CHAPTER III - METHODOLOGY

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CHAPTER III

METHODOLOGY

The methodology of educational research is a vast field of growing literature combining various approaches to suit different problems relating to a wide variety of study areas of education.

All researches, in fact involve the elements of observation description and analysis of what happens under certain circumstances. A rather simple three fold classification may be mentioned considering that all educational studies fall under one or combination of these three method -

(1) Historical
(2) Descriptive
(3) Experimental

3.1 Historical Research

Historical research describes what happened in the past. The process involves investigating, recording, analyzing and interpreting the events of the past for the purpose of discovering generalizations that are helpful in understanding the past, understanding the present and to a limited extent in anticipating the future. The different types of historical research are Bibliographic research, Legal research, studying the history of ideas and studying the history of institutions and organisations. Historical
research has great value in the field of educational research because it is necessary to know and understand educational achievements and trends of the past in order to gain perspective on present and future directions.

3.2 Descriptive Research

Descriptive research describes what is sometimes known as non-experimental research. It deals with the relationship between variables, the testing of hypotheses and the development of generalizations, principles or theories that have universal validity. Descriptive research investigate phenomena in their natural setting and involve measurement, classification, analysis, comparison and interpretation. Descriptive research has been classified into three categories viz-

(a) Survey studies

(b) Interrelationship studies

(c) Developmental studies.

3.2(a) The Survey

Survey is defined as "that branch of social scientific investigation that studies large and small populations (or universe) by selecting and studying samples chosen from the populations to discover the relative incidence, distribution and interrelations of sociological and psychological variables".¹

The sociological variables are the sociological facts, opinions and attitudes. The psychological variables include opinions and attitudes on one hand and behaviour on the other. The survey method has proved useful to social scientists in the study of social and socio-psychological relationship.

Survey studies are two types viz:-

(2-i) Descriptive Survey Research
(2-ii) Explanatory or analytical survey research.

3.2 (a-i) Descriptive Survey Research

In descriptive survey research data specified in the problem are obtained from a clearly defined population to describe the population in terms of the variable studied. Some kind of suitable sampling is necessary to justify the use of statistical inference, estimates of the sampling error of the description.²

Descriptive survey research is characterised by classification of the data relevant to the variable studied. The data may be in terms descriptive of the population as inferred from the sample or they may be univariate frequency distribution for example, of ages, weights, test scores or other measures. They may be counts of different answers given in interviews or to a questionnaire when summaries of

such data result in statements or inferences concerning the population, these statements are descriptive generalizations or laws.\(^3\)

Descriptive survey research is in the second stage of scientific inquiry. In the first stage - identification of a problem followed by the second or natural history stage in which observation, induction, description and classification predominate. Thus descriptive studies may include present facts or current conditions concerning the nature of a group of persons, a number of objects or a class of events and may involve the procedures of induction, analysis, classification, enumeration or measurement. \(^4\) Descriptive survey research has proved useful to social scientists in the study of social and socio-psychological relationships. Sociologists, social psychologists and educational sociologists value descriptive survey research.

3.2 (a—ii) explanatory on analytic survey research

Explanatory or analytic survey research requires definition of a population and the use of probability sampling, that is some kind of random selection to justify the use of the methods of statistical inference in the


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interpretation of data. Explanatory survey research is concerned with problems of growth or development, characteristic of a typical children the culturally disadvantaged, the socially disadvantaged, the mentally disadvantaged, the physically handicapped and the gifted.  

3.2 (b) Interrelationship studies

The studies that endeavour to discover relationship between various facts of the existing phenomena are called interrelationship studies. They attempt to trace relationship between facts that will provide deeper insight into the phenomena. Interrelationship studies include

(i) Case study

(ii) Casual comparative studies

(iii) Correlation and prediction studies

(iv) Cross cultural and comparative studies.

3.2 (b-1) Case Study

In case study the researcher attempts to examine an individual or unit in depth. Data about present status, past experience and environmental forces that contribute to the behaviour of the individual or social unit and how these factors relate to each other are gathered.

3.2 (b-ii) Casual Comparative Studies

Casual comparative studies explore how and why a

phenomenon occurs. The aim of the researcher is to compare the likeness and difference among phenomena to discover what factors or circumstances seem to accompany or contribute to the occurrence of certain events, conditions or practices.

3.2 (b-iii) Correlation and Prediction Studies

The correlation technique helps to test hypotheses about the relationship between two variables as well as to assess the magnitude of the relationship. It involves the collection of two or more sets of measurement on a sample of subjects and computation of the coefficient of correlation, between these two sets of measurement. The direction of the relationship may be positive or negative, the degree of relationship between the variables may vary from perfect, to high to average to no relationship.

Correlation studies are particularly useful in making predictions. If we know that there is a substantial correlation between two variables then it is possible to predict one variable from the other. Scatter grams" or "Regression" equations are used in making predictions.

3.2 (b-iv) Cross Cultural and Comparative Studies

In cross cultural and comparative studies, the researcher's aim is to make explicit comparisons of a number of societies. These studies make an important contribution to our understanding of educational and social phenomena, for they seek to demonstrate whether findings concerning human behaviour are valid for all human beings or are confined to one culture.
3.2 (c) Developmental Studies

Developmental studies are also called genetic studies. Developmental studies are used for investigating the characteristics of children and the ways in which these characteristics change with growth and development. The purpose of genetic or developmental studies is to discover origin, direction, trend, rate pattern and decline of growth, with a somewhat more recent interest in causes and interrelationship as factors affecting growth.

The genetic or developmental studies may take three different forms-
(i) Growth studies
(ii) Follow up studies
(iii) Trend studies.

3.2 (c-1) Growth Studies

Growth studies are used to seek knowledge of the nature and rate of changes that take place in human organism. Growth studies may be
A - Cross Sectional and
B - Longitudinal.

3.2 (c-i A) Cross Sectional Growth Studies

In cross sectional growth studies the data are collected at one time from samples of subjects at various ages.

3.2(c-i-B) Longitudinal Growth Studies

The longitudinal study requires repeated measurements
of the same subjects over an extended period.

3.2(c-ii) Follow up Studies

Follow up studies aim at investigating the subsequent development of individual or individuals after a specific treatment or conditions.

3.2(c-iii) Trend Studies

Trend studies are used to obtain and analyse social, economic or political data to identify trends and to predict what is likely to take place in the future. Trend studies are undertaken through documentary analysis or surveys at repeated intervals.

3.3 Experimental Research

The experimental research describes what will be when certain variables are carefully controlled or manipulated. The focus is on variable relationship whenever an independent variable can be manipulated an experimental approach can be used. Experimental method provides for much control and therefore establishes a systematic and logical association between manipulated factors and observed effects. The four essential characteristics of experimental research are control, manipulation, observation and replication.

Control refers to the extent to which different factors in an experiment are accounted for. Manipulation refers to a

deliberate operation of the conditions by the researcher. Observations by the process in which one or more persons observe what is occurring in some real life situation and they classify and record pertinent happenings according to some planned scheme. It is used to evaluate the overt behaviour of individual in controlled and uncontrolled situation. Replication is a matter of conducting a number of sub experiments within the framework of an overall experimental design.

3.4 Survey Appraisal Techniques

3.4 (a) Questionnaire —

Good and Hatt says that in general the word "Questionnaire" refers to a device for securing answers to a series of questions by using a form which the respondent fill in himself. Barr et al define "Questionnaire" as a systematic compilation of questions that are administered to a sample of population from which information is desired. According to Bogardus—

"A questionnaire is a list of questions sent to a

number of persons for them to answer. It serves standardised results that can be tabulated and treated statistically.9

The questionnaire can be administered to a group of individuals at a time. The person administering this instrument has an opportunity to explain the purpose of the study and explain the items that may not be clear. The availability of a number of respondents in one place makes possible economy of time and expenses. A good questionnaire must serve two major purposes. First it must translate the objectives of the investigation into specific statements or questions. Secondly it must motivate the respondents to communicate the required information.

3.4 (b) Self View

Self view is a method of collecting and analysing the explanation of the social and cultural phenomena which members of that culture themselves give. It means 'insiders point of view' or what is called 'looking from within'. Here the informant not only describes but also interprets the problems and situations freely, thereby presenting a more realistic profile of the problems.

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3.4 (c) Autobiography

In this method the respondent or subject is asked to write down about one’s own life giving details of experiences, past and present.

3.5 Research Considerations of the Present Topic.

In the light of the above discussion, the present study could be said to fall under the "Descriptive Survey Method". The objective of the present study is to investigate the social, economic and personal problems of educated and uneducated widows. In effect the aim is to see the likeness and differences in socio-economic and personal problems and status between two groups of subjects viz educated widows and uneducated widows of Greater Guwahati.

3.6 STATISTICAL TECHNIQUES USED FOR THE ANALYSIS OF DATA

In the present investigation most of the data have been analysed quantitatively. In interpreting and analysing the data the following methods have been used.

(i) Simple percentages
(ii) t-test
(iii) Chi-square
(iv) Graphical representation
(v) Table.

3.6 (i) Simple percentages:

The word percent is derived from Latin phrase "per centum" which means by the hundred or for every hundred. We use the symbol % for percent. The use of percent makes
comparison easier. To convert into percent, we multiply the number by 100 and insert % symbol.

3.6 (ii) t-test

The test of significance of the difference between two means is made by "t test" for the present study. It involves the computation of the ratio between experimental variance (observed differences between two sample means) and error variance (sampling error factor) to analyse whether two groups differ significantly in mean performance. The formula for uncorrelated large group is used which is given below:

\[
\gamma = \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}
\]

where \(M_1\) is mean of the 1st group

\(M_2\) is mean of the 2nd group

\(N_1\) is number of cases of 1st group

\(N_2\) is number of cases in 2nd group

\(\sigma_1^2\) is SD of 1st group

\(\sigma_2^2\) is SD of the 2nd group.

3.6 (iii) Chi-Square

The Chi-square test represents a useful method of comparing experimentally obtained results with those to be
expected theoretically on some hypotheses. The equation for chi-square ($X^2$) is stated as follows:

$$X^2 = \sum \left[ \frac{(f_o - f_e)^2}{f_e} \right]$$

in which $f_o =$ frequency of occurrence of observed or experimentally determined facts.

$f_e =$ expected frequency of occurrence on some hypothesis.

In the present study of $X^2$ test is applied to contingency table.

3.6 (iv) Graphical representation

Graphical representation often facilitates good understanding of a set of data, because these device catch the eye and hold the attention of the researcher even when the most careful array of statistical evidence fails to attract notice. It translates numerical facts often abstract and difficult of interpretation into concrete and understandable form. Line graph, bar graph and pie chart has been presented.

Line Graph: A line graph represents each value with a point at an appropriate distance above the horizontal axis. Different symbols are used to identify the points on each line.

Bar graph: A bar graph represents each value in a range with a bar of varying height. There may be single range bar graph which compares values in one set of data, to
each other, or a multiple range bar graph which displays comparable values from up to six sets of data at each point along the x-axis. A variety of shadings or colour can be used to identify the bars.

Pie-Chart: A pie chart compares parts to the whole, so each value in the range is a wedge of the pie. A range indicates the set of values that 1-2-3 will represent as wedges of the pie.

3.6 (v) Tables

A table is a systematic method of presenting statistical data, according to some classification of subject matter. Tables enables one to comprehend and interpret masses of data rapidly and to grasp significant details and relationship at a glance.