

Research Methodology: An Overview

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Research is common phenomena in Higher Education without clear cut perception about methodology, appropriate and exact conclusion can not be drain researcher, and this article is helpful for our new researches.

Key words: - Research, Research Methodology, Research Writing.

Research may be defined as systematic exploration/investigation/enquiry for gaining knowledge and attaining new facts and verifying the existing knowledge. Research refers to search for information and knowledge in any specific area. It involves awareness to perceive critically and ability to view situations from new perspectives.

Objectives of Research

The main objective of research in any field is to increase knowledge and to find out facts which have not been discovered as yet. The new facts are discovered by means of logical and systematized methods. The objective of research is to discover answer to question through the application of scientific procedures and systematic methods. The aim of research is to answer the questions which are unknown and undiscovered.

Research Process

Research process includes various steps to carry out research effectively. Major steps involved in doing research are being shown with the help of the following flowchart.

Identification of Problem

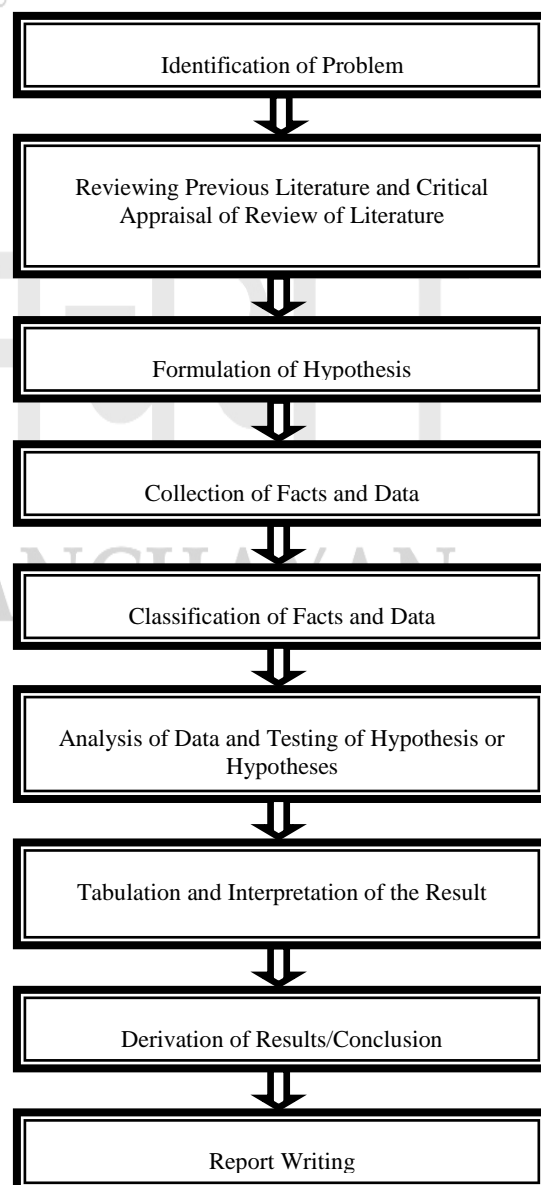
Starting a research project begins with identification of problem. In the whole research process, some students find selecting a problem the most daunting task. Some students have so many ideas that they are confused where to begin. If you fall in the first category, you can get an idea from discussing with various knowledgeable persons of that field. If you have some sort of confusion regarding identification of problem, it is best to start with what others have already done rather jumping with a completely new idea of your own.

Other source of ideas for a research project is through observation or ideas may be generated through practical problems encountered in daily life. Guidance related to identification of problem can be taken from the research guide.

One thing should be kept in mind that the areas which have already been thoroughly investigated earlier should be avoided. The researcher should concentrate on the areas where little research has been carried out.

Reviewing Previous Literature

After identification of problem and deciding a topic of your interest, it is the time to review the previous literature related to the topic. This may sound like an overwhelming



task but several resources are available that will help you in simplifying the task.

Library is the best place for reviewing previous literature as several resources available in the library are valuable where precious literature can be reviewed from. Articles in academic journals, books by academic authors, professional periodicals, reports of various official and unofficial agencies, proceedings of various seminars and conferences must be searched according to the topic taken by the researcher. Internet is a very important source of reviewing the previous literature.

While writing literature review certain points should be kept in mind:

1. Go through various previous research materials to see how literature review has been done.
2. Do not include everything you have read in your literature.
3. Adopt narrative style while writing literature review.
4. One should look into strengths and weaknesses of the study and should be critical while writing literature review.

The review of literature done by you should bring the reader up to date knowledge on previous research in the area. If there are flaws in the body of existing research, you may even challenge the previously accepted ideas. Focus only on those studies that have direct relevance to your study.

Formulation of Hypothesis

Hypothesis is formed to focus attention of the researcher on the main problem and to keep the researcher on the right track. Without hypothesis an investigation is relatively aimless search. It also helps the researcher to collect the specific data without the wastage of time and resources. Hypothesis prevents collection of useless and excess data.

What is Hypothesis?

Hypothesis is a tentative statement the validity of which is to be tested. It is researcher's mere assumption or pre-imagination, the validity of which has to be proved or disproved. Hypothesis is a prior assumption between two facts. It is an ultimate estimation which needs to be tested during the course of research process. Thus we can say that hypothesis is a tentative statement of relationship between two variables whose validity is liable to be tested. If facts collected for the clarification of the relationship shown in the hypothesis do not confirm such a relation, it does not mean that the principle from which hypothesis has been developed is wrong. Similarly, if the collected facts confirm the relationship it does not mean the principle from which hypothesis has been developed is confirmed. In reality there are two main characteristics of a hypothesis:

1. *Hypothesis formulates a relationship between two or more variables.*
2. *Clear relations are to be found in order to test the stated relationship.*

Researcher can conduct research work through two methods either census method or sampling method. Under the census method conclusions are drawn by studying the all items of the universe whereas under the sampling method conclusions are drawn on the basis of studying representative units. A census study implies complete enumeration of each unit of universe whereas by sample study we mean the study of universe on the basis of only representative part of it.

Universe term means total number of items available in any field of investigation whereas sample is a smaller representation from total number of items available. Universe may be finite or infinite. It should be seen by the researcher that the size of the sample taken by him for investigation should neither be too small nor too large. It should be of the optimum size.

Sampling process includes selection of smaller representation from the universe or population on which results are drawn by the researcher. Researchers adopt this method so as to save money, time and effort and the studies can be generalized on the whole universe and at the same time future predictions can be made with surety.

Data Collection

Before the collection of data the researcher should know in detail about the methods by which data can be collected. There are two types of data - primary data and the secondary data.

Primary data he one which is collected by the researcher while doing his research work and are original in character, while secondary data are ones which have already been collected by someone else.

Secondary data can be collected by studying written documents which help in knowing the past happenings or events which have already taken place.

Primary data can be collected by the researcher through number of ways such as through observation method, through schedules, through questionnaires etc. Under the observation method the researcher observes without asking any question from the respondent. Under this method active co-operation of respondent is not needed and even if respondents are unwilling to respond, this method is useful.

The method of primary data collection through schedules and questionnaires are popularly used methods by researchers. Schedule is a list of questions which is filled by the investigator himself who is especially appointed for this purpose. He goes to the respondents and asks them questions from the given proforma whereas questionnaire is a list of questions which is sent to a number of respondents with a request to answer them and return back the questionnaire. Yet another method for collecting data is through interview method. Under this technique data are collected by researcher in a face-to-face situation with the respondent with the help of interview schedule.

Processing (Editing, Coding, Classification and Tabulation) of Facts and Datas

After the collection of data is over, it is important to check the collected information for irregularities and incompleteness. It is not only important to check that all questions are answered by the respondent but it should also be checked whether the answers are accurate. All the error can be edited by careful checking and once the data has been edited it is ready for coding.

After editing has been done by the researcher, the qualitative data in the questionnaire is converted into numerical form by taking recourse to coding and classification.

Classification of data includes the arrangement of data into groups or classes on the basis of common characteristics. In this way data are divided into number of groups and classes and frequency distribution is carefully done by using the various well established principles of classification - mutual exclusiveness and comprehensiveness.

After classification of data, tables are prepared keeping in view the objectives of research or hypotheses formulated, if any, particularly with reference to variables under consideration. Tabulation can be done manually or with the help of computer. In the former case a master table is prepared first on the basis of which other tables both univariate and multivariate are prepared. In the other case the questions in the research instrument used closed ended and their various categories of responses have to be assigned codes much before the instrument has finalized and actual process of data begins. Tabulation is the process of allocating cases to different categories of responses prepared after carefully going through the narratives given by the respondent. In every table it is essential that a comprehensive heading should be given to enable the reader to clearly understand as to what is being depicted with the help of table. All the various columns and also rows must clearly show what they clearly stand for. Most important and noteworthy point in the case of tabulation is the proper presentation of dependent and independent variables as perceived by the researcher on the basis of prior assumptions held by him/her. Independent or causal variable has to be shown with the help of columns and dependent one by making use of rows. Concerned percentages calculated on the basis of totals of each row/column or the grand total of all the rows and columns have to be shown in parenthesis. Sub-totals, grand totals and great-grand totals all have to be clearly depicted.

In a nutshell, a table presents a birds-eye view of entire relevant data collected from the field on the basis of which varied kinds of analyses have to be followed.

After completing tabulation, the process of analysis of data actually begins. Analysis may be of two types: Logical and Statistical analysis. The former follows the basic principles of logic namely method of agreement, method of difference and method concomitant variation (highlighting association/correlation between attributes/variables)

Statistical analysis is done especially when quantified data is available. Such analysis may be of two types:

(i) **Descriptive Analysis**, whereby measures of central tendency, measures of dispersion, index number, analysis of time series, correlation, association of attributes, interpolation and extrapolation etc., are done.

(ii) **Inferential Statistics** is preferentially useful in deriving generalisations about the entire universe on the basis of study of its part only. It is again of two types:

(a) **Parametric Statistics**, which becomes applicable when the given data presented in the table follows a particular form of distribution such as Binomial distribution, Poisson distribution, Normal distribution etc.

(b) **Non-parametric Statistics** is used especially when the data incorporated in the table do not show/unravel any particular form of distribution and it is here that non-parametric statistical test like Chi-square, test of significance are particularly useful in arriving at statistically sound inferences instrumental in proving/disapproving the formulated hypotheses.

After analysis the stage of interpretation comes wherein any researcher makes sincere efforts to incorporate the findings of one's own study which those of other similar studies and in case of agreement or disagreement highlight the reasons therefor.

Here the researcher also specifically gives some positive hints with regards to areas in which there is need for further research.

Report writing is the last stage of the entire research process. It is through the research report that the researcher familiarises the readers with what has been done, how it has been done and what have been the major findings and what are there implications for social policy and legislation.

There are several parts of a research report beginning with foreword, followed by contents, introduction (clearly highlighting the significance of the study), survey of relevant literature, research design and methodology, profile of the respondents (throwing light on various background variables) with regard to which various information has been gathered, it is assumed, significantly influenced the opinions and attitudes and also the responses given by the respondents. After that main chapters related to diverse dimensions of subject of study are presented one after the other. The last but one chapter relates to major findings. Various policy implications that emerge as a result of research undertaken are incorporated in the last chapter wherein specific roles to be played by various stakeholders in the area of research namely policy formulators, law makers, planners, bureaucracy, civil society organisations including NGOs, CBOs and people's own institutions at the grass root level and persons in the community at large are spelt out.

Various annexure are appended to the research report. They generally consist of bibliography, research tool(s) used, interesting case studies etc.

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