

**STUDENTS' AWARENESS OF CREATIVE ENVIRONMENTAL CONSERVATION:
A STUDY OF GENDER DIFFERENCES**

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Students' Awareness of Creative Environmental Conservation: A Study of Gender Differences

Abstract

In the 21st Century, not only India but also entire world is facing many environmental issues and challenges like global warming, drought & flood and acid rain etc. Therefore, research community has focused in the field of environmental awareness, protection and values of future citizens and attitude towards environment etc. Ergo, the present study was designed to investigate the gender differences of awareness of creative environmental conservation of secondary school students. One hundred students of eleventh standard (50 male students and 50 female students) of Senior Secondary School of Sagar City of Madhya Pradesh, age ranged from 16-19 years were included in the sample of the study by using purposive sampling technique. Creative environmental conservational awareness test developed by investigator was used. However, non probable sampling method was used in the present study for collecting the data but due to satisfying the assumption of normal distribution of data, parametric statistics namely t-test was used to analyse the data. The results revealed that significant gender difference was not found with respect to fluency dimension of creative environmental conservation. Whereas a significant gender difference was found in the originality dimension of the awareness of creative environmental conservation i.e. female students were having higher level of creative environmental conservation awareness than their male counterparts. Implications of results for research study in environmental education and education are discussed.

Keywords: environment, creative environmental conservation, environment education.

INTRODUCTION

In the beginning of 21st Century, India as well as world is facing many challenges related to the environment such as global warming, acid rain, starvation, drought, flood, toxic waste and various pollutions etc. Organism lives in the midst of various living and non-living objects, events and influences, the aggregate of which constitutes the environment. All organism microbes, plants and animals including man depend upon the environment for sustains. Close interaction of the organism with the environment, of which it is a part, is essential to satisfy the basic necessities of life. The dependence of organisms for energy, water, oxygen, shelter, food and mates is quite evident. The relationships between different factors are so smooth and subtle that we are not aware of the immense complexities until something goes wrong. The non-justified consumption pattern has led to environment reaching at the verge of depletion in many aspects giving rise to emergency of environment conservation. There are so many initiatives by both India as well as International Organization such as Solid Wastes Management Rules (SWM – 2016) by the Union Ministry of Environment, Forests and Climate Change (MoEF&CC), Constitution of India also suggests for environmental concerns such as article 48 says that the state shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country and article 51-A states that it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures. UNEP, WCED, WMO, UNESCO etc. to get rid of pollution and waste materials this affects the environment. In this direction Agenda - 21 is a non-binding action plan of the United Nations with regard to sustainable development. Since 2015, Sustainable Development Goals (SDGs) are included in the agenda 2030. Identify and promote actions to reduce both carbon emissions and air pollution, with specific commitments to reduce

emissions of short- lived climate pollutants in their NDCs, was one of the main recommendation of CoP 24, UNFCCC (December 2018). UNEP launched the HORIZON 2020 INITIATIVE aims to depollute the Mediterranean by the year 2020 by tackling the sources of pollution that account for around 80 % of the overall pollution of the Mediterranean Sea like municipal waste, urban waste water and industrial pollution. UNEP and JCEP (China) launched a three years initiative in January 2015 that entitled as “Sustainable Urban Development and Liveable Garden Community Programme” for building sustainable cities and communities.

There are many ways by which environment get polluted and have serious effects. The effects of water pollution include decreasing the quality of drinkable water available, lowering water supplies for crop irrigation, and impacting fish and wildlife populations that require water of certain purity for survival. Some noise pollution may be temporary while other sources are more permanent. Effects may include hearing loss, wildlife disturbances, and general degradation of lifestyle. Radioactive pollution can cause birth defects, cancer, sterilization, and other health problems for human and wildlife populations. It can also sterilize the soil and contribute to water and air pollution. Soil contamination can reduce crop yields, loss of wildlife habitat, water and visual pollution soil erosion and desertification. The pollution of environment can be controlled with different means of conservation of environment. In this regard, the present study has been considered to study the awareness of students to conserve environment in creative ways.

Environmental conservation is a practice of protecting the natural environment of individual. Due to the pressure of population and technology, the biophysical environment is being degraded, sometimes permanently. This has been recognized, and governments have begun

placing restraints on activities that cause environmental degradation. Since the 1960s, activity of environmental movement has created awareness for the various environmental issues. For the helping of Earth's sustainability, conservation with creativity providing divergence of ideas in various aspects of nature. There are so many challenges are persistent and pervasive across various fields, individuals can be get rid of by creative way. Creative skill is a pivotal role in our lives to overcome complex environmental challenges but it is used by researcher to foster creativity through the awareness of creative environmental conservation is rarely. For the environmental conservation, researcher decided to assess the creativity (fluency and originality) on dimension of 3R approaches (reduce, reuse and recycle). Generally, it is very rare to pay conscious effort for fostering creative traits in researches, training in schools and colleges and practices in any professional programmes while it is evident that conservation is success through creativity in past. Environmental conservation is influenced by three intervening factors: environmental legislation, ethics and education. Each of these factors plays its part in influencing national level environmental decisions and personal-level environmental values and behaviours. For environmental protection to become a reality, it is important for societies to develop each of these areas that together will inform and drive environmental decisions. The three R (3 R's – Reduce, Reuse and Recycle) can be ways to conserve the environment (Tropp, 2014).

Reduce- Reduction of resources whatever we use and buy minimum which is required. Think about what we use and buy. Could we use less? Reduce the amount of energy we use to heat our facility by getting energy audit (a lot times for free) and save MONEY in the process.

- Keep asking the question, “What is the minimum amount necessary?” Why would we wrap a pallet with 100 feet of stretch wrap if 80 feet will do the job?

Reuse - Reuse something we already have instead of buying something. Replace needing a single use item, with something we can use over and over again. Both of these options will save you money as well.

- Slowly replace any single use items with reusable ones – like reusable water bottles and break room mugs.
- Reuse packaging material (pallets, drums, bubble wrap or packaging peanuts).
- Reuse shipping containers (boxes, inserts, cartons).
- Reuse printer cartridges and have them refilled.

Recycle - Recycle and last but not least, if the above four options won't work, recycle. May be we missed the opportunity to refuse or reduce because you just weren't there in our green journey when these purchases were made. May be there is no alternative. Recycling is a great way to open our eyes to all that we toss and a chance to rethink our future purchases.

- Recycle all the basics we can – paper, plastic, metal and glass.
- Recycle food wastes into composted soil or as a food for a local farm.
- Recycle all fabric – even stained or ripped clothing.
- Recycle all electronics.

RATIONALE OF THE STUDY

However, numerous research studies have conducted in the field of environmental awareness in India as well as abroad (MacDonald & Hara, 1994; Sakellari & Skanvis, 2013; Wallhagen, Eriksoon & Sorqvist, 2018; Shivakumara, Mane, & Nagaraj, 2015; Sundstrom & McCright, 2013; Lee, Park, & Han, 2013; Kaur & Kaur, 2017; Lee, 2009; Torgler, Valinas, and Macintyre, 2008) but the creative environmental conservation awareness has yet to be clearly reported. In

which some research studies have reported a significant gender difference in environmental awareness in which male students scored higher than female students and some reported vice-versa. Mac Donald and Hara (1994) found a significant gender difference in environmental awareness of students and concluded that males were slightly more concern for environment in comparison to females. In contrast, male adolescents' average score on self-identity in environmental protection was significantly higher than that of the female adolescents. Sakellari and Skanavis (2013) also found a significant gender difference in motivation, attitudes and behaviours and suggested that environmental education would be in a position to inspire women from all race and class backgrounds to engage in effective ecological and political action. Lee (2009) reported that female adolescents scored significantly higher in environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, peer influence and green purchasing behavior than male adolescents in Hong Kong. Torgler, Valinas and Macintyre (2008) study indicated that women have both a stronger preference towards the environment and a stronger willingness to contribute. Aditya (2016) advocated that women role is most important in protection of environment. It has also been demonstrated by some studies (Wallhagen, Eriksoon & Sorqvist, 2018) that female placed great importance on environmental aspects even though they felt that their possibility to influence, although some males rated the importance of environmental perspective as they may influence pro-environmental behavior among urban design professionals and ultimately influence the environmental performance of the built environment. Shivakumara, Mane and Nagaraj (2015) reported that there is no significant differences on environmental awareness between the male and female science students while a significant difference was found between the students of social science students i.e., females students are having more

environmental awareness than their counterpart. Xiao and McCright (2013) found women were greater pro-environmental views and concern about environmental problems in comparison to men. Sundstrom and McCright (2013) conducted a research to examine gender differences in environmental concern across four levels of the Swedish Polity in which they found that women report greater environmental concern than men in the general public, in municipal councils, and in regionally elected assemblies. There was no significant gender difference on environmental concern in the Swedish parliament. Lee, Park, and Han (2013) have shown women were more likely to perceive lighting as an important factor in this everyday lives, prefer incandescent lighting, and perceive fluorescent lighting as having negative effects on human health. Kaur and Kaur (2017) concluded that environmental awareness was positively and significantly correlated with scientific attitude in total group and sub-groups such as male and female group, and rural adolescent, schedule caste and general category adolescents. The correlation between environmental awareness and scientific attitude among was found to be positive but not significant among backward class adolescents. However, the ample evidence of the research studies conducted on environmental awareness has been done by a number of investigators. Notwithstanding, no serious attention was paid hitherto to investigate the gender differences on creative environmental conservation awareness. The present study, therefore, was conducted to answer the following research question:

1. Is there any significant gender difference in awareness of creative environmental conservation of secondary school students?

METHOD

The main aim of the present study is to investigate the gender differences for influencing the students' awareness of creative environmental conservation. Therefore, descriptive survey method was used to achieve the objectives of the present study.

Participants

In the present study, population consisted of all the students those who were studying in senior secondary schools especially located in Sagar city of Madhya Pradesh. One hundred students of eleventh standard were selected through convenience sampling technique. The age group of the selected sample was from 15-19 years.

Instruments

Creative environmental conservation test was developed by the investigator himself with the help of his supervisor (2015). The items of the test encouraged the students to freely play with the alphabets and statements. Reduce, reuse and recycle these three dimensions were considered in the present study. However, the task/responses pertaining to fluency and originality have been used in the present study. Due to considering the dimension of mitigate the waste material, namely reduce, reuse, and recycle therefore, flexibility dimension has not been included in the present study. In this test there were three items from the dimension namely reduce, reuse and recycle under which students express their view for conservation of resource. The reliability coefficient for the test was found to be 0.858 by test-retest method. The validity of the test was established with the views of expert in this field.

Procedure

The data were collected after the formal acceptance from the Principal of the school and receiving the active consent from the students’ parents. First of all, rapport with the students was established and then explained them about the purpose of the present study. Subsequently, all the required instructions were given to the students very clearly before administering the tools. All the procedure of data collection had taken 5 days. After the collection of data scoring was done according to the manual of creative environmental conservation test.

RESULTS

The mean, standard deviation on awareness of creative environmental conservation test is presented and summarized. The participants in the present study are selected through convenience sampling technique and data were obtained on interval scale. The ratio between standard deviation and mean is one fourth, therefore, data does follow the one characteristics of normal distribution. Therefore, parametric statistical technique namely t-test was used to analyse the data.

Table 1
Mean, S.D. and t-value of Awareness of Creative Environmental Conservation (Fluency)

Gender	N	Fluency		t-value	Significance
		Mean	S.D.		
Male	50	11.02	3.24	0.46	Not Significant
Female	50	11.34	3.56		

* $p < 0.05$

As can be seen from the Table 1 that obtained t-value ($t = 2.04$, $p > 0.05$) was found to be not significant with $df = 98$. It indicates that null hypothesis i.e. male and female students are equal on the mean score of the fluency dimension of awareness of creative environmental conservation, is not rejected. Therefore, it is concluded that both students were not found to be

significantly differ on the fluency dimension of awareness of creative environmental conservation i.e. both are having similar score on the same.

Table 2
Mean S.D. & t-value of Awareness of Creative Environmental Conservation (Originality)

Gender	N	Originality		t-value	Significance
		Mean	S.D.		
Male	50	1.18	1.17	2.04*	Significant
Female	50	1.80	1.79		

* p < 0.05

As it is evident from the Table 2 that obtained t-value ($t = 2.04$, $p < 0.05$) was found to be significant with $df = 98$. It means that null hypothesis is rejected. Therefore, it is concluded that male and female students was found to be significantly differ on awareness of creative environmental conservation in which female student secured high score than their male counterparts on the originality dimension of creative environmental conservation test.

DISCUSSION AND CONCLUSIONS

The present study investigated significant gender differences in the only originality dimension of awareness of creative environmental conservation (ACEC). The findings of the present study were strongly consistent with the findings of previous research studies (Shivakumara, Mane, & Nagaraj, 2015; Sundstrom & McCright, 2013). In addition, Pillai (2012) also supported the similar findings that both students (boys & girls) scored similarly scores on the dimension of awareness of creative environmental conservation (ACEC). Conversely, the results of the present study disagree with the findings of other research studies MacDonald & Hara (1994) advocates in his study that there is significant gender difference in environmental awareness of students and concluded that males were slightly more concern for environment in comparison to females in which male students are better than female students Sakellari and

Sknavis (2013) also found a significant gender difference in motivation, attitudes and behaviours and suggested that environmental education would be in a position to inspire women from all race and class backgrounds to engage in effective ecological and political action.

It has also been demonstrated by some studies (Wallhagen, Eriksoon & Sorqvist, 2018) that female placed great importance on environmental aspects even though they felt that their possibility to influence and vice versa result male and female are equal on the mean score of the fluency dimension of ACEC and male and female students was found significantly differ on the dimension of originality of ACEC in which female students secured high score than their male counterparts. This result of the present study can be explained by that, It is generally believed that ‘women are more concern about environment than men because female are potentially more environmentalist than men due to biosphere orientation’, motherhood of women behaviour may also make them also responsible and more cautious towards environment protection, biological factor may also affects the creativity either due to nervous system functioning or hormonal changes.

The findings of this study will be useful to identify the level of creative environmental awareness of school students at every level of education, ergo, support system could be developed to enhance the environmental awareness not only students but society members too. The present society has an urgent need of green environment for the existence of the human being on this planet; therefore, awareness of creative environmental conservation of the students should be monitored properly. Hence, the findings will be helpful to school teachers, curriculum developers, policy makers, parents and other investigators who are working to develop new paradigm fostering environmental conservation ability/attitude among the future global citizens of this world.

Despite the methodological strength, the present study has some limitations. One concern is the small sample size, conducted on a single school of Sagar City without probable sampling technique for ensuring to generalization of the research findings. However, this study conducted on small sample but this is helpful to know the Awareness of creative environmental conservation. Another limitation is related to measure the awareness of creative environmental conservation of the secondary school students using different tools like scores on creativity tests- mostly divergent thinking tests, subjective assessment and creative achievement. The validity of concerned measures of test may be the reason for influencing the results of the present study.

Environmental awareness and education both are commonly identified as important areas for the Nations' prosperity and development. Because the sample of the present study consisted of only eleventh grade students, a different pattern might well emerge with elementary school or University students and others. The exact relation may be identified by using partial correlation technique between ACEC and academic achievement. Therefore, further researches are needed to look for gender differences in the interactions of male & female students, attitudes, motivations, effect of environment and opportunities. Besides this, in future researches may be conducted to identify the causal relationship between ACEC and other variables like attitude towards environment, scientific attitude, and natural intelligence. Past and present studies have not yet been addressed the concerned issues that which one is independent and dependent variable? How can we foster ACEC? Ergo, longitudinal and experimental researches may be conducted to look at other issues and better understanding of awareness of creative environmental conservation.

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