

Environmental Education Awareness and Attitude Among Teacher Educators

Vipinder Nagra

Inderjit Kaur

D.A.V. College of Education Hoshiarpur, Punjab, India

Email: san6vip@yahoo.co.in

Abstract

Environmental education is one of the sustainable tools being promoted to prevent further degradation of environment. Positive environmental attitude plays prominent role in enhancing its scope as well as improving the quality of the environment. Keeping this view in mind the present study was conducted to identify the level of environmental education awareness and attitude of 202 teacher educators in relation to their residential background and subject streams. Results revealed that teacher educators had average environmental education awareness and attitude level. Insignificant differences were observed in environmental education awareness and environmental attitude in relation to residential background while significant difference was noted in relation to subject streams. A moderate positive and significant correlation was found to exist between environmental education awareness and environmental attitude of teacher educators.

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Keywords: Environmental education awareness, Environmental Attitude, Teacher Educators, Residential background, Subject stream.

Introduction

With human beings dependence upon environment is inevitable. Knowing this fact, still we are ruthlessly tapping every bit of our natural environment thereby creating a serious holocaust. The dwindling situation of the environment foretells that something concrete has to be done to not only protect the environment but also to preserve it qualitatively for the future. Although many conferences, campaigns, reports have come forward after Agenda 21 of Rio Declaration 1992 at the national and international levels but still the environmental issues are global priority that remain to be solved. These can only be solved when every individual feels the intensity of the problem and start acting towards its protection. Infact, the need of the hour demands an inner compulsion in every individual that can bring about an attitudinal change among them to think and act appropriately to save the deteriorating environment. This is possible through attitudinal change that can be brought about

by education and that too by “environmental education”. Environmental education is a potent weapon that can serve the purpose (Nachimuthu & Vijayakumari, 1993; Fong, 1994; Derrah, 1995; Chapman & Sharma, 2001). It helps in developing knowledge, understanding, awareness, skills, attitudes and values for solving current environmental problems, preventing of the new ones, attaining a better quality of environment and higher quality of life.

Ramsey *et al.* (1992) highlighted that environmental awareness is the first major step towards preparing people to solve environmental problems. Adequate environmental knowledge prompts to produce appropriate behaviours. Murphy (2002) emphasized that knowledge about environment is a precondition for creating awareness and attitude towards environment. It is a general assumption that increased environmental knowledge will automatically lead to environmental awareness that will in turn lead to pro- environmental attitudes. It has also been ascertained by many social scientists that attitudes has considerable influence on behaviour of an individual (Ramsey & Rickson, 1976; Ramsey & Hungerford, 1989). Attitude is a complex mental construct (perception) which emerges out of an integration of an individual’s belief and values system (Boershing & Young, 1993). Environmental attitude, which is defined as sets of values and feelings of concern for the environment (UNESCO/UNEP, 1978), is accepted to be a powerful predictor of environmental behavior (Kaiser *et al.*, 1999). Thus, proper awareness and attitude towards environmental problems, its consequences and solutions becomes an essential pre requisite to improve the quality of environment. In a survey conducted it was concluded that there is significant discrepancy between people’s attitude and their actual behaviour (Chan, 1996).

The Hon’ble Supreme Court of India (22nd November, 1991) in this regard, has directed the state governments and education boards to introduce environmental education as a compulsory subject at all levels of education (school and colleges) and also entrusted the responsibility to UGC (18th December, 2003) to introduce a basic course on environment at every level in college education. Awareness towards environment or positive attitudes towards environmental issues not only depends upon the content of environmental education but also on the manner in which the material is presented to the learner (Dushane, 1974). Tilbury (1994) demonstrated that early learning years are critical for environmental education of learner. That means that if learner develops positive or negative attitudes towards environment in early years then they are likely to become deeply rooted. The behaviour of the individual towards environment can be developed or modified if the content of environmental education is properly framed, suitably presented, incorporated with practical activities both indoor and outdoor as well as offered by quality teachers in terms of knowledge, awareness, attitude and skills. Teacher’s awareness and attitude towards the environment signifies his/her commitment towards the environmental issues, its effects and solutions. An environmentally aware teacher educator can effortlessly develop knowledge, awareness, attitude and skills among the future

teachers who in turn can motivate the children coming in their contact directly or indirectly in developing pro environmental behaviour. They themselves have to actually practice environment protection behaviour to inculcate similar attitudes and actions in future generations. This will also enable them to convince the society about the urgency of protecting and preserving the environment from further degradation.

Although effort to introduce environmental education as a subject in the college curriculum have been made but still the subject faces certain limitations with regard to its proper implementation. The lacuna surely lies in the lack of appropriate environmental awareness, interest and attitude of the teacher towards this subject. It has been found that the teachers are not wholeheartedly ready to go beyond regular class schedules due to some constraints or so and even it becomes difficult for them to adjust the specific environmental activities in the regular course schedule (Sonowal, 2009). Research efforts have often been directed towards environmental issues but still there is dearth of studies investigating what and how much the public knows about environment (Arcury, 1990).

Various studies in this field have served an important function by developing knowledge, concern, attitude, awareness, etc. among the masses to preserve, protect and conserve the environment from various types of problems and to take effective decisions for enacting environmental laws. Shahnawaj (1990) found that 95% teachers and 94% students possessed positive environmental attitudes. Patel and Patel (1994) examined that male teachers with long school experience, in urban areas, are more aware about the environmental education. Patel and Patel (1995) found no significant difference in environmental awareness of teachers with high and low experiences. Todt (1996) investigated the environmental literacy of teachers in south central Ohio and discovered a major gap in the teacher's knowledge of ecological systems. Patel (1999) concluded from his study on primary teachers in Dang district of Gujarat that the level of environmental awareness of these teachers was high.

Owens (2000) assessed that significant differences were found among teachers according to racial or ethnic background, subject areas taught and years of teaching experience. Pradhan (2002) revealed that teachers working in secondary schools had low awareness about environmental problems. There was a significant difference in environmental awareness between social science, language and science teachers, and rural and urban teachers. Shaila (2003) found that there is no significant difference between male and female teachers with regard to their environmental awareness and depicted no significant difference between arts and science teachers. Sandhu & Dhillon (2005) assessed the environmental education awareness among elementary school teachers and found that there was significant difference in environmental education awareness with respect to their residential background and subject specialization.

Shobeiri *et al.*, (2006) concluded that genders do have significant influence on

environmental awareness of school teachers. Significant difference showed that science and social science subject teachers have higher level of environmental education awareness than languages subject school teachers. Larijani & Yeshodhara (2008) studied the environmental attitude of Indian and Iranian higher primary school teachers in various components and found that Iranian teachers had most favourable attitude in all the components except in Wildlife. Nagra (2010) revealed significant variation in the environmental education awareness level of school teachers in relation to their level, residential background and subject specialization. However, no significant variation was observed in relation to the gender of school teachers. Nagra & Singh (2013) in their study concluded that senior secondary school teachers have average level of environmental education awareness and insignificant differences were observed in environmental education awareness in relation to type of school, gender and subject streams. Likewise Nagra & Kaur (2013) in their study on upper primary school teachers revealed that these teachers possess average environmental awareness level and insignificant differences were observed in relation to type of school, gender and subject streams.

The perusal of the above studies indicate that although environmental education awareness, attitude, literacy, interest has been an important area of research among teachers teaching at various levels along with demographic variables like age, gender, locality, subject streams, income, education, socio economic status, type of school, teaching experience, etc. but very rarely any study has concentrated upon analyzing the environmental awareness and attitude among teacher educators. Taking into consideration this situation, the investigator has felt a need to conduct a study to examine the environmental education awareness level and environmental attitude among teacher educators in relation to residential background and subject streams and also to find out the relationship if any, between them. It is possible that the results of the study can help us to take necessary actions to come forward with prolific results to enhance the efficacy of the content as well as to sustain the inner urge for desirable actions.

Materials and methods

Participants: The study was conducted on teacher educators belonging to Hoshiarpur and Jalandhar districts of Punjab (India). A list of teacher training institutes (Colleges of Education) of these districts was obtained. The total number of teacher educators teaching in these institutes was found to be two hundred and sixteen. All of them were contacted personally and questionnaires were given. They were given proper instructions regarding the objectives of the study, filling up of questionnaires and were also assured that their responses will be kept strictly confidential. The collected questionnaires were properly scored, scrutinized and the data was tabulated according to the variables of the study. It was found that some of the questionnaires were incomplete in one aspect or the other and therefore, they were discarded. Altogether, two hundred and two questionnaires were finally analyzed (Response rate, 95%). 61.4% of teacher educators included in the study

belonged to urban areas while 38.6% belonged to rural areas. Majority of teacher educators (73.2%) were from humanities streams and 27% were from science stream

Instruments: In order to measure the environmental education awareness of teacher educators, a standardized Environmental Education Awareness Test developed by Vipinder Nagra (2010) was used. The test had both reliability as well as validity and was appropriate in all aspects to collect the relevant information required in the present study. It contained items related with different aspects of environment specifically areas such as biosphere, energy conservation, pollution (air, water, soil, and noise), conservation of natural resources including wild life, population, and general environmental concepts. The test consisted of 100 multiple choice items with four choices and the respondent had to choose the one correct one. Each correct response carried one mark and incorrect response a zero mark. Thus, the maximum score a participant could score was 100. The reliability coefficient was found to be 0.99 and the value of suitability ranged from 0.97 to 1 which showed that the test had content validity and concurrent validity was 0.63.

The environmental attitude level was measured by using standardized Environmental Attitude Scale (EAS) by Haseen Taj (2001). The scale consisted of 61 items covering six areas of environment, viz., health and hygiene, wild life, forests, polluters, population explosion and environmental concerns. Each item alternative was assigned a weightage ranging of 4 for strongly agree, 3 for agree, 2 for disagree and 1 for strongly disagree for favourable items and reverse (1 for strongly agree to 4 for strongly disagree. Reliability of the scale as estimated by split half was 0.82, which was highly significant.

The questionnaires also included information about the demographic variables of the study such as residential background and subject streams. The data collected through the tools was subjected to statistical analysis and results were drawn out. Percentage, mean and standard deviation of the total sample and relevant sub samples was computed and group comparisons were done by applying t tests. Coefficient of correlation was calculated to find the correlation between environmental education awareness and environmental attitude of the total sample as well as the sub samples.

Results

The classification of total sample (N=202) as well as the sub samples on the basis of environmental education awareness is shown in Table 1. The table provides detail about the number of teacher educators and their percentage distribution according to their environmental education awareness level. The levels of environmental education awareness were grouped as very high (68 & above), high (62-67), above average (56-61), average (47-55), below average (41-46), low (35-40) and very low (34 & below).

Table 1: Classification of Teacher Educators on the Basis of Environmental Education Awareness Level

| Groups | Very High 68 & above | | High 62-67 | | Above Average 56-61 | | Average 47-55 | | Below Average 41-46 | | Low 35-40 | | Very Low 34 & below | |
|--------------|-------------------------|------|---------------|------|------------------------|------|------------------|------|------------------------|------|--------------|-----|------------------------|------|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Total sample | 29 | 14.4 | 29 | 14.4 | 23 | 11.4 | 33 | 16.3 | 23 | 11.4 | 08 | 3.9 | 57 | 28.2 |
| Urban | 12 | 9.7 | 19 | 15.3 | 14 | 11.3 | 24 | 19.4 | 12 | 9.7 | 07 | 5.6 | 36 | 29.0 |
| Rural | 17 | 21.8 | 10 | 12.8 | 09 | 11.5 | 09 | 11.5 | 11 | 14.1 | 01 | 1.3 | 21 | 26.9 |
| Science | 25 | 46.3 | 19 | 35.2 | 07 | 12.9 | 02 | 3.7 | 01 | 1.9 | 00 | 0 | 00 | 0 |
| Humanities | 04 | 2.7 | 10 | 6.8 | 16 | 10.8 | 31 | 20.9 | 22 | 14.9 | 08 | 5.4 | 57 | 30.5 |

The data from Table 2 highlight that the mean calculated for the whole sample is 47.44 and standard deviation is 18.5. The mean score of the total sample (N=202) falls in the average range level which suggests that teacher educators of Jalandhar and Hoshiarpur District have average environmental education awareness level. Similarly, there exists no significant difference between urban and rural teacher educators ($t= 0.57$; $p>.01$) in their environmental awareness. This insignificant result shows that both urban and rural teacher educators are equally aware about environment. Results also depict that there exists significant difference between science and humanities teacher educators ($t= 12.97$ $p <.01$) in their environmental awareness. This significant result concludes that both science and humanities teacher educators do have variation in environmental awareness levels.

Table 2: Comparisons of Total Sample and Sub Samples for Environmental Education Awareness

| Sub- Samples | Total (N) | Mean (M) | Standard deviation (s) | t- value |
|--------------|-----------|----------|------------------------|----------|
| Total Sample | 202 | 47.44 | 18.54 | |
| Urban | 124 | 46.88 | 16.85 | 0.57 |
| Rural | 78 | 48.41 | 18.85 | |
| Science | 54 | 65.79 | 11.00 | 12.97* |
| Humanities | 148 | 40.75 | 15.00 | |

The total number of teacher educators and their percentage was tabulated in Table 3. The environmental attitude scores were categorized as favorable (181 & above), average (121-180) and unfavorable (61-120). The results from Table 3 highlight that 10.9% of teacher educators fall have favorable environmental attitude, about 42.1% have average environmental attitude, and 47.0% have unfavorable environmental attitude.

Table 3: Classification of Teacher Educators on the Basis of Environmental Attitude

| Groups | Favorable | | Average | | Unfavorable | |
|--------------|-----------|------|---------|------|-------------|------|
| | No. | % | No. | % | No. | % |
| Total sample | 22 | 10.9 | 85 | 42.1 | 95 | 47.0 |
| Urban | 14 | 11.3 | 17 | 13.7 | 93 | 75.0 |
| Rural | 08 | 10.3 | 68 | 87.2 | 02 | 2.5 |
| Science | 18 | 33.3 | 34 | 63.0 | 02 | 3.7 |
| Humanities | 04 | 2.7 | 51 | 34.5 | 93 | 62.8 |

The data from Table 4 depicts that the mean calculated for the whole sample is 159.4 and standard deviation is 16.0. The mean environmental attitude score of the total sample (N=202) falls in the average range level which suggests that teacher educators of Jalandhar and Hoshiarpur District have average environmental attitude towards environmental problems. Results from Table 4 also emphasize that there exists no significant difference between urban and rural teacher educators ($t= 0.63$;

$p > .01$) in their environmental attitude. This insignificant result shows that both urban and rural teacher educators have equal attitudes towards environment and its related problems.

Table 4: Comparisons of Total Sample and Sub Samples for Environmental Attitude

| Sub- Samples | Total (N) | Mean (M) | Standard deviation (s) | t- value |
|--------------|-----------|----------|------------------------|----------|
| Total Sample | 202 | 159.4 | 16.0 | |
| Urban | 124 | 156.19 | 16.00 | 0.63 |
| Rural | 78 | 157.74 | 16.26 | |
| Science | 54 | 174.60 | 16.00 | 8.74* |
| Humanities | 148 | 153.80 | 11.70 | |

Similarly, Table 4 also represents that there exists significant difference between science and humanities teacher educators ($t = 8.74$; $p < .01$) in their environmental attitude. This significant result concludes that both science and humanities do have variation in environmental attitudes.

Table 5: Coefficient of Correlation between Environmental Education Awareness and Environmental Attitude for the Total Sample and Sub Samples

| Sample group | N | Correlation (r) |
|--------------|-----|-----------------|
| Total Sample | 202 | 0.46 |
| Urban | 124 | 0.47 |
| Rural | 78 | 0.48 |
| Science | 54 | 0.50 |
| Humanities | 148 | 0.45 |

The coefficient of correlation (r) between environmental education awareness and environment attitude for the total sample ($N=202$) as well as the sub samples was found to be positive and significant (Table 5). Therefore, the two variables are functionally related i.e., the mean environmental education awareness is related to environment attitude and vice versa. Since the values lies between $+0.30$ and $+0.60$, the variables exhibit a moderate or average relationship thereby indicating that any increase in environmental awareness will be attended by a corresponding increase in environmental attitude and vice versa.

Discussion

Environmental education has been introduced as a compulsory subject in the curriculum right from the primary level and the teachers or teacher educators remain in continuous touch with the environmental content directly or indirectly while dealing with this subject. They thus, seek ample knowledge and information about environmental concepts, its importance, problems and solutions. Even mass media (both electronic and print) plays significant role in increasing the awareness about environment (Ostman & Parker, 1986; Srichai, 1989; Brothers *et al.*, 1991;

Hausback *et al.*, 1992; Chan, 1999). The teacher educators update their knowledge through radio, television, magazines, newspapers, journals, internet, etc. Results of the study conducted by Larijani (2010) are also in line with the present study revealing that teachers in the study had moderate level of environmental awareness.

The study emphasize that residential background does not affect the environmental awareness level of the participants. Now days every corner of the world (whether urban or rural) has enhanced opportunities and easy access to mass media, better schools, infrastructural facilities, effective teachers, internet, etc. These facilities enable them to keep their knowledge up dated with recent environmental issues, related problems and solutions. Results of studies conducted by Albrecht *et al.*, (1982); Arcury and Christianson (1993); Guagnano and Markee (1995); Lavega (2004); Xiao and McCright (2007); Yurt *et al.*, (2010) and Farrokhian *et al.*, (2012) also revealed no significant differences between urban versus rural communities.

Environmental education is an interdisciplinary subject and therefore, draws relevant attention and concern from various fields. The content of the subject is not just limited to science stream but is also part of other subjects also. Littledyke, (2008) has mentioned that science subject plays a key role in developing understanding of concepts that underpin environmental issues, leading potentially to pro-environmental behaviour. The curriculum of science education is designed in such a manner that it integrates the general concepts about environment and thus, is a valuable source of environmental information also. Hence, teacher educators from science streams are more familiar and aware with the environmental concepts, their relationship, problems and solutions in comparison to humanities streams teacher educators. Studies conducted by Pradhan (1995, 2002), Owens (2000), Sandhu and Dhillon (2005), Shobeiri and Prahallada (2008), Nagra (2010) and Saha (2012) also reveal that subject stream do have significant effect upon environmental education awareness.

High awareness levels about the environment can increase the attitude towards environmental issues (Aminrad *et al.*, 2013). In the present study it has been found that the teacher educators have average level of environmental awareness and therefore chances are that they have average environmental attitude. Mass media too plays important role in developing positive attitude of the masses towards environment issues its consequences and their solutions.

Knowledge about environment somehow affects the awareness and attitude level and even overall behaviour of the individual. These days both rural and urban community have easy access to sources that help them update their knowledge about environment like, radio, television, magazines, newspapers, journals, internet etc. Studies by Jinarajan (1999) and Aminrad *et al.*, (2013) confirm that along with media, certain demographic variables also affect the environmental attitude of the participants. McMillan *et al.*, (1997), and Muderrisoglu and Altanlar (2011) also confirmed in their studies that locality has no statistical effect on environmental attitudes and behaviors.

Science teacher educators have relatively high environmental attitude than humanities teacher educators. Studies have shown that students opting for biology or science streams have higher environmental concerns or attitudes (e.g. Karpiak and Baril, 2008). The results of the study conducted by Shaila (2003), Bhardwaj and Behal (2011) and Chavan (2011) highlight that streams do not have significant effect upon environmental attitude.

The significant positive correlation between environmental education awareness and environmental attitude among teacher educators highlights that both environmental education awareness and environmental attitude are positively related with each other. The environmental education acts as an effective tool to aware every person about environment, its issues and solutions. When teacher educators have environmental awareness, they show positive attitude towards their environment. Also, when teacher educators has positive attitude towards environment, they show readiness to acquire more knowledge about environment, its issues and their solutions. So, it is a two way process and both are related with each other. Results of study conducted by Bhardwaj & Behal (2011) are in line with this study showing positive and significant relationship between environmental awareness and attitude. Study by Aminrad *et al.*, (2013) reveals a high correlation between environmental awareness and attitude.

Educational Implications

To achieve a good quality of life on earth for all living beings, it is essential to educate humankind and spread awareness about environment and sustainable development. Teacher is an effective tool in this regard. If the teacher is aware only then s/he can make the students aware about the environmental issues, their effects, solutions and can imbibe in them environmental ethics. Stress has to be laid upon in bringing attitudinal change in them regardless of locality or subject streams. The teachers themselves can explore environmental issues and with the help of mass media, information technology and student cooperation can sort out different solutions. Seeking help from various governmental and non-governmental organizations can do wonders and help increase their knowledge about global and local environmental concepts. The government must restructure and enrich both in-service and pre- service teacher education programmes with environmental awareness activities.

The number of teacher educators analysed for environmental awareness and attitude is very small and restricted to only two districts of the state thus, posing a potential constraint in generalizing the results for other areas and demographic variables. However, confidently the results of present study do provides an insight on the awareness level and attitude of current group of teacher educators towards environmental issues which no doubt will facilitate the other researchers to carry out this research work on larger scale taking into consideration other demographic variables also.

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