

Scale for Measuring Attitude of Secondary School Students towards Environmental Protection and Sustainable Development

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Abstract

The beauty and richness of the natural environment and the ecological processes on which life depends are being lost. Developmental choices in turn determine the fate and the state of environment and ecosystem services. A Scale developed to measure the attitude of secondary school students towards Environmental Protection and Sustainable Development based on Likert's technique. A tentative list of 50 statements was drafted keeping in view the applicability of statements suited to the area of study. The Statements collected were edited in the light of the informal criteria suggested by Thurstone and Chave, Edward and Kilpatrick. These statements were framed in such a way that they express the positive or negative attitude. The score of each individual item on the scale was calculated by summing up the weights of the individual items. On the basis of total score, 27 percent of the subjects with the highest total score and also 27 percent of the subjects with the lowest total score were taken assuming that these groups providing criterion groups in terms of high and low evaluated by the individual statement. In order to find out the discriminating index for each item, 't' value was calculated using the formula and procedure given by Edwards. The scale so developed finally consisted of 20 statements (10 positive and 10 negative) whose 't' values were found to be significant at one percent level of probability.

KEYWORDS: Scale, Attitude, Environmental Protection, Sustainable Development.

1. INTRODUCTION:

Attitude has been defined as "the degree of positive and negative feeling, opinion, belief, and action, associated with some psychological object. A psychological object may be any symbol, person, institution, ideal, phrase or idea towards which people may differ from each other with respect to positive or negative aspect. The psychological object of the present study has been symbolized as Environmental Protection and Sustainable Development. An attitude scale consists of a number of items which have been carefully selected and edited based on certain specific criteria. Following methodology was adopted to develop an attitude scale towards social forestry based on *Likert's technique (1932)*.

Nations have committed to work together from 2005 to 2014 to achieve the goals of the United Nations Decade for Education for Sustainable Development (DESD). Many activities are underway, related to educational policy and programming for formal,

non-formal and informal learning. However, a key challenge will be to assess whether in fact changes in behaviour are taking place as an outcome of the integration of sustainable development concepts and values into the learning process. Such changes can best be measured at the local and national levels; but in order to do so, baselines of current knowledge, attitudes and choices need to be established.

Environmental Conservation for Sustainability is not a problem, if favourable attitude towards Environmental Protection and Sustainable Development is being inculcated in students. Students are the most suitable weapons of the future generation for conserving our Environment.

2. RATIONALE FOR THE SELECTION OF THE VARIABLE

Environmental Conservation is essential for human existence as they offer a variety of products and services to mankind. Now it is high time to be on the constructive side of the environment and give back at least part of what is being over exploited. People can help by planting new trees, reduce the pollution of the seas and rivers and save energy. This would be the small prayer to Mother Nature, by using it properly, and cherishing each of nature's creation in its 4.54 billion years of being.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The satisfaction of human needs and aspirations is the major objective of development. The essential needs of vast numbers of people in developing countries—for food, clothing, shelter, jobs—are not being met, and beyond their basic needs these people have legitimate aspirations for an improved quality of life. A world in which poverty and inequity are endemic will always be prone to ecological and other crises. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life (World Commission, 1987).

The last thirty years have witnessed the growing international recognition that the challenges associated with environmental degradation and sustainable development has important implications for and connection with education and schooling (UNESCO, 2006a).

3. METHODOLOGY

DEVELOPMENT OF THE TOOL

Attitude towards Environmental Protection and Sustainable Development among students at secondary school can be measured using Scale of Attitude towards Environmental Protection and Sustainable Development.

a. Planning

For the preparation of the statements, the investigator collected all possible information regarding Environmental Protection and Sustainable

Development through literature, dailies, magazines, and conducted formal and informal interviews with environmentalists and other experts in the field. Besides this, information regarding the need for conserving the environment was collected from Kerala State Biodiversity Board (KSBB) and WWF- India. The informal criteria of editing statements by various researchers in the field of Attitude Scale construction like *Edward and Kilpatrik (1948)*, *Thurstone and Chave (1929)*, and *Lickert (1932)* was reviewed thoroughly. In order to get insight in to the constructs, the investigators reviewed tools available in the field of Attitude, which helped the investigator in deciding the Universe of content from which statements are written off. A tentative list of 50 statements was drafted keeping in view the applicability of statements suited to the area of study.

b. Preparation of the Scale

The investigator started with a broad pool of statements. The statements written off were evaluated by asking familiar teachers respond to the statements as they would, if they had favourable attitude towards the object. The same teachers were asked to respond to the statements as they would, if they had unfavourable attitude, thereby eliminating many ambiguous factual statements. While editing the items the investigators took care to avoid factual statements, statements which could be interpreted in more than one way, statements likely to be considered similarly by everyone and statements in compound sentences. The words like 'all', 'always', 'none', 'never', 'should', 'must' etc were avoided as these either introduce ambiguity or limit the choice of the subjects.

Necessary information regarding the purpose of the scale was provided to students at first. The draft scale was intended to have statements with adequate representation given to both positive and negative statements. Example of each statement is given below.

Positive Statement

Eg: Human beings unitedly can win over Endosulphan issues.

Negative Statement

Eg: A return from the daily use of plastic is impossible.

c. Pilot testing

In order to finalize any instrument the items of the tool should be tried out with a small group, a pilot run (Wiersma, 1986). The draft tool was thus administered on a sample of 30 students in Eminence public school, Pandalam, Pathanamthitta District, Kerala. Trial run was conducted with a view to identify ambiguities like difficulties to comprehend language, difficulties concerned with the direction for marking the responses, addition or deletion of certain statements and to get an estimate of time required to complete marking of responses for all the statements.

d. Scoring Scheme

The responses are to be recorded along a five point scale, and the scoring adopted for the scale is as follows. For positive statements scores 5, 4, 3, 2 and 1 were given for marking responses viz., 'Strongly Agree', 'Agree', 'Undecided', 'Disagree', and 'Strongly Disagree' respectively. Reverse scoring procedure was adopted in the case of negative statements. Attitude towards Environmental Protection and Sustainable Development of a student is the total score obtained for all the statements of the scale.

e. Tryout and Finalization of the Tool

The draft tool was tried out on a sample of 370 students of secondary schools giving representation to various categories of the subjects based on the Type of management of schools, and Locality of the schools. All the response sheets collected were scored as per the scoring procedure explained. The scores given to each statement summated to yield the total score.

f. Standardization of the Tool

The investigators used the following procedure in order to standardize the tool.

Item Analysis: - Statements were selected for the final scale on the basis of discriminating power of each item. The discriminating power of item was calculated on the basis of t-value of the item. The t-value obtained for final statements is given in the Table 1.

Table 1. Attitude Scale Developed For Measuring the Attitude of Secondary School Students towards Environmental Protection and Sustainable Development

SI. NO:	Statements	't' values
1.	The balance of nature is very delicate and easily upset.	3.311**
2.	It is okay to sacrifice environmental quality for economic growth.	3.952**
3.	People have the right to change the Nature.	3.562**
4.	Earths value does not depend on people.	3.258**
5.	Mankind is severely abusing the Environment.	6.867**
6.	Environmental Protection and Economic development can go hand in hand.	3.546**
7.	There are no limits to growth of our industrialized society.	3.425**

8.	Raising animals in cages is to be forbidden.	3.417**
9.	People can live without all the other creatures in the world.	4.214**
10.	Because mosquitoes live in marshes and swamps, it would be better to drain these and use them for farming.	4.253**
11.	Organisms lives are precious and worth preserving.	3.575**
12.	Social responsibility is not relevant to Sustainable Development.	3.584**
13.	As an individual, there is lot to do to protect the Environment.	3.855**
14.	Modifying the Environment for human use seldom cause serious problems.	3.651**
15.	Moving freely in nature is an enjoyment.	3.364**
16.	A return from the daily use of plastic is impossible	3.125**
17.	Raise money to conserve nature is a good habit.	3.385**
18.	Personal welfare is independent of the welfare of the Nature.	3.364**
19.	Human beings unitedly can win over Endosulphan issues	3.925**
20.	A healthy environment is necessary for a healthy economy.	3.219**

**Significant at 1 percent level of probability.

g. Validity of the Scale

Validity of the test in the accuracy which test measures what it is, intended to measure. If a test measures only what it is intended to measure, the test is said to be valid. Attitude scale is based on psychological theory or construct. Therefore evidence for the construct and prediction are necessary.

The scale of Attitude towards Environmental Protection and Sustainable Development was prepared on the basis of the theory of construction of Attitude Scales by *Likert*. The investigators followed the Psychological constructs of Attitude. The statements representing the universe of interest were prepared from an extensive review and also by asking the subjects to write short descriptions of their feelings about the psychological constructs and due care was taken to avoid statements which may be given particular interpretation by the individual themselves. Hence it is assumed that the scale has construct validity.

Maximum efforts were taken to avoid statements which are factual and statements with complexity in comprehending the language by seeking expert opinion. Each statement was so written as to reveal the subjects' Attitude towards Environmental Protection and Sustainable Development. Through these efforts the investigator was able to establish face validity.

h. Reliability of the Tool

Reliability of a test is trustworthiness or its consistency. The concept of reliability underlines the errors of measurement of a single score, whereby we can predict the range of fluctuations likely to occur in single individual scores as a result of irrelevant factors (Anastasi, 1961). In tools that have high coefficient of reliability; errors of measurement have been reduced to minimum. Reliable tests are stable in whatever they measure and yield comparable scores on repeated administration. The reliability of Scale of Attitude towards Environmental Protection and Sustainable Development was found out by the test-retest method. The scores of Attitude Scale were correlated with scores of retest administered after two weeks. The Reliability Coefficient obtained was 0.676 (N=30). This index suggests the Scale is highly reliable.

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