

**TO STUDY THE EFFECTIVENESS OF ACTIVITY-BASED TEACHING
LEARNING ON AWARENESS, ATTITUDE AND BEHAVIOUR TOWARDS
ENVIRONMENTAL EDUCATION AMONG SECONDARY SCHOOL STUDENTS**

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ABSTRACT

The present study was aimed to study the effectiveness of activity-based teaching learning on awareness, attitude and behaviour towards environmental education among secondary school students and to compare the learning effects of a group with the traditional method and Activity-Based method. The method adopted for the study is Survey and Experimental Method and the sample is 200. The study was taken in both Rural and Urban areas of Nellore district. For this experimental study of activity-based teaching learning instructional strategies were adapted and effectiveness were assessed by the questionnaire tools prepared. There was a significant statistical difference between the pre and post-test overall on student's environmental awareness, attitude and behaviour level of the students who have been educated by active teaching and learning strategies and the students who the traditional instructional methods have educated. The results obtained here indicated that the participation in the guided activity of the environmental education program improved the students' environmental awareness, attitudes and behaviour towards environmental concepts. As an effect, students' environmental attitudes became more environmentally favourable. The study found a significant correlation between post-test awareness scores and post-test attitude scores. In both cases, students with higher knowledge scores had more favourable environmental attitudes than students with lower knowledge scores.

Keywords: Activity-based learning, traditional instructions, Pre-test, Post-test

Introduction:

Environment etymologically means surroundings. It means all that is found around an individual. It includes interaction and relationships among the natural elements living, non-living and man-made. It is the total of external factors, substances and conditions which influence organisms without their intrinsic part (Neelima Gupta, 2017). Man and his activities are physically and mentally, and morally polluting the planet, which may bring about the

destruction of our civilization, not abruptly, but it may decay and slowly die. Therefore the imperative need presently is to stop the mindless war and to preserve the earth. In the changing modern social scenario, the environmental awareness crisis leads to a harmful code of behaviour towards the environment. Present-day society's primary challenge is developing environmental values to protect our environment (**Jubilee Padmanabhan, AradhanaBorthakur and Kunjana Mittal, 2017**).

Recommended goals of environmental education by Tiblisi Conference:

1. to foster clear awareness of and concern about economic, social, political, and ecological interdependence in urban and rural areas;
2. to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment;
3. to create new patterns of behaviour of individuals, groups, and society towards the environment.

A major outcome of Tbilisi gave a detailed description on the environmental Education

The main focus of EE should be to expose students to the real-life world, natural and social, in which they live; to enable them to analyze, evaluate, and draw inferences about problems and concerns related to the environment; to add, where possible, to our understanding of environmental issues; and to promote positive environmental actions to facilitate the move towards sustainable development.

It is time to introduce and practice some environmental conservation practices by adolescent school children in India. Taking this view into consideration, environmental education has become a compulsory subject for school children.

Starting EE from primary school is considered essential for students to understand natural life, contribute to their experiences to gain the scientific qualification, and develop positive attitudes towards the environment. In the "Intergovernmental Conference on Environmental Education" held in Tbilisi in 1977, it was proposed that EE should be systematically included in elementary and secondary schools (**Hesapcioglu, 1994**).

The term environmental awareness has a broad meaning. It implies not only knowledge about the environment but also values and necessary skills to solve environmental problems. Moreover, environmental awareness is the initial step ultimately leading to responsible citizenship behaviour (**Sengupta, Das and Maji, 2010**). The power behind the awareness can be

categorized into three, i.e. basic beliefs of an environmental problem, factual and scientific knowledge, and a commitment to solving environmental problems (**Hansmann, 2009**).

Attitude refers to acquiring a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection (**Momoh and Oladebeye, 2010**). Environmental attitudes are explained as personal attitudes for or pro and liking or disliking the environment or affairs related to the environment (**Brick and Lewis, 2014**).

Environmental behaviour can be defined as the action of an individual or group that promotes the sustainable use of natural resources. Thus, student's attitudes affect their behaviour, especially their choice of action and their decisions.

Role of a Teacher in Teaching Environmental Education:

As a teacher is commonly considered an agent of social change, socialization and modernization, he has been honoured as the maker of history, the builder of the society and nation at large, and a social engineer. The opening statement of the Kothari Education Commission, "The destiny of our Nation is being shaped in the classrooms", can be extended to say that "the destiny of India is being shaped by teachers who are capable, creative and committed".

Impact of Teaching - Learning of Environmental Education:

Activity-based teaching-learning strategy provides the right environment to create educational settings where the student works together and learn by doing, learning by playing, learning by enjoying, learning by co-operation, learning by activity and learning without stress (**Hansraj, 2017**).

Students may obtain environmental information from the formal curriculum by participating in several extra-curricular activities, special meetings or field visits to country parks, and various outdoor education activities. Over the past decades, there is a considerable increase in activities promoting environmental knowledge by government and non-government organizations and institutions through printed and electronic media.

Research in environmental education has been suggested to improve the programme's implementation and realize the implications for classroom teaching. A study conducted by **Edwards and Cutter-Mackenzie (2013)** emphasized that play-based education must be integrated into environmental education. **Moore et al. (2011)** and **Boyes and Stanis Street**

(2012) pointed out that various environment-related activities outside the classroom can encourage students to learn about their surrounding environment and enhance their knowledge. Techniques for creating problem-based learning environments may vary. Still, field experience is often cited as an effective tool to increase student interest and learn by creating an authentic, interactive atmosphere where students can creatively solve problems (Hudak, 2003; Walker, 1994). The use of computers and other instructional and information technologies can support problem-based learning and has also been shown to increase motivation and conceptual knowledge (Kerfoot et al., 2005; Taradieu et al., 2005).

Scope of the Study:

The government of Andhra Pradesh State has introduced environment education in primary and secondary schools. The secondary school teachers should put these steps in the current trends of education. It is an essential requirement for the society and country too. This study focuses on the basic level of awareness towards the Curriculum of Environmental Education at the secondary school level. It reveals the existing position or status of the Environmental curriculum after introducing environmental education in the syllabus. The study aims to see the effect of activity-based teaching and learning on the current curriculum of environmental education in A.P. State and the need to develop/improve the innovative teaching in environmental education at the secondary school level. It would help the secondary school students develop positive attitudes towards environmental education and possess good environmental awareness.

Significance of the Study:

Despite various components of Environmental Education (EE) being incorporated in the school curriculum, there is a lack of evidence of how these various aspects help the teachers and students. Are there any weaknesses in implementing the Textbook syllabus, whether the curriculum guidelines are followed correctly in textbooks? Since no such comprehensive study has been undertaken so far, the investigator felt a need to analyze the environment education context in the schools.

Learning is active rather than passive. Learners confront their understanding in light of what they encounter in the new learning situation. If what learners encounter is inconsistent with their current understanding, their understanding can accommodate new experiences. Learners remain active throughout this process: they apply current understandings, note relevant elements

in new learning experiences, judge the consistency of prior and emerging knowledge, and based on that judgment, they can modify knowledge.

Objectives of the Study:

The objective of this study was to analyze how participation in activity-based teaching and learning of environmental education influenced the student's environmental awareness, attitudes and behaviour. The objectives were to compare the learning effects of a group with the traditional method and Activity-Based method.

Hypotheses of the Study:

1. Participation in the activity-based teaching and learning of environmental education will enhance the student's environmental awareness, attitude, and behaviour compared to students who will not participate in the program.
2. Environmental awareness will be positively related to the student's environmental attitudes.
3. Environmental attitude will be positively related to the student's environmental behaviour.

Delimitations of the Study

1. The study is limited to Rural and Urban areas of the Nellore district of AP only.
2. The study is limited to 200 students only.
3. The study is confined to IX class students of Secondary school Students.

Method of the Study: Survey-cum-experimental method.

Sample of the Study: 200

Sampling distribution based on Gender of the Study:

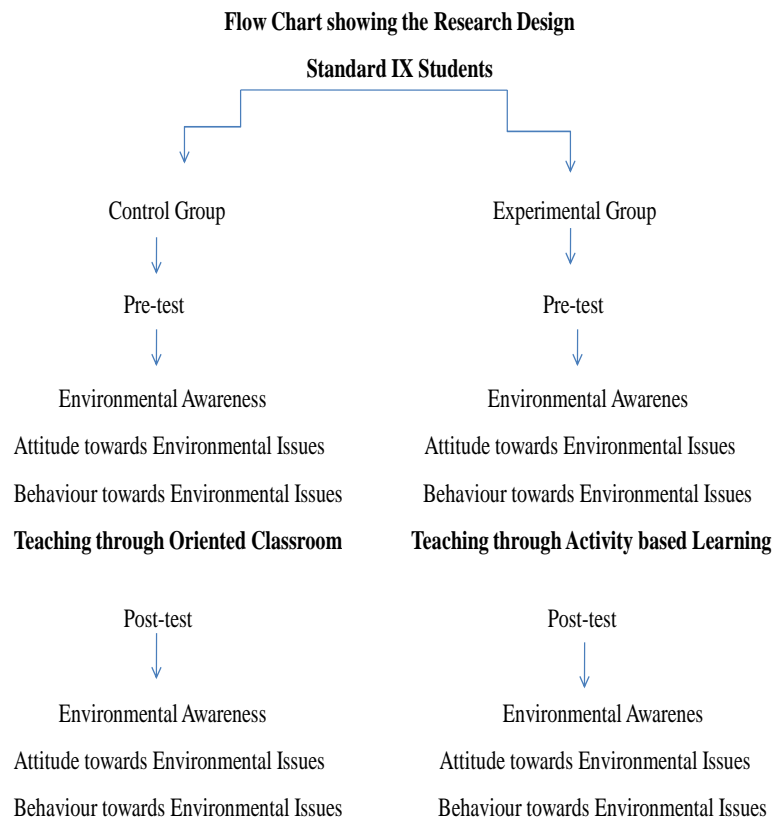
Table: Sampling distribution based on Gender of the Study:

S.No.	Students	ZPP School (R)	KNR School (U)	Total
1.	Male	50	50	100
2.	Female	50	50	100
Total		100	100	200

Table: Sampling distribution based on Locality of the school of the study:

S.No.	Schools	Groups	Students		Total
			Male	Female	
1.	ZPP School(R)	Control	25	25	50
		Experimental	25	25	50
2.	KNR(U)	Control	25	25	50
		Experimental	25	25	50
Total			100	100	200

Experimental Design of the Study:



Variables:

Dependent Variables: Environmental Awareness, Environmental Attitude, Environmental Behaviour

Independent Variables: Activity-Based Teaching and Learning Methods

Tools of the Study:

Table: Tools used for the study

S.No.	Variables Measured	Tools used for the study
1.	Students Environmental Awareness	“Environmental Education Awareness Scale” Developed by the investigator based on Text contents
2.	Students Attitude towards Environment	“Environmental Education Attitude Scale” Taj environmental Scale, 2005 was adopted and modified by the investigator
3.	Students Behaviour towards Environment	“Environmental Education Behaviour Scale” Developed by the investigator based on Text contents

Development of Activity Based Teaching and Learning Environmental Education Strategies:

The syllabus of the environmental Education of IX textbook in the curriculum is based on different themes food, health, agriculture, industries, natural resources and the natural world. The syllabus of the environmental education textbook consists of 28 lessons. For our conveyance, the syllabus of environmental education was divided into four Dimensions. They are

1. Water Conservation and Sanitation
2. Biodiversity and Greening
3. Culture and Heritage
4. Energy Conservation and Waste Management

Instructional Strategies included in the study:

A variety of instructional strategies and experiential approaches were used in active environmental education for facilitating active learning. Inquiry-based learning, activities and laboratories provide students with opportunities to collect, analyze, interpret and present data. Students can also identify and prioritize factors, make predictions, test hypotheses, and construct graphs and charts (Stone, 2007). In addition, a variety of instructional strategies were also adapted that included-

- Classroom sessions/Discussions/classroom debates
- Practical's/Experiments

- Hands-on / Minds-on approach (preparation and use of low-cost apparatus)
- Outdoor adventures and experiences
- Educational campaign/Awareness programme
- Field visits/Fieldwork
- Wilderness trails and nature walks
- Documentary film shows
- Role-play/active-learning and creative drama
- Simulation games

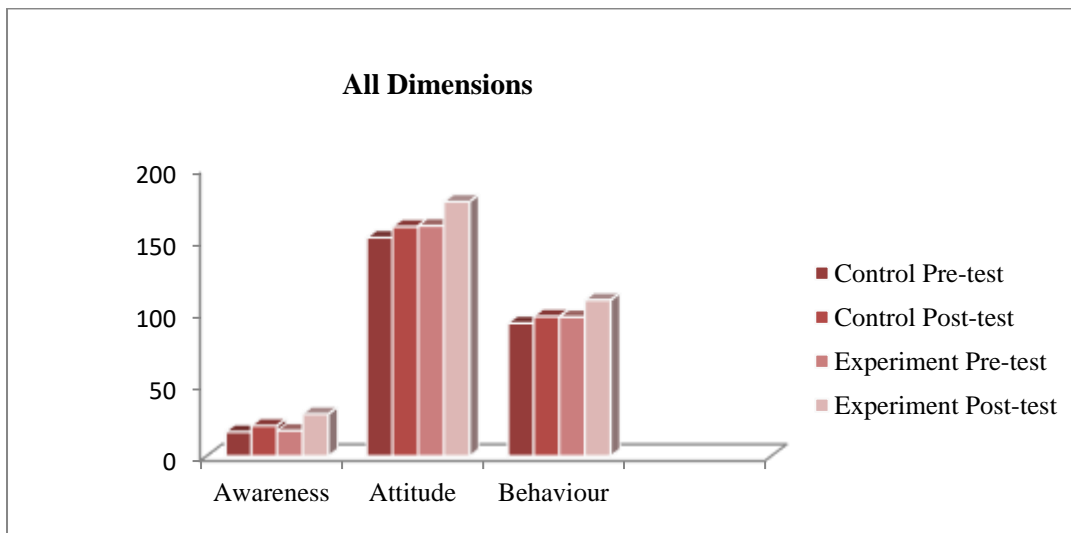
Results:

Table: Showing the statistical analysis of Students Awareness, Attitude and Behaviour with respect to all Dimensions:

All Dimensions		Control				Experiment				Control Vs Exp		
		N	Mean	SD	SEM	N	Mean	SD	SEM	t-value	df	Sig.
Awareness	Pre Test	100	16.83	3.251	0.325	100	17.69	4.46	.447	1.55	198	.12*
	Post Test	100	21.09	4.601	0.460	100	29.19	4.42	.442	12.69	198	.00**
Attitude	Pre Test	100	151.85	12.179	1.218	100	160.04	12.50	1.25	4.69	198	.00**
	Post Test	100	159.42	13.398	1.340	100	176.80	9.37	.937	10.63	198	.00**
Behaviour	Pre Test	100	92.33	7.723	0.772	100	96.65	8.14	.815	3.84	198	.00**
	Post Test	100	97.07	7.741	0.774	100	108.42	7.52	.752	10.51	198	.00**

Note: * Significant at 0.05 level and **Significant at 0.01 level

Figure: Graph representation of student’s Awareness, Attitude, and Behaviour with respect to All Dimensions.



There was a significant statistical difference between the pre and post-test overall on student's environmental awareness, attitude and behaviour level of the students who have been educated by active teaching and learning strategies and the students who the traditional instructional methods have educated. The former (experimental group) have gained significantly more. They have earned more basic conceptual awareness, attitude and behaviour on water conservation and sanitation, biodiversity conservation and greening, culture and heritage and energy conservation and solid waste management than the students who have been educated by the traditional teaching methods with the existing curriculum.

Table: Relationship between Pre-Test and Post-Test of Awareness, Attitude and Behaviour

S.No.	Dimensions	Correlation (r value)		
		Awareness	Attitude	Behaviour
1.	Water Conservation and Sanitation	0.292**	0.277**	0.264**
2.	Biodiversity and Greening	0.363**	0.327**	0.331**
3.	Culture and Heritage	0.334**	0.207**	0.269**
4.	Solid Waste Management and Energy Conservation	0.304**	0.252**	0.306**
	Total Dimensions	0.541**	0.559**	0.537**

Note: ** Correlation is significant at the 0.01 level (2 tailed).

Table: Correlation between variables Awareness, Attitude and Behaviour

Variables	Correlation (r-value)
Between Awareness and Attitude	0.597**
Between Awareness and Behaviour	0.514**
Between Attitude and Behaviour	0.477**

Note: ** Correlation is significant at the 0.01 level (2 tailed)

From the above it is observed that the environmental attitude did not have a higher correlation with environmental behaviour ($r=0.477$) than with environmental awareness ($r=0.514$). However, environmental attitude significantly correlated with environmental awareness ($r=0.597$) than environmental behaviour ($r=0.477$). Therefore, environmental awareness has a moderate relationship with environmental attitude and behaviour.

Discussions:

Activity-based teaching is an approach to education focusing on the idea that students should be engaged through actions. To make children learn effectively, the teacher has to adopt the right learning approach of teaching.

The results obtained here indicated that the participation in the guided activity of the environmental education program improved the students' environmental awareness, attitudes and behaviour towards environmental concepts water conversion and sanitation, biodiversity and greening, culture and heritage and energy conservation and solid waste management these results are in accordance with the findings of several studies where the students' environmental awareness, attitudes and behaviour increased after the participation in environmentally-friendly programs. It implies that the experimental group that taught environment concepts using Activity-Based teaching strategy achieved significantly higher than the control group who led the same concepts using the conventional method of teaching strategy.

Environmental psychologists have frequently found the relationship between knowledge, attitudes and behaviour to be complex, weak, and sometimes even absent (**Aune, 2007; Darnton, 2008, Gifford and Sussman, 2012; Wilson and Dowlatabadi, 2007**) unless the attitude is very specific to the behaviour (**Fishbein and Ajzen, 1975**).

As an effect, students' environmental attitudes became more environmentally favourable. The study found a significant correlation between post-test awareness scores and post-test attitude scores. In both cases, students with higher knowledge scores had more favourable environmental attitudes than students with lower knowledge scores.

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