

# **An Analysis of the Environmental Ethics of Undergraduate Students of Mizoram**

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## **Abstract**

The purpose of the study is to determine the level of Environmental Ethics of Under-Graduate Students of Mizoram. This study consisted of 900 sample undergraduate students. The study analyses the environmental ethics of undergraduate students of Mizoram by employing descriptive statistics like mean, standard deviation, ANOVA and inferential statistic i.e., t test. The study revealed that majority of college students in Mizoram had 'High' environmental ethics. Hypothesis of the study no.1 indicates- "There is no significant difference in the environmental ethics of Under-Graduate Students of Mizoram with respect to their gender" and Hypothesis of the study no.2 states that "There is no significant difference in the environmental ethics of Under-Graduate Students with respect to their stream of study" has to be rejected, since the two groups differed significantly at 0.05 and 0.01 level of confidence.

**Key words:** Environment Ethics, Under-Graduate Students, Mizoram, Gender, Stream of Study.

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## **I. Introduction:**

Environment may be defined as conditions or circumstances that surround both living and non-living organisms. Environment not only includes air, land, water and soil it also includes our physical surroundings such as buildings, roads etc. A clean and healthy environment is the most important impact for people's physical and emotional wellbeing. It is also important to meet the people's needs in order to develop. Educational systems today should place a high value on environmental education as it is an essential component for life. In the words of Anne Anastassi (1937), "The environment is everything that affects the life of an individual except his genes".

Environmental Ethics refers to the responsibility to understand the environmental consequences of our consumption, and need to recover our individual and social responsibility to conserve natural resources and protect the earth for future generations. It is man himself who is destroying the environment in many ways. Environmental ethics education should be carried out not only at schools but it should be engaged from family and the community. It should be conducted at all ages, according to their own developmental stage. It should be carried out not only to get knowledge but also to learn skills, develop attitudes and activities to protect the environment. Respecting nature is the first step to living in harmony with it.

## **II. Review of Related Literature:**

**Hmangaihzuai (2015)**<sup>66</sup> conducted a study on "Environmental Ethics among Secondary School Students in Aizawl City, Mizoram" and finds out that –

1. Majority of the secondary school students in Aizawl had high level environmental ethics and female students have significantly higher environmental ethics.
2. Amongst the different environmental pollution majority of secondary school students most wanted to solve the problem of air pollution.

**Mathivanan, K and Dr.G. Pazhanivelu (2013)**<sup>62</sup> made a study on "Environmental Ethics and Participation in Environmental Activities among Higher Secondary Students" and found that

1. The higher secondary students have high environmental ethics.

2. The male and female higher secondary students do not differ significantly with respect to their environmental ethics.
3. The urban and rural higher secondary school students do not differ significantly in their environmental ethics.
4. There is significant difference among the higher secondary students belonging to different type of school management with respect to their environmental ethics.

**Ms. Prerna Mandhyan (2013)**<sup>63</sup> made a study of “Environmental Ethics among Higher Secondary Level Students” and found that –

1. There is no significant difference between environmental ethics of girls and boys.
2. The environmental ethics of commerce students are high in comparison to the art students.
3. The environmental ethics of science students are high in comparison to art students.
4. There is no significant difference between environmental ethics of science and commerce students.

**Raju, G (2007)**<sup>38</sup> studied the “Environmental Ethics of Higher Secondary Students” studying in the schools of Cuddalore district of Tamil Nadu and found that –

1. Environmental ethics of the higher secondary students of Cuddalore district is high.
2. Girls’ students have more environmental ethics than the boy’s students.
3. The communities do not have any influence on the student’s environmental ethics.
4. The types of schools where they happened to study do not have any influence on their environmental ethics.
5. Rural higher secondary students have more environmental ethics than the urban higher secondary students.

**Sundra Selvan (2005)** studied “Environmental Ethics among the Secondary pupils of Gudaloor District” and found that Environmental ethics level is higher in the students from rural than urban region. He also concluded that the girl students possess high level of environmental ethics.

#### **Objectives of the Study:**

1. To find out the level of environmental ethics of undergraduate students of Mizoram.
2. To compare the environmental ethics of undergraduate students of Mizoram with respect to their gender.
3. To compare the environmental ethics of undergraduate students of Mizoram with respect to their stream of study.

#### **Hypothesis:**

1. There is no significant difference in the environmental ethics of undergraduate students of Mizoram with respect to their gender.
2. There is no significant difference in the environmental ethics of undergraduate students of Mizoram with respect to their stream of study.

#### **Methodology:**

The present study is descriptive in nature. Primary data was used to assess the environmental ethics of undergraduate students in Mizoram.

#### **Population:**

The population of the study comprise of all under-graduate students of Mizoram affiliated at Mizoram University.

#### **Sample:**

For the present study, stratified random sampling technique was employed. The sample consisted of 900 students as a representative sample. The final sample size comprised of 450 males and 450 females offering Arts, Science and Commerce of under-graduate students studying in Mizoram.

#### **Tool:**

The following tool was used for the present study

1. Environmental Ethics Scale (EES) (2001) developed by Dr. (Mrs.) Haseen Taj; Professor, Department of Education, Bangalore University, Bengaluru.

**III. Data collection and analysis:**

The objective of the present study includes finding out the level of attitude towards environmental protection of undergraduate students of Mizoram, and to compare the differences with respect to their gender and stream of study. The data relating to the level of environmental ethics were collected by administering the Environmental Ethics Scale (EES).

The responses obtained from the subjects were scored following the standard scoring procedures. The scores were classified, tabulated and analyzed. The analysis of the data was carried out with the help of standard statistical techniques like Mean, Standard Deviation, ANOVA and inferential statistical technique i.e., t-test, keeping in view the objectives of the study and the findings were meaningfully interpreted.

**Data interpretation and discussion:**

**Objective No 1:** To find out the level of environmental ethics of undergraduate students of Mizoram.

In order to find out the environmental ethics of under-graduate students of Mizoram, ‘Environmental Ethics Scale (EES)’ developed by Dr. (Mrs.) Haseen Taj was administered to all the 900 respondents

The following table shows the number and percentage of all respondent’s level of environmental ethics.

**Table no. 1**  
**Level of Environmental Ethics of Under-Graduate Students of Mizoram**

N	Mean	SD	High Ethics	Average Ethics	Low Ethics
900	112.95	14.33	576 (64%)	113 (12.6%)	211 (23.4%)

The above table reveals that out of all 900 respondents, majority 576 (64%) of the student respondents had high environmental ethics, while 113 (12.6%) of the students had average ethics and 211 (23.4%) of the student respondents had low ethics. The Mean score of college students is 112.95 and Standard Deviation is 14.33. Therefore, we can conclude that majority of under-graduate students in Mizoram had a high level of environmental ethics.

**Objective No.2:** To compare the environmental ethics of Under-Graduate Students of Mizoram with respect to their gender.

The students’ levels of environmental ethics were compared on the basis of their gender. For this, the Mean and Standard Deviation of the scores were calculated. The mean differences were tested by applying ‘t’ test and the details are presented in the following tables.

**Difference in environmental ethics with reference to gender.**

Hypothesis No.1 states that “There is no significant difference in the environmental ethics of Under-Graduate Students of Mizoram with respect to their gender”.

Table no.2 shows the comparison of Male and Female respondents with respect to their Environmental Ethics.

**Table no.2**  
**Comparison of Environmental Ethics of Under-Graduate Students of Mizoram with respect to their gender**

Gender	N	High Ethics	Average Ethics	Low Ethics
Male	450	254 (56.4%)	57 (12.7%)	139 (30.9%)
Female	450	322 (71.6%)	56 (12.4%)	72 (16%)

Table no.2 clearly shows that both female and male college students had a high environmental ethics. Among the male students, majority 254 (56.4%) students had high environmental ethics, 57 (12.7%) had average environmental ethics and 139 (30.9%) students had low environmental ethics. Among the female students, 322 (71.6%) had a high environmental ethics, 56 (12.4%) had average environmental ethics and 72 (16%) had low environmental ethics.

Table no.3 shows the calculation of t-test of Male and Female respondents with respect to their Environmental Ethics.

**Table no. 3**  
*Difference in the Environmental Ethics of Under-Graduate Students of Mizoram with reference to their gender*

Gender	N	Mean Value	df	SD	Calculated t - value	Critical value		Significance
						0.05	0.01	
Male	450	109.88	898	15.39	6.59	1.96	2.59	Significant at both 0.05 and 0.01 levels of significance
Female	450	116.01		12.48				

A result of the above table, it reveals that the ‘t’ value for the significance of difference between male and female under-graduate students is 6.59. Since the calculated ‘t’ value is greater than the criterion ‘t’ value at 0.05 and 0.01 level, it can be concluded that there is a significant difference between male and female under-graduate students with respect to environmental ethics. Therefore, the null hypothesis (No.1) that assumes “There is no significant difference in the environmental ethics of Under-Graduate Students of Mizoram with respect to their gender” has to be rejected, since the two groups differed significantly at 0.05 and 0.01 level of confidence. A comparison of their mean scores shows that female students had higher mean score than the male students, therefore it can be concluded that female students had higher level of environmental ethics than the males. This indicates that under-graduate females possess better environmental ethics than their counterparts, the under-graduate males.

**Objective No.3:** To compare the environmental ethics of Under-Graduate Students of Mizoram with respect to their stream of study.

The students’ levels of environmental ethics were compared on the basis of their stream of study. For this, the Mean and Standard Deviation of the scores were calculated. The mean differences were tested by applying ‘t’ test and the details are presented in the following tables.

***Difference in environmental ethics with reference to stream of study.***

Hypothesis No.2 states that “There is no significant difference in the environmental ethics of Under-Graduate Students with respect to their stream of study”.

Table no.4 shows the comparison of Arts, Science and Commerce respondents with respect to their Environmental Ethics.

**Table no. 4**  
**Comparison of Environmental Ethics of Under-Graduate Students of Mizoram with respect to their stream of study**

Stream of Study	N	High Ethics	Average Ethics	Low Ethics
Arts	400	206 (51.5%)	58 (14.5%)	136 (34%)
Science	300	232 (77.3%)	31 (10.4%)	37 (12.3%)
Commerce	200	138 (69%)	24 (12%)	38 (19%)

Looking at table no.4, it can be seen that among the three streams of study, Science students had the best environmental ethics. 232 (77.3%) of them had high environmental ethics, 31 (10.4%) had average environmental ethics and only 37 (12.3%) low environmental ethics. Among the Arts students, 206 (51.5%) had high environmental ethics, 58 (14.5%) had average environmental ethics while 136 (34%) of them had low environmental ethics. Commerce students had the least environmental ethics in comparison with the other two

streams. We can see that 138 (69%) of the Commerce students had high environmental ethics, 24 (12%) had average environmental ethics and 38 (19%) had low environmental ethics.

To test the said hypothesis, ANOVA was employed and the results are shown in table no.5

**Table no.5**  
*Difference in the Environmental Ethics of Under-Graduate Students of Mizoram with reference to their stream of study*

Source of Variation	SS	df	MS	F	P-value	F crit
Between groups	16079.29	2	8039.64	42.77	0	3.005
Within Groups	168600.35	897	187.96			
Total	184679.64	899				

Looking at table no.5 it can be seen that the calculated F value is larger than the critical value of F which means that there is significant difference between the three streams of study in their ethics towards environment. Therefore, further analysis was required to find out where the difference between the three variables was. A t-test was employed to compare two of all three variables separately.

The results of the t-tests are reflected in table no.6

**Table no. 6**  
*Difference in the Environmental Ethics of Arts and Science Under-Graduate Students of Mizoram*

Stream	N	Mean Value	df	SD	Calculated t - value	Critical value		Significance
						0.05	0.01	
Arts	400	108.35	898	15.79	8.96	1.96	2.59	Significant at both 0.05 and 0.01 levels of significance
Science	300	117.71		11.85				

Table no. 6 shows that since the calculated t-value is more than both the critical values at 0.05 and 0.01 levels, there is a significant difference between the environmental ethics of Arts and Science under-graduate students of Mizoram. Therefore, the null hypothesis (No.3) stating “There is no significant difference in the environmental ethics of Under-Graduate Students with respect to their stream of study” has to be rejected. A comparison of the mean scores between Arts and Science students shows that Science students showed a higher Mean value at 117.71 when compared with Arts students who had a Mean value of 108.35. Therefore, it can be concluded that Science students have higher level of environmental ethics when compared with Arts students during the time this research was undertaken.

In order to compare Arts and Commerce students with regards to their environmental ethics, a t-test was performed and the results are shown in table no.7

**Table no. 7**  
*Difference in the Environmental Ethics of Arts and Commerce Under-Graduate Students of Mizoram*

Stream	N	Mean Value	df	SD	Calculated t - value	Critical value		Significance
						0.05	0.01	
Arts	400	108.35	898	15.79	5.82	1.96	2.59	Significant at both 0.05 and 0.01 levels of significance
Commerce	200	114.99		11.66				

Table no.7 shows that the calculated t-value for the significance of difference between Arts and Commerce students is 5.82 which is more than both the critical values at 0.05 and 0.01 levels, this means that there is a significant difference between environmental ethics of Arts and Commerce under-graduate students of

Mizoram. Therefore, the null hypothesis (No.3) stating “There is no significant difference in the environmental ethics of Under-Graduate Students with respect to their stream of study” has to be rejected. A comparison of the mean scores between Arts and Commerce students shows that Commerce students showed a higher Mean value at 114.99 when compared with Arts students who had a Mean value of 108.35. Therefore, it can be concluded that Science students had better level of environmental ethics when compared with Arts students.

In order to compare Science and Commerce students with regards to their environmental ethics, a t-test was performed and the results are shown in table no.8

**Table no. 8**  
***Difference in the Environmental Ethics of Science and Commerce Under-Graduate Students of Mizoram***

Stream	N	Mean Value	df	SD	Calculated t - value	Critical value		Significance
						0.05	0.01	
Science	300	117.71	898	11.85	2.54	1.96	2.59	Significant at 0.05 Not significant at 0.01
Commerce	200	114.99		11.66				

Looking at Table no.8 shows that the t-value of Science and Commerce under-graduate students of Mizoram is 2.54 which is more than the critical value at 0.05 level. This means that there is a significant difference in the ethics of Science and Commerce under-graduate students of Mizoram towards the environment at 0.05 level. The calculated t-value was not significant at 0.01 level and at 0.05 level it was found to be significant. Thus, the null hypothesis (No.3) stating “There is no significant difference in the environmental ethics of Under-Graduate Students with respect to their stream of study” was rejected. Science students had better Mean score of 117.71 in comparison with Commerce students who had a Mean score of 114.99. It can be concluded that there is a significant difference in the environmental ethics of Science and Commerce under-graduate students of Mizoram.

#### **IV. Discussion of Findings:**

The following are the discussions of findings of the present study:

##### **Discussion regarding the Environmental Ethics of Under-Graduate Students of Mizoram.**

The present study found that the majority of under-graduate students had high level of ethics. The similar findings were investigated by Raju, G (2007) when he studied the “Environmental Ethics of Higher Secondary Students” studying in the schools of Cuddalore district of Tamil Nadu and found that environmental ethics of the higher secondary students of Cuddalore district is high.; Mathivanan, K and Dr. G. Pazhanivelu (2013) in their study “Environmental Ethics and Participation in Environmental Activities among Higher Secondary Students” also found that the higher secondary students have high environmental ethics.; Hmangaihzuali (2015) conducted a study on “Environmental Ethics among Secondary School Students in Aizawl City, Mizoram” and finds out that majority of the secondary school students in Aizawl had high level environmental ethics. The topics on environmental studies is incorporated in the schools and as a compulsory paper at 4<sup>th</sup> Semester in the college in Mizoram. Therefore, the probable reason why undergraduate students in Mizoram possessed high environmental ethics could be because the students were influenced by what they learnt in the schools and colleges.

##### **Discussion regarding the comparison of the Environmental Ethics of Under-Graduate Students of Mizoram with reference to their gender.**

By looking at the present study, it was found that there is a significant difference between male and female under-graduate students and by comparing their mean scores, it shows that female students had higher mean score than the male students, therefore it can be concluded that female under-graduate students had a better ethics about the environment than their counterparts i.e., under-graduate males. The finding of the present study also concurred with the findings of Raju, G (2007) when he studied the “Environmental Ethics of Higher Secondary Students” studying in the schools of Cuddalore district of Tamil Nadu. He found out that Girls’ students have more environmental ethics than the boy’s students.; Sundra Selvan (2005) in his study on “Environmental Ethics among the Secondary pupils of Gudaloor District” and found that girl students possess

high level of environmental ethics. Contrary to our findings, Mathivanan, K and G. Pazhanivelu (2013) in their study on “Environmental Ethics and Participation in Environmental Activities among Higher Secondary Students” and Ms. Prerna Mandhyan (2013) on her study of “Environmental Ethics among Higher Secondary Level Students” stated that there is no significant difference in the environmental ethics of male and female school students.; Hmangaihzuai (2015) conducted a study on “Environmental Ethics among Secondary School Students in Aizawl City, Mizoram” and finds out that female students have significantly higher environmental ethics. Hence, the reasons why male under-graduate students have lower environmental ethics than the female students because male students believed that there is no reason why they should fully adhere to the environmental ethics especially if it is not being imposed to them by law. Meanwhile if female under-graduate students consider environmental ethics in terms of care and compassion, there is every reason why female student should have higher environmental ethics than the male under-graduate students. Conceivably, female students will instinctively care for the environment because of their innate characteristics and tendencies which is an inborn trait. Therefore, it is not without a reason that the present study found that female under-graduate students possessed higher environmental ethics compared to the male under-graduate students.

#### **Discussion regarding the comparison of the Environmental Ethics of Under-Graduate Students of Mizoram with reference to their stream of study.**

The findings indicate that among the three streams of study, not surprisingly, science students have the highest ethics compare to its counterparts i.e., students from arts and commerce. The reason for this finding could be that science subject provides with a broad understanding of current environmental issues. The present study also revealed that there is a significant difference between the environmental ethics of Arts, Science and Commerce streams. The finding is supported by the findings of Ms. Prerna Mandhyan (2013) made a study of “Environmental Ethics among Higher Secondary Level Students” and found that the environmental ethics of science students are high in comparison to art students and the environmental ethics of commerce students are high in comparison to the art students and there is no significant difference between environmental ethics of science and commerce students.; Mathivanan, K and Dr.G. Pazhanivelu (2013) in their study on “Environmental Ethics and Participation in Environmental Activities among Higher Secondary Students” and found that there is significant difference among the higher secondary students belonging to different type of school management with respect to their environmental ethics. The finding is contradicting the finding of Raju, G (2007) on his study “Environmental Ethics of Higher Secondary Students” studying in the schools of Cuddalore district of Tamil Nadu and found that the types of schools where they happened to study do not have any influence on their environmental ethics.

From this study, it is clear that similar environmental knowledge/awareness should be impart in Arts, Science and Commerce stream.

#### **V. Conclusion:**

By looking at the present study, it can be concluded that the ethics of under-graduate students of Mizoram was in a positive direction. Majority of the students had high ethics, and these shows that in terms of understanding the environment, students have high grasp towards the environment. Significant difference was found between male and female under-graduate students and by comparing their mean scores, it shows that female students had higher mean score than the male students, therefore it can be concluded that female under-graduate students had a better ethics about the environment than their counterparts i.e., under-graduate males. Among the three streams of study, majority of the students from Arts, Science and Commerce streams students shows that they had high ethics towards the environment. However, there was a significant difference between the three streams of study. An individual itself can also do a lot to protect the environment not only as a group. The indication about environmental knowledge, awareness and positive activities towards environment should be implemented more in the institution, and real action should be taken to protect the environment.

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