

KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) OF TEACHERS FROM ECOSCHOOLS ON CLIMATE CHANGE IN CUDDALORE DISTRICT OF TAMIL NADU STATE

Research
Paper

ABSTRACT

Climate change is an unprecedented challenge the world faces now. Realizing that in these days of environmental crisis it becomes very essential to arouse environmental ethics among various stakeholders like teachers, students and general members of the community, the concept of "Ecoschool" is being promoted and environmental education and conservation activities are taken up. The present study was carried out involving 32 male and 40 female teachers from 50 elementary ecoschools developed in Cuddalore district of Tamil Nadu States during June 2008 to April 2009. The components namely knowledge, attitudes and practices of the teachers on climate change were studied by administering tools namely "test", "attitude scale" and "rating scale" respectively. The grand mean knowledge score of the teachers recorded in the pre-test was a mere 10.81%; after interventions it increased to 83.46%. Similarly, the grand mean attitude score of the teachers recorded both in pre-test and post-test was 82.74% and 88.65%, respectively. The grand mean rating (practice) score registered was 58.50%. As the grand mean rating score was only marginally higher than 50% mark, there is much scope to increase further the practices of the teachers, especially on climate change.

INTRODUCTION

After realizing the alarming environmental degradation the Supreme Court of India with its Directive of 2003 made Environmental Education (EE) a compulsory subject at all levels of education. Further, in the National Curriculum Frame Work 2005, EE was being presented as "Habitat and Learning" and subsequently the recommendations of NCF 2005 were implemented. Against this backdrop the United Nations declared the period from 2005 to 2014 as Decade of Education for Sustainable Development (Blum, 2008). The DESD visualizes a world where anyone has an opportunity to benefit from education and learn the values, behavior and lifestyle required for a sustainable future and for positive societal transformation (CEE, 2007). Despite all such initiatives both at the national and the international levels, it is highly doubtful whether a desirable improvement has been made either in the transaction of incorporated environmental concepts in the classrooms or in the maintenance of a good physical environment in the schools by the teachers who are expected to be role models for the community. Climate change is considered to be a global issue. The related concepts of this issue were neither adequately incorporated in the textbooks nor were the

concepts transacted with the intention of making the students practice them so as to mitigate the issues pertaining to climate change.

MATERIALS AND METHODS

Study Area

This study was carried out in all the 50 elementary eco schools developed in Kurinjipadi block of Cuddalore district, Tamil Nadu state.

Ecoschools

With a view to promoting knowledge about, developing positive attitudes and values towards, and also fostering skills and desirable behaviour regarding environment among teachers and students, an initiative called "Ecoschool" was made continually from 2002 in the elementary schools located in Kurinjipadi block by involving the learners and teachers in environmental education and conservation activities. In the 50 elementary ecoschools, nearly all the 1000 saplings planted and taken care of by forming "Tree-mate Groups" involving students

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were now fully grown up. Furthermore, each of the classrooms of the ecoschools was provided with green and red coloured dustbins to enable the teachers in straining the students in source segregation of garbage into degradable and non-degradable ones. Litter management practice was enforced by forming "Litter Monitoring Group" comprised of students. Moreover, in each ecoschool one garbage pit was dug for the disposal of segregated degradable garbage. The non-degradable garbage was collected from all the ecoschools and sent to the nearby Neyveli Lignite Corporation (NLC) for their use in laying roads. The garbage pits were cleared up at the end of each academic year for further use. Besides, thrust was given on water, energy and biodiversity conservation. In addition to these activities, the teachers from the ecoschools were empowered by giving training on environmental education periodically. During the regular visits to ecoschools every month, the students and teachers were sensitized on various environmental issues with an emphasis on promoting environmental ethics.

Sampling

Of the 200 teachers working in all the 50 ecoschools 32 male and 40 female teachers were taken for the present study. Only these teachers were involved in a two-day training programme and for the administration of the tools barring the rating scale. In the selection of teachers, the purposive sampling methodology was employed. The present study was carried out from June 2008 to April 2009.

Tools

The three components such as knowledge, attitudes and practices of the teachers were evaluated by developing proper tools viz. "test", "attitude scale" and "rating scale" respectively.

Test

The test comprises 25 items of the fill-in the blank type under five dimensions viz., earth, glaciers, green house gases, human activity and mitigation measures with 5 items each. All the items carry 1 mark each.

Attitude Scale

The attitude scale consists of 15 statements under the same five dimensions as given under the "test". The number

of statements in the said dimensions is 2, 2, 5, 2 and 4, respectively. The statements are given under the 4 point Likert scale with options such as fully agree, agree, disagree and fully disagree, the scores being 4, 3, 2 and 1, respectively for positive statements and vice versa for negative statements. The questions for the test and the statements for the attitude scale were developed based on the concepts of climate change given in I-VIII standard pre-revised science and social science textbooks of Tamil Nadu State Board.

Rating Scale

The rating scale comprises 24 statements under two dimensions viz., "Ecology" and "Hygiene & Sanitation" with 14 and 10 statements respectively. The statements are given under a 4 point scale namely very good, good, bad and very bad, the scores being 4, 3, 2, and 1, respectively. The statements were developed based on the concepts related to environmental conservation activities taken up in the ecoschools.

Validity of Tools

Before being administered, the test and attitude scale were given to 10 teachers eliciting their responses. All of them agreed that the content of the items of the tools was valid.

Administration of Tools

Since the inception of ecoschools, all the teachers were empowered on various environmental issues by following different ways including training programmes. The teachers involved in the present study were also given a two-day training programme on climate change in two spells under the National Environmental Awareness Campaign. The tools such as test and attitude scale were administered to the teachers both before and after the conduct of the training programme. The rating scale was administered during regular visits to the ecoschools without informing them after the training was completed.

RESULTS AND DISCUSSION

KNOWLEDGE OF TEACHERS ON CLIMATE CHANGE

Since knowledge is the basis for the formation of attitudes, values and behavior, it is very essential to

promote it among teachers (Madany and Bugaahos, 1998 and Sampath, 2011). It has been recorded in the previous study that the grand mean knowledge score of teachers from the traditional schools on environmental concerns was below 50% mark (Sampath and Sundaramoorthy, 2007). However, the knowledge of teachers from the ecoschools on environmental concerns in general was above 50% mark (Sampath and Sundaramoorthy, in press). But, in the present study it was known that in the area of climate change the knowledge of teachers from the ecoschools was highly limited. The grand mean knowledge score recorded in the pre-test was only 10.81%. The record of the lowest knowledge score of teachers in the specific area of climate change in the present study could be attributed to non-inclusion of more concepts in the textbooks and not having sensitized the teachers in the crucial area of climate change. Moreover, it could also be adduced to lack of interest among the teachers in enriching themselves with knowledge on various areas of environmental concerns. After interventions, the grand mean knowledge score registered in the post-test was 83.46% - an increase of 72.65 percentage over the grand mean pre-test score. The record of remarkable improvement in knowledge of the teachers could be attributed to the training programmes conducted. Moreover, with a view to improving further the knowledge of teachers and sustaining it, interventions of various natures were made at regular intervals.

KNOWLEDGE OF TEACHERS IN THE DIMENSIONS STUDIED

Earth

The overall mean pre-test score of the teachers recorded in this dimension, though relatively low was 19.18%, and was adjudged highest among the dimensions studied. The registered low score indicates that teachers were ignorant of basic knowledge on different aspects of earth related to climate change. That the interventions made considerable impact in increasing the knowledge of the teachers was evident from the record of overall mean post-test score of 87.43% which obtained the penultimate position in the order of ranking.

Glaziers

The knowledge of the teachers in the dimension glaziers was also very restricted. It is evident from the record of overall mean pre-test score of 15.12% which got the 2nd position in the rank order. The record of the low mean score of knowledge showed that the teachers were not inclined to enrich their knowledge. However, after interventions the registered overall mean post-test score increased dramatically and got the 1st position in the order of ranking, the score being 89.37%.

Green House Gases

This dimension bagged the 4th place in the record of overall mean pre-test score of a mere 9.18%. The record of the low score showed that various aspects of green house gases which were familiar through various sources were not known to the teachers. Like in the case of the other dimensions, here too the interventions made possible considerable improvement in the knowledge of the teachers. It bagged the 3rd position with the record of overall mean post-test score of 87.75%.

Human Activity

The knowledge of the teachers in this dimension was so dismal, indicating that teachers were unaware of the various threats caused by human beings on climate. This dimension obtained the last rank (5th) in the pre-test with the record of the lowest overall mean score of a mere 0.625%. After interventions dimension bagged the 5th rank in the order of ranking. But the overall mean post-test score registered was relatively far higher (63.93%) than the mean score of the pre-test.

Mitigation Measures

The knowledge of the teachers in this dimension was also low and got the 3rd rank in the pre-test. The overall mean pre-test score recorded for this dimension was only 9.93%. Considerable improvement in the knowledge of the teachers through the interventions was known from the record of overall mean post-test score of 88.81% which stood in the 2nd position in the order of ranking.

The knowledge of the teachers from ecoschools on environmental concerns, especially on climate change is limited as known from the present study. A similar situation

prevails in the traditional schools too (Sampath and Sundaramoorthy, 2007) and so efforts need to be taken to improve further the knowledge of the teachers in all the schools.

Attitudes of Teachers

Development of environmental attitudes among teachers is pivotal for them to become environmental facilitators (Dawan et al., 2005). Unlike in the component knowledge, it was found out that the teachers possessed desirable attitudes towards various aspects of climate change to a great extent even before interventions were made. It was explicit from the record of grand mean pre-test score of 82.97%. As the teachers exhibited desirable attitudes largely even before the interventions were made, no marked increase in the post-test score was recorded. The grand mean attitude score registered in the post-test was 88.65% which was only 5.68 percentage points higher over the grand mean score of the pre-test.

ATTITUDES OF TEACHERS IN THE DIMENSIONS STUDIED

Earth

This dimension was adjudged 1st in the pre-test and 2nd in the post-test. The overall mean pre-test score recorded was 89.1%. After interventions, a little increase in the overall mean post-test score was recorded and the score was 92.57%.

Glaziers

The attitude score of the teachers in this dimension was found to have been relegated to the penultimate position in the pre-test and after interventions it obtained the last (5th) position. The overall mean pre-test score recorded was 77.54%. After interventions the attitude score of the teachers was found to have increased marginally. It was evident from the record of overall mean post-test score of 82.11%.

Green House Gases

The attitude score of the teachers recorded in this dimension was relatively higher. While the overall mean pre-test score registered was 84.28%, the overall mean post-test score registered was 90.76%. In both the tests it got the 3rd position in the order of ranking.

Human Activity

In the pre-test and post-test, this dimension bagged the 5th and the 4th position, respectively. The corresponding overall mean scores registered were 77.38% and 84.56%.

Mitigation Measures

Among the dimensions studied it got the 2nd position in the pre-test and the 1st position in the post-test. The overall mean pre-test score recorded was 86.60%. After interventions the overall mean score registered was 93.40% an increase of 6.80 percentage points over the pre-test score.

Even though development of the right attitude is a slow process (Deshpande, 2003), as the attitudes are said to be also taught (Das, 2003) in the present study the training makes an impact in the development of attitudes as suggested by Jones et al. (2003), Rajput, (2003), Dhawan et al. (2005) and Sampath (2011).

PRACTICES

Acquisition of knowledge and its transformation into attitudes and values are crucial to carry out practices (Dillon and Gayford, 1997). The scores for the various activities related to climate change mitigation that were carried out in the ecoschools and evaluated with the rating scale are presented here. The grand mean rating score registered was 58.50%. The overall mean rating score recorded for the dimension "Ecology" was 53.96% and that of the dimension "Hygiene and Sanitation" was 63.05%. As the grand mean rating score was only markedly above the 50% mark, it could be construed that the practices of the teachers in the ecoschools were merely satisfactory and therefore there is much scope to increase further their performance in the ecoschools.

The record of the highest grand mean attitude scores (88.65%) and conversely relatively lower grand mean rating score (58.50%) indicate that the teachers have no moral judgment and hence failed to exhibit "the said to have possessed attitudes" to practice environmental activities in the ecoschools. Evidently, for instance, in the attitude scale for the statements under the two dimensions namely "human activity" and "mitigation measures" which were related to nurturing and tending of tree saplings,

training of students on environmental conservation activities and the need for switch over to ecolife style, teachers exhibited that they possessed higher attitudes. However, for similar statements in the "rating scale" the performance of the teachers when evaluated was poor and thus did not match with their attitudes exhibited on the attitude scale. Similar findings of wide difference between attitudes and practices have already been reported from the ecoschools by Sampath (2011). Generally, opportunity provided to carry out activities will enable formation of attitudes and behavior as stated by Dillon and Gayford (1997). It is, after realizing such a situation and to bridge the existing wide gap between the said two components efforts are under way by conducting training programmes at regular intervals and also in the proper monitoring of the ecoschools, since monitoring is vital for improving the performance (Jensen, 2005 and Sampath, 2009).

CONCLUSION

It is quite obvious that despite many initiatives by the government concerned the environment in all fronts is getting degraded and more particularly the impact of climate change is becoming severe every year. As found out from the present study, lack of adequate knowledge among the teachers in the area of climate change seems to be the primary reason for the present despicable situation. Interventions need to be made to improve further the knowledge of teachers. Moreover, the promotion of mere knowledge will not be of much use. The education system should be revamped in the real sense in such a way as to transform the knowledge of teachers into desirable attitudes, values, skills and behavior so as to reflect on students.

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