



# EFFECT OF ECOLOGICAL INTELLIGENCE ON ENVIRONMENTAL BEHAVIOUR OF SECONDARY LEVEL STUDENTS

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## ABSTRACT

Ecological Intelligence is the capacity to perceive the interrelationship between living system and understanding how an individual activity affects eco system and learn how to do better. The objective of the present investigation is to identify the effect of Ecological Intelligence of secondary level students on their Environmental Behaviour. The present investigation utilized a descriptive survey method and quantitative approach as the substantial method of the study. A sample of 240 secondary level students was selected using stratified random sampling technique from few schools of Bangalore District. Data was collected with the help of research tools like Ecological Intelligence Scale developed by Nagamma K T and Dr. Haseen Taj (2018) and Environmental Behaviour Scale developed by Dr. Haseen Taj (2000). After collecting information, the data was analyzed with help of independent 't' test and co-efficient of correlation. The level of confidence was fixed at 0.05 and 0.01 level of significance. From the correlation result it was observed that there was a significant difference in the Environmental Behaviour of secondary level students having different levels of ecological intelligence. The differential analysis proved that students who had higher ecological intelligence had more environmentally sustainable behaviour and from the correlation analysis it was also found positive relationship between Environmental Behaviour and Ecological Intelligence of secondary level students. The independent 't' test results showed that sex and type of school management created a significant difference in their Environmental Behaviour. The girls had more environmentally sustainable behaviour than counter part.

**Keywords:** Ecological intelligence, Environmental Behaviour , Secondary Level Students.

## 1. Introduction

The planet is the fundamental resource on which people rely for prosperity. Living in harmony within oneself and with one's natural and social environment is a basic human need (NCF, 2005). However, the environmental change as a result of human behavior is one of the serious crises faced by the nation.

Ecological intelligence is a comprehensive understanding that aims to create an awareness regarding how human activities affect ecosystems and to promote preventing unconscious consumption behaviors that would lead to a sustainable life. It enables us to take social, economic and environmental responsibility, also to act cooperatively and sensitively against ecological problems. All this would pave the way for maintaining strong global sustainability in our ecological objectives.

Based on Howard Gardner's (1983) theory of multiple intelligences, psychologist and science journalist Daniel Goleman describes ecological intelligence as an 'all-encompassing sensibility' (Goleman, 2009, p. 44) that reveals the interconnections between human actions and their impacts on the planet, human health, and social systems. In this context, ecological intelligence is a type of consciousness that guides our behavior to live a sustainable life in our living space, including cognitive and affective components. Regarding the ecological intelligence concept; Goleman (2009), states that the individual can be an environmentally conscious producer and consumer by knowing her/his own impacts, favoring the improvements, and sharing what he/she learns. When the definition of this concept, outlined by Goleman (2009), is examined closely, ecological intelligence leads the individual to evaluate ecological problems in economic, social, and environmental dimensions. So, the ecological intelligence, which has been indispensable for sustainable development in recent years, approaches environmental problems, not from a single point of view, but a variety of dimensions including the abovementioned ones (Flower, 2006; Lummis, 2002)

Students' environmentally friendly behaviors are associated with understanding ecological intelligence values. Ecological intelligence refers to the understanding of hidden ecological impacts and problem solving to cope with them. Ecological intelligence combines cognitive skills and empathy in all forms of life. Both social and emotional intelligence are constructed by abilities to perceive others' views, feel what others feel, and show awareness, while ecological intelligence expands such capacities to all natural systems. We may show our empathy and feel miserable if seeing the Earth suffer, or be committed to making things better.

Increasing the students' levels of knowledge and awareness about environmental issues affects their attitudes and behaviors towards the environment (Akkuzu, 2016; Campbell Bradley et al., 1999). Having ecological intelligence, as it contains cognitive and affective components, drives our behavior to live a sustainable life in our living space (Goleman, 2009; McCallum, 2008). In the struggle for sustainability, students can approach the foundation of environmental problems from various dimensions, including social, economic and environmental, when they acquire this ecological awareness that develops with knowledge and awareness (Fischer et al., 2020)

According to Chiras, Daniel D. 1991, in Masruri & Bambang Syaeful, (2014), environmental damage is caused by human behaviour who has high individuality and basic human nature to use natural resources excessively, without caring about the preservation of nature. This view further provides an understanding for humans to position themselves as control of the environment (human as in control of the natural environment). Therefore, efforts are needed to prevent and minimize the impact of environmental damage caused by humans by caring for the environment that is generated by manifesting environmentally friendly behaviour. Environmentally friendly behaviour is defined as a conscious action taken by a person with the intention of minimizing the negative impact of human activities on the environment or to improve the environment either directly or indirectly (Kollmuss & Agyeman, 2002) More specifically, this environmentally friendly behaviour is evidenced by actions that pay attention to environmental sustainability and resilience, such as using water and electrical energy efficiently, using environmentally friendly technological equipment, using everyday means of transportation that do not pollute the environment, do not throw garbage carelessly, reducing the use of plastic bags, minimizing piles of waste from products or food consumed, and other behaviours that contribute positively to the environment (Lehman & Geller, 2004). Overcoming the ecological crisis is not only a technical matter, but it is necessary to explore the ins and outs of human spirituality, view of life, awareness of nature, to ecological behaviour that maintains the balance of nature. For that we need human ecological intelligence. Intelligence is an indication of an individual's ability to capture, process and respond to knowledge in adoption to the physical and social environment (Istiadi, 2016), while ecology according to Ernest Haeckel 1866, in Malik et al., (2018) is a comprehensive science that studies the relationship between organisms and their environment. Ecological intelligence is in the form of understanding and translating human relationships with all elements and other living things. Ecological intelligence is a deep empathy and concern for the environment, as well as a critical way of thinking about what happens in the environment as a result of our treatment (Jung, 2010). Meanwhile, Gardner (2013) mentions that ecological intelligence with naturalist intelligence, which is the human ability to understand natural phenomena, show ecological awareness and demonstrate human sensitivity to nature. Keeping the above facts in view, as there are no studies found on Ecological Intelligence and Environmental Behaviour of secondary level students. Hence this study.

## **2. STATEMENT OF THE PROBLEM**

The topic selected for the present research is “EFFECT OF ECOLOGICAL INTELLIGENCE ON ENVIRONMENTAL BEHAVIOUR OF SECONDARY LEVEL STUDENTS.”

## **3. PURPOSE OF THE STUDY**

The objective of the present investigation is to identify the effect of Ecological Intelligence of secondary level students on their Environmental Behaviour.

#### 4. OBJECTIVES OF THE STUDY

1. To investigate the difference in the Environmental Behaviour of secondary level students with regard different levels ecological intelligence.
2. To know the difference in the Environmental Behaviour of secondary level boys and girls.
3. To examine the differences in the Environmental Behaviour of secondary level students studying in Government, private aided and private unaided institutions.
4. To investigate the relationship between Environmental Behaviour and Ecological Intelligence of secondary level students.

#### 5. METHODOLOGY

The present investigation utilized a descriptive survey method and quantitative approach as the substantial method of the study. A sample of 240 secondary level students was selected using stratified random sampling technique from few schools of Bangalore District. Data was collected with the help of research tools like Ecological Intelligence Scale developed by Nagamma K T and Dr. Haseen Taj (2018) and Environmental Behaviour Scale developed by Dr. Haseen Taj (2000). After collecting information, the data was analyzed with help of independent 't' test and co-efficient of correlation. The level of confidence was fixed at 0.05 and 0.01 level of significance.

#### ANALYSIS AND INTERPRETATION OF DATA

**Table-1**

Environmental Behaviour of secondary level students due to variation in their varied levels of ecological intelligence, sex and type of school management.

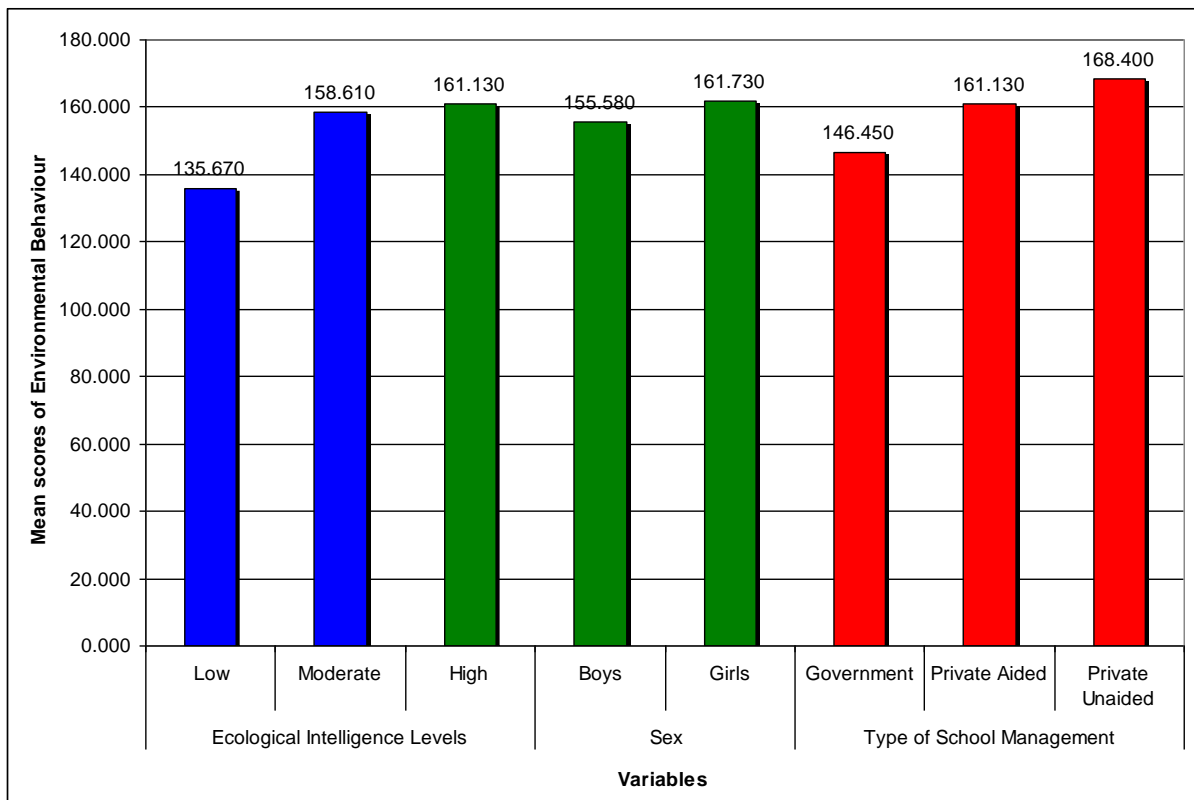
Variable	Group	Number	Mean	Standard Deviation	't' value and sig. level
Ecological Intelligence levels	Low	17	148.350	10.105	3.88**
	Moderate	215	159.340	20.729	
	Moderate	215	159.340	20.729	0.27 <sup>NS</sup>
	High	8	162.250	30.137	
	Low	17	148.350	10.105	1.27 <sup>NS</sup>
	High	8	162.250	30.137	
Sex	Boys	120	155.580	20.735	2.32*
	Girls	120	161.730	20.191	
Type of School Management	Government	80	146.450	11.011	5.80**
	Private Aided	80	161.130	19.749	
	Private Aided	80	161.130	19.749	2.15*
	Private Unaided	80	168.400	22.936	
	Government	80	146.450	11.011	7.71**
	Private Unaided	80	168.400	22.936	

\*Significant at 0.05 level. (Table Value 1.97); \*\*Significant at 0.01 level. (Table Value 2.59) NS = NA Significant

From the table it was seen that the obtained 't' values 0.27 and 1.27 are less than table value 1.97 at 0.01 level of significance. Hence, it was not found significant in the Environmental Behaviour of secondary level students having moderate & high and low & high ecological intelligence levels. Further the table also shows that the obtained 't' value 3.88 is greater than table value 2.59 at 0.01 level of confidence. Hence, the stated hypothesis for the said variable is rejected and alternative hypothesis has been accepted that 'there is a significant difference in the Environmental Behaviour of secondary level students having low and moderate ecological intelligence levels.' From the table it was observed that secondary level students having higher ecological intelligence had more environmental behaviour (M=162.250) when compared with secondary level students having moderate (M=159.340) and low ecological intelligence level (M=148.350).

It is evident from the above mentioned Table-2, the obtained 't' value 2.32 is greater than table value 1.97 at 0.05 level of confidence. Hence, the stated hypothesis for the said variable was rejected and alternative hypothesis has been accepted that 'there is a significant difference in the Environmental Behaviour of secondary level boys and girls ' From the table it was observed that secondary level girls had more environmental behaviour (M=161.730) when compared with secondary level boys (M=155.580).

From the table it was seen that the obtained 't' value 5.80 is greater than table value 2.59 at 0.01 level of confidence. Hence, the stated hypothesis for the said variable is rejected and alternative hypothesis has been accepted that 'there is a significant difference in the Environmental Behaviour of secondary level students studying in government and private aided institutions.' Further, the obtained 't' value 2.15 is greater than table value 1.97 at 0.05 level of confidence. Hence, the stated hypothesis for the said variable is rejected and alternative hypothesis has been accepted that 'there is a significant difference in the Environmental Behaviour of secondary level students studying in private aided and private unaided institutions.' Likewise, the obtained 't' value 7.71 is greater than table value 2.59 at 0.01 level of confidence. Hence, the stated hypothesis for the said variable is rejected and alternative hypothesis has been accepted that 'there is a significant difference in the Environmental Behaviour of secondary level students studying in government and private unaided institutions.' From the table it was observed that secondary level students from private unaided institutions had more environmental behaviour (M=168.400) when compared with secondary level students from private aided (M=161.130) and government schools (M=146.450).



**Fig.1.**

Bar graph shows comparison of Environmental Behaviour of secondary level students due to variations in their ecological intelligence level, sex and type of school management

**Table-2**

Results pertaining to Correlation Analysis pertaining to Environmental Behaviour and Ecological Intelligence of secondary level students

Dependent Variable	Independent Variable	'r' value and Sig. Level
Environmental Behaviour	Ecological Intelligence	0.335**

N=240; df=238; r value @ 0.05 =0.138.

From the table-2 revealed that, the obtained 'r' value 0.335 was greater than the table value 0.138 at 0.05 level of confidence. Therefore, the stated hypothesis is rejected and an alternative hypothesis has been accepted that 'there was a significant relationship between Environmental Behaviour and Ecological Intelligence of secondary level students. These factors are having positive relationship. This table concludes that students with higher ecological intelligence had more Environmental Behaviour and in a vice versa.



## 8. RESULTS

The findings are as under

1. There was a significant difference in the Environmental Behaviour of secondary level students having low and moderate ecological intelligence levels.
2. There was no significant difference in the Environmental Behaviour of secondary level students having moderate and high ecological intelligence levels.
3. There was no significant difference in the Environmental Behaviour of secondary level students having low and high ecological intelligence levels.
4. There was a significant difference in the Environmental Behaviour of secondary level boys and girls.
5. There was a significant difference in the Environmental Behaviour of secondary level students studying in Government and Private Aided schools.
6. There was a significant difference in the Environmental Behaviour of secondary level students studying in Private Aided and Private Unaided schools.
7. There was a significant difference in the Environmental Behaviour of secondary level students studying in Government and Private Unaided schools.

## 9. CONCLUSION

From the correlation result it was observed that there was a significant difference in the Environmental Behaviour of secondary level students having different levels of ecological intelligence. The differential analysis proved that students who had higher ecological intelligence had more environmental behaviour and from the correlation analysis it was also found positive relationship between Environmental Behaviour and Ecological Intelligence of secondary level students. The independent 't' test results proved that sex and type of school management factors had shows significant differences in their Environmental Behaviour. The girls had more environmental behaviour than other counter part. Like wise the students from private unaided institutions had more environmental behaviour when compared with other counterparts (private aided and government). Ecological intelligence is the human ability to adapt to the ecological niche in which humans exist. Ecological intelligence is an ability or competence that students have to respond to conditions that occur around their environment and apply them in their daily lives. Ecological intelligence is a comprehensive understanding that aims to create an awareness regarding how human activities affect ecosystems and to promote preventing unconscious consumption behaviors that would lead to a sustainable life. It enables Students to take social, economic and environmental responsibility, also to act cooperatively and sensitively against ecological problems. it is necessary to learn to use ecological intelligence more in the direction of daily life. Hence, it is predictable that the students who have advanced ecological intelligence will care about environmental issues in their future lives.

## References

1. Akkuzu-Guven, N. & Uyulgan, M. A. (2021). Are university students willing to participate in environmental protection activities (EPAs)? – Sub-dimensions of ecological intelligence as predictors. *Journal of Education in Science, Environment and Health (JESEH)*, 7(3), 269- 282. <https://doi.org/10.21891/jeseh.960912>
2. D. Goleman. *Ecological Intelligence The Hidden Impacts of What We Buy*. (New York: Random House, 2010).
3. Goleman, D., Bennett, L., & Barlow, Z. (2012). *Ecoliterate: How educators are cultivating emotional, social, and ecological intelligence*
4. UNESCO, 1977 Intergovernmental Conference on Environmental Education, Tbilisi, USSR, 14-26 October 1977: final report; 1978 October.
5. Paul C. Stern, 2017 *New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior* *J. Soc. Issues* 56 p. 407–424.
6. Suwandi S Yunus A and Rahmawati L E, 2017 *SOCIAL SCIENCES & HUMANITIES Ecological Intelligence Values in Indonesian Language Textbooks for Junior High School Students* *Pertanika J. Soc. Sci. Hum.* 25 237 - 248 *Soc.* 25 p. 237–248.
7. Mainaki R Kastolani W and Setiawan I, 2018 *Ecological Intelligence Level Of Hight School Students In Cimahi City SHS* *Web Conf.* 42, 00062 62.
8. Akkuzu N, 2016 *Towards a Profound Ecological Understanding : Statistical Attempts to Measure our Ecological Intelligence* *Int. J. Soc. Sci. Educ.* 6, 2 p. 198–216.