

Environmental Issue Projects for Enhancing Emotional Intelligence Among Secondary School Students

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Abstract: As inventions began to dominate nature man started to exploit the nature in his attempt to conquer. Scientific and industrial revolution during the last century brought comforts to man. The explosion of scientific knowledge during the past century developments of new technologies, modernization and urbanization have caused serious environmental crisis. The deterioration and depletion of natural resources for the human use have created environmental problems viz. pollution, global warming, ozone depletion, deforestation, desertification etc. The serious problem aroused is that the stability of environment is lost and each and every one is responsible for gaining the lost stability. Now we are in need to stick on effective remedies. Environmental Issue Projects is a dynamic classroom approach which is based on Project Based Learning Strategy in which students actively explore real-world problems and challenges and acquire a deeper knowledge. By learning through projects based on environmental issues the students reached at the appropriate solutions about what the environmental issues are they concerned with. Environmental Issue Projects can enhance the level of emotional intelligence in students. Since the whole activities of EIP was planned on the basis of group works, the collaborative co-operative efforts helped the students to face instances filled of various emotions effectively and made the journey a successful one.

Keywords: Environmental issue projects, emotional intelligence, secondary school students.

1. Introduction

Our environment is constantly changing. People need to be aware of what types of environmental issues that our planet is facing. Natural disasters, warming and cooling periods due to different types of weather patterns, climate changes and much more, all living beings are under dangerous situation. It is a planetary emergency to address seriously on the various issues to overcome in the present and in the future. Surely, current environmental issues require urgent attention.

Major current environmental problems that our planet facing are,

- **Pollution:** Pollution of air, water and soil need millions of years to regain. Air pollution is caused by various gases and toxic materials emitted from industries, factories,

vehicles and so on. Water pollution is caused by oil spill, urbanization, acid rain and so on. Soil pollution refers to the deprivation of soil from essential nutrients due to external hazards.

- **Global warming:** Nowadays, the most common human practice is emission of Green House Gases(GHG). The emission is the major cause of global warming leads to rise in temperature of earth's surface, oceans and there by melting of polar ice caps, sea level rise and unnatural precipitation episodes.
- **Population explosion:** Shortage of resources is the worse result of population explosion today. Scarcity of resources affected the balanced state of many developing countries. Thus over population is one of the crucial current environmental issue.
- **Natural resource depletion:** Green-house gases emission is the major cause of global warming and climate change. The change in global temperature leads to depletion of natural resources. Globally people are taking efforts to shift to renewable energy sources such as solar, wind, biogas and geo-thermal energy.
- **Waste disposal:** How to dispose the wastes is a serious threat to environment. The over consumption of resources and plastic wastes create crisis of waste disposal. Excessive amount of waste or garbage are dumped in to oceans and other land places.
- **Loss of bio-diversity:** Human made activities are responsible for extinction of species and habitats as well as loss of bio-diversity. Balance of natural processes like pollination is crucial to the survival of the ecosystem and human activity threatens the same.
- **Deforestation:** Forests are the natural resources of carbon dioxide and produce fresh oxygen for the survival of human beings. Human being's greed towards the resources cleared the green cover of Earth and converted to residential and commercial lands.
- **Ocean acidification:** The excessive production of carbon dioxide gas, the major cause of ocean acidification. By 2100, the ocean acidity may shoot up by 150%. It leads to

extinction of marine species.

- *Ozone layer depletion:* The ozone layer is a natural blanket cover of earth from the harmful UV rays coming from Sun. The increased use of CFCs is the major problem leads to ozone layer depletion. They cause a hole in the ozone layer above the Antarctic region.
- *Acid rain:* Acid rain can be caused due to combustion of fossil fuels which release sulphur-dioxide and nitrogen oxides in to the atmosphere. These toxic gases mix with rain and come to the earth's surface. It may lead to serious effect on human health, wild life and aquatic species.
- *Water pollution:* Clean drinking water is one of the basic need of every living being in the Earth. Water is becoming an economic and political issue as the human population fights for his resources. Industrial development is filling our rivers, seas and oceans with toxic pollutants become a serious threat to human health.
- *Public health issues:* The current environmental problems pose risk to health of humans and animals. Run-off to rivers carries along toxins, chemicals and disease carrying germs.

All across the world, people are facing a wealth of new and challenging environmental problems every day. These environmental problems make us vulnerable to disasters and tragedies, now and in the future. The current situation is that environmental issues piling up high around us. Unless we address the various issues prudently and seriously we are surely doomed for disasters, so it is the planetary emergency to give urgent attention towards current environmental problems.

2. Project Based Learning (PBL)

Project learning is experience centred teaching strategy and it advocates that education should be related to life situations. Markham (2011) describes Project Based Learning (PBL) as "Project Based Learning (PBL) integrates knowing and doing. Students learn knowledge and elements of the core curriculum, but also apply what they know to solve authentic problems and results that matter. PBL refocuses education in the student, not the curriculum - a shift mandated by the global world, which rewards intangible assets such as drive, passion, creativity, empathy and resiliency. These can't be taught out of a textbook, but must be activated through experience."

In order to find solutions to environmental problems, the best tactic is to interconnect the topics on environment and human beings. Doing projects mean bringing together students, teachers and community partners in discussion and action to advance sustainability. The kind of collective, solution oriented projects engage students in the complex environmental issues and allow them to travel through multiple learning dimensions. In addition to content understanding, the students will develop or strengthen their skills such as adapting to unexpected changes, communication (presenting, writing, networking), collaboration, team work, inquiry, community engagement and reflection. When incorporating environmental issues with Project Based Learning (PBL), it enables the students to delve deeply in to their academic content while investigating issues

in their own backyard. PBL offers students the opportunity to identify and develop solutions to environmental and sustainability challenges in their local communities. While tackling real world challenges, the students need to become actively engaged learners and the role of teachers shift to facilitators and motivators. Thus in environmental based projects, the core elements should real world problem solving, local environmental issues, multi-disciplinary learning, leadership skills, community engagement and academic rigor.

3. Need and Significance of the Study

We are blessed with physical elements include plants, animals, microorganism and man. Besides physical and biological elements, cultural elements (economic, social and political) also constitute in the making of our environment. Lack of stabilized environment is a serious problem affecting the current generation. Regaining the lost stability is a tedious mental task. Our education has the responsibility to make them conscious about environmental issues happening around them. The students are at the centre of the educational process and teachers should take the roles like organize, direct, guide, help and support the inquiry, creativity and cognitive activities of the students. The teacher should facilitate and direct learning by stimulating students to ask questions, giving responses to their answers helping them accept challenges, think critically and offer creative solutions. It is very important that students should undertake the responsibility for their educational and personal development.

The present classrooms neglected the emotional aspects of the environment. It is better to concern with affective domain and attitudinal development among pupils. Not just providing information about environmental issues around them, but giving them opportunities to collect data from problem areas and to prepare projects and their own solutions. Environmental Issue Projects may enhance the level of Emotional Intelligence (EI) in students. Emotions play an integral role in daily functioning throughout life. Emotional Intelligence is the power to use positive self-statements and self-reduction techniques to prevent the onset of uncontrollable feelings. While handling Environmental Issue Projects, the students need to face instances filled of stress and worries. As part of project works, the pupils have to engage in group works, collaborative learning activities and discussions which lead to emotional development among them. It is expected that these projects may enhance Emotional Intelligence in students such that they can able to develop social intelligence in students that involves the ability to monitor one's own action and others emotions.

4. Hypotheses Formulated for the Study

- There will be significant difference in the emotional intelligence post-test scores of students taught through Environmental Issue Projects and that of those taught through Discussion method.
- There will be significant difference in the Emotional Intelligence post-test scores of boys and girls taught through Environmental issues Projects.

5. Objectives of the Study

- To find out the effectiveness of Environmental Issue Projects on Emotional Intelligence among secondary school students.
- To find out the effectiveness of Discussion Method on Emotional Intelligence among secondary school students.
- To compare the effectiveness of Environmental Issue Projects and the Discussion Method on emotional intelligence in science among secondary school students.
- To compare the Emotional Intelligence post-test scores of students learned through environmental issue projects based on gender.

6. Methodology in Brief

The study was conducted on a sample of 80 Std IX students (40 in Experimental group and 40 in Control group) of GHSS Kulakkada in Kollam District. The investigator analysed secondary school level science curriculum of Kerala and the areas of environmental importance are selected for the study. The experimental group was taught through Projects prepared and the control group through Discussion method.

Tools used:

The various tools employed for the study are Mangal Emotional Intelligence Inventory (for both pre-test and post - test), Environmental Issue Projects based learning materials on selected environmental issues and learning materials on Discussion method.

Statistical techniques used:

Descriptive statistics such as mean, standard deviation and the inferential statistics 't' test are used to analyse the data.

7. Result and Discussion

Results of the study are presented below in three different parts.

Result of Emotional Intelligence (post- test scores) of the Experimental group:

Table 1

Post-test scores of experimental groups				
Group	Number of students	Treatment	Mean	SD
Experimental group	40	Environmental Issue Projects learning materials	48.8	4.1

The mean score indicated that the experimental group exposed to Project Based Learning shows high scores in Mangal Emotional Intelligence Inventory.

Result of Emotional Intelligence (post- test scores) of the Control group:

Table 2

Post-test scores of control group				
Group	Number of students	Treatment	Mean	SD
Control group	40	Discussion method	30.18	4.6

Table 2 shows the post-test scores of the group of students taught through Discussion method. The mean score indicated that control group shows average performance in scores of Mangal Emotional Intelligence Inventory.

Result of significance on the mean scores of experimental and control groups:

Table 3
Result of significance on the mean scores of two groups

Group	Mean	Standard deviation	Critical ratio	Level of significance
Experimental group	48.8	4.1	19.19	0.01
Control group	30.18	4.6		

Table 3 shows the post test scores of the experimental and control groups. The t-value is 19.19 which is significant at both levels.

Result of significance on the mean Emotional Intelligence post test scores of boys and girls of experimental group:

Table 4
Result of test of significance of difference in emotional intelligence post test scores of boys and girls of experimental group

Group	No. of students	Mean	SD	CR	Level of significance
Boys	19	42.34	5.56	1.77	NS
Girls	21	40.1	4.73		

Table 4 reveals that there is no significant difference between boys and girls in their post scores of emotional intelligence of experimental group.

8. Findings

- The test of significance of difference between mean post test scores (emotional intelligence) of the students learned through Environmental Issue Projects and Discussion method show that the difference between means is statistically significant. This revealed that the Projects group is superior to Discussion method group in achieving the level of emotional intelligence.
- The mean post test scores of boys and girls of Projects group revealed that there is no significant difference between the boys and girls in their post-test scores of emotional intelligence. Thus Projects are effective for both boys and girls for enhancing emotional intelligence.

9. Conclusion

The present study was an attempt to explore the effectiveness of Projects on environmental issues for enhancing emotional intelligence at secondary school level. The study revealed that learning through Environmental Issue Projects is significantly superior to Discussion method on promoting the level of emotional intelligence. Implementing Projects in classrooms can not only just provide information about environmental issues but also giving opportunities to apply the knowledge to solve problems. Doing projects provide stronger learning

opportunities and encourage pupils' collaborative skills and emotional intelligence development. It promotes better team working and development of an integrated knowledge base. Hence it can be effectively used in our classrooms.

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