

Designing Ecosophic Generations: An Experiment with Eco Pedagogical Model

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Abstract – Ecosophy is a philosophy of ecological harmony and an approach to the environment which emphasize the importance of action and individual belief in the preservation of planet. The ignorance about the principles of organization of nature and the inability to manage life without annoying the equilibrium of nature is the prime reason for the ecological devastation found today which is unprecedented in the history of the blue planet. People equipped with this philosophy will lead an ecologically conscious life without disturbing the organization of nature. The investigators prepared a teaching model, Ecopedagogical Model to develop the ecological conscience of secondary school students based on the principles and values of Earth Charter (1992).

The study aims to compare the effectiveness of prevailing teaching method which follows the ideology of Critical Pedagogy and the new Ecopedagogical Model based on Ecopedagogy which is an extension of Critical Pedagogy. Pre-test – post-test nonequivalent two group design from quasi experimental designs was selected for the study. Two 8th standard intact classrooms were selected as experimental and control groups with 33 and 34 students respectively in each group. 30 lessons from biology curriculum were executed in both classes but in different methods. The prepared Inventory on Ecosophy was used as pre-test and post-test in both groups to find the difference. The statistical analysis canvassed the Ecopedagogical Model is more effective in the development of ecosophy among secondary school students when compared to prevailing method of teaching.

Key Words: Ecopedagogical Model, Ecosophy, Ecopedagogy, Critical Pedagogy.

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INTRODUCTION

Ecological devastation has been a prime concern not only for ecologists, geologists and scientists but also to all humans who are anxious of the future of life on the planet Earth as the lively hood of all living things depend on the resources provided by it. As early as 1896, the Swedish scientist Svante Arrhenius had predicted that human activities would interfere with the way the sun interacts with the earth, resulting in global warming and climate change (“Global Environmental Issues.pdf,” n.d.). His prediction has become true and climate change is now disrupting global environmental stability. Natural resources useful for living beings are perishable and off course they do not have a substitute at all. The ecosystem in which life pertains is under constant change. But when these changes are initiated by human interactions and interferences with nature they may not be favorable for the very survival of life on Earth and it may override the dynamism of nature which

ultimately leads to an issue which will be hard to resolve.

Ecosophy pursue man to adopt a life style without annoying the steadiness of nature. It envisages the fusion of love of wisdom with the dwelling place or home. Ecosophy is a philosophy of ecological harmony. Often referred to as ecological wisdom, it is associated with other environmental ethics, including deep ecology and bioregionalism .Ecosophy originated with the Norwegian philosopher Arne Naess. Naess distinguished ecosophy from Eco philosophy; it is not a discipline in the same sense but what he called a personal philosophy, which guides our conduct towards the environment.

“By an ecosophy I mean a philosophy of ecological harmony or equilibrium. A philosophy as a kind of Sofia or wisdom, is openly normative, it contains both norms, rules, postulates, value priority announcements and hypotheses concerning the state of affairs in our universe. Wisdom is policy

wisdom, prescription, not only scientific description and prediction. The details of an ecosophy will show many variations due to significant differences concerning not only the facts of pollution, resources, population, etc. but also value priorities" (Naess, 1973).

Ecopedagogy is an important perspective which must be created in coming generations for the wellbeing of life on the planet Earth. The main reason for the ecological crisis that is unprecedented in the history of the blue planet is the lack of such an ecosophy among its inmates. In the present situation we need a pedagogy that can provide this and can protect Earth from this critical situation. Now the experiments with educational discourses are a common practice. Here also, a pedagogy that gives prior importance for the conservation of planet and its environment can be experimented. Here comes the relevance of ecopedagogy. It is a new pedagogy of rights that unites human rights with rights of Earth (Gadotti, 2005) and the first attempt to transform traditional curricula by integrating information and strategies that move in a more ecological direction (Orr, 1992; Capra, 2000). Ecopedagogy incorporates the values and principles of Earth Charter (1992). The Earth Charter Initiative is catalyzing an integrated movement to bring many stakeholders together at all levels to apply an ethical framework to our current global environment and development challenges. Its aim is to realize the planetary peace, happiness, justice, and beauty that would be manifested by sustainable social and cultural relations between the peoples of the Earth (Kahn, 2008).

Ecological degradation and the destruction of biodiversity that is currently engulfing the planet is not only tied to economic crises but is built into the very way human beings relate to ecosystems in their wish to dominate or master them. All humans must work together to overcome the continuous and tragic devastation of the planet. Environmentally ill actions need to be deconstructed and reconstructed to determine what is being done to the Earth, why it is being done, who it benefits, and who or what is negatively impacted (Freire, 1998). This pedagogy enables human beings to understand the principles of organization in the nature which provides sustainability and to face the questions of ecological injustice to find suitable answers. As a Pedagogy of the earth, it understood as a pedagogical movement, a curricular approach and a social and political movement, represents a global alternative project aimed at promoting, on the one hand, the learning of the meaning of things, based on everyday life and, on the other, a new model of civilization which is sustainable from an ecological point of view (Gadotti, 2008). Here the investigators used the principles and values of Earth Charter in order to prepare the model.

The study aims to determine whether the prepared Ecopedagogical model is capable of developing ecosophy among secondary school students and it also attempts to compare the effectiveness of Ecopedagogical Model with the effectiveness of existing method of teaching in terms of ecosophy.

METHODOLOGY

Experimental method is selected for the study.

DESIGN

Pre-test – post-test nonequivalent two group design from the family of quasi experimental designs was selected to fulfill the objectives of the study.

PARTICIPANTS

The study concentrates on the development of Ecosophy among secondary schools students. Hence the sample for the study constitutes Eighth standard students. Two intact eight Standard classrooms from Sevamandir Post Basic Higher Secondary School, Ramanattukara, Kozhikode were selected for the investigation as the design demands two non-equivalent groups. The two groups selected were randomly assigned as experimental and control groups. The experimental group was represented by 33 students and control group by 34.

INSTRUMENTS

The empirical study was conducted with a few instruments that include one inventory on Ecosophy, lesson transcripts prepared with a teaching model named Ecopedagogical Model (EPM) prepared by the investigators and lesson plans with existing method of teaching. A brief description of each was given here.

1. Inventory on Ecosophy

The inventory consist of twenty items based on five components Ecological crisis, Ecological intelligence, Equality of beings, Equilibrium of nature and Effacing anthropocentrism. Inventory on Ecosophy constitutes both positive and negative statements each scores one. For the determination of reliability of the tool, conducted the Cronbach's Alpha Test and got the value $\alpha = 0.60$, which shows that the tool is acceptable.

2. Ecopedagogical Model (EPM)

The model was developed with a premonition of ecologically conscious imminent generation equipped with ecologically conscious consumer behavior. The model concentrates on the values and principles of Ecopedagogy encrusted by the Earth Charter (1992). The charter was prepared as a

Universal Ethical Statement following the Earth Summit held at Rio de Janeiro in 1992 with abroad vision of protecting Mother Planet. The charter constitutes Social, Economic, political, Democratic and off course Ecological values.

The model constitutes five phases. Each lesson plan selects a principle or value encrusted by the Earth Charter (1992) and connects it with the subject content and tries to communicate the value/principle along with the content transaction. As the charter constitutes values and principles from various aspects it is easy to incorporate to different subject content. The model has validated before planned treatment with a tryout of 10 lessons for eighth standard students.

3. Existing Method of Teaching

The schools of the state of Kerala follows constructivism with activity oriented method. Knowledge is constructed in classrooms by students themselves through learning activities where teacher acts as a mentor or facilitator. Lesson transcripts prepared based on constructivism were also used for treatment in control group.

PROCEDURE

Based on the design selected pre-test and post-test were conducted with the same instrument. Pre-test was conducted before treatment with the Inventory on Ecosophy to measure the pre-treatment level of the variable. The two groups-Experimental and control- were exposed to two different treatments. But the subject content for both the treatments was same to fix the content factor constant. The experimental group was treated with lesson transcripts based on EPM and control Group with lesson transcripts on existing method of teaching. 30 lessons were employed for both the groups in two different ways. Both the classes were handed by the researcher herself to control the teacher factor. The post-treatment level of the selected variable was again measured with the same instrument used in pre-test. The whole data compiled to form the master data and proposed for analysis.

Statistical Techniques Used

Descriptive and inferential statistics were used to analyze the data. Descriptive statistics used to analyze the nature of distribution to select the appropriate parametric and non-parametric tests for further analysis. Inferential statistics used in this study includes Levene's test for Equality of Variance, Cohen's effect Size and t-test to analyze the data inferentially.

RESULT

The data collected from the participants were analyzed with descriptive statistics primarily to find out the characteristics of the distribution.

P-P Plots

The scores of experimental and control groups on Ecosophy were plotted with a P-P Plot to find the characteristics of the distribution of scores. The plots were given in figure 1.

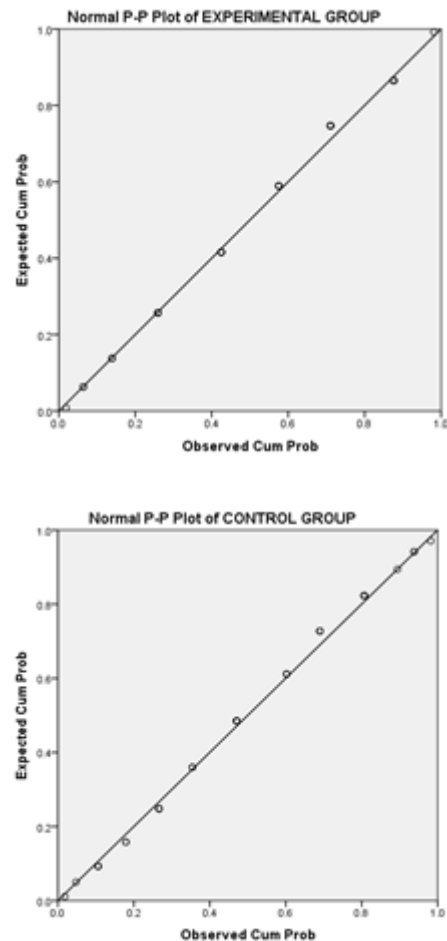


Figure 1. P-P Plots of Experimental and Control Groups.

The plots shows that the distribution under concern was seem to be normal. Most of the circles in the plot lie close to the line, which indicates the characteristics of normal distribution. As the distribution found to be normal, for further analysis the researchers used parametric tests.

Comparison of Mean Pre-Test Scores on Ecosophy of Experimental and Control Group

To compare the two groups experimental and control t-test was conducted. Before testing the significance of difference between means of the two groups to

find whether the two groups were equal in terms of variance. The details of Levene’s test for Equality of Variance were given in the table 1.

Table 1

Data and result of Levene’s test on equality of variance

Variables	Condition	Levene’s Test For Equality of Variance	
		F	Sig.
Pre-Test Scores on Ecosophy	Equal Variance Assumed	2.80	.099*

$p > .05^*$

The p -Value ($p = .099$) indicates that the variance between the groups were equal as it is greater than .05.

As the condition for t -test satisfied, the data were proposed for further analysis. The result of the t -test conducted was given in the table 2.

Table 2.

Data and Result of Test of Significance of Difference between Mean Pre-Test Scores on Ecosophy of Experimental and Control Group.

Variables	Groups	N	Mean	SD	t -Value	Sig.
Pre-test scores Ecosophy	Experimental Group	33	10.49	2.28	.550*	.584**
	Control Group	34	10.12	3.11		

$t > 2.58^*, p < .05^{**}$

The obtained t -value ($t = .550$) is less than the table value ($t = 2.58$) at 99 percentage of confidence interval. It can be concluded that the difference between the mean value of Experimental and Control Group is not significant. The two groups are not significantly different in terms of pre-test scores on Ecosophy.

Comparison of mean post-test scores on ecosophy of Experimental and Control Group.

To find the effectiveness of EPM in the development of Ecosophy among Secondary School students, the mean scores of two groups were compared after treatment. To confirm equal variance in both the groups Levene’s test was conducted. The details of the test were given in table 3.

Table 3.

Data and Result of Levene’s Test of Equality of Variance

Variables	Condition	Levene’s Test For Equality of Variance	
		F	Sig.
Post-Test Scores on Ecosophy	Equal Variance Assumed	.468	.496*

$p > .05^*$

The F value obtained ($F = .468$) indicates equal variance in Experimental and Control Groups. It is followed by test of significance of difference between means. The result is given in table 4.

Table 4.

Data and Result of Test of Significance of Difference between Mean Post-Test Scores on Ecosophy of Experimental and Control Group.

Variables	Groups	N	Mean	SD	t -Value	Sig.	Cohen’sd
Post-test scores Ecosophy	Experimental Group	33	12.88	3.22	2.78*	.007**	.68
	Control Group	34	10.68	3.25			

$t > 2.58^*, p < .05^{**}$

The t – value obtained ($t = 2.78$) is significant at .01 level of significance. The p value ($p = .007$) also indicates the significance of the t value obtained. The Cohen’s d indicates an evident effect size. It can be interpreted as the experimental group shows better performance concerning ecosophy in Post-test.

CONCLUSION

The result revealed the prepared Ecopedagogical Model is efficient enough to develop ecosophy among secondary school students and is more effective than existing method of teaching. While analyzing the past, the last few decades are busy with the conventions, preparing treatises and protocols which are concerned more on the analysis of reasons and remedies of environmental issues faced by planet life. Practical approach towards the solutions any how remained silent, inactive or inefficient. The pertaining issues in a large scale still today confirm the fact. In day today life man faces the threats and challenges of depletion of natural resources more severely which will drastically effect the very survival of mankind.

The changes must start from humans themselves. They have to regulate their activities in order to reduce the impact on environment, they have to learn how to value and respect Mother Planet. Moreover they need to change their attitude towards the future and to admit the fact that the resources have to be preserved for coming generations. Eventually they will learn to negotiate solutions of the issues without annoying the globe and its environment. Ecopedagogical model can play a significant role here in developing ecological conscience in children which enable them behave and act wisely and consciously in the ecosystem. The study exposes the efficiency of Ecopedagogical Model to sculpt ecologically conscious generations.

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