

Impact of Environmental Education Programme on Responsible Environmental Behaviour of Adolescents

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Abstract

Increasing air, water, and soil pollution owing to rice shellers, falling water levels, excessive use of fertilizers and pesticides, and crop burning are just a few of the concerns that rank high on the list of environmental challenges. The term "environmental crisis" refers to a period of maladaptive behaviour. All of this led to the realization that people's existing environmental behaviour must change, indicating that people must learn how to behave in an environmentally responsible manner. Behaviour change strategies include types of information to provide: ways of involving others in solving environmental problems, and methods for providing skill and commitment. Thus it is a need of the hour to motivate the people to change their behaviour, and lifestyles to live more sustainably or within the carrying capacity of the earth. No nation can afford to ignore such environmental problems. Thus Investigator, conducted a research on impact of environmental education programme on responsible environmental behaviour of adolescents.

INTRODUCTION

The term "environment" refers to a collection of all external situations and influences that have an impact on a person's life and development. Man, as the only species endowed with the ability to reason and think, is the ideal person to use the environment. He has been squandering natural resources in his pursuit of scientific and technological improvement, as well as material growth and economic wealth, putting immense strain on the water we drink, the air we breathe, and the land we live on. Increasing air, water, and soil pollution owing to rice shellers, falling water levels, excessive use of fertilizers and pesticides, and crop burning are just a few of the concerns that rank high on the list of environmental challenges in our area of Jalalabad (w). In the past the danger of polluting air, water and land was not fully recognized, but now there is no doubt that it is a matter of great concern. Massive growth of vehicles contributing carbon monoxide, nitrogen oxide, particulate matter etc. in the air which sting our eyes, congest our nose, cause our headache and tighten our breathing. Also Dust emissions from rice mills provide a significant amount of suspended particles, nitrogen and sulphur oxides, organic compounds, and other pollutants to the air, all of which are harmful to the employees' and surrounding communities' health. Severe air pollution episodes resulted in a rise in hospital admissions, resulting in the deaths of vulnerable persons. Trash was burned in open landfills. Pesticides used in large quantities harm birds, fish, and other creatures. Acute health concerns, such as abdominal pain, dizziness, headaches, nausea, vomiting, and skin and eye disorders, can develop among pesticide workers. Cancer rates have been observed to be higher among farm labourers who use these substances. Burning of stubble in the fields burns out nitrogen, phosphorus and potash in the soil and leads to increase in particulate matter (PM) in the air which causes release of acids like sulfates,

nitrites, metals in the air and could cause severe health problems. Plastic or polythene bags are extremely hazardous to human health, wildlife, and marine life. When these bags are burned, harmful chemicals are released into the sky, increasing the amount of VOCs in the air. Because India lacks a robust recycling mechanism, using recycled bags might result in ailments such as cancer and a variety of skin disorders. As a result, it is imperative that people become more aware of worsening living standards as a result of ever-increasing major pollution problems. Education being a powerful instrument brings awareness among the people about all such burning issues related to the Environment in Jalalabad(w). Several initiatives have been conducted at the national and provincial levels in recent decades to increase environmental awareness in our society through formal and non-formal education. In the realm of science and technology, we have properly improved our educational system today. Thus it is a need of the hour to motivate the people to change their behaviour, and lifestyles to live more sustainably or within the carrying capacity of the earth. No nation can afford to ignore such environmental problems. Environmental organizations and natural resource agencies often seek education and communication strategies to encourage effective conservation behaviour, green consumer behaviour and waste management behaviour. Behaviour change strategies include types of information to provide: ways of involving others in solving environmental problems, and methods for providing skill and commitment. So, this humble effort has been made by the investigator to study the impact of environmental education programme on responsible environmental behaviour of adolescents

Review of related literature

The review of related literature implies locating, studying and evaluating relevant research studies of published articles, going through related portions of encyclopedia and research abstracts. Thus the review of literature becomes a link between the research proposed and the studies already done.

Shahanawaj (1990) worked on environmental awareness and attitude of secondary and higher secondary school teachers and students at Udaipur district. He found a very high level of awareness on the part of teachers and this was more in the urban than rural groups.

Newhouse (1990) conducted a study on Environmental Responsible Behaviour of the college students in relation to locus of control and found that individuals with a stronger internal locus of control were more likely to participate in activities related to environmentally responsible behaviour because they believed their actions could help in behavior change.

Sherlock (1995) conducted a study on environmental attitude and behavior of 8th grade students. In this, five case studies were presented which portrayed the live experience of the adolescence. Information was collected through the use of personal journals. This thesis concluded need for qualitative research in Environmental Education and gave recommendations for improving the commitment to environmental action within adolescents.

Prajapat (1996) conducted a study on the effect of programme developing awareness towards environment among the pupils of standard IV and concluded that the pre acquired initial environmental awareness played important role in enhancement of

environmental awareness of the students of IV standard. Students of experimental group were found more enthusiastic than the Students of controlled group, and the most remarkable effect of the programme was that the students of both the groups were more enthusiastic and zeal towards receiving the education through programme instead of textbooks.

Davis (2003) in their study of environmental education and environmental management in Bangladesh revealed that: (i) Environmental education and development of local expertise is needed for massive changes in behaviour with respect to the environment. (ii) Graduates from the environmental disciplines should have a significant role in the environmentally sustainable of Bangladesh.

Hsu (2004) conducted a study on the Effect of Environmental Education on responsible environmental behaviour and associated environmental literacy variables in Taiwanese college students. The results indicated that the environment education course did significantly promote the students', responsible environmental behaviour, locus of control, environmental responsibility, intention to act, perceived knowledge of environmental issues, and perceived knowledge and skills in using environmental action strategies.

Kalantari (2007) studied on the investigating factor affecting environmental behaviour of urban residents and found that: (i) There was no significant difference between men and women in terms of environmental attitudes, preparedness to act and feeling of stress. (ii) Women and men opinion were different in respect of environmental legislation. (iii) Women emphasized that current environmental legislations are sufficient for environmental protection; environmental problems could be solved if the laws were enforced completely. (iv) Most of the men believed that these legislations were not adequate and government should pass more laws to make ordinary people and business to protect the environment. (v) The study also showed that there was significant difference between men and women in respect of environmental behavior. Women were generally more concerned than men.

Kaur and Mehra (2009) conducted a study on the Effectiveness of outdoor education programme for enhancing critical thinking social skills and responsible Environmental behaviour among fifth grade students and found that students taught environmental education by the outdoor environmental education programme exhibited better mean gains on critical thinking, social skills and responsible Environmental behavior as compared to students of control group who were taught environmental education by traditional method.

Prakash (2014) revealed that 36.38 % of environment awareness may be attributed to the environment responsible behaviour and environment protecting attitude. It may be concluded that parent's occupation and income environmental responsible behaviour are potent factors for developing environmental awareness among senior secondary students. Adya (2016) conducted a study on the effect of Computer Mediated and Activity based interventions on environmentally responsible behaviour of elementary level students in relation to socio demographic factors and found that there were significant improvements on environmentally responsible behaviour scores from pre-test to post-test of elementary

level students exposed to different interventions i.e. computer mediated and activity based interventions.

Rosa & Collado, (2019) found positive link between direct experiences in nature and people's environmental attitudes and behavior. This has led researchers to encourage more frequent contact with nature, especially during childhood, as a way of increasing pro-environmentalism. However, the association between experiences in nature and EA/EB is complex, and specific guidelines for people's everyday contact with nature cannot be provided.

Environmental Education Programme(EEP)

Environmental education programme aims to ensure the active participation of the adolescents in solving environmental problems in immediate surroundings through conceptual and activity based learning. It also aims to develop the responsible environmental behaviour among Adolescents, for the maintenance and improvement of the environment. It will focus on developing key concepts and essential skills through simple and specific content. It will create awareness, critical thinking, collaboration, creativity and inter relationship among various elements of environment. Environmental Education programmes must be effective in order to achieve the goal of environmental literacy. Effective education programmes equip the students with the tools they need to help, prevent, and address environmental challenges while also instilling a feeling of personal and civic responsibility in them.

Responsible Environmental Behaviour (REB)

Environmentally responsible behaviour is a multi-faceted trait that includes both individual and group actions. The term "environmental crisis" refers to a period of maladaptive behaviour. All of this led to the realisation that people's existing environmental behaviour must change, indicating that people must learn how to behave in an environmentally responsible manner. (Source: Linke, 1998).

According to Einstein (1946) "*The unleashed power of the atom has changed everything except our ways of thinking.*" One of the ultimate goals of environmental education is to develop an environmentally literate citizenry capable of actively participating in the resolution of environmental issues (Hungerford and Peyton, 1976). "Responsible environmental behaviour" (REB) or "environmental action" are terms used to describe such behaviours (Hungerford and Peyton, 1976).

The term 'responsible environmental behaviour' refers to 'the variety of recognised approaches to environmental action available to individuals or groups for use in preventing or resolving environmental problems or issues'(Peyton, 1977; Marcinkowski, 1988). A change towards environmental responsible behaviour is generally considered a desired goal in environment education (Tbilisi Intergovernmental Conference on Environmental Education, 1978; Hungerford & Volk, 1990; Newhouse, 1990).

Responsible Environmental Behaviour deals with Conservation Behaviour, green consumer behaviour , waste management behaviour. Conservation behaviour is an interdisciplinary subject that studies how behaviour may aid in water conservation and

biodiversity conservation. Conservation behaviour is concerned with using knowledge of animal behaviour to solve challenges in conservation biology and engaging in water saving practices. It includes fields like as genetics, physiology, behavioural ecology, and evolution, as well as the proximal and ultimate causes of behaviour. Households frequently engage in water saving practises such as reducing water use. Curtailment or efficiency activities are commonly used to execute these habits (Abrahamse & Steg, ;Fielding et al., 2012). Fixing leaking faucets, recycling grey water, taking showers instead of baths, shutting off faucets when brushing teeth, and using dishwashers and washing machines with full loads are all examples of water conservation (De Lo et al., 2001; Jorgensen et al., 2013). Greater human commitment, financial investment, and technological know-how are all required for efficiency. Low-volume shower heads, front-loading washing machines, water-efficient dishwashers, dual-flush toilets, and automated reticulation systems are examples of water-saving services (Richetin et al., 2016; Willis et al., 2011). Different opportunities, capacities, and motives impact household water-use activities (Fielding et al., 2012; Michie et al., 2011), and understanding attitudes toward, and uptake of, these activities is critical for successful water conservation policy and planning.

Green consumer behaviour is linked to concepts like sustainable development and sustainable consumer behaviour. It is a mode of consumption that is consistent with environmental protection for current and future generations. It is a concept that assigns consumers responsibility or co-responsibility for addressing environmental problems by adopting environmentally friendly behaviours such as using organic products, clean and renewable energy, and researching goods produced by companies with zero, or nearly zero, impact (zero waste, zero-emissions vehicle, zero-energy building, etc.).The following criteria can be used to describe green consumer behaviour:"purchase decisions, product usage and post-use, home management, collective, and consumer activism actions, all of which show some degree of environmental motivation";"the purchase and use of environmentally friendly items, such as biodegradable products, recycled or reduced packaging, and minimal energy consumption". In truth, a green customer is "one who purchases products and services that are believed to have a positive (or less negative) impact on the environment" and is "one who purchases products and services that are perceived to have a positive (or less negative) impact on the environment." Trash avoidance, reuse, recycling, green buying, and waste disposal are examples of waste management practises.

Greenall-Gough (1990) defined environmentally responsible behaviour as a measure of a person's willingness to actively participate in environmental protection. It is one of the three components of environmental consciousness that educators, environmentalists, and curricular agencies are attempting to encourage (the other two being an understanding of environmental issues and an attitude toward the environment). It reflects a person's understanding of environmental concerns and attitudes towards them.

STATEMENT OF THE PROBLEM

IMPACT OF ENVIRONMENTAL EDUCATION PROGRAMME ON RESPONSIBLE ENVIRONMENTAL BEHAVIOUR OF THE ADOLESCENTS.

OBJECTIVES

To compare students of Experimental and Control group on Responsible Environmental Behaviour.

HYPOTHESES

Students of Experimental group perform significantly better on Responsible Environmental Behaviour than the students of control Group

SAMPLE

In the present research, investigator selected district muktsar from Punjab. From this district, investigator randomly selected secondary schools of Punjab affiliated to C.B.S.E. 9TH grade adolescents were selected for the present study.

DESIGN

The purpose of present study was to examine the impact of Environmental Education Programme on Responsible Environmental Behaviour of adolescents. For this experiment, investigator used Randomized groups 'The Pre Test - Post Test, Equivalent Group design' (Best 2003). In this design, the subjects are assigned to experimental and control group by a random method. The treatment is introduced to the experimental subjects and at the conclusion of the experimental period, the difference between the mean test scores of the Experimental group and control Group is subjected to a test of statistical significance, a t-ratio.

TOOLS TO BE USED

As the tools already available do not fulfill the requirements of present study, so investigator is constructing and standardizing the following scales:

- Self Developed Environmental Education Programme Module.
- Self Constructed and Standardized Responsible Environmental Behaviour Scale.

LIMITATIONS

- The study was delimited to 9th grade students from Secondary Schools of Punjab affiliated to C.B.S.E.
- The study was delimited to Responsible Environmental Behaviour of adolescents only.

ANALYSIS AND INTERPRETATION

HYPOTHESES 1: Students of Experimental group perform significantly better on Responsible Environmental Behaviour than the students of control Group.

To find out the performance of control group and experimental group on responsible environmental behaviour, firstly mean gain scores were found out. The results are tabulated in table 1. Mean gain scores of control group on responsible environmental

behaviour was 14.45 and Mean gain scores of experimental group on responsible environmental behaviour was 65.2.

It is clear from the Fig. 1 showing Graphical representation of mean gain scores on REB of control group and experimental group that difference in pre and post test scores of experimental group is more as compared to scores of control group. To study the impact of EEP on responsible environment behaviour, t ratios were worked out between the mean gain scores of control group and experimental group on REB and its dimensions

Table 1 Mean gain scores of control group and experimental group on REB

| Variable | Control group | Experimental group |
|----------|---------------|--------------------|
| REB | 14.45 | 65.2 |

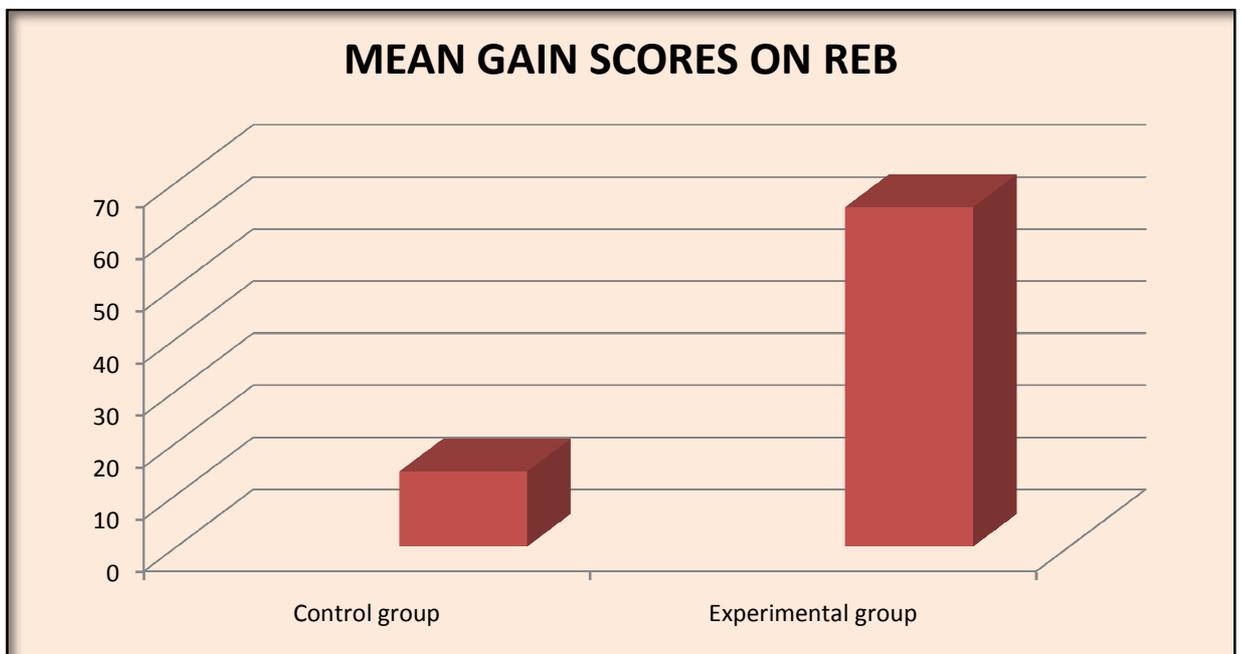


Fig. 1 Graphical representation of mean gain scores on REB Of control group and experimental group.

Table 2. t -ratios between the mean gain scores of control group and experimental group on REB and its dimensions.

| Variables | Control group | Experimental Group | t - Ratio |
|------------|------------------|--------------------|--------------------------------------|
| REB | Mean – 15.7 | Mean – 63.6 | 37.17 (significant) |
| | SD – 7.09 | SD – 7.03 | |
| | N- 60 | N- 60 | |
| | Variance – 49.8 | Variance – 49.5 | |
| CB | Mean – 5.75 | Mean – 24.5 | 30.15 (Significant) |
| | SD – 3.61 | SD – 3.32 | |
| | N- 60 | N- 60 | |
| | Variance – 12.15 | Variance – 11.10 | |
| GCB | Mean – 4.58 | Mean – 22.18 | 25.78 (significant) |
| | SD – 3.82 | SD – 3.64 | |
| | N- 60 | N- 60 | |
| | Variance – 14.68 | Variance – 13.27 | |
| WMB | Mean – 5.45 | Mean -16.9 | 12.49 (Significant) |
| | SD – 5.31 | SD – 4.74 | |
| | N- 60 | N- 60 | |
| | Variance – 28.1 | Variance – 22.5 | |

t = 2.58 to be significant at 0.01 level for 118 degrees of freedom

t = 1.96 to be Significant at 0.05 level for 118 degrees of freedom

NS - Not Significant

Interpretation and discussion based on Table 2.

Table 2. shows the t -ratios between the mean gain scores of control group and experimental group on REB and its dimensions. Their mean value, standard deviation and variance are shown in this table.

- t -ratios is 37.17 between the mean gain scores of control group and experimental group on REB which is significant at 0.05 and 0.01 level of confidence. It shows the significant difference between the two groups. It means experimental group performed better than control group on REB.
- t -ratios is 30.15 between the mean gain scores of control group and experimental group on dimension of REB i.e conservation behaviour which is significant at 0.05 and 0.01 level of confidence. It shows the significant difference between the two groups. It means experimental group performed better than control group on CB.
- t -ratios is 25.78 between the mean gain scores of control group and experimental group on dimension of REB i.e Green consumer behaviour which is significant at 0.05 and 0.01 level of confidence. It shows the significant difference between the two groups. It means experimental group performed better than control group on GCB.
- t -ratios is 12.49 between the mean gain scores of control group and experimental group on dimension of REB i.e waste management behaviour which is significant at 0.05 and 0.01 level of confidence. It shows the significant difference between the two groups. It means experimental group performed better than control group on WMB.

FINDINGS OF THE RESEARCH

The important findings of the research are as below:

Students of Experimental group performed significantly better than control group on responsible environmental behaviour.

- Students of Experimental group performed significantly better than control group on conservation behaviour.
- Students of Experimental group performed significantly better than control group on green consumer behaviour.
- Students of Experimental group performed significantly better than control group on waste management behaviour.

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