



Scale for Assessing Behavior towards Environment (SABE)

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Abstract

Research is a systematic and objective attempt to provide answers to certain question. The purpose of research is to discover and develop an organized body of knowledge and it is characterized by systematic objective and logical procedures. It is systematic because it involves certain steps to be followed in a definite order The researcher develops an objective and scientific design for the smooth conduct of his research. She also makes a logical examination of the procedures employed in conducting his research work so that he might be able to check the validity of the conclusions draw. Along with the significance, reliance and research ability of the problem selected for investigation, the methodology followed is also equally important for determining the dependability, usefulness and generalize ability of the findings, in spite of appropriateness of the problem and tools selected, if the procedures and methodology are not up to the mark, it leads to misleading the results. That is why this aspect of the study is considered to be very important.

Thus, the success of a researcher lies in his choice of methodology to be used. Methodology includes all the plans, techniques and strategies followed in carrying out the research study. This paper reports in detail the design of the techniques of sample selection, development of research tools, and data collection and an analysis this details of these aspects of the investigation are given in the following sections

Key words- validity, methodology, research tools, data collection, analysis

Introduction

Research is a systematic and objective attempt to provide answers to certain question. The purpose of research is to discover and develop an organized body of knowledge and it is characterized by systematic objective and logical procedures. It is systematic because it involves certain steps to be followed in a definite order. It is objective because the researcher tries to eliminate personal biases. And makes every possible effort to ensure objectivity in the method employed data collected and conclusions drawn. The researcher develops an objective and scientific design for the smooth conduct of his research. She also makes a logical examination of the procedures employed in conducting his research work so that he might be able to check the validity of the conclusions draw. Along with the significance, reliance and research ability of the problem selected for investigation, the methodology followed is also equally important for determining the dependability, usefulness and generalize ability of the findings, in spite of appropriateness of the problem and tools selected, if the procedures and methodology are not up to the mark, it leads to misleading the results. That is why this aspect of the study is considered to be very important.

Thus, the success of a researcher lies in his choice of methodology to be used. Methodology includes all the plans, techniques and strategies followed in carrying out the research study. This paper reports in detail the design of the techniques of sample selection, development of research tools, and data collection and an analysis this details of these aspects of the investigation are given in the following sections:

Population and Sample:

A population, in statistical terms, may be defined as any identifiable and well specified group of individuals. A population may be finite or infinite. A finite population is one in which all the members can be easily counted. An infinite population is one whose size is unlimited and therefore, its members can not be counted. Similarly, a population may be real or imaginary. A real population is one which actually exists and an imaginary population is one which exists only in the imagination. In psychological and educational research on many occasions the population is imaginary generally, it is not possible to study the entire population in a single research study. There are two researches for this.

1. When the population is very large, it is not possible to contact every individual unit for gathering information.
2. It is wastage of time, energy and money to study the whole population when fairly dependable results can be obtained by studying a smaller portion of the population.

It is generally believed that in almost, all practical situations a study of a relatively small part of the population, called sample can do a satisfactory job. A sample is selected to represent the population according to some rule or plan. A good sample has two characteristics:

(i) It should be sufficiently large in size (ii) it should be a cross section of the population. The second characteristic is also known as "representative ness". These two characteristics are, however, not independent of each other, practically the large the size of a sample, the more representative it is. Thus, a sample is a smaller representation of the population. A statistical measure based upon a sample is known of 'statistic' while the corresponding

measure based on the whole population is known as 'parameter'. The major function of a statistical inquiry is to estimate parameters from the study of samples or "statistics".

To study the whole population is rather difficult and impracticable. A statistical process called sampling makes it possible to draw useful inference or generalization on the basis of careful study of observations or manipulation of variables, within a relatively small proportion of the population. The process of sampling generally references to the method of selecting a small part or specimen of a large universe of subjects in order to study some quality or characteristic of the whole. So, sampling is one of the most fundamental aspects of the total methodology followed in a particular research study. It is an act of determining how many elements in a population are to be sampled, and how they are to be selected. A single member of the population is referred to as a population unit or element. The statistical value which refer to samples, are called "statistics". The statistical enquiry involves estimating "unknown parameters" on the basis of statistics obtained from a sample. This processes known statistical inference (Best 1977).

(i) Sample

(ii) Description of the tool used

(iii) Description of Developing Scale for Assessing Behavior towards Environment (SABE)

(a) Try out

(b) Scoring

(c) Measuring Reliability of Scale

(d) Validity of SABE

(3) Data Collection

a. Collection of Data

b. Scoring

(ii) Description of the Tools Used:

The meaningfulness of results of any research works depends not only on method and procedure, data analysis or results interpretation but also on the appropriateness of the tools and measures employees in the study. They should be appropriate, reliable and valid as well as suitable for the age and ability levels of the sample involved in the researcher work.

For measuring environment behaviour of the student the researcher went through different standardized tools. There were various tools to measure environmental awareness and environmental attitude but no satisfactory tool was available to measure environmental behaviour. So the researcher herself developed a tool for measuring environmental behavior . The details of developing this tool are being given in the following pages:

i. Description of Developing Scale for Assessing Behaviour towards Environment (SABE)

The above mentioned tool (for measuring environmental behaviour of the students) has been developed on the basis of psychological test.

A psychological test is an instrument designed to describe and measure a sample of certain aspects of human behavior. Tests may be used to compare the behavior of two or more persons at a particular time, or one or more persons at different times. Psychological tests yield objective and standardized descriptions of behavior, quantified by numerical scores. Under ideal conditions, achievement or aptitude tests measure the best performance of which individuals are capable. Under ideal conditions, inventories attempt to measure typical behavior. Tests and inventories are used to describe status (or a prevailing condition at a particular time), to measure changes in status produced by modifying factors, or to predict future behaviour on the basis of present performance.

Although it would be inaccurate to claim that all standardized tests meet optimum standards of excellence, these instruments have been made as sound as possible in the light of the best that is known by experts in test construction, administration, and interpretation.

1. Collection and Writing of Items:

Statements related to basic knowledge and understanding about the environment and its related problems were collected from various available sources, which included electronic and printed media, books, and people etc. with the availability of these sources, various areas of scale for assessing behavior towards environment (SABE) which has been mentioned below were taken into account

- i. Health and Hygiene
- ii. Pollution (Air, Water and Noise)
- iii. Tree plantation
- iv. Killing of Animals
- v. Physical Environment
- vi. Conservation of natural resources
- vii. Social environment
- viii. National Integration
- ix. Population Explosion

It is important to decide about the total number of items for a test. The items included in a test should be large enough to provide an adequate sample of students behaviour across the content areas and across process objectives on the other hand the time available for testing is a practical factor that limits the number of items in a test that there is enough time so that at least 80% of the student can attempt to answer every items.

a. Try out

All these 34 statements covered under the 9 areas of environmental awareness were administered to a sample of 30 students which included boys, and girls of senior secondary classes. Students were asked to respond to each statement of the questionnaire according to their extent of agreement or disagreement using the words always, seldom, never.

The problem of determining the amount of time in which the test is to be administered is ordinarily inseparable from that of determining the length in terms of number of items. Therefore a time limit of 20 minutes was given to the students so that they may complete all the items carefully.

b. Scoring

Table 3.2

The Scoring of responses was done as under:

Response	Positively Phrased Statements	Negatively Phrased Statements
Always	2	0
Seldom	1	1
Never	0	2

Marks according to the positive and negative statements were given on all the 34 statements of all the 30 answer sheets. A detailed scoring sheet was prepared for the assessment of Environmental behavior of secondary student. As mentioned earlier too, the marks were given according to the rules described for both positive and negative statement. Total marks were written on each answer sheet.

c. Reliability of the Scale (SABE)

The test (including 34 statements) was divided into 2 parts for testing the reliability of the scale.

- i. Test I having odd number items
- ii. Test II having even number items

Reliability of the scale was measured by using the following formula of Pearson's product moment coefficient of correlation. (PPMCC).

$$N = 30$$

$$x = 727$$

$$x^2 = 18861$$

$$y = 791$$

$$y^2 = 21649$$

$$xy = 19998$$

$$r = \frac{N \Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{N \Sigma X^2 - (\Sigma X)^2} \sqrt{N \Sigma Y^2 - (\Sigma Y)^2}}$$

$$r = \frac{30 \times 19998 - 727 \times 791}{\sqrt{30 \times 18861 - (727)^2} \sqrt{30 \times 21649 - (791)^2}}$$

$$r = \frac{599940 - 575057}{\sqrt{565830 - 528529} \sqrt{649470 - 625681}}$$

$$r = \frac{24883}{\sqrt{37301} \sqrt{23789}}$$

$$r = \frac{24883}{193.13467, 154.23683}$$

$$r = \frac{24883}{29788.479}$$

$$r = 0.8353229$$

Reliability of the half test was found to be $r = 0.8353229$ and with this value, reliability of the whole test was calculated by using the formula given below:

$$R = \frac{2r}{1+r}$$

The calculation value of reliability of the test, $r = 0.9102735$ assure that the test is reliable and can be used for research purpose.

Validity of the SABE:

In general test is valid if it measures what it claims to measure. However validity may be defined in a number of ways.

➤ Phase validity refers not to what the test actually claim to measure, but to what is appear to measure superficially. Thus, face validity should not be taken in the technically sense, nor should it be regarded as a substitute for objectively determine validity. When a test item looks valid to the group of examines, the test is set to have face validity.

➤ Content validity refers to the degree to which the test actually measure or is specifically related to the threats for which it was designed. Phase validity is often confused with content validity but in the strict sense it is quite different. It shows now adequately the test samples the universe of knowledge and skills that a researcher is expected to master for establishing contents validity the scale was carefully examined and given to a group of experts. They were asked to give their judgement about the relevance, content and language of the statements. Thus, SABE contents validity was assured.

Finally after the initial try out, all 34 items were found relevant and selected for preparing the final form of Environment Behavior Assessment Scale.

A copy of SABE is being attached (**Appendix-A**)

Final form of Scale for Measuring Behaviour towards Environment (SABE) Showing Distribution of statements in each dimensions of and their respective polarity.

S.No.	Dimension of EBAS	No. of Item	Items of positive polarity	Items of negative polarity
1.	Health & Hygiene	11	1, 17, 18, 19, 20, 21, 23, 24, 25	
2.	Pollution	2	13, 15	
3.	Tree plantation	1	12	
4.	Killing of Animals	1	34	
5.	Physical Environment	4	2, 8, 16, 14	
6.	Conservation of Natural Resources	8	11, 26, 27, 28, 29, 30, 32, 33	
7.	Social Environment	4	3, 5, 31	
8.	National Integration	2	4, 7	
9.	Population Explosion	1	10	

Scale for Assessing Behavior towards Environment (SABE)

Sl. No.	Statements	Always	Seldom	Never
Social Environment				
1.	Shut the door and knock the door before entering the room.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	I take care of the cleanliness of public places like bus stands, Railway Stations, Park etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	I take my needy neighbor to the doctor and I give money to the needy and poor people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	I enjoy celebrating national festivals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	I support and help in keeping my colony clean.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	I condemn take or give dowry in marriage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	I respect patriotic songs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	I forbid people from using blaring loud speakers in functions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural and Physical Environment				
9.	I avoid spit here and there.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	I advice my servants for family planning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	I use bicycle because it would help to reduce the problems of air pollution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	I have planted trees as, it helps for prevention of air pollution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	I check the quality of fuel used in my vehicle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	I try to forbid my friends and children from littering the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	I am bothered about the logging of dirty water around my house.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	I avoid fire crackers because it pollutes the physical environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health and Hygiene				
17.	I get up early in the morning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	I go for morning walk because it is good for health.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	I wash my hands before and after meals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	I chew my food properly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	Only I thoroughly wash raw vegetable and fruits before eating Prefer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	I prefer purchasing only covered food items.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	I use aqua-guard or some other water purifier system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	I drink at least 8 glasses of water in a day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.	I go to the doctor for regular check up of my health.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Conservation of natural resources

- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| 26. I close the water tap after use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. I close the gas cylinder knob after use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. I prefer to use earthen pots than disposable pots. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. I use to buy only those material products, whose containers are reusable. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. I prefer to sit in natural environment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. I give old clothes/books to poor children in neighborhood. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. I sell my old new papers to the Radiwala. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. I switch off fans and bulbs when I leave the room. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. I avoid to use things which are made up of animal skin. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

This scale consists of 34 statement aimed to identify the behavior of people towards various aspects of environment. This scale has been developed for research purpose. Yours sincerity will contribute a lot to the research work in hand I expect your wellness and favorable in this regard.

Instruction :- Put a tick mark against the option you think is most suitable or correct.

Areas	I	II	III	IV	Total
Raw Scores					
Stanine					
Interpretation					

Bibliography Information Blank (BIB)

BIB has been prepared along with the SABE by the investigator to gather personal information about the subjects selected in the sample. The BIB included name, age, sex, academic stream and monthly income of the parent. BIB is helpful to measure the environmental behavior on different dependent variables.

A copy of Biographical Information Blank which is in the Scale for Assessing Behaviour Towards Environment is being attached (Appendix-A)

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