Environmental education and Communication Program for children in villages, Madurai, India-An Intervention-oriented research project

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I. Introduction

Recent times have witnessed a global concern for the environment. Protection of environment has posed not only a major challenge but also a social and moral responsibility in the present society. In point of fact, the subject of environment has interested the general public and caught the attention and enthusiasm of children in particular. The Rio Declaration on Environment and Development (1992) adopted by the United Nations Conference on Environment and Development affirms that children are an indispensable component in achieving sustainable development. In addition, one chapter in Agenda 21 is solely devoted to children and youth in sustainable development and portrays the special role that they can play in this process, while other chapters recognize the conditions of extreme poverty in which children live and the perpetual state of hunger the many suffer as a consequence of environment degradation. Obviously enough, there is an increasing evidence in support of the crucial role that children can and must play in environmental protection through their participation and also developing of appropriate mechanisms that protect the children□s rights to a decent environment. The United Nations Convention on the rights of the child 1989 proclaims the following environmental child rights to be protected and promoted by the State parties.

Article: 6-Right to life, Article: 12-Right to express views, Article: 13-Freedom of expression, including freedom to seek, receive and impart information, Article: 15-Freedom of association, perhaps in relation to formation of environmental groups, Article: 16- Privacy, Article: 17-Access to information including national and international sources, especially material aimed at promotion of the child□s physical and mental health, Article: 24- Right of the child to the enjoyment of highest attainable standard of health, Article: 27-Right of every child to a standard of living adequate for the child□s development, Article: 28 & 29 -Education, Article: 31-Right of the child to rest and leisure and to engage in play and recreational activities.

In principle 19 of the Stockholm Declaration of the Human Environment (1973), it was emphasized `Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals; enterprises and communities in this full human dimension□. Further, it recognized that the world□s youth have vital role to play in environment protection more than twenty years ago and expressed the same in Principle 19. It emphasizes that children, who will inherit the earth, must receive it, and in turn pass it on, in a state no worse than received. To achieve this, environment education is highlighted as vital in this process.

By sensitizing the young minds to environmental problems-natural and man made, education and communication can assist, in keeping the demands within environmentally sustained limits and thus improve the quality of life for all. Environmental education is a continuous learning process based on respect for all life. It affirms values and actions, which ultimately promote the transformation and construction of society. It fosters ecologically sound and equitable societies that live together in interdependence and diversity. It requires individual and collective responsibility at the local, national and planetary level. It attempts to bring about change in the quality of life and a greater consciousness of personal conduct, as well as harmony among the human beings and between them and other forms of life.

Knowing the importance of promoting the environmental rights among children and providing opportunity for them to effectively participate in practice-based learning experiences, the Goodwill social work centre, a non-governmental organization involved in child development and research in **Madurai**, India undertook an □Environmental education and communication program for children at Therkutheru **Village**, **Madurai**-Melur Road, **Madurai**, Tamilnadu, India within the framework of an intervention- oriented action research. The project was taken up with a □DuPont (SHE) award□ offered by the U.S. based DuPont South Asia Limited, **Madurai** for its excellence in safety, Health and Environment for 1997. The grant amount was used for the above environment action program for rural children during 1997-1998.

II. Rationale of the Program

¨ Rural Indian children lack the basic information on the environment and children's rights.

¨ Children lack the opportunities to learn and explore their environment sensorially, physically and intellectually

¨ Children are easy to reach and indispensable component in achieving sustainable development

¨ Accessing children to environment health rights will protect them from dangers and risks

¨ it is a social facility enjoyed by the rural children

¨ Environmental education will attract children's attention and co-operation

¨ similar field research conducted by Goodwill has shown greater level of involvement in such a program.

III. Methodology

a. Research Design

The project was designed as an intervention - oriented research within the framework of quasi-experimental. It comprised pre and post assessment surveys to assess the knowledge of children about environment. Data were collected from representative samples of 93 children between the ages of 10-16 (N=157). The sample frame constituted 65.6% of males and 34.4% of females. The survey employed simple random design to select children. Data were collected through a specially designed questionnaire administered to children. The questionnaire contained 125 itemized statements with □True□/˙False□ responses. Questionnaire content included 24 specific areas. The dimensions covered under the environment degradation 4. Pollution
5. Energy 6. Health 7. Forestry 8. Water 9. Agriculture 10. Ecological balance 11. Bio-diversity 12. Wasteland development 13. Nutrition 14. Sanitation 15. Genetic resource 16. Plant propagation 17. Nursery 18.Organic farming 19. Pest management 20. Herbal farming 21. Kitchen Garden 22. Family welfare 23. Animal husbandry 24. Tree planting

b. Objectives

1. To educate children about environmental issues.

2. To provide an opportunity for the children participate in environmental Communication programs.

3. To prepare children to share environment information with others on a child-to-child and child-to-community.

4. To organize children to participate in environmental protection Programs.

c. Geographical location of the project

The project was implemented in Therkutheru Villages, **Madurai East Village panchayat union block**, **Madurai** district, **Tamilnadu**, South **India** during February 25, 1997- February 25, 1998. It was a replication of earlier IDRC (Canada) funded field research undertaken by the Goodwill Social Work Centre. Funded by US based DuPont South Asia Limited, **Madurai** under Safety Health and Environment (SHE) award 1997-1998, the project was implanted in the villages surrounding the industry

d. Organization of the Program

This program was a replication of earlier IDRC (Canada) funded field research undertaken by Goodwill Social Work Centre (1994-1995). Funded by US based DuPont South Asia Ltd, **Madurai**, **India** under Safety Health and Environment (SHE) award (1997-98), the project was located at Therkutheru **village**, **Madurai** District, **Madurai**.In the initial phase of the program, a series of meetings with local leaders, community influentials, local school teachers and parents were organized. Baseline survey through door-to-door visits was conducted in the project area. The following strategies were adopted.

¨ Setting up Children's Environmental Rights Centre.

¨ designing a curriculum on Environmental Education.

¨ Focus on environmental rights in EE & Training.

¨ Training for **village** male and female Animators.

¨ Enrolment of children (Girls and Boys)

¨ Pre-assessment survey.

¨ Time frame for EE classes and Training.

¨ Program implementation.

¨ Post evaluation

e. Participants

The participants included 157 children comprising males and females who were in the 10-16 years of age.

f. Sampling

The project covered 157 children (males and females) in the 10-16 years of age. Data were collected from representative samples of 93 children. The sample frame constituted 65.6 per cent of males and 34.4 per cent females. Since children were involved in the project, special care was taken by the Goodwill Social Work Centre to ensure that their participation was undertaken in accordance with the following ethical standards:

a) The aims, methods and anticipated benefits were notified to the children and their parents.

b) Parents were counseled with respect to their children□s participation in the environment education and communication program and their consent was obtained

c) No pressure or inducement of any kind was applied to encourage a child to become a subject of the research and

d) The parents of the selected children were informed of the right to withdraw their children from the project at any time.

g. Instruments and procedures

A curriculum on environment education for the children containing 24 units of lesson was designed. Resource materials on environment education were prepared in English and translated in vernacular for the use of the Educators An Evaluation instrument on environmental education was developed and administered to the children at the pre and post evaluation phases.

The instrument contained 418 statements covering 24 units of lesson namely1. Environment - 15 statements, 2. Nature patterns -22 statements, 3. Environment depletion - 9 statements, 4. Environment Pollution - 20 statements, 5. Energy - 16 statements, 6. Health and hygiene - 14 statements, 7. Forestry - 17 statements, 8. Water- 16 statements, 9. Agriculture - 13 statements, 10. Bio-diversity - 13 statements, 11. Ecological Balance - 8 statements, 12.

Wasteland development - 11 statements, 13. Nutrition - 13 statements, 14. Sanitation - 9 statements, 15. Genetic resources - 9 statements, 16. Plant propagation - 9 statements, 17. Nursery raising -11statements, 18. Organic farming - 11 statements, 19. Integrated pest management - 18 statements, 20. Herbal farming - statements, 21. Kitchen garden - 11 statements, 22. Family welfare - 5 statements, 23. Animal welfare - 10 statements, 24. Tree planting -10 statements. The statements were itemized on a four-point scale namely, □Strongly Agree□, □Agree□, □Disagree□ and □Strongly Disagree□. The positive items received high scores-Strongly Agree□ 4 points, □Agree□ 3 points, □Disagree□ 2 points, and □Strongly Disagree□ 1 point. The scale of the negative items was □Strongly Agree□ 1 point, □Agree□ 2 points □Disagree□ 3 point and □Strongly Disagree□ 4 points. All the itemized statements were constructed in English and translated in the vernacular (Tamil language). Responses for each statement were obtained from the children □Before□ and □After□ the implementation of the environmental education. The translation of the itemized statements was made as simple and easy as possible to be understood by the children.

In the pre evaluation phase, the evaluation instrument was administered to all the children and their responses to each item of statements were recorded carefully. In the process of program implementation, unit wise evaluation sheet containing the relevant items of statements was made out and the same was administered to the children immediately on completion of each unit of lesson handled by the Environment Educators. At each stage of learning, this was done to get the feed back from the children.

h. Data analysis

The data were processed using statistical package for Social Sciences
(SPSS PC+). Various statistical test namely simple frequency, □t□ test and discriminant analysis were applied for arriving at statistical inferences. The data collected during the pre and post evaluation studies were edited, sorted and coded and analyzed using the above statistical package. Frequency distribution has revealed the percent distribution of the socio- economic characteristics of the children. □t□ test results showed the differences in the level of knowledge about environment among the children □before□ and □after□ interventions. Discriminant analysis was done in order to find the predominant or important variables (dimensions), which discriminated □before□ and □after□ attending the environment education program.

I. Greening the Young minds-Profile of Action Programs

- ¨ Children's Rights Campaigns
- ¨ Bio-Diversity Conservation Contests
- ¨ Animal Welfare Show
- ¨ Nursery Raising
- ¨ Tree Planting
- ¨ Field exposure visits
- ¨ Film shows
- ¨ Eco-media groups (street plays, skits, folk dances etc)
- ¨ Poster Exhibitions and Competitions
- ¨ Children's sports meets
- ¨ free medical check ups and health information

¨ Learn of the local environment

IV. Results and Discussion

Table: 1 Socio-Economic Characteristics of Children

Characteristics		No. Of Children	Percent
Gender	Male	61	65.6
	Female	32	34.4
Age 10-12 yr.		49	52.8
	13-14	34	36.6
Caste	15-16	10	10.8
	Scheduled community	31	33.3
	Backward community	58	62.4
Grade in School	MBC	02	2.2
	Forward community	02	2.2
Family members	4-6	27	29
	7-10	66	71
Family Income	3-5	43	46.2

Parent□s Occupation	6-8	41	44.2
	9-11	09	10
	< 500 (Rs.)	82	88.2
	501-1000	08	8.6
	>1000	03	3.2
	Agriculture farmers	42	45.2
	Landless labor	45	48.4
	Small business	06	6.5

It is evident from Table: 1 that of 93 children, 65.6 percent (61) were males and the rest were females. 52.8 percent (49) of the children were in the 10-12 age group, while 36.6 percent (34) of them were in the 13-14 age group and only a small percentage of them (10.8 percent) were in the 15-16 age group. A very high percentage (98.9 percent) of the children were Hindus.

The study has revealed the fact that a high percentage (62.4 percent) of the children belonged to the backward community whereas 33.3 percent of the children belonged to the Scheduled Castes. A negligible section of the children (2.2 percent) to □Most Backward Community□ and □Forward Community (2.2 percent).

A high percentage (77) of the children were in the 7-10 grades at the local school whereas the rest were at the 4-6 grades. It is a shocking revelation that the monthly family income of 88.2 percent of the children was <Rs. 500, which was deplorably inadequate to make both ends meet. The family size of the children included in the study revealed that 46.2 percent (43) of them had 3-5 members in their family. Only 10 percent (9) of them have had 9-11 members in their family.

While analyzing the number of school going children in the family, it was found that a sizeable percentage of the families of the children (37.6 percent) have had two school going children, followed by 30.1 percent of them who have had three school going in the family, 24.7 percent who have had only one school going child and 7.5 percent of them have had four children attending school. Of them, 45.2 percent have had one child in the 10-16 age group, 43 percent have had two children in the 10-16 age group, 10.8 percent have had three children in the family and only one family have four children in the 10-16 age group.

Table: 2 □t□ test results differences in knowledge between male and female children □before□ and □after□ environmental education

S. No	FACTORS	MALE (n=61)			FEMALE (n=32)			TOTAL (n=93)		
		Mean	SD	Stat.Res	Mean	SD	Stat.Res	Mean	SD	Stat.Res
1	Environment									
	Before	15.08	±11.34	17.41	16.25	±13.85	12.61	15.48	±12.20	21.29
	After	75.08	±24.40	P<0.05	71.25	±21.51	P<0.05	73.76	±23.40	P<0.05
2	Nature Patterns									
	Before	23.60	±14.38	19.09	25.00	±12.44	12.77	24.08	±13.69	23.01
	After	83.27	±19.72	P<0.05	79.37	±20.62	P<0.05	81.93	±20.01	P<0.05
3	Envt. Degradation									
	Before	50.81	±14.41	8.90	53.12	±14.90	5.88	51.61	±14.54	10.70
	After	81.63	±22.89	P<0.05	78.75	±19.63	P<0.05	80.64	±21.76	P<0.05
4	Pollution									
	Before	31.47	±18.42	11.26	29.37	±18.30	8.00	30.75	±18.31	13.84
	After	74.42	±23.41	P<0.05	70.00	±22.14	P<0.05	72.90	±22.96	P<0.05
5	Energy									
	Before	26.55	±15.79	16.51	27.50	±13.19	11.07	26.88	±14.88	19.84
	After	78.36	±18.72	P<0.05	72.50	±18.83	P<0.05	76.34	±18.86	P<0.05
6	Health									
	Before	48.19	±18.02	5.07	45.00	±20.94	3.46	47.09	±19.03	6.14
	After	66.55	±21.82	P<0.05	63.75	±22.39	P<0.05	65.59	±21.94	P<0.05
7	Forestry									
	Before	25.24	±19.28	16.97	26.25	±20.59	12.43	25.59	±19.64	21.13
	After	83.93	±18.91	P<0.05	86.25	±17.91	P<0.05	84.73	±18.50	P<0.05
8	Water									

	Before	22.95	±17.06	13.04	19.37	±12.93	10.21	21.72	±15.78	16.59
	After	71.80	±23.77	P<0.05	70.00	±24.88	P<0.05	71.78	±24.04	P<0.05
9	Agriculture									
	Before	23.27	±15.56	11.10	24.37	±15.85	6.66	23.65	±15.58	12.91
	After	63.27	±23.43	P<0.05	59.37	±25.13	P<0.05	61.93	±23.96	P<0.05
10	Ecological Balance									
	Before	27.86	±20.96	10.73	32.81	±20.51	6.86	29.56	±20.83	12.74
	After	68.85	±21.24	P<0.05	66.40	±18.63	P<0.05	68.01	±20.31	P<0.05
11	Bio-diversity									
	Before	21.31	±15.86	16.68	25.00	±18.31	9.57	22.58	±16.74	19.02
	After	72.45	±17.95	P<0.05	71.25	±20.28	P<0.05	72.04	±18.68	P<0.05
12	Wasteland Devt.									
	Before	22.95	±16.66	14.60	28.75	±16.01	10.45	24.94	±16.59	17.90
	After	71.80	±20.12	P<0.05	70.62	±16.05	P<0.05	71.39	±18.74	P<0.05
13	Nutrition									
	Before	47.54	±17.57	10.11	44.37	±16.64	7.03	46.45	±17.23	12.29
	After	81.31	±19.27	P<0.05	75.62	±8.82	P<0.05	79.35	±19.21	P<0.05
14	Sanitation									
	Before	58.19	±24.46	2.86	50.78	±29.43	3.22	55.64	±26.35	4.22
	After	70.90	±24.65	P<0.05	71.09	±20.19	P<0.05	70.96	±23.10	P<0.05
15	Genetic Resources									
	Before	18.68	±17.46	15.79	22.50	±18.83	7.79	20.00	±17.93	17.03
	After	72.45	±20.05	P<0.05	65.62	±25.00	P<0.05	70.10	±21.99	P<0.05

S. No	FACTORS	MALE (n=61)			FEMALE (n=32)			TOTAL (n=93)		
		Mean	SD	Stat.Res	Mean	SD	Stat.Res	Mean	SD	Stat.Res
16	Plant Propagation									
	Before	20.32	±14.82	18.96	19.37	±12.93	14.19	20.00	±14.14	23.80
	After	76.39	±17.70	P<0.05	76.25	±18.62	P<0.05	76.34	±17.92	P<0.05
17	Nursery									
	Before	24.91	±14.44	15.51	23.75	±16.41	8.20	24.51	±15.07	17.02
	After	74.09	±20.11	P<0.05	68.75	±26.36	P<0.05	72.25	±22.46	P<0.05
18	Organic farming	23.60	±14.83	13.22	21.25	±16.80	12.86	22.79	±15.49	18.02
	Before	74.42	±26.11	P<0.05	80.62	±19.99	P<0.05	76.55	±24.24	P<0.05
	After									
19	Int. Pest Mgt.									
	Before	36.33	±9.62	13.50	36.45	±10.09	10.09	36.37	±9.73	16.90
	After	74.72	±20.01	P<0.05	72.65	±17.61	P<0.05	74.01	±19.14	P<0.05
20	Herbal farming									
	Before	28.52	±18.05	9.29	31.87	±15.95	5.97	29.67	±17.34	11.06
	After	58.03	±17.01	P<0.05	55.62	±15.85	P<0.05	57.20	±16.57	P<0.05
21	Kitchen Garden									
	Before	51.14	±15.28	8.35	50.00	±14.36	5.14	50.75	±14.90	9.77
	After	79.01	±21.11	P<0.05	72.50	±20.16	P<0.05	76.77	±20.91	P<0.05
22	Family welfare									
	Before	19.01	±18.41	16.70	23.12	±19.74	9.59	20.43	±18.87	19.08

	After	78.03	±20.56	P<0.05	73.75	±22.39	P<0.05	76.55	±21.18	P<0.05
23	Animal Husbandry									
	Before	22.62	±13.89	15.78	18.75	±15.18	12.34	21.29	±14.38	20.04
	After	72.45	±20.38	P<0.05	70.62	±18.30	P<0.05	71.82	±19.61	P<0.05
24	Tree Planting									
	Before	17.04	±14.06	19.69	14.37	±13.66	15.82	16.12	±13.91	25.23
	After	76.72	±19.03	P<0.05	81.25	±19.63	P<0.05	78.27	±19.25	P<0.05

□t□ test was computed on the data in order to understand the statistical significant differences existing between the two groups viz., male and female groups with respect to □before□ and □after□ educational intervention. The results bring out the level of significance, if it exists, taking into consideration each of the dimensions. Table: 2 highlights the mean and standard deviation values obtained □before□ and □after□ the educational program, in terms of male and female groups. The □t□ value reported brings out significant differences. The total □t□ scores obtained in the analysis are also presented in the table.

Considering the male group, the dimension □Environment□ has recorded a mean value of 15.08 (SD = 11.34) in the pre assessment and 75.08 (SD = 24.40) in the post assessment. The □t□ value obtained showed a high statistical significance implying that there was definite knowledge gain after the educational program. Similarly, with respect to the female group, the mean value obtained in the pre study was 16.25 (SD=13.85) and in the post the mean value was 71.25 (SD=21.51). The □t□ value showed 12.61, which implies that there was high statistical significance between the two groups. The mean and SD values for each dimension are presented in the table.

Taking into account the male group, the □t□ value for the dimensions namely, Nature pattern (10.09), Environment degradation (8.90), Pollution (11.26), Energy (16.51), Health (5.07), Forestry (16.97), Water (13.04), Agriculture (11.10), Ecological balance (10.73), Bio-diversity (16.68), Wasteland Development (14.60), Nutrition (10.11), Sanitation (2.86), Genetic resources (15.79), Plant propagation (18.96), Nursery (15.51), Organic farming (13.22), Integrated Pest management (13.50), Herbal farming (9.29), Kitchen garden (8.35), Family welfare (16.70), Animal husbandry (15.78) and Tree planting (19.69) showed significant difference between the two groups i.e., □before□ and □after□ the educational program. It is noted that the dimensions Tree Planting, Nature patterns, Plant propagation, Environment, Forestry and Family Welfare showed a high statistical significance than the other dimensions, since the □t□ value was high.

With regard to the female group, the □t□ value for the dimensions namely, Nature pattern (12.77), Environment degradation (5.88), Pollution (8.00), Energy (11.07), Health (3.46), Forest (12.43), Water (10.21), Agriculture (6.66), Ecological balance (6.86), Bio-diversity (9.57), Wasteland Development (10.45), Nutrition (7.03), Sanitation (3.22), Genetic resources (7.79), Plant propagation (14.19), Nursery (8.20), Organic farming (12.86), Integrated Pest management (10.09), Herbal farming (5.97), Kitchen garden (5.14), Family welfare (9.59), Animal husbandry (12.34) and Tree planting (15.82) showed significant difference between the two groups i.e., □before□ and □after□ the educational program. It is further noticed that the dimensions Tree Planting, Plant propagation, Organic farming, Nature patterns and Environment showed high significance than the other dimensions, since the □t□ value was high.

When considering the dimensions in total, the obtained □t□ values were: Tree planting (25.23), Plant propagation (23.80), Nature patterns (23.01), Environment (21.29) and Forestry (21.13), which revealed a high statistical significance between the two groups under discussion. It was also found that the dimensions on the whole showed significant differences between the □before□ and □after□ assessment for both the male and female groups.

Table: 3 standardized canonical discriminant function co-efficient of variables selected in stepwise discriminant analysis

S.No.	Dimensions	Co-efficient
1	Environment	0.3398
2	Environment Depletion	-0.1966
3	Pollution	-0.1896
4	Energy	0.2324
5	Health	0.2375
6	Forestry	0.3108
7	Water	0.1793
8	Agriculture	0.1259
9	Ecological Balance	0.2061
10	Wasteland Development	0.2457
11	Nutrition	-0.1049
12	Sanitation	-0.3152
13	Plant Propagation	0.2115
14	Nursery	0.4710
15	Organic Farming	0.1915
16	Kitchen Garden	-0.1438

17	Animal Husbandry	0.2513
18	Tree Planting & Aftercare	0.4406

The impact and effectiveness of the environmental education program was found to be influenced by a combination of 24 variables, which operated simultaneously. While some variables may appear insignificant when they are considered alone, others may become significant in the presence of other variables. Appropriately, Discriminant Analysis was applied to find out the important variables, which discriminated between □before□ and □after□ educational intervention.

24 variables were considered and stepwise selection procedure was employed using Wilks□ criteria. The variables, which minimized Wilks□ Lambda, were selected in each step. The stepwise discriminant variables picked up 18 of the 24 variables, which was highly significant. The variables in the analysis were Environment, Environment depletion, Pollution, Energy, Health, Forestry, Water, Agriculture, Ecological balance, Wasteland development, Nutrition, Sanitation, Plant propagation, Nursery, Organic farming, Kitchen garden, Animal husbandry and Tree planting & Aftercare. The remainder was not in the equation.

The Eigen value of the function was found to be 16.6827 and the function produced a Canonical Correlation Co-efficient of 0.9713. The function had a Wilks□ Lambda of 0.0565, which was found to be highly significant statistically. It should be noted that the higher the Wilks□ Lambda, the higher the discrimination.

Table: 3 presents the standardized discriminant function co-efficient of the dimensions entered in the equation. The variables, which were considered to be important in discriminating the impact of the program □before□ and □after□ attending the environmental education by the children were 18 variables as mentioned earlier. The dimension Nursery (0.4710) emerged as the most important discriminant variable, followed by Tree Planting and Aftercare (0.4406) and Environment (0.3398) in the 2nd and 3rd positions. This was followed by the dimensions Sanitation (-0.3152), Forestry (0.3108), Animal Husbandry (0.2513), Wasteland development (0.2457), Health (0.2375), Energy (0.2324), Plant propagation (0.2115), Ecological balance (0.2061), Environmental depletion (-0.1966), Organic Farming (0.1915), Pollution (-0.1896), Water (0.1793), Kitchen garden (-0.1438) and Agriculture (0.1259). Nutrition with the co-efficient value (-0.1049) was relegated to the lowest position.

Table: 4 Summary table

S.No	Dimensions	Wilks□ Lambda	Minimum D Squared
1.	Tree Planting	0.2242	13.6860
2.	Environment	0.1439	23.5278
3.	Nursery	0.1067	33.1129
4.	Plant Propagation	0.0908	39.6042
5.	Forestry	0.0822	44.1841
6.	Energy	0.0777	4609639
7.	Animal Husbandry	0.0743	49.2707
8.	Sanitation	0.0711	51.6398
9.	Health	0.0686	53.6866
10.	Water	0.0668	55.2255
11.	Wasteland Development	0.0650	56.8680
12.	Environment Depletion	0.0633	58.5391
13.	Ecological Balance	0.0614	60.4926
14.	Organic Farming	0.0598	62.1675
15.	Pollution	0.0588	63.5533
16.	Agriculture	0.0578	64.4762
17.	Kitchen Garden	0.0569	65.5029
18.	Nutrition	0.0565	66.0136

The dimension □Tree Planting□ and□ aftercare□ obtained the Wilks□ Lambda value of 0.2242, which was the highest value among the variables in the equation. This indicates that there was lesser discrimination with regard to this dimension. This was supported by the Minimum D Squared value of the dimension being 13.6860, which shows the least value among the dimensions. On the other hand, for the dimension Nutrition, the Wilks□ lambda value was 0.0565 and the Minimum D Squared value was 66.0136. Since the dimension scored the highest D Square value, (the lesser the d square value, the lesser the discrimination, the higher the D square value, the higher the discrimination), it implies that the dimension Nutrition was found to be highly significant.

Table: 5 Classification results

S.No	Actual Group	No. of Cases	Predicted Group	
			Before	After
1.	Before	93	93. 0	
2.	After	93	(100%)	(0%)
			0	93
			(0%)	(100%)

CASES CORRECTL CLASSIFIED => 100 Per cent

The results of the classification of the discriminant analysis shown above are an indicator of the efficiency of the discrimination function. It was found that using the selected 18 discriminating dimensions, 100 percent of the cases were correctly classified.

The survey results indicate that all the children who participated in the program were totally ignorant of the important facts of environmental issues and rights prior to our intervention. It was noticed that there was greater level of awareness about the significance of protected environment and effects of environmental degradation among them the environmental education. Interestingly enough, all children have had equal opportunities to involve themselves in environmental action Health (hygiene) behaviors of children were promoted through medical check up campaigns and health awareness programs. The survey has revealed a significant difference in the level of knowledge about environment □before□ and □after□ our intervention. Most significantly, a high statistical difference (□t□ test value) in the overall knowledge between males females □before□ and □after□ our interventions was pronounced. Discriminant analysis has showed that of 24 dimensions covered under the environmental education, only 18 dimensions were found to be highly significant and relevant.

V. Some Final Recommendations

1. Being an innovative intervention action program for the children in villages, the responses and the level of participation of all children in the environmental education and communication program were more encouraging and invigorating at every stage. In addition to the surveyed respondents, more children showed enthusiasm to participate in the program. Obviously enough, there is a imperative need for organizing similar programs

for children in the rural areas in villages in **India** and other developing countries, which will certainly benefit them for the present and the future?

2. Longitudinal studies on environmental education and communication program for children are highly recommended for greater impact on them. Such programs undertaken for children on a fairly longer period will certainly prove to be productively useful and meaningful to them.

3. It is highly recommended that this action research may be replicated and implemented in every **village** in the rural areas. There is a need to focus future research in this direction. Further, specially designed environmental and communication programs may be organized for urban children particularly in slums and backward areas.

4. The Evaluation instrument administered in phase I and phase II of the program at the pre and post assessment levels to measure the level of knowledge relating to 24 dimensions could be validated and a standardized scale developed for further application in similar research.

5. In the light of the study conducted at two phases, it is recommended that intensive training in environmental protection covering 10 dimensions namely environment, integrated pest management, nutrition, energy, genetic resources, tree planting and after care, ecology health, family welfare and environmental degradation may be given high priority while designing a curriculum. Further, these 10 dimensions could be considered as thrust areas while designing the curriculum for the program for the rural children in **India**.

6. Studies on environmental health for rural children and children□s rights and sustainable development, combining research as a major intervention in these programs could be attempted.

7. In line with the methods design adopted in the present research, studies on girls and young women□s participation in environmental education and communication in villages in suggested.

8. Communication application in environmental education and training programs for children should be promoted and a variety of media could be used in making the program truly effective and enriching for the children.

9. In order to implement environmental education program for children in **village** schools, it is essential to green the minds of teachers who can as effective environmental communicators. Program on environmental information to and from the teachers may be organized.

10.Most importantly, greening the young minds of children through promoting digital opportunities to have access to on line communication and information on environmental issues and threats affecting their lives and their environmental rights and needs in villages in **India** is an urgent need for the present and future generation.

VI. Conclusion

Environment as the social, physical and economic environment in which children live and experience family, school and community as they grow up. The question raised is: Is growing up children in today□s global environment safe and secure? The world is becoming a more dangerous place for children; as they are the most vulnerable to physical and social toxicity in the environment. Children will need to be equipped with knowledge and skills to deal with environment issues and risks affecting their childhood. □The world is shrinking; communications now enable us to realize the concept of global **village** with all its opportunities and threats□ (Michael Jarman, 1996) whatever environmental changes and challenges happening across the nation and across the world affect the children as a whole. All environmental issues affecting children□s rights should be treated as interconnected and interdependent in their impacts.

It is an undeniable fact that children have a vital role to play in environmental protection and they have a right to decent environment it is our responsibility to recognize their environmental rights and identify them as future environmental managers as participants in sharing the world□s resources. They should be given genuine opportunities to live in pleasant and healthy surroundings. In the words of Paula. M. Pevato □children cannot look forward to inheriting a safe and healthy environment unless their elders set an example by cooperating so that the essence and spirit of sustainable development can be achieved and that ultimately the world□s youth can look forward to better future. Until that time, successful integration of children□s perspectives in environmental protection and the realization of a child□s emerging right to a decent environment remain doubtful.□ LET EVERY CHILDHOOD LAST A LIFETIME IN A GLOBALISING WORLD.

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