

CONSTRUCTION AND VALIDATION OF AN ENVIRONMENTAL AWARENESS SCALE

Nilakshi Senapati

SRF, Department of Education
Dibrugarh University, Dibrugarh, Assam

Prof. Neeta Kalita Barua

Department of Education
Dibrugarh University, Dibrugarh, Assam

ABSTRACT

The present paper is an attempt to construct and standardized an Environmental Awareness scale for the Under Graduate students. The Final scale consisted of 48 items, distributed over 8 areas of Environmental Awareness. The investigator constructs the scale in two languages, i.e., in English and Assamese language. The reliability of the English version was found to be 0.88 and the reliability of the Assamese version was found to be 0.88. To determine the validity of the Environmental Awareness scale, the investigator showed the Environmental Awareness scale to a number of experts seeking judgement regarding the coverage of the constructs. Concurrent validity was also done to determine the validity of the scale and the coefficient of validity was found as 0.67.

Keywords: Environmental Awareness, Under Graduate Students, Construction, Validation

INTRODUCTION

Our environment determines our lifestyle. Nowadays there is an increasing awareness and demand all over the world for protection and preservation of the environment. However, this protection and prevention can only be possible if we have the right type of awareness and attitude towards such issues. The term environmental awareness has a broad meaning. It has not only implies knowledge about environment but also values and necessary skills to solve environmental problems. Moreover, environmental awareness is the initial step ultimately leading to the ability to carry on responsible citizenship behaviour (Sengupta, Das and Maji, 2010). Besides, among other things, awareness encompasses incorporating knowledge of contemporary issues affecting nature locally and beyond, discovering which actions can make a difference in your surroundings, and self-awareness concerning personal environmental philosophies (Bocher, 2005). Hence the researcher felt the need to develop and standardize the Environmental Awareness scale for the Under Graduate student.

PURPOSE OF THE SCALE:

Purpose of the scale was to measure the Environmental Awareness of Under Graduate students. This scale is meant for Under Graduate students.

CONSTRUCTION OF THE ENVIRONMENTAL AWARENESS SCALE

Objective1: *“To construct and Standardize an Environmental Awareness scale for the Under Graduate students”*

The steps followed to construct and standardize the scale are discussed below. To fulfill the Objective no. 1 the main objective was divided into the following sub objectives:

1. To prepare a draft Environmental Awareness Scale.
2. To try out the draft Environmental Awareness Scale on a sample.
3. To make item analysis of the draft Environmental Awareness scale to measure the Environmental Awareness level of UG students.
4. To select the items for final Environmental Awareness Scale.
5. To determine the reliability of the Environmental Awareness Scale.
6. To determine the validity of the Environmental Awareness Scale.

1. Preparation of the draft Environmental Awareness scale: In order to prepare the first draft of the Environmental Awareness Scale, the research literature related to construction of Environmental Awareness scale was consulted thoroughly. Different dimensions of Environmental

Awareness scale were also consulted. Some scales related to Environmental Awareness were consulted and taken as a guide for the construction of the present scale. The following scale was mainly consulted for the construction of the present scale, i.e., the *Environmental Awareness Test (EAWT)* constructed by K. Yeshodhara (2003).

From the study of related literature 8 dimensions of environmental awareness were found out and taken for the construction of the present Environmental Awareness Scale. The test consisted of 91 items, distributed over 8 areas of Environmental Awareness. After review of other research studies, the dimensions identified as important for the students studying at the Under Graduate level were:

- (i) Pollution,
- (ii) Bio-diversity and its conservation,
- (iii) Energy,
- (iv) Environmental Concept, Concerns and Legislation,
- (v) Sustainable development,
- (vi) Health and hygiene,
- (vii) Sanitation facility (toilets, solid and liquid waste disposal systems, village cleanliness),
- (viii) Safe and adequate drinking water.

The total marks on this scale were fixed as 91. For a right response to each question, one mark was to be allotted. The respondent had to identify the correct answer among the alternatives given and tick the correct answer. The distribution of test items over different areas of Environmental Awareness in the final form of the test is detailed in [Table 1](#).

Table-1: Distribution of Test items in Environmental Awareness Scale

Areas of Environmental Awareness	Serial number of items in the test	Total number of items in each area
Pollution	1,9,17,25,33,41,49,57,65,73,81	11
Bio-diversity and its conservation	2,10,18,26,34,42,50,58,66,74	10
Energy	3,11,19,27,35,43,51,59,67,75,82	11
Environmental Concept, Concerns and Legislation	4,12,20,28,36,44,52,60,68,76,83,87	12
Sustainable development	5,13,21,29,37,45,53,61,69,77,84,88	12
Health and hygiene	6,14,22,30,38,46,54,62,70,78,85,89	12
Sanitation facility (toilets, solid and liquid waste disposal systems, village cleanliness),	7,15,23,31,39,47,55,63,71,79,86,90,91	13
Safe and adequate drinking water	8,16,24,32,40,48,56,64,72,80	10
Total		91

2. Try out of the draft Environmental Awareness scale:

- **Sample:** For the purpose of the pilot study, the draft Environmental Awareness Scale was administered to 200 Under Graduate students of Dibrugarh district. The Colleges for the pilot study were selected by using purposive sampling technique and incidental sampling was used for the selection of Under Graduate students.
- **Instruction:** Necessary instructions were prepared and included in the beginning of the draft Environmental Awareness Scale. Oral instructions were also provided whenever necessary.
- **Scoring procedure:** For a right response to each question, one mark was to be allotted.

- **Administration of the draft study:** The procedure followed in administering the draft Environmental Awareness Scale has been described below:
- A good rapport between the investigator and the responders was established by initiating some friendly discussion.
 - Proper sitting arrangement was made and the draft Environmental Awareness Scale was distributed to the respondents to respond. Students were requested to read the instructions carefully. Necessary oral instructions were also provided. After, completion all the responded draft Environmental Awareness Scale was collected from each of the respondents.
- 3. Item Analysis:** The following steps were followed for item analysis of the draft Environmental Awareness scale.
- The responded draft Environmental Awareness scale of 200 Under Graduate students were scored by using the scoring key as mentioned earlier and then arranged in order from the highest score to the lowest score.
 - Then 25% (i.e.50 Under Graduate students) of UG students from top and 25% (i.e. 50 Under Graduate students) of UG students from the bottom were taken apart. Thus, two groups, viz., high and low scoring groups were formed.
 - The mean scores obtained on each individual item by high scoring group and low scoring group were computed.
 - The difference between the mean scores obtained by the high scoring group and low scoring group on a particular item was found out. This difference was considered as the discriminating power of that particular item.
 - To find out whether the discriminating power of a particular item is significant or not, 't' value for each item was found out.
 - 't' value equal to or greater than 1.75 indicated that the average response of the high and low group to a statement differs significantly (Edwards, 1957).
 - Items having 't' value >1.75 and <1.75 were then identified. Out of 91 items 77 items have significant 't' value ($t > 1.75$). The distribution of the 77 items according to different dimensions is shown in the Table-2.

Table-2: Items having 't' \geq 1.75

Dimensions	Items	No. of Items	Total
Pollution	1,9,17,25,33,41,49,65,73,81	10	10
Bio-diversity and its conservation	10,18,34,50,58,66,74	7	7
Energy	3,11,19,27,67,75,82	7	7
Environmental Concept, Concerns and Legislation	4,12,20,28,36,44,52,60,68,76,83,87	12	12
Sustainable development	5,13,21,37,45,53,61,69,77,84,88	11	11
Health and hygiene	6,14,22,30,38,54,62,70,78,85,89	11	11
Sanitation facility (toilets, solid and liquid waste disposal systems, village cleanliness)	7,15,23,31,39,47,55,63,71,90,91	11	11
Safe and adequate drinking water	8,24,40,48,56,64,72,80	8	8
Total			77

- 4. Item Selection:** The investigator decided to select 48 items from the 77 items having satisfactory 't' value for the final draft Environmental Awareness scale. To select 48 items investigator gave equal weightage to all items. The distributions of the selected items are shown in the Table 3.

Table 3: Items for the Final draft Environmental Awareness Scale

Dimensions	Items	No. of Items	Total
Pollution	1,17,33,65,73,81	6	6
Bio-diversity and its conservation	10,34,50,58,66,74	6	6
Energy	3,11,19,27,75,82	6	6
Environmental Concept, Concerns and Legislation	4,28,60,52 ,83,87	6	6
Sustainable development	5,13,21, 45,61,88	6	6
Health and hygiene	6 ,30,62,70, 85,89	6	6
Sanitation facility (toilets, solid and liquid waste disposal systems, village cleanliness)	7,15,31,63,71,91	6	6
Safe and adequate drinking water	24,48,56,64,72,80	6	6
Total			48

5. Reliability of the Environmental Awareness Scale: To compute the reliability of the Environmental Awareness Scale, the investigator adopted the following procedure-

- The split half technique of finding reliability was decided as appropriate by considering the nature and purpose of the scale.
- In order to compute the split-half reliability, the final form of Environmental Awareness scale was administered upon a sample of 200 Under Graduate students out of which 100 English Medium and 100 Assamese Medium students of Dibrugarh district.
- Odd-even method was used to split the test into two equal halves.
- The scoring of each answer sheet was done separately for these two halves of odd and even items.
- Then the coefficient of correlation between these two parts of the test was calculated using the formula of product moment co-efficient of correlation which showed the reliability of the half-test. The reliability of the English version of the scale was found as 0.78 and the reliability of the Assamese version of the scale was found as 0.78.
- The coefficient of reliability of the whole test was then estimated by using Spearman-Brown Prophecy Formula and the reliability of the full test of the English version was found to be 0.88 and Cronbach's alpha as ($\alpha=0.88$). The reliability of the full test of the Assamese version was found to be 0.88 and Cronbach's alpha as ($\alpha= 1.02$).

Table 4: reliability of the Environmental Awareness Scale

N	Coefficient of reliability of the whole test	Cronbach's alpha
100 (English version)	0.88	0.88
100 (Assamese version)	0.88	1.02

6. Validity of the Environmental Awareness scale: To determine the validity of the Environmental Awareness scale, the investigator showed the Environmental Awareness Scale to a number of experts seeking judgment regarding the coverage of the constructs and after incorporating certain suggestions offered, the draft of the Scale constructed was considered to be satisfactory for the final try-out.

The investigator was also calculated the concurrent validity. For this, the Environmental Awareness scale (EAS) constructed by the investigator and *Environmental Awareness Test (EAWT)* constructed by K. Yeshodhara (2003). The scores on the Environmental Awareness scale (EAS) constructed by the investigator was then correlated with the scores obtained on the Environmental Awareness Test (EAWT) constructed by K. Yeshodhara and the coefficient of validity was found as 0.67.

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