and does not destroy culture and value undergoing rapid modernization.

Mass media cover many environmental related issues on the specific days and campaigns are carried out by the government but these messages are helpful in creating short term awareness only and do not leave a long term impact on people.

It requires more focused coverage to bring about the change in the knowledge and value system of the people which is not possible through mass media.

Impact of mass media on audience knowledge is influenced by such factors as the extent to which the content is appealing, the degree to which information channels are accessible and desirable and the amount of social conflict and diversity in the community. In addition to media influences, current social, educational, political and technological environment also affect the individual's knowledge and development of values systems. (Mcdermott and Albrecht, 2002).

Media education is not formalized in India. Therefore, the messages covered by mass media, are not understood and assimilated in a same manner. Lack of media education system in India also minimizes the effective contribution of mass media. Thus it can be implied that there is a need for specific messages approach with the substantial use of mass media in educating people about the environment.

Thus, it may be the reason that environmental knowledge and values of the students were not found influenced by the mass media exposure.

4.3.13 Environmental Knowledge and Environmental Values of The Respondents According to Their Level of Civic Responsibility.

Table 66: Level of Environmental Knowledge of The Respondents According to Their Level of Civic Responsibility

n = 900

Level of civic responsibility	N	Environmental knowledge (%)		
		High	Moderate	Low
Highly Responsible	738	35.8	41.2	23.5
Moderately Responsible	162	38.9	37.7	23

Figure 46: Level of Environmental Knowledge of The Respondents According to Their Level of Civic Responsibility

n = 900
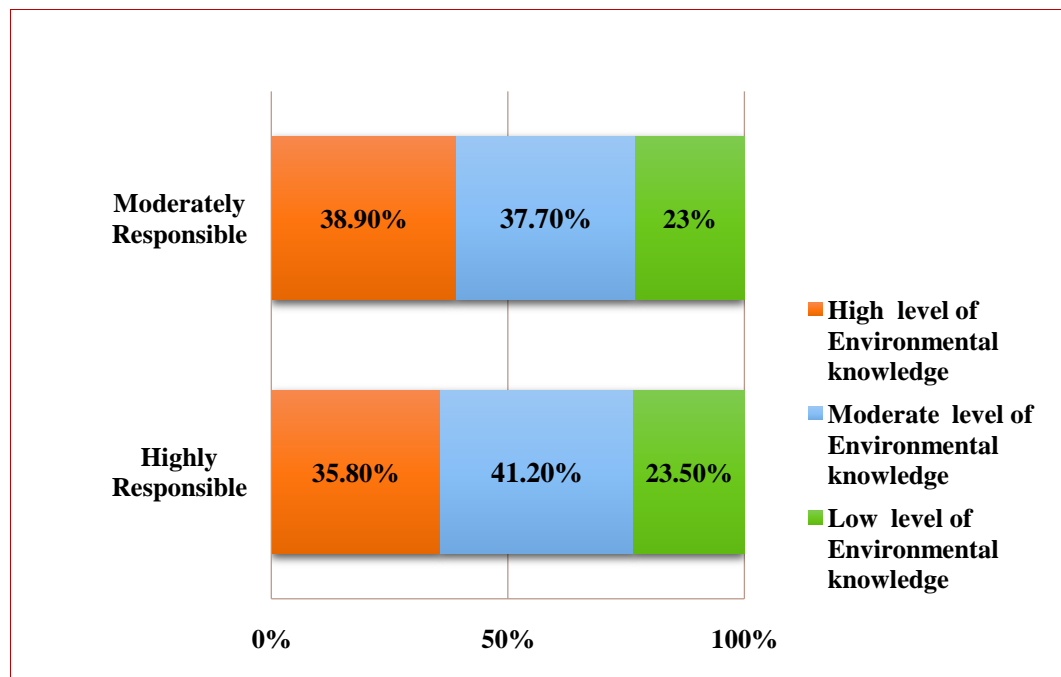
Table 66 reveals that nearly equal percentage of the respondents from high and moderate level of civic responsibility showed high, moderate and low level of environmental knowledge. However, higher percentage of the respondents who had high level of civic responsibility showed moderate level of environmental knowledge and higher percentage of the respondents who moderate level of civic responsibility had showed high level of environmental knowledge. (Figure 46)

Table 67: T-Test of Environmental Knowledge of The Respondents in Relation to Their Level of Civic Responsibility.

<div align="right">

n = 900

</div>

Level of civic responsibility	Environmental knowledge			t- Value	P- Value
	Mean	**SD**	**No.**		
Highly Responsible	29.54	11.70	738	0.034	0.82
Moderately Responsible	29.32	11.74	162		

T- test results showed no significant difference in the environmental knowledge of the respondents in relation to level of civic responsibility (Table 67). Therefore it can be interpreted that level of civic responsibility in respondents did not make any difference in their building up of the environmental knowledge. Hence, the null hypothesis is accepted.

Table 68: Level of Environmental Values of The Respondents According to Their Level of Civic Responsibility.

Level of civic responsibility	N	Environmental Values (%)	
		High	**Moderate**
Highly Responsible	738	72.8	29.4
Moderately Responsible	162	70.6	27.2

Figure 47: Level of Environmental Values of The Respondents According to Their Level of Civic Responsibility.
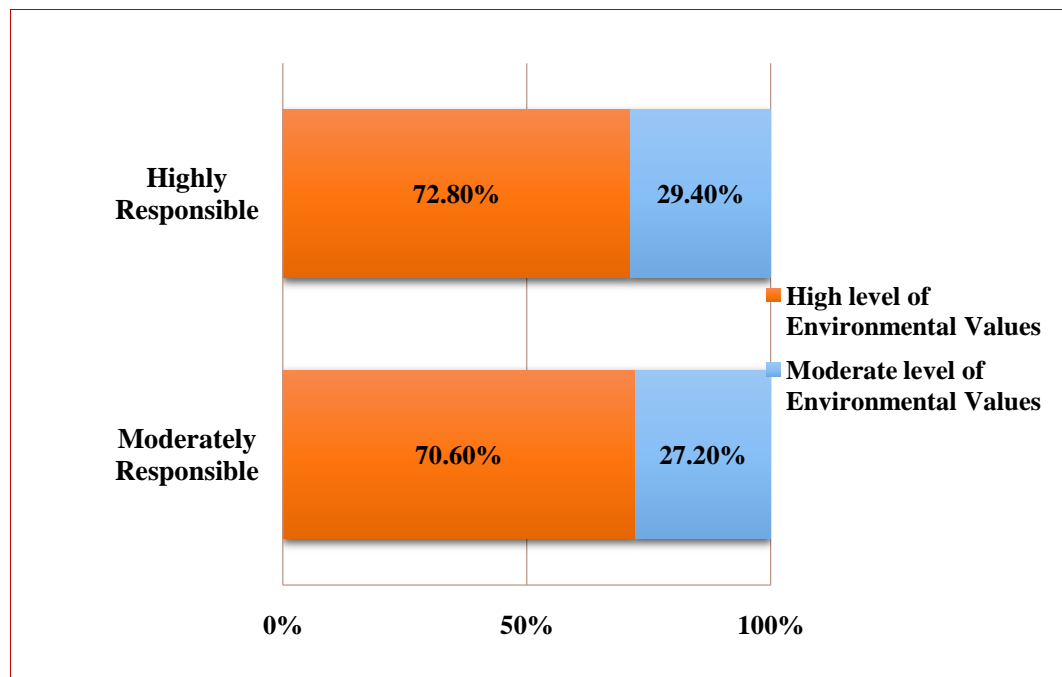
Table 68 indicates that nearly equal number of the respondents from both the categories of civic responsibility showed high and moderate level of environmental values. However, less than three fourth of the respondents who had high civic responsibility showed high level of environmental values (72.8%) followed by respondents who had moderate level of civic responsibility (70.6%). (Figure 47)

Table 69: T- Test of Environmental Values of The Respondents in Relation to Their Level of Civic Responsibility.

<div align="right">n = 900</div>

Level of civic responsibility	Environmental values			t- Value	P- Value
	Mean	SD	No.		
Highly Responsible	62.56	10.27	738	1.02	0.97
Moderately Responsible	62.59	9.96	162		

T- test results showed no significant difference in the environmental values of the respondents in relation to level of civic responsibility (Table 69). Therefore this can be said that level of civic responsibility in respondents did not make any difference in their building up of the environmental values and hence null hypothesis is accepted.

It can be seen from the tables 66, 67, 68 and 69 that level of civic responsibility does not make any difference in the level of environmental knowledge and values. It can also be seen from the table 7 and 9 that high majority of the respondents showed high level of civic responsibility as well as high level of environmental values. It means that the students who showed high level of civic responsibility also showed high level of environmental values.

Responsible citizen takes informed judgment for their actions. So this includes the abilities to recognize the moral and civic dimensions of issues and to take a stand on those issues.

This also includes skill that apply to the broader areas of thought and behavior such as abilities to communicate clearly, to collect, organize and analyze information, to think critically and to see issues in the broader perspective.

The upbringing process in the families is an important factor in making youth responsible citizens, the civic attitude and sense of responsibility towards the environment. Family upbringing contributes to the building of civic attitude and sense of responsibility towards environment. Moreover, today civic education is a part of social studies subject in the schools, which helps in the formation of knowledge based civic responsibility and developing civic competencies.

Social environment is a very complex concept that includes the individual`s relationships with parents, peers, school, community and country. Undoubtedly, the development of child's personality is mainly formed by the upbringing in the family. Young people's attitude towards civic engagement is formed by the observing of parents' attitude which leads to the formation of a habit.

Civic responsible students recognize how their individual behaviors affect environment. They have the knowledge, skills, and confidence to act on their own about what should be done to maintain an economically and ecologically sustainable environment. They will recognize that their habits, practices and participation in environment friendly activities can lead to resolution of environmental challenges. (Sundar, 2007)

All these factors must have contributed to the high majority of the respondents showing high level of civic responsibility.

The findings related to the variable "participation in environment related activities" also showed that those who participated more, showed high values and hence high civic responsibility.

4.4   Correlation between Environmental Knowledge and Environmental Values.

Table 70: Correlations between Environmental Knowledge and Environmental Values of The Respondents.

n = 900

		Environment Knowledge	Environment Value
Environment Knowledge	Pearson Correlation	1	.60[**]
	Sig. (2-tailed)		.001
	N	900	900
Environment Value	Pearson Correlation	.60[**]	1
	Sig. (2-tailed)	.001	
	N	900	900
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation coefficient was calculated between the environmental knowledge and environmental values of the respondents. Table 70 shows that there was found a positive and high correlation coefficient between environmental knowledge and environmental values, which mean that high environmental knowledge results in high environmental values.

An explanation might be found in the common perception among educators that, when it comes to the environment, telling someone to behave in a certain way, and also giving reasonable and understandable explanations, will cause a change in that person's values and behaviors. In other words, inculcating environmental behavior is possible, and it can be best done by providing students with necessary knowledge on the subject relevant to the behavior in question (Krnel & Naglic, 2009).

Factual knowledge can be seen as a precondition of any value and, thus, the relationship between factual knowledge and behavior is mediated by values (Kaiser, Wolfing and Fuhrer, 1999).

Hence, it can be said that to inculcate high environmental values in the undergraduate students, their level of environmental knowledge should be raised. .

4.5 Item Wise Findings

Table 71: Intensity Indices Showing Item Wise Participation of The Respondents in Environment Related Activities at School Level.

n = 900

Level of participation	Environment related activities	II
Overall		**0.24**
Performance/ participation in competitions		**0.32**
More (0 -0.5)	Making Best out of Waste	0.36
	Poster Printing Competitions	0.31
	Participation in Painting Competitions, Drama/Plays on Environment Issues	0.28
Gardening and farming/outdoor		**0.30**
More (0.51 – 1)	Plantation`	**0.57**
Less (0 -0.5)	Growing Plants and Flowers	0.46
	Gardening and Farming	0.20
	Collect Roots of Plants and Flowers	0.17
	Terrace Gardening	0.11
Social awareness activities		**0.23**
More (0.51 – 1)	Cleanliness Campaign in School	**0.51**
Less (0 -0.5)	Rallies on Environmental Issues	.30
	Exhibitions, Displays and Projects on Environment Issues	.23
	Campaign for Plastic Free School	.18
	Awareness Programs for Radiation Free School	.09
	Training in Compositing and Vermiculture	.06
Recreational / field visits		**0.22**
Less (0 -0.5)	Going to Zoo	.33
	Going to Garden and Parks	.23
	Observation of Growth of the Plants	.12
Extra curricular		**0.15**
Less (0 -0.5)	Learning about Rain and other season	.28
	Making Scrapbook on Environmental related Issues	.15
	Writing Stories and Poems on Environment	.13
	Contribute writing in Newspapers and School Magazines	.10
	Bringing out Newspapers and Documentaries	.09

It can be seen from the table 71 that intensity indices for participation in environmental activities was overall less (0.24). It can be interpreted that there was overall less participation in environment related activities among students at their school level.

The activities in which students showed more participation were:

- Plantation, and

- Cleanliness campaigns in school.

Whereas, students showed less participation in all other activities.

Looking at the type of activities, overall it was found that performance based activities like Poster Printing Competitions, Making Best out of Waste, etc. showed highest participation level followed by outdoor activities, Social awareness activities and Recreational / field visits.

Extracurricular activities showed lowest intensity indices which means respondents least participated in activities like Making Scrapbook on Environmental related Issues, etc.

It can be interpreted from this finding that the activities like poster making competitions, best out of waste and plays and drama on environment concerns may be common at school level and students participate in it with more interest. Performing well in these activities gives them recognition at school level and they get praises. So this could be reason that these activities showed overall more participation.

Gardening and outdoor activities like plantation, different types of gardening and collecting roots of plants and flower are not very often organized at school level. These activities need more efforts by school authorities as well as by students.

Social awareness activities like organizing cleanliness campaigns rallies, exhibitions etc need more organized and disciplined efforts. It also requires time and manpower to lead to carry out these activities. So, this can be reason for these activities showed low intensity indices scores overall.

Students showed less participation field visits to zoo and going to parks and gardens can be due to the reason that these days' children like more to visit to the game zones and malls than going to zoos for entertainment purpose.

Extracurricular activities like making scrapbook, writing stories and poems, making documentaries on environment showed lowest intensity indices score. The reason may be that these activities require deep thinking and understanding about the environment.

Thus, we can say that there is need of doing more efforts at higher level by school authorities keeping environment issues at utmost priority. Higher the level of activities carried out by schools, better will be the impact on students mind and they will receive more knowledge and there will be development of values for environment.

Table 72: Intensity Indices Showing Item Wise Extent of Civic Responsibility Among Students

Level of responsibility	Civic Responsibility	II
Overall		1.53
Statements based on Social Responsibility		**1.59**
More responsible (1.32- 2)	Considering whole country family.	1.86
	Respecting women.	1.83
	Taking responsibility to help improve the community.	1.80
	Not urinating in public places.	1.76
	Having a personal attachment with community	1.73
	Taking responsibility of helping other people.	1.66
	Being aware of the important needs of the community.	1.64
	Participating in social causes in order to improve community such as participating in Clean India Campaign.	1.61
	Planting new trees.	1.61
	Encouraging others to provide service to the community.	1.53
	Being aware of what can be done to meet the important needs of the community.	1.53
	Participating in activities that help to improve the community, even if new to them.	1.53
	Understanding how political policies or issues affect members in the community.	1.45
	Finding time or way to make a positive difference in the community.	1.38
	Being actively involved in issues that positively affect the community.	1.33
Moderate responsible (0.66-1.32)	Donating blood whenever blood donation camps are held.	1.27

Statements based on Obeying fundamental duties		1.52
More responsible **(1.32- 2)**	Not damaging the historical monuments.	1.83
	Standing up in attention, holding head high while national anthem is on.	1.73
	Saluting and respecting each and every person who struggled for freedom of our country.	1.72
	Respecting all the religions.	1.71
	Not smoking in public places.	1.70
	Spitting and throwing garbage on roads if not finding dustbin in approach.	1.69
	Obeying the laws and rules.	1.66
Moderate responsible (0.66-1.32)	It is meaningless to go to the home town for voting when in another city.	1.04
Less responsible (0-0.66)	Safeguarding the public property is government responsibility.	.61
Statements based on Believing, thinking and showing concern for community		1.46
More responsible **(1.32- 2)**	Believing that any conduct which seeks to damage unity of our country is punishable.	1.81
	Thinking and discussing about social issues that affect the community like corruption.	1.76
	Thinking and discussing about national issues that affect the community like education in our country.	1.72
	Thinking and discussing about local issues like sanitation and hygiene that affect the community.	1.70
	Thinking and discussing about political issues that affect the community like how different political parties are working towards development of country.	1.53
	Feeling a personal obligation to contribute in some way to the community.	1.50
	Benefiting emotionally from contributing to the community, even if it is hard and challenging work.	1.45

	Feeling of having the power to make a difference in the community	1.44
	Feeling that becoming involved in political or social issues is a good way to improve the community.	1.39
Moderate responsible (0.66-1.32)	Believing that I can personally make a difference in the community.	1.31
	Believing in influencing the community decisions	1.17
	Thinking that corruption is unavoidable and integral to our life.	.79

It can be seen from table 72 that overall respondent's showed more civic responsibility (II=1.53). Among civic responsibility statements, social responsibility of respondents showed highest II followed by obeying the fundamental duties and believing, thinking and showing concern for the community.

- Among social responsibility component of civic responsibility, respondents showed more responsibility for almost all the statements which means that students were socially aware and knowing their responsibilities towards their community and country.

    They acted in the same way also. This can be due to the reason that these days' mass media is so much engaged in making people aware them about their social responsibilities and in making them good human being. The knowledge for being socially responsible is shown by spread by social media like Facebook and Watsapp, Twitter also. They are introduced in many forms like advertisement, pictures, cartoons so that they directly influence mind of people and they start feel for the betterment of the community.

- Respondents showed moderately civic responsible for donating blood whenever camps are held which meant that there was little hesitation in blood donation which can be due to fear of injection or other reasons like lesser trust on way of utilization of blood.

- Among statements showing obeying of fundamental duties, respondents showed more responsibility towards almost all the statements which showed respect for the nation except for the statement.

- Respondents were moderately responsible for statement "It is meaningless to go to the home town for voting when in another city".

- Respondents showed low responsibility for the statement "Safeguarding the public property is government responsibility". But as it is a negative statement, it can be interpreted that respondents believed that safeguarding the public property is not only government's responsibility but their own also.

- Among the statements showing Beliefs, thinking and concern for the community, respondents showed more responsibility for the statements showing positive thinking and beliefs for the community. For three statements, respondents were found moderately responsible.

Table 73: Intensity Indices Showing Item Wise Extent of Environmental Knowledge Among Students

n = 900

Level of Environmental knowledge	Environmental knowledge statements	II
Overall		**0.55**
	Statements based on Application of knowledge	**0.61**
High (0.51 – 1)	Improving air quality, conserving water, and harboring wildlife are the benefits of growing trees.	0.73
	Using polythene bags is not eco friendly practice.	0.72
	Iron rod is not used for biogas production.	0.68
	Using jute bags, recycling waste material and using bicycle are all eco friendly practices.	0.66
	Light bulb is not energy saving device.	0.59
	Using pesticides and fertilizers is not a method of organic farming	0.52

	Rain water harvesting means collecting and storing rain water for direct use	0.52
Low (0 -0.5)	Use of paper leads to more garbage/ Earth pollution and it is made from cutting of trees	0.48
	Statements based on General facts related to environment/ conceptual knowledge	**0.55**
High (0.51 – 1)	Sun is an unlimited source of energy.	0.84
	Paper is made from timber.	0.82
	Petrol and diesel is a limited source of energy	0.81
	Star rating given to the electronic appliances indicates power efficiency of the electronic machine.	0.7
	Prevent soil erosion, maintaining local climatic conditions and supporting the livelihoods of forest dwelling people are functions of forest.	0.69
	Smoke from vehicles, cutting of trees and factory emission, all are reasons for the global warming.	0.69
	Damage to fish and other aquatic animals, destroy of soil fertility and damages to buildings and historic monuments and statues are all effects of acid rain.	0.66
	Deforestation, hunting and pollution are the reasons for extinction of species.	0.62
	Air pollution increases the risk of respiratory and heart diseases	0.62
	Rise in sea level, expansion of subtropical deserts and melting of glaciers are the consequences of global warming	0.6
	Solar energy, wind energy and bio fuel are renewable source of energy.	0.59
	Ceramics, glasses and circuit boards/silicon based materials are examples of non biodegradable material.	0.59
	Paper is a biodegradable material.	0.58
	Global warming means rise in earth temperature due to increasing CO_2 in environment	0.58

	Ozone layer protect us from harmful, cancer-causing sunlight radiations	0.54
Low (0 -0.5)	Nuclear fuel cycle, nuclear fuel processing and medical and industrial waste are the sources of radioactive waste	0.49
	Environmental study is a applied science	0.46
	Cholera, typhoid and hepatitis A are water born diseases.	0.42
	Chlorofluorocarbon (CFCs) uses include refrigerants, blowing agents and propellants in medicinal applications	0.34
	Batteries are considered hazardous waste	0.26
	Surface water running off yards, city streets, paved lots, and farm fields is the most common cause of pollution of streams, rivers, and oceans	0.17
	Aluminum cans is non recyclable.	0.14
	Statements based on Specific facts related to environment/ factual knowledge	**0.51**
High (0.51 – 1)	The three quarter of the earth surface is covered with water.	0.78
	Asiatic lion is the rare animal found only in the Gir forests of Gujarat.	0.76
	World Environment day celebrated on June 5.	0.72
	The percentage of oxygen in air approx. 21 percent.	0.69
	Plants prepare food by the process of photosynthesis	0.67
	Plants are the producers in the ecosystem.	0.65
	Photovoltaic energy is an example of solar energy.	0.63
	Wildlife protection act protects endangered species in India	0.61
	The protective shell of gases over the earth is called atmosphere.	0.6
	Carbon dioxide is a green house gas.	0.6

	Forest, grasslands and desserts are examples of terrestrial ecosystem.	0.59
	The living and non living components of the environment constitute the ecosystem.	0.57
	Animals who live on the producers are called herbivorous	0.53
Low (0 -0.5)	Skin cancer in humans occurs as a consequence of CFC pollution	0.47
	National River Conservation plan was launched in India in 1995.	0.45
	The most famous water bird sanctuary of the world in India is situated in Bharatpur.	0.45
	Ozone and clouds are found in stratosphere layer of atmosphere.	0.43
	A total set of greenhouse gases emission caused by an organization is called carbon footprint.	0.39
	Air pollution control act in India was passed in 1981	0.38
	The Great and the Little Rann of Kutch have been made into sanctuaries to protect the Wild ass, the flamingo and the star tortoise species.	0.35
	Zoos are the ex-situ method of protecting wildlife	0.3
	1 percent of world's water is fresh and only 0.3 percent is liquid	0.26
	As per the Environment Rules, 1999, the permitted noise level is 125 decibel	0.26
	Environmental Protection Agency works to protect the environment	0.25

It was found that statements of environmental knowledge which were based on application of knowledge showed highest overall intensity indices (0.61) followed by overall intensity indices of statements which were based on General facts related to environment or conceptual knowledge (0.55) and then by Specific facts related to environment/ factual knowledge (0.51) . (Table 73). This means that respondent were having highest knowledge about the environment friendly practices which they are supposed to follow like growing trees, using polythene bags etc. followed by general facts related to environment like knowledge about limited natural resources, problems cause due to pollution and global warming and then by specific facts like percentage of oxygen on earth, biodiversity and extinction of wildlife animals etc.

As might be expected, college students recognize environmental problems as real and significant and are knowledgeable about a wide range of local, national and global problems. However, they are more knowledgeable about the practices they should follow to conserve environment rather than the depth of understanding or specific knowledge that lies beneath these high levels of awareness. For example, they are aware that they should conserve natural resources, plant more trees, should not use polyethenes bags as they getting these knowledge time to time from many awareness campaigns run by Government, but they have less knowledge about the biodiversity of world, the ratio of drinking water on earth, which gases are responsible for greenhouse effects, etc.

Thus, there is need of specific knowledge related to environment to be taught to the college students which can lead to the better understanding of reasons behind every action towards environment and hence better values and actions towards environment.

Table 74: Intensity Indices Showing Item Wise Extent of Environmental Values Among Students

n = 900

Level of environmental values	Environmental values statements	II
Overall		**1.37**
	Statements based on the Thinking, belief, likeliness, opinion, concern related to environment (overall)	**(1.42)**
High (1.01- 2)	Thinking that every plant and animal species has value of its own, even if we do not have a human use for it.	1.92
	Liking to live in a clean, healthy and safe environment as it is a human right.	1.90
	Enjoying the nature's beauty and being nearer to nature.	1.83
	Believing that every person must work to solve pollution problems.	1.80
	Liking to grow and care for plants in house.	1.74
	Believing in fixing items that were broken instead of buying new ones.	1.64
	Enjoying a rural environment more than an urban environment.	1.59
	Opine to use CNG gas instead of petrol or Diesel as fuel in my car	1.59
	Concerning about buying food products that are grown with organic manure and not with pesticides or chemicals.	1.57
	Arguing that in general, raising animals in cages should be forbidden.	1.54
	Believing that climate change is real and not a hoax.	1.52

	Does not worrying about polluted water as it can be cleaned up as per our need.	1.31
	Believing that nature takes care of itself, so people need not worry about that.	1.27
	Thinking that there is no reason to get upset about factory pollution	1.23
	Do not liking garden in my house as it is difficult to maintain.	1.22
	Do not considering it urgent for attention if there is a water tap leakage in my house.	1.19
	Does not thinking that there is issue in cleaning forest area for establishing industries.	1.05
	Believing in burning garbage.	1.03
	Believing that people have the right to use the natural resources as they like.	1.01
Low (0-1)	Feeling that unnecessary hype is created against cutting of trees and pollution.	1.00
	Feeling that electricity and water are basic necessities and should be used freely.	.94
	Statements based on the Practices and preference related to environment (Overall)	**(1.31)**
High (1.1-2)	Turning off lights when not required to save electricity.	1.60
	Turning off lights and computers and other appliances when not in use.	1.57
	Using cloth napkins instead of paper.	1.54
	Stopping the engine of my vehicle at red lights of traffic signals.	1.52
	Copying and printing on both sides of the paper	1.52
	Purchasing appliances and office equipments with the Energy Star Label	1.50
	Using plates and utensils instead of disposables	1.49

	Insisting on buying appliances that spend less energy such as CFLs and LEDs	1.49
	Talking with friends about problems related to the environment	1.46
	Using cloth bags to plastic ones for shopping.	1.45
	Working towards the protection of our environment and the preservation of our wild species	1.44
	Preferring use of bicycle instead of other smoke producing two wheeler vehicles.	1.35
	Supporting efforts to create automobile-free inner cities.	1.35
	Cleaning or replacing air filters on my air conditioning unit at least once a month.	1.31
	Using traps instead of rat and mouse poison and insect killers.	1.31
	Collecting papers and polythenes and give it for recycling.	1.29
	Readiness to pay environmental taxes (e.g. raising fuel or automobile taxes)	1.26
	Preferring car/vehicle pooling instead of driving my own vehicle.	1.15
	Preferring to drive smoke producing vehicles only if absolutely necessary (i.e. no other mode of transportation is available)	1.04
Low (0-1)	Putting dead batteries in the regular home garbage.	.83
	Cleaning my vehicle with water pipe.	.73
	Using chemical insecticide for getting rid of insects in apartment.	.67

As shown in table 74, respondents showed high environmental values (II= 1.37). All the items showing low values were negative statements. This shows that respondents showed high environmental values overall.

The value statements were categorized under two sections that are

1.   Thinking, belief, likeliness, opinion, concern regarding   environment and

2.   Practices and preference for saving environment

In the category of statements showing thinking, belief, likeliness, opinion and concern regarding   the environment, following statements showed high knowledge:

- Thinking that every plant and animal species has value of its own, even if we do not have a human use for it.

- Liking to live in a clean, healthy and safe environment as it is a human right.

- Enjoying the nature's beauty and being nearer to nature.

- Believing that every person must work to solve pollution problems.

- Liking to grow and care for plants in house.

- Believing in fixing items that were broken instead of buying new ones.

- Enjoying a rural environment more than an urban environment.

- Opine to use CNG gas instead of petrol or Diesel as fuel in my car

- Concerning about buying food products that are grown with organic manure and not with pesticides or chemicals.

- Arguing that in general, raising animals in cages should be forbidden.

- Believing that climate change is real and not a hoax.

- Does not worrying about polluted water as it can be cleaned up as per our need.

- Believing that nature takes care of itself, so people need not worry about that.

- Thinking that there is no reason to get upset about factory pollution

- Do not liking garden in my house as it is difficult to maintain.

- Do not considering it urgent for attention if there is a water tap leakage in my house.

- Does not thinking that there is issue in cleaning forest area for establishing industries.

- Believing in burning garbage.

- Believing that people have the right to use the natural resources as they like.

And low values were shown for the following statements:

- Feeling that unnecessary hype is created against cutting of trees and pollution.

- Feeling that electricity and water are basic necessities and should be used freely.

It can be seen that few negative statements like believing that climate change is real and not a hoax, does not worrying about polluted water as it can be cleaned up as per our need and so on also showed high values which means that although overall respondents showed high environmental values but somewhere they believe that nature is self sufficient in itself and there is not much efforts needed to save it.

In the category of practices and preference for saving the environment, following statements showed high environmental values:

- Turning off lights when not required to save electricity.

- Turning off lights and computers and other appliances when not in use.

- Using cloth napkins instead of paper.

- Stopping the engine of my vehicle at red lights of traffic signals.

- Copying and printing on both sides of the paper

- Purchasing appliances and office equipments with the Energy Star Label

- Using plates and utensils instead of disposables

- Insisting on buying appliances that spend less energy such as CFLs and LEDs

- Talking with friends about problems related to the environment

- Using cloth bags to plastic ones for shopping.

- Working towards the protection of our environment and the preservation of our wild species

- Preferring use of bicycle instead of other smoke producing two wheeler vehicles.

- Supporting efforts to create automobile-free inner cities.

- Cleaning or replacing air filters on my air conditioning unit at least once a month.

- Using traps instead of rat and mouse poison and insect killers.

- Collecting papers and polythenes and give it for recycling.

- Readiness to pay environmental taxes (e.g. raising fuel or automobile taxes)

- Preferring car/vehicle pooling instead of driving my own vehicle.

- Preferring to drive smoke producing vehicles only if absolutely necessary (i.e. no other mode of transportation is available)

And statements which showed low values were:

- Putting dead batteries in the regular home garbage.

- Cleaning my vehicle with water pipe

- Using chemical insecticide for getting rid of insects in apartment.

It can be seen from the table that overall respondents showed high values for the statements which were showing their thinking, belief, likeliness, opinion, concern regarding   environment (II= 1.42) as compared to the statements which   were showing practices and preference for saving the environment.

The finding is supported by a research that the young people showed ambivalence towards making lifestyle changes and practicing in accord with their high levels of expressed concern for the environment. While the young people in every country expressed a strong desire to improve the environment, few students reported a past record of active environmental citizenship or a willingness to work for environmental protection in the future. Recycling and reusing, choosing household products that are better for the environment, and reducing water consumption were cited as regular activities. Some young people also said that they had taken part in tree planting and clean- up campaigns. However, only a very small minority of young people in any of the countries said that they had written letters, signed petitions, attended meetings or made formal complains. (John, Helen and David, 2003)

Perhaps, it is because the vast majority of students felt that they did not know much about what they could do and did not have faith in social institutions to support their actions. This situation might help explain the ambivalence between the student's high levels of expressed concern and their general lack of willingness to change personal life-styles or take other actions to protect the environment. This gives rise to an important conclusion from the research that school and curricula need to change and a curriculum should be administered in college so that students explore the many possible ways in which current systems can change to support sustainability, in which current lifestyles reflect these systems, and in which their own actions can contribute to a sustainable future. At the very least, a much better understanding of the nature of the problems and their likely solutions might be achieved and, in this way, some of the pessimism and negativity expressed by the young people might be dissipated. (John, 2000)

CONCLUSION :

It can be concluded that overall majority of the undergraduate students of The Maharaja Sayajirao University of Baroda, Vadodara showed moderate level of environmental knowledge and high level of environmental values. This implies that there is scope for strengthening student's knowledge regarding environment and its conservation through strategic efforts so that they become environment conscious and friendly and get actively involved in environment conservation practices. A positive and strong correlation coefficient was found between environmental knowledge and environmental values of the respondents that showed that high environmental knowledge will result in high environmental values. Thus, strengthening knowledge will further enhance the inculcation of strong environmental values

A significant difference was found in the environmental knowledge of the undergraduate students of The Maharaja Sayajirao University of Vadodara in relation to their faculty, medium of instruction in school, board of school education, mother's education, father's education, family type, family size and family income. The environmental values of the respondents were found significant in relation to their, faculty, year of study, medium of instruction, board of education in school, mother's education, father's education, family type, family income, environment as a subject in school and participation in environment related activities.

It can be seen that family and school play a vital role in gaining environmental knowledge and inculcation of environment values among undergraduate students. Thus by creating awareness among parents regarding environment conservation and asking them for teaching their children the value of environment can help in raising level of environment knowledge and inculcating values regarding environment protection among the students. Similarly, all the state school boards should look into their syllabus of environment education in schools and make necessary revisions to make it more extensive and effective for effective learning. The schools should focus on more participative approach in teaching environment education to students. They should organize more activities related to environment conservation at school level.

Thus we can conclude that, there is need to raise level of environmental knowledge of the college/ university students to raise their level of environmental values. Efforts should also be made in the direction of new approach to educate the undergraduate student about environment related problems and issues because the role of students would go a long way in conserving the environment.

A properly planned syllabus and appropriately calculated and executed activities related to environment conservation at school and college level will bring the desired change in the direction of protecting earth. The application of environmental education as a separate discipline in college and organizing various activities in relation to environment at this level may help in managing the environment in near future.

Suggestions and Recommendations:

Universities:

- The UGC has recommended model curriculum and guidelines for teaching environment education at university level; which should be made mandatory for all the universities to include it in their curriculum to nurture conscious and sensitive graduate students toward environment.

- As revealed in the study, the knowledge of the respondents was found to be moderate and values were found to be high. Therefore, it is suggested that knowledge base for environment related issues should be strengthened through curriculum experiences

- Learning experiences in imparting environment education should be selected keeping in mind the background of the students in various faculties.

- Students to be involved in environment conservation promotion activities and more participatory learning methods should be used for teaching environment education so that they can understand better the need to save environment such as school should organize cleaning campaigns and students should participate.

- The course curriculum on environment education should take into consideration local issues related to environment and its social, cultural, economical impact on environment conservation.

- Orientation programs and refresher courses for teachers should include methodology to teach environment education for promotion of environment conservation and sustainable development.

Schools:

- The school curriculum should strengthen knowledge based practices and values formation regarding environment protection and move beyond rallies and competitions in making students environment sensitive.

- All the state boards should look into the course of environment education and suggest the broad strategies for its teaching and evaluation.

- Environment education should have an interdisciplinary approach by including physical, chemical, biological as well as socio-cultural aspects of the environment

Media

- Media needs to highlight day to day based environment conservation practices through social advertising, development journalism and development messages with reinforcement strategies.

- Special programs on environment related issues and challenges need to be taken up to create awareness among people and sensitize them.

Recommendations for Further Research

- A study of environment conservation practices followed by students at school and college levels can be studied to find out the areas of practices related to environment conservation that need to be strengthened through curriculum.

- Similar studies can be carried out in the colleges and universities of India as a basis to standardize the course curriculum on environment education.

- An experimental research on effectiveness of teaching a course developed on "Environment Education" can be carried out to develop models of teaching such a course.

- The variables like year of study, gender, place of residence, mass media exposure, civic responsibility and participation in environment activities at school level can be further studied in relation to environmental knowledge and values to find out any significance.

- The variables like educational achievement of student in school, Intelligence Quotient (IQ), political ideology, etc. can also be studied.

- A study of environmental knowledge and practices related to environment and environmental values in relation to practices related to environment can also be carried to find out the gap between "knowing and doing" and "valuing and doing".