# NATURALISTIC INTELLIGENCE AND ENVIRONMENTAL AWARENESS AMONG HIGHER EDUCATION STUDENTS

Basanti Mahanta<sup>1</sup>, Dr. Bijan Sarkar<sup>2</sup>
Research Scholar<sup>1</sup>, Professor<sup>2</sup>
Department of Education, University of Kalyani,
Nadia, West Bengal, India

**Abstract:** This study aims to find out the status of Naturalistic Intelligence and Environmental Awareness among Higher Education Students with special reference to Stream, Gender, and Locality, and to observe the relationship between Naturalistic Intelligence and Environmental Awareness in Higher Education students with special reference to Stream, Gender, and Locality, as well as to study the opinions of Higher Education Students about the relationship between Humans and the Environment. The target was higher level students because students in colleges or universities are an important part of responses to reduce environmental problems and bear profound responsibilities to increase awareness to create an environmentally sustainable future. The study's methodology is Quasi- mixed method (quantitative and qualitative). 450 students were selected from different courses and streams of various departments using purposive sampling techniques. Here, the researcher collected data using a self-developed questionnaire with 61 items verified by the expert. For data analysis, the researcher used both Descriptive and Inferential statistics. The researcher concluded that there is a statistically significant difference between Male-Female toward Naturalistic Intelligence. Similarly, there is a statistically significant difference between Arts-Science towards Environmental Awareness. The relationship between Naturalistic Intelligence and Environmental Awareness of Higher Education students is significant with special reference to Stream, Gender, and Locality. Opinions of higher education students towards the relationship between humans and the environment are- Humans and the Environment are interdependent, interrelated, and complement each other, Environmental protection is necessary, Trees should be planted, Trees provide the daily necessities like food, livelihood, honey, wood, flower, fruit, medicine, furniture, shelter, etc.

**Keywords:** Naturalistic Intelligence (NI), Environmental Awareness (EA), Higher Education Students (HES)

### **INTRODUCTION**

According to Howard Gardner's theory of multiple intelligences, naturalistic intelligence is the capacity to comprehend, value, and engage productively with the natural world. This intelligence revolves around a person's environmental sensitivity, which includes a deep understanding of the complex relationships found in the natural world. Gardner presented naturalistic intelligence as one of the many unique ways people can succeed and exhibit their cognitive abilities. In essence, individuals with high naturalistic intelligence exhibit a profound connection with the elements of the natural world. They possess a heightened capacity to observe, classify, and comprehend the various components of their surroundings, such as plants, animals, and ecosystems. This intelligence extends beyond mere observation, involving an ability to discern patterns, recognize environmental changes, and appreciate the delicate balance within ecosystems.

A vital component of modern society as we address the many issues brought forth by a changing planet is environmental awareness. It entails an awareness of the complex interrelationships that exist between human activity and the environment, highlighting the necessity of sustainable and responsible behaviors to protect the planet and its inhabitants. Environmental awareness needs to be promoted immediately because of the increasing concerns about pollution, depletion of resources, biodiversity loss, climate change, and pollution in recent times. This consciousness goes beyond personal behavior and includes a shared comprehension of how our decisions affect the world. It motivates us to change to more ecologically friendly lifestyles by getting us to think about our consumption habits, waste production, and overall ecological footprint. To foster environmental awareness, education is essential. There is a growing trend among communities, schools, and organizations to integrate environmental education into their outreach programs and curricula. The goal of this educational strategy is to equip people with the information and abilities necessary to make wise decisions that support a sustainable future.

Those with high naturalistic intelligence might find employment in biology, ecology, environmental science, or related disciplines. Their professional decisions may also increase their awareness of the environment and encourage them to participate in conservation initiatives. Naturalistic intelligence and environmental awareness are mutually beneficial. A stronger grasp of environmental issues and a stronger dedication to environmental stewardship can be fostered by naturalistic intelligence, which is linked to enhanced sensitivity, observational abilities, and a connection to nature.

#### REVIEW OF RELATED LITERATURE

The Researcher works on two variables. The related works in India and abroad are described below-

# **Studies in India**

Jose, J. & Lakshmi, A. (2021) studied "Naturalistic Intelligence and Proactive Environmental behaviour among secondary school Students." The objectives of the study were to find out the level of Naturalistic Intelligence and proactive behaviour among Secondary School Students and to find out the relationship between Naturalistic Intelligence and Proactive Environmental Behaviour among Secondary School Students. The normative Survey Method was adopted for the study. A sample of 100 Secondary School Students was selected. Statistical techniques used-Descriptive statistics, Test of significant difference between means (t-test), and Pearson's product-moment of Correlation. The data analysis revealed that Most of the levels of Naturalistic Intelligence and environmental Behaviour among secondary school students are moderate. Male students have high Naturalistic Intelligence compared to female students there is no significant difference between urban and rural students in their Naturalistic Intelligence. Male students have high Proactive Environmental Behaviour.

Srinivasan, R. & Borkar, U. (2021) considered "A study of pro-environmental Behaviour as a component of Naturalistic intelligence amongst in-service school teachers". Objectives of the present study are to study the impact of the Learning Package on Pro-Environmental Behaviour as a component of Naturalistic intelligence of in-service teachers based on gender and to study the impact of the Learning Package on the Pro-Environmental Behaviour as a component of Naturalistic intelligence of in-service teachers is based on age. The research design is composed of two randomly assigned groups i.e. Experimental and Control, which are pre-tested before the implementation of treatment in the experimental group. A Stratified random sampling method was employed to select 4 English medium private schools. The researcher used mean, median, mode, standard deviation, Skewness, and kurtosis for the descriptive analysis of the data and t-test and one-way ANOVA for the inferential analysis of the data. Among students' gender does play a role in Pro-Environmental behaviour. Female teachers are more aware than male teachers of Pro-Environmental behaviour. Age does play a role in acquiring knowledge, skills, and attitudes for Pro-Environmental behaviour.

#### **Studies in Abroad:**

Ningrum, Z. Soesil, T. B. & Herdiansyah, H. (2018) studied "Naturalistic Intelligence and Environmental Awareness among Graduate Students". This study aimed to analyse the relationship between naturalistic intelligence with environmental awareness among graduate students at the University of Indonesia. In this study, naturalistic intelligence is the independent variable while environmental awareness is the dependent variable. The students who were selected randomly will be given a questionnaire as a research instrument. Afterward, a correlation analysis was conducted with the Spearman test. The analysis shows a strong and significant correlation between naturalistic intelligence and environmental awareness among graduate students. students who are interested in flora and fauna, understand environmental problems, enjoy outdoor activities, have scientific hobbies, and are concerned about the change of environment will also have a high awareness of the environment. The naturalistic intelligence of the students also develops a positive attitude toward the environment and directs the students to have pro-environmental behaviour.

Hartika, D. Diana, S. & Wulan, R. (2019) conducted on "Relationship between naturalist intelligence with environmental attitude". This study aimed to describe the relationship between naturalist intelligence and environmental attitude among junior high school students in Bandar Lampung. This study was descriptive with a correlation study. The sample was determined by purposive sampling techniques with 210 students. Data were analysed descriptively and using a simple linear regression method. The result of this research shows that there is a positive and significant relationship between naturalist intelligence and

student's environmental attitude. If naturalist intelligence is high, then environmental attitude will be higher and vice versa. If naturalist intelligence is low, then environmental attitude will be lower. Naturalist intelligence and environmental attitude should be mutually supportive because someone with an environmental attitude will take environmental preservation actions.

#### **OBJECTIVES OF THE STUDY**

The researcher has formulated the following objectives:

- 1. To find out the status of Naturalistic Intelligence of Higher Education Students with special reference to Stream, Gender, and Locality.
- 2. To find out the status of the Environmental Awareness of Higher Education Students with special reference to Stream, Gender, and Locality.
- 3. To find out the relationship between Naturalistic Intelligence and Environmental Awareness of Higher Education students with special reference to Stream, Gender, and Locality.
- 4. To study the opinions of Higher Education Students about the relationship between Humans and the Environment

### RESEARCH QUESTION

The researcher has formulated the following research question:

What would be the difference of dimensions among different strata of the sample?

#### HYPOTHESES OF THE STUDY

Based on the Research objectives, the Researcher has formulated the following hypotheses-

H<sub>01</sub>: There is no significant difference in the mean scores of Naturalistic Intelligence between Arts and Science students

H<sub>02</sub>: There is no significant difference in the mean scores of Naturalistic Intelligence between Male and Female students

H<sub>03</sub>: There is no significant difference in the mean scores of Naturalistic Intelligence between Rural and Urban students

H<sub>04</sub>: There is no significant difference in the mean scores of Environmental Awareness between Arts and Science students

H<sub>05</sub>: There is no significant difference in the mean scores of Environmental Awareness between Male and Female students

**H**<sub>06</sub>: There is no significant difference in the mean scores of Environmental Awareness between Rural and Urban students

H<sub>07</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Arts students

H<sub>08</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Science students

H<sub>00</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Male Students

 $\mathbf{H}_{010}$ : There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Female students

H<sub>011</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Rural students

H<sub>012</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Urban students

## **METHODOLOGY**

The Researcher followed the Descriptive Survey Method for conducting the study. The important constructions of the study were:

- Variable: The researcher considered two main variables- Naturalistic Intelligence and environmental Awareness, and three Categorical Variables- Streams (Arts, Science), Gender (Male, Female), and Location (Urban, Rural).
- **Sample:** 450 students were selected from different courses and different streams of various departments using purposive sampling techniques.
- **Tools used:** The researcher used two instruments to measure the variables in the current study. The researcher created the scales, and an expert person standardized them. They were as follows:

- ✓ Naturalistic Intelligence Scale
- ✓ Environmental Awareness Scale
- Statistics used in the study: Following data collection and scoring, the researcher analysed the hypotheses using a variety of statistical techniques. The current study made use of the following statistical data.
  - ➤ **Descriptive Statistics:** The mean, median, mode, standard deviation (SD), skewness (Sk), and kurtosis (Ku) were the first descriptive statistics that the researcher determined.
  - ➤ Inferential Statistics: The researcher employed correlation and the "t"-test as two forms of inferential statistics in the current study.

#### ANALYSIS AND INTERPRETATION

Following the gathering and evaluation of data, the following descriptive statistics were computed: Mean, Median, Mode, Standard Deviation (SD), Skewness (Sk), and Kurtosis (Ku). The researcher then computed various descriptive statistics to confirm the nature of the score distribution. Next, the researcher employed "t" and "r," or inferential statistics. Below is a thorough explanation of the statistics used in the research.

<u>Analysis Based on Descriptive Statistics:</u> To perform the study, the researcher gathered data from various sampling areas and evaluated the distribution's normality to determine whether to continue investigating this topic. The researcher employed descriptive statistics for this purpose.

Table No -1
Descriptive Statistics of Naturalistic Intelligence

CATEGORY	NO OF	MEAN	MEDIAN	MODE	SD	SK	KU
	SAMPLES						
ARTS	281	75.29	76	76	5.34	-0.450	0.395
SCIENCE	169	75.25	76	76	5.44	-0.219	0.112
MALE	133	74.28	75	76	6.19	-0.324	-0.290
FEMALE	317	75.66	76	76	4.92	-0.249	0.443
RURAL	304	75.58	76	76	5.28	-0.425	0.462
URBAN	146	74.55	75	76	5.40	-0.293	0.010

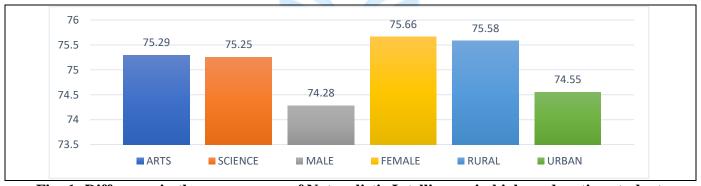


Fig. 1: Difference in the mean scores of Naturalistic Intelligence in higher education student

From this table and graph, it was observed the highest mean of Naturalistic Intelligence belonged to Female students and the lowest mean belonged to Male students in the Nadia district. The calculated skewness value was measured, so it is concluded that almost all distributions have the features of normality. It was observed from this table that the calculated kurtosis value of Naturalistic Intelligence and its related strata was nearest to 0.263 (the ku value of the NPC). So, the graph of the distribution must be, most of all strata of Naturalistic Intelligence and own self, slightly platykurtic except Science, and Urban in distribution.

Table No- 2

Descriptive	Statistics	of Environmental	Awareness
Descriptive	Dunishes	or Environmental	11 wai ciicss

CATEGORY	NO OF	MEAN	MEDIAN	MODE	SD	SK	KU
	SAMPLES						
ARTS	281	17.61	17	17	3.70	-0.202	-0.240
SCIENCE	169	20.72	21	22	3.52	-0.576	0.384
MALE	133	19.09	20	22	4.30	-0.549	-0.213
FEMALE	317	18.62	19	20	3.77	-0.135	-0.275
RURAL	304	18.35	18	22	3.97	-0.253	-0.491
URBAN	146	19.59	20	19	3.71	-0.273	0.285

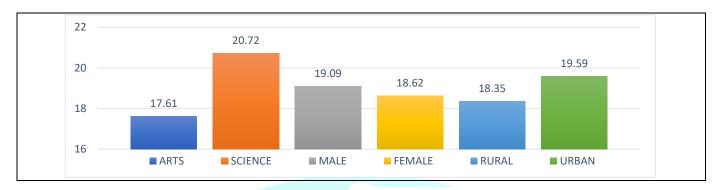


Fig- 2: Difference in the mean scores of Environmental Awareness in Higher Education Students From this table and graph, it was observed the highest mean of Environmental Awareness belonged to Science students and the lowest mean belonged to Arts students in the Nadia district. The calculated skewness value was measured, so it is concluded that almost all distributions have the features of normality. It was observed from this table that the calculated kurtosis value of Environmental Awareness and its related strata was nearest to 0.263 (the ku value of the NPC). So, the graph of the distribution must be, most of all strata of Environmental Awareness and own self, slightly platykurtic except Arts and Males in distribution.

### **Analysis Based on Inferential Statistics:**

Objective- 1, 2, And 3: Here Researcher analysed objectives 1, 2, and 3 by following hypotheses-

H<sub>01</sub>: There is no significant difference in mean scores of Naturalistic Intelligence between Arts and Science students

Table No- 3

Difference in the mean scores of Naturalistic Intelligence between Science and Arts students

CAT	NU	MEA	SD	df	t	
EGO	MB	N			valu	75.20
RY	ER				e	75.29
ART	281	75.29	5.33	440	0.02	75.28 75.27
SCIE NCE	169	75.27	5.43	448	0.03	75.26 ARTS SCIENCE

**Not Significant** 

Fig- 4: Difference in mean scores of Naturalistic Intelligence between Science and Arts students

In the above table, the calculated value was found to be not significant, therefore, the corresponding null hypothesis  $(H_0)$  was accepted. As such, it could be inferred that there is no significant difference in the mean scores of Naturalistic Intelligence between Arts and Science students. Researcher concluded that Arts and Science students are equally attached to naturalistic intelligence.

H<sub>02</sub>: There is no significant difference in the mean scores of Naturalistic Intelligence between Male and Female students

Table No- 4
Difference in the mean scores of Naturalistic Intelligence between Male and Female students

CAT EGO RY	NU MB ER	MEA N	SD	df	t value	76 75.5		
MAL E	133	74.36	6.23			75 74.5		
FEM ALE	317	75.67	4.91	448	2.37*	74 73.5 —	MALE	FEMALE

\* Significant at 0.05 level

Fig- 5: Difference in the mean scores of Naturalistic Intelligence between Male and Female Students

In the above table, the calculated value was found to be significant, therefore, the corresponding null hypothesis  $(H_0)$  was rejected. As such, it could be inferred that there is a significant difference in the mean scores of Naturalistic Intelligence between Male and Female students. Researcher concluded that female students are more attached to naturalistic intelligence than male students.

H<sub>03</sub>: There is no significant difference in the mean scores of Naturalistic Intelligence between Rural and Urban students

Table No- 5
Difference in the mean scores of Naturalistic Intelligence between Rural and Urban students

CAT	NU	MEA	SD	df	t	
EGO	MB	N			value	
RY	ER					75.62
RUR						75.6
AL	304	75.62	5.32			75.58
				448	1.95	75.56
URB AN	146	75.57	5.39		JI	75.54 RURAL URBAN

**Not Significant** 

Fig- 6: difference in the mean scores of Naturalistic Intelligence between Rural and Urban Students

In the above table, the calculated value was found to not be significant, therefore, the corresponding null hypothesis  $(H_0)$  was accepted. As such, it could be inferred that there is no significant difference in the mean scores of Naturalistic Intelligence between Rural and Urban students. Researcher concluded that rural and urban students are equally attached to naturalistic intelligence.

H<sub>04</sub>: There is no significant difference in the mean scores of Environmental Awareness between Arts and Science students

Table No.- 6
Difference in the mean scores of Environmental Awareness between Arts and Science students

CAT EGO RY	NUM BER	MEA N	SD	df	t value	21
ART S	281	17.60	3.71	448	8.87*	20 19 18
SCIE NCE	169	20.75	3.54	1 440	*	17 16 ARTS SCIENCE

\*\*Significant at 0.01 level

Fig- 9: difference in the mean scores of Environmental Awareness between Arts and Science Students

In the above table, the calculated value was found to be significant, therefore, the corresponding null hypothesis (H<sub>0</sub>) was rejected. As such, it could be inferred that there is a significant difference in the mean scores of Environmental Awareness between Arts and Science students. Researcher concluded that Science students are more aware of Environmental Awareness than Arts students.

H<sub>05</sub>: There is no significant difference in the mean scores of Environmental Awareness between Male and Female students

Table No- 7
Difference in the mean scores of Environmental Awareness between Male and Female students

CAT	NUM	MEA	SD	df	t	
<b>EGO</b>	BER	N			valu	
RY					e	19.2
MAL						19
$\mathbf{E}$	133	19.12	4.29			18.8
				448	1.17	18.6
FEM ALE	317	18.64	3.79			18.4 MALE FEMALE

**Not Significant** 

Fig- 10: Difference in the mean scores of Environmental Awareness between Male and Female students

In the above table, the calculated value was found to be not significant, therefore, the corresponding null hypothesis  $(H_0)$  was accepted. As such, it could be inferred that there is no significant difference in the mean scores of Environmental Awareness between Male and

Female students. The researcher concluded that male and female students are equally aware of Environmental Awareness.

H<sub>06</sub>: There is no significant difference in the mean scores of Environmental Awareness between Rural and Urban students

Table No- 8
Difference in the mean scores of Environmental Awareness between Rural and Urban students

CAT EGO	NU MB	MEA N	SD	df	t value	
RY	ER	·				20
RUR						19.5
AL	304	18.37	3.98			19
				448	3.22*	18.5
URB AN	146	19.64	3.75	770	*	18 17.5 RURAL URBAN

\*\*Significant at 0.01 level

Fig- 11: Difference in the mean scores of Environmental Awareness between Rural and Urban students

In the above table, the calculated value was found to be significant, therefore, the corresponding null hypothesis  $(H_0)$  was rejected. As such, it could be inferred that there is a significant difference in the mean scores of Environmental Awareness between Rural and Urban students. Researcher concluded that urban students are more aware of Environmental Awareness than rural students.

H<sub>07</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Arts students

Table No - 9

Relationship Between Naturalistic Intelligence and Environmental Awareness of Arts Students

VARIABLES	GROUP	NO OF	"r" Value	P Value
		STUDENTS		
NI	ARTS	281	0.1359	.022695*
EA		281		

\*Significant at 0.05 level

In the above table, the correlation was found to be significant, therefore, the corresponding null hypothesis was rejected, the researcher concluded that there is a significant relationship between Naturalistic Intelligence and Environmental Awareness of Arts Students.

# H<sub>08</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Science students

Table No-10

# Relationship Between Naturalistic Intelligence and Environmental Awareness of Science Students

VARIABLES	GROUP	NO OF STUDENTS	"r" Value	P Value
NI	SCIENCE	169	0.2510	.000996**
EA		169		

\*\*Significance at 0.01 level

In the above table, the correlation was found to be significant, therefore, the corresponding null hypothesis was rejected, the researcher concluded that there is a significant relationship between Naturalistic Intelligence and Environmental Awareness of Science Students.

H<sub>09</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Male Students

Table No– 11

Relationship Between Naturalistic Intelligence and Environmental Awareness of Male Students

VARIABLES	GROUP	NO OF STUDENTS	"r" Value	P Value
NI	MALE	133	0.2251	.009188**
EA		133		

\*\*Significant at 0.01 level

In the above table, the correlation was found to be significant, therefore, the corresponding null hypothesis was rejected, the researcher concluded that there is a significant relationship between Naturalistic Intelligence and Environmental Awareness of Male Students.

# $H_{010}$ : There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Female students

Table No-12

Relationship Between Naturalistic Intelligence and Environmental Awareness of Female Students

VARIABLES	GROUP	NO OF STUDENTS	"r" Value	P Value
NI	FEMALE	317	0.1390	.013246*
EA		317	1//	

\*Significant at 0.05 level

In the above table, the correlation was found to be significant, therefore, the correspondent null hypothesis was rejected, and the researcher concluded that there is a significant relationship between Naturalistic Intelligence and Environmental Awareness of Female Students.

# H<sub>011</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Rural students

Table No-13

Relationship Between Naturalistic Intelligence and Environmental Awareness of Rural Students

VARIABLES	GROUP	NO OF STUDENTS	"r" Value	P Value
NI	RURAL	304	0.1475	.010017*
EA		304		

\*Significant at 0.05 level

In the above table, the correlation was found to be significant, therefore, the correspondent null hypothesis was rejected, and the researcher concluded that there is a significant relationship between Naturalistic Intelligence and Environmental Awareness of Rural Students.

# H<sub>012</sub>: There is no significant relationship between Naturalistic Intelligence and Environmental Awareness of Urban students

Table No-14

Relationship Between Naturalistic Intelligence and Environmental Awareness of Urban Students

VARIABLES	GROUP	NO OF	"r" Value	P Value
		STUDENTS		
NI	URBAN	146	0.2522	.002134**
EA		146		

\*\*Significant at 0.01 level

In the above table, the correlation was found to be significant, therefore, the corresponding null hypothesis was rejected, the researcher concluded that there is a significant relationship between Naturalistic Intelligence and Environmental Awareness of Urban Students.

# <u>OBJECTIVE</u> 4: To study the opinions of Higher Education Students about the relationship between Humans and the Environment

For this objective, the researcher constructed an open-ended question in a questionnaire. Students of higher education explained the issue in different ways. The researcher coded the reply and then framed themes and finally analysed them.

Table No-15

CODE	THEME	NO OF RESPONSES	PERCEN TAGES
C1	Human and the Environment are interdependent	342	(%) 82.40
C2	Environmental protection is necessary	116	27.95
С3	Trees provide the daily necessities (food, livelihood, flower, fruit, medicine, furniture, shelter)	114	27.46
C4	Humans damage the environment (deforestation, global warming, Environmental pollution)	113	27.22
C5	Trees give off oxygen and take in carbon dioxide	96	23.13
<b>C6</b>	Balance the environment	77	18.55
C7	Trees should be planted	73	17.59
C8	Environmental Awareness	64	15.42
С9	Humans are social creatures	53	12.77
C10	Environmental balance is disturbed	48	11.56
C11	The environment is a combination of inanimate and living things	43	10.36
C12	Sustainable development	15	3.61
C13	Undertaking government projects	15	3.61
C14	Inclusion of environmental studies in the curriculum	9	2.16
C15	Nature is mother	4	0.96

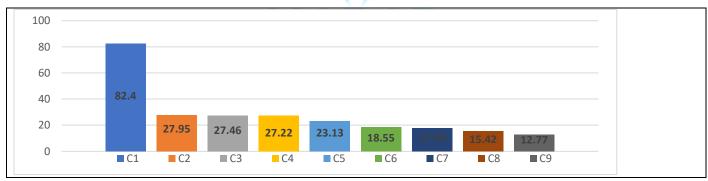


Fig- 13: Percentages of code of Higher Education Students about the relationship between Humans and the Environment

A total of 415 students expressed their opinions about the relationship between Humans and the Environment in different ways. The researcher first constructed 15 codes from their opinions, then calculated percentages for each code and presented them graphically. In C1(code-1) 82.40% students of in higher education stated that Humans and the Environment are interdependent, interrelated and complement each other. The whole biodiversity is formed by the interaction of people and the environment. In C2, 27.95% students of in higher education stated that Environmental protection is necessary because if the environment is clean, it will be suitable for human habitation. In C3, 27.46% students of in higher education stated that Trees provide daily necessities like food, livelihood, honey, wood, flowers, fruit, medicine, furniture, shelter, etc. In C4, 27.22% of students of higher education stated that. In C5, 23.13% of students of Humans damage the environment through deforestation, cutting down trees, killing animals, global warming, Environmental pollution, etc higher education stated that Trees give off oxygen and take in carbon

dioxide, as a result, the balance of oxygen and carbon dioxide in the air is also maintained. In C6, 18.55% students of in higher education stated that we should balance the environment. As a result of the interrelationship between people and the environment, they are maintaining the balance of the food chain, food web system, and ecosystem. In C7, 17.59% students of in higher education stated that Trees should be planted because planting trees is the only way to save the environment from the way it is being polluted now. In C8, 15.42% students of in higher education stated that we should make Environmental Awareness among people. When Environmental awareness is created among people, they will try to protect the environment. In C9, 12.77% students of in higher education stated that Humans are social creatures. The environment cannot be created without humans; A constructed environment is formed as a result of the interaction of people and the environment.

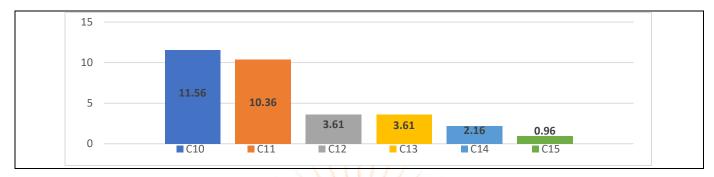


Fig- 14: Percentages of code of Higher Education Students about the relationship between Humans and the Environment

In C10, 11.56% students of higher education students state Environmental balance is disturbed. For this, they attributed various human activities. Humans have destroyed the balance of the environment. In C11, 10.36% students of higher education students state the environment is a combination of inanimate and living things. Inanimate and living things are dependent on each other and create a beautiful atmosphere of mutual interaction. In C12, 3.61% students of higher education students state we should Sustainable development. Without wasting natural resources if they can be stored for future generations, then sustainable development will be possible. In C13, 3.61% of students of higher education students state Undertaking government projects. Various plans can be taken by the government such as wildlife conservation, tree plantation, etc. In C14, 2.16% students of higher education students state the Inclusion of environmental studies in the curriculum. If the subject of environmental science is included in the curriculum then they will become more aware of nature and the environment. In C15, 0.96% students of higher education students state Nature are the mother. Just like a mother takes care of her child, similarly our nature takes care of the entire living world including humans.

### **Analysis Based on Research Questions-**

What would be the difference of dimensions among different strata of the sample?

Table no- 16
Differences of dimension-1(An awareness of aspect of nature that others might not be aware of) among different strata of the sample.

CATEGORY	NUMBER	MEAN	
			2.55
ARTS	281	2.51	2.54
SCIENCE	169	2.53	2.53
MALE	133	2.52	2.51
FEMALE	317	2.54	2.5
RURAL	304	2.52	ART'S CHINCE MALE EMALE RURAL URBAN
URBAN	146	2.55	30 , 40 4 3

In the above table and graph, the researcher found that the mean score of Arts students was 2.51, Science students was 2.53, Male students was 2.52, Female students was 2.54, Rural students was 2.52, and Urban students was 2.55. The researcher concluded that in dimension no-1, science, female, and urban students are more knowledgeable about naturalistic intelligence than arts students.

Table no- 17
Differences of dimension-2 (Value spending time outdoors and participating in outdoor activities) among different strata of the sample

CATEGORY	NUMBER	MEAN	
			2.51
ARTS	281	2.49	2.505
SCIENCE	169	2.51	2.5
MALE	133	2.50	2.495
FEMALE	317	2.50	2.485
RURAL	304	2.50	2.48  ARTS CHALL WALL RURAL WEBAN
URBAN	146	2.50	30, 40, 40, 70,

In the above table and graph, the researcher found that the mean score of Arts students was 2.49, Science students was 2.51, Male students was 2.50, Female students was 2.50, Rural students was 2.50, and Urban students was 2.50. The researcher concluded that in dimension no-2, science is more knowledgeable about naturalistic intelligence than male, female, rural, urban, and arts students.

Table no- 18
Differences of dimension-3 (Having an interest in and concern for the environment and living things) among different strata of the sample

CATEGORY	NUMBER	MEAN	
			2.73
ARTS	281	2.73	2.728 2.726
SCIENCE	169	2.72	2.724
MALE	133	2.73	2.72
FEMALE	317	2.73	2.716 2.714
RURAL	304	2.73	RRIS CHALE WATE FRANK KIRAL IRBAN
URBAN	146	2.72	30

In the above table and graph, the researcher found that the mean score of Arts students was 2.73, Science students was 2.52, Male students was 2.73, Female students was 2.73, Rural students was 2.73, and Urban students was 2.72. The researcher concluded that in dimension no-3, arts, male, female, and rural students are more knowledgeable about naturalistic intelligence than science and urban students.

Table no- 19 Differences of dimension-4 (Producing, preserving or possessing their specimen, natural objects and pictures) among different strata of the sample

CATEGORY	NUMBER	MEAN	
1. D. TO	201	2.52	2.53 2.525
ARTS	281	2.52	2.52 2.515
SCIENCE	169	2.53	2.51 2.505
MALE	133	2.53	2.5 2.495
FEMALE	317	2.52	2.49 2.485
RURAL	304	2.53	ART'S SURVE MALE REMALE RUPAL JEBAN
URBAN	146	2.50	

In the above table and graph, the researcher found that the mean score of Arts students was 2.52, Science students was 2.53, Male students was 2.53, Female students was 2.52, Rural students was 2.53, and Urban students was 2.50. The researcher concluded that in dimension no-4, science, male, and rural students are more knowledgeable about naturalistic intelligence than arts, female, and urban students.

#### **DISCUSSION**

Based on reviews, the researcher found that previous researchers' works concluded the same results. By analysis and interpretation, the Researcher concluded that Arts and Science students are equally attached to naturalistic intelligence, female students are more attached to naturalistic intelligence than male students (Mumthas, N. S. & Umer Farooque, T. K. 2012, Kumar, M. & Lal, H. 2022), rural and urban students are equally attached to naturalistic intelligence (Jose, J. & Lakshmi, A. 2021, Hasan, K., Mahanta, B., & Nandi, A. 2023), Science students are more aware of Environmental Awareness than Arts students (Astalin, P. K. 2011, Subashini, H. 2014, Karpagam, P. 2014, Danielraja, R. 2019, Narwal, K. 2021, Sharma, N. K. 2021), male and female students are equally aware of Environmental Awareness Danielraja, R. 2019, Sahidullah, A. 2020, Gummadi, S., Latha, S., & Rao, P. B. 2020, Narwal, K. 2021), urban students are more aware of Environmental Awareness than rural students (Sharma, N. K. 2021, Sompura, Y., Pant, O., Saha, S., Gautam, S., Dhaker, S., Sharma, V., Singh, V., & et. al 2021), Rural female students are more attached to naturalistic intelligence than Rural male students, Urban Males and Urban Females are equally attached to naturalistic intelligence, Rural male students are more aware of Environmental Awareness than Rural female students (Astalin, P. K 2011, Jose, J. & Lakshmi, A. 2021, Verma, A. & Verma, V. 2022), Urban male and Urban female students are equally aware of Environmental Awareness, There was a significant relationship between Naturalistic Intelligence and Environmental Awareness of Higher Education students (Karpagam, P. (2014, Ningrum, Z. Soesil, T. B. & Herdiansyah, H. 2018, Hartika, D. Diana, S. & Wulan, R. 2019, Sahabuddin, E. S. Makkasau, A. & Nurani, L. C. 2019, Watve, A. & Watve, S. 2019). Environmental study should be included in the college curriculum and should be taught to all students irrespective of their gender (Verma, A. & Verma, V. 2022). Environmental awareness plays a vital role in preserving nature (Subashini, H. (2014).

#### **BIBLIOGRAPHY**

- Adisendjaja, T. H., Abdi, M. K., Amprasto, & Fardhani, I. (2019). The Influence of Field Trip on Junior High School Students' Naturalistic Intelligence and Problem-Solving Skills in Ecosystem Subject, Journal Pendidikan IPA Indonesia, 8(3), 339-346. <a href="https://www.researchgate.net/publication/338536726">https://www.researchgate.net/publication/338536726</a>.
- Ali, M. I., Abduh, A., Mahmud, R., & Dunakhir, S. (2023). Raising Students' Awareness on Environmental Education Issues, Indonesian Journal of Educational Research and Review, 6(1),1-8. <a href="https://doi.org/10.23887/ijerr.v6i1.59146">https://doi.org/10.23887/ijerr.v6i1.59146</a>.
- Asio, J. M. R., Francisco, C. D. C., & Nuqui, A. V. (2021). The Relationship between Multiple Intelligences and Participation Rate in Extracurricular Activities of Students from a Catholic Education Institution, International Journal of Professional Development, Learners and Learning 2021, 3(1), <a href="https://doi.org/10.30935/ijpdll/1095">https://doi.org/10.30935/ijpdll/1095</a>.
- Astalin, P. K. (2011). A Study of Environmental Awareness Among Higher Secondary Students and Some Educational Factors Affecting It, International Journal of Multidisciplinary Research. Vol- 1(7), 90-101. <a href="http://zenithresearch.org.in/images/stories/pdf/2011/Nov/7\_vol-1\_issue7%20\_%20%20%20P%20K%20ASTALIN%20Paper%20for%20ZENITH.pdf">http://zenithresearch.org.in/images/stories/pdf/2011/Nov/7\_vol-1\_issue7%20\_%20%20%20P%20K%20ASTALIN%20Paper%20for%20ZENITH.pdf</a>.
- Aydemir, H. & Karali, Y. (2014). Study of Secondary School Students Multiple Intelligence Areas (Malatya Case). Procedia- Social and Behavioural Sciences. 152(2014), 167-172. <a href="https://creativecommons.org/licenses/by.ncnd/3.0">https://creativecommons.org/licenses/by.ncnd/3.0</a>. <a href="https://shodh.inflibnet.ac.in:8080/jspui/handle/123456789/10267?mode=full">https://creativecommons.org/licenses/by.ncnd/3.0</a>. <a href="https://shodh.inflibnet.ac.in:8080/jspui/handle/123456789/10267?mode=full">https://shodh.inflibnet.ac.in:8080/jspui/handle/123456789/10267?mode=full</a>.
- Best, J. W., Khan, J. V., & Jha, A. K. (2006). Research in Education (10<sup>th</sup> ed.). Chennai: PEARSON.
- Bozoglu, M., Bilgic, A., Topuz, B. K., & Ardali, Y. (2016). Factors Affecting the Students' Environmental Awareness, Attitudes, and Behaviors At Ondokuz Mayis University, Turkey, Fresenius Environmental Bulletin, 25(4), 1243-1257. https://www.researchgate.net/publication/301348710.
- Chaudhari, D. (2015). Awareness Towards Environment among Secondary School Students, International Journal for Research in Education (IJRE), 4(8), 15-18. <a href="https://www.raijmr.com/ijre/wpcontent/uploads/2017/11/IJRE">https://www.raijmr.com/ijre/wpcontent/uploads/2017/11/IJRE</a> 2015 vol04 issue 08 04.pdf.
- Creswell, J. W. (2015). Educational Research (4<sup>th</sup> ed.). Chennai: PEARSON.
- Danielraja, R. (2019). A Study of Environmental Awareness of Students at Higher Secondary Level, International Journal of Education. 7(3), 6-10. <a href="https://doi.org/10.34293/education.v7i3.480">https://doi.org/10.34293/education.v7i3.480</a>.
- Delmoral, M. E. Guzman, A. P. & Fernandez, L. C. (2018). Game-Based Learning: Increasing the Logical-Mathematical, Naturalistic and Linguistic Learning Levels of Primary School Students, Journal of New Approaches in Educational Research. 7(1), 31-39. https://naerjournal.ua.es/10.7821/naer.2018.1.248.
- Ekanara, B., Ramda,na, A., Lekson, S. M., Isfiani, U. R., & Safkolam, R.(2023). Naturalistic Intelligence and Problem-Solving Skills: Study of Its Connectivity Through Environmental Photovoice Projects, Biodidaktika: Jurnal Biologi dan Pembelajarannya, 18(1), 2023, 24-37. https://jurnal.untirta.ac.id/index.php/biodidaktika/article/viewFile/18316/10205.
- Faridy, F. & Rohendi, A. (2019). The Role of Parents in Developing Naturalistic Intelligence in Early Childhood, Advances in Social Science, Education, and Humanities Research, volume 454, 121-124. https://www.atlantis-press.com/article/125943163.pdf.
- Gardner, H. (1993). Multiple intelligence (2<sup>nd</sup> ed.). New York: BASIC BOOKS.
- Grimmette, K. A. (2014). The Impacts of Environmental Education on Youth and Their Environmental Awareness, Environmental Studies Undergraduate Student Theses. 135. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1134&context=envstudtheses.
- Gummadi, S., Rao, P. B., Latha, S. (2020). A Study on Level of Environmental Awareness Among Secondary School Students in Guntur District, Andhra Pradesh, Palarch's Journal of Archaeology of Egypt/Egyptology (PJAEE), 17 (9) 1582-1591. https://archives.palarch.nl/index.php/jae/article/view/4804
- Gummadi, S., Rao, P. B., Latha, S. (2020). A Study on Level of Environmental Awareness Among Secondary School Students in Guntur District, Andhra Pradesh, Palarch's Journal of Archaeology of Egypt/Egyptology (PJAEE), 17 (9) 1582-1591. https://archives.palarch.nl/index.php/jae/article/view/4804

- Hartika, D. Diana, S. & Wulan, R. (2019). Relationship between Naturalist Intelligence with Environmental Attitude, International Conference on Biology and Applied Science (ICOBAS) AIP Conf. Proc. 2120, 060017-1–060017-5, <a href="https://doi.org/10.1063/1.5115717">https://doi.org/10.1063/1.5115717</a>
- Hasan, K., Mahanta, B., & Nandi, A. (2023). Naturalistic Intelligence Among Secondary and Higher Secondary Students, International Journal for Multidisciplinary Research (IJFMR), 5(5), 1-12. https://www.ijfmr.com/research-paper.php?id=6743
- Hasanah, N., Harmawati, D., Riyana, M. & Usman, A. N. (2019). Improve Naturalist Intelligence of Early Childhood through Gardening Activities in Group Children a Merauke state Pembina Kindergarten, IOP Conference Series: Earth and Environmental Science 343(2019) 012186. <a href="https://iopscience.iop.org/article/10.1088/1755-1315/343/1/012186/pdf">https://iopscience.iop.org/article/10.1088/1755-1315/343/1/012186/pdf</a>.
- Hassan, A. Noordin, T. A. & Sulaiman, S. (2010). The status of the level of environmental awareness in the concept of sustainable development amongst secondary school students. Procedia Social and Behavioural Sciences 2 (2010) 1276–1280. <a href="https://www.sciencedirect.com/science/article/pii/S1877042810002272">https://www.sciencedirect.com/science/article/pii/S1877042810002272</a>.
- Jose, J. & Lakshmi, A. (2021). Naturalistic Intelligence and Pro-active Environmental Behaviour among Secondary School Students, International Journal of Research Culture Society, 5(10), 1-7. <a href="https://ijrcs.org/wp-content/uploads/IJRCS202110001.pdf">https://ijrcs.org/wp-content/uploads/IJRCS202110001.pdf</a>
- Karpagam, P. (2014). Influence of Naturalistic Intelligence and Environmental Awareness on teaching science among school teachers. Published doctoral dissertation, Manonmaniam Sundaranar University, Tirunelveli. <a href="http://hdl.handle.net/10603/40738">http://hdl.handle.net/10603/40738</a>.
- Koul, L. (1984). Methodology of Educational Research (5<sup>th</sup> ed.). New Delhi: VIKAS.
- Kumar, M. & Lal, H. (2022). A Study on Environmental Awareness, Social Intelligence and Academic Achievements of College Students, Journal of Advances and Scholarly Researches in Allied Education, 19(3), 108-114. https://ignited.in/I/a/305801.
- Luisa, M., Chiofalo, M., Giudici, C., & Gardner, H. (2022). An interview with Howard Gardner: John H. and Elisabeth A. Hobbs research professor of cognition and education at the Harvard Graduate School of Education, EURASIA Journal of Mathematics, Science and Technology Education, 18(6), 1-9. https://doi.org/10.29333/ejmste/12035.
- Mahboube Soleimanpouromran, M. & Ahmadimoghadam, A. (2021). The study of green intelligence on environmental experiences and environmental citizenship behavior, Central Asian Journal of Environmental Science and Technology Innovation 2, 79-90. <a href="https://www.caspress.com/article\_130490">https://www.caspress.com/article\_130490</a> 261b9eddcf948c60172e7786b2153546.pdf.
- Mangal, S. K. & Mangal, S. (2013). Research Methodology in Behavioural Sciences (5<sup>th</sup> ed.). Delhi: PHI.
- Mangal, S. K. (2002). Statistics in Psychology and Education (2<sup>nd</sup> ed.). Delhi: PHI
- Mauladin, D. (2013). The Effects of Learning Methods and Environmental Knowledge on Ages 5-6 Naturalistic Intelligence, Asia Pacific Journal of Multidisciplinary Research, 1(1), 75-88. https://oaji.net/articles/2014/1543-1418693036.pdf.
- Mufid, A., Fatimah, S., Umar, J. A., & Mawere, D. (2022). Efforts to Improve the Development of Naturalistic Intelligence through Outbound Methods at RA Muslimat NU XVII Keser Tunjungan District, Blora Regency, Al-Hijr: Journal of Adulearn World, 1(3), 125-131. https://pdfs.semanticscholar.org/5b00/95bd5018d7d8ae2dc78e99dca6374e03ec25.pdf.
- Mumthas, N. S. & Umer Farooque, T. K. (2012). Measuring Naturalistic Intelligence A Contextual and Visual Approach, National Seminar on Naturalistic Intelligence (July 12-13, 2012). 1-7. https://www.acamedia.edu/9795294.
- Ningrum, Z. B. Budhisoesilo, T. E. & Herdiansyah, H. (2018). Naturalistic Intelligence and Environmental Awareness among Graduate Students, E3S Web of Conferences 68, 02004(2018) 1<sup>st</sup> SRICOENV 2018, 1-7. <a href="https://doi.org/10.1051/e3sconf/20186802004">https://doi.org/10.1051/e3sconf/20186802004</a>.
- Noufal, Z. M., Ahmed, O. S., & Ali, M.A (2023). Measuring the Awareness of University Students Towards Environmental Pollution: A Case Study of Khorfakkan University Students, Journal of Statistics Applications & Probability, 12(3), 993-999. https://www.naturalspublishing.com/download.asp?ArtcID=27094.
- Pascual, E. A. (2023). Raising naturalistic intelligence toward increasing academic performance: Environmental activities alongside learning, International Journal of Research Publication, 124(1), 1453-1472. https://doi.org/10.47119/IJRP1001241520234936.
- Pirchio, S., Passiatore, Y., Pann, A., Cipparone, M. & Carrus, G. (2021). The Effects of Contact with Nature During Outdoor Environmental Education on Students' Wellbeing, Connectedness to Nature and

- Pro-sociality, Frontiers in Psychology, 12(1), 1-9. https://www.frontiersin.org/articles/10.3389/fpsyg.2021.648458/full.
- Pouromran, M. S. & Ahmadimoghadam, A. (2021). The study of Green Intelligence on Environmental Experiences and Environmental Citizenship Behaviour, Central Asian Journal of Environmental Science and Technology Innovation-2 (2021), 79-90. <a href="https://www.cas.press.com/article-130490.html">https://www.cas.press.com/article-130490.html</a>.
- Purnamasar, R. & Indriyani, M. (2022). Development of Naturalistic Intelligence Early Childhood in Bali Local Society, 1st International Conference on Innovation in Science, Education, Health and Technology, 1, 178-188. http://pedirresearchinstitute.or.id/index.php/iciseht/article/download/198/140.
- Sadik, F. & Sadik, S. (2013). A study on environmental knowledge and attitudes of teacher candidates, Fatma Sadik and Semra Sadik / Procedia Social and Behavioral Sciences 116 (2014) 2379 2385. https://www.sciencedirect.com/science/article/pii/S1877042814005941.
- Sahabuddin, E. S. Makkasau, A. & Nurani, L. C. (2019). The Analysis of Natural Intelligence Rates to Environmental Attitudes in Elementary School Students, Advances in Social Science, Education, and Humanities Research, 481, 199-205. https://www.atlantis-press.com/article/125945444.pdf.
- Sahidullah, A. (2020). A Study of Environmental Awareness Among Secondary School Students, Journal of Interdisciplinary Cycle Research, XII(XII), 79-87. <a href="https://jicrjournal.com/index.php/volume-12-issue-xii-december-2020/">https://jicrjournal.com/index.php/volume-12-issue-xii-december-2020/</a>.
- Sankar, V. & Saravanan, D. P. (2022). A Study of Environmental Awareness and Environmental Ethics Among the B. Ed Trainees in Villupuram District, Journal of Positive School Psychology, 6(8), 8930-8932. https://journalppw.com/index.php/jpsp/article/view/11385.
- Sharma, N. K. (2021). A Study on Environmental Awareness of College Students about Sex, Rural- Urban Background and Academic Streams Wise, The Online Journal of New Horizons in Education, 4(2), 15-20. <a href="https://www.tojned.net/journals/tojned/articles/v04i02/v04i02-03.pdf">https://www.tojned.net/journals/tojned/articles/v04i02/v04i02-03.pdf</a>.
- Sivamoorthy, M., Nalini, M. R. & Kumar, C. S. (2013). Environmental Awareness and Practices among College Students. International Journal of Humanities and Social Science Invention ISSN (Online): 2319 7722, ISSN (Print): 2319 7714, Vol- 2(8),11-15. https://www.ijhssi.org/papers/v2(8)/Version-3/C0283011015.pdf.
- Subashini, H. (2014). A Study of Environmental Awareness of the Students at Higher Secondary Level, Shanlax International Journal of Education, 2(3), 21-27. <a href="https://www.shanlaxjournals.in/pdf/EDN/V2N3/EDN-V2-N3\_004.pdf">https://www.shanlaxjournals.in/pdf/EDN/V2N3/EDN-V2-N3\_004.pdf</a>.
- Suhirman, S. & Yusuf, Y. (2019). The Effect of problem-based learning and naturalist intelligence on Students' Understanding of environmental conservation, Journal Pendidikan Biologi Indonesia, 5(3), 387-396. <a href="https://files.eric.ed.gov/fulltext/EJ1342207.pdf">https://files.eric.ed.gov/fulltext/EJ1342207.pdf</a>.
- Suhirman, S. Prayogi, S., & Asyiari, M. (2021). Problem-Based Learning with Character-Emphasis and Naturalist Intelligence: Examining Students Critical Thinking and Curiosity. International Journal of Instruction, 14(2), 217-232. <a href="https://doi.org/10.29333/iji.2021.14213a">https://doi.org/10.29333/iji.2021.14213a</a>.
- Supriadi, M. A., Astra, M., Japar, M., & Fitriyani, F. (2020). Learning Achievement: Outdoor Learning Model and Naturalist Intelligence, Journal Riset Tindakan Indonesia, 5(2), 47-53. https://jurnal.iicet.org/index.php/jrti/article/download/655/578.
- Thakur, G. R. (2014). Nurturing Naturalistic Intelligence through an Integrated Curriculum and Constructivist Based Approach, National Level Seminar on Environmental Re-engineering: Series 3- Family Framing, organized by Pillai College of Education and Research, ISBN 978-81-924684-6-4, https://www.academia.edu/37260309.
- Utami, W. S., Rohman, A. & Islamiyah, R. (2020). Introduction of the Surrounding Environment to Stimulate Naturalist Intelligence of Early Childhood, International Conference on Science Education and Technology, 1551(2020) 012070, <a href="https://iopscience.iop.org/article/10.1088/1742-6596/1511/1/012070">https://iopscience.iop.org/article/10.1088/1742-6596/1511/1/012070</a>.
- Verma, A. & Verma, V. (2022). Environmental Awareness among Students, International Journal for Research in Applied Science & Engineering Technology (IJRASET) 10(4), 945-948. <a href="https://doi.org/10.22214/ijraset.2022.41306">https://doi.org/10.22214/ijraset.2022.41306</a>.
- Watve, A. & Watve, S. (2019). Naturalistic Intelligence: Nature and Nurture, Journal of Ecological Society (2018)

  Pune. 30(31), 24-34.

  <a href="https://www.researchgate.net/publication/330277052">https://www.researchgate.net/publication/330277052</a> Naturalistic Intelligence NI Nature and Nurture.

Wirdianti, N., Komala, R., & Miarsyah, M. (2019). Naturalistic Intelligence and Personality: An Understanding Students Responsible Environmental Behavior, Journal Pendelikon Biology Indonesia. 5(2), 229-236.

https://www.researchgate.net/publication/334125673 Naturalist intelligence and personality An understanding students' responsible environmental behavior.

