6

THE DESIGN OF RESEARCH

Meaning

For a long time research design has been considered a highly specialised tool for the success of a research programme. It is a plan of the proposed research work. To design is to plan; that is, designing is the process of making decisions before the situation arises in which the decision has to be carried out. It thus provides a picture for the whole, before starting of the work. It is the general blue print that guides the investigator in the process of collecting, analysing and interpreting observations. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data. The research design defines that domain of generalisability. It is thus a process of deliberate anticipation directed towards bringing an expected situation under control.

Definition

Research design has been defined by different social scientists in different terms.

Vimal Shah has said that "The design is the plan of study and as such it is planned in every study uncontrolled as well as controlled and subjective as well as objective".

To quote P.V. Young "The design results from controlling general scientific model into varied research procedure".

According to E.A. Suchaman "Research design represents a compromise dicted by the many practical considerations that go into social research .... A research design is not a highly specific plan to be followed without deviation, but rather a series of guide posts to keep one in the right direction".

As Selluz, Jahoda, Deutsch and Cook state "A research design is the arrangement of conditions from collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure".

In the words of R.L. Achoff "The idealised research design is concerned with specifying the optimum research procedure that could be followed where there is no practical constraint".

Miller has defined "Designed research" as the planned sequence of the entire process involved in conducting a research study".

A few other definitions of research design are "Design helps the investigator obtain answers to the questions of research and also helps him to control the experimental extraneous and error variances of the particular research problem under study".

"A research design designates the logical manner in which individuals or other units are compared and analysed, it is the basis of making interpretations from the data".

"Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and control variance".

"The challenge of a research design is to translate the general scientific model into a practical research operation. Research design will refer to the entire process of planning and carrying out a research study".

Why research design?

Research design tells the investigators what to observe, whom to observe, how to observe, why to observe, how to record the observations, how to analyse the observations? What inferences can be drawn? In fact the investigator can see the whole study structure and also realise the place and importance of the successive steps that he will be required to take in the total scheme.

Criteria of a good research design

A good research design should be of definite help in achieving optimum objectivity, reliability, validity and generalisation.

Objectivity : When a phenomena is observed in its true form without being affected by observer's own views it may be termed as objective observation. For example when we say that milk is white it is an objective statement. But if we say that—milk is the most useful drink—the statement may not be purely objective. The objectivity of the findings pertains to either collection of data or scoring of the responses or both. It may be judged by the degree of agreement between the final scores assigned to different individuals by more than one independent observer. Any research design should permit the use of measuring instruments which are fairly objective in which every observer or judge seeing a performance arrives at precisely the same report. Objectivity seems very easy to achieve but in actual practice it is not so.

Reliability : Reliability refers to consistency throughout a series of measurements. The investigator should frame his items in such a way that the respondent cannot but give only one genuine response. That is to say, if a respondent gives out a response to a particular item, he is expected to give the same response to that item whenever he is asked subsequently. Check items, administering the same test repeatedly, using a series of parallel forms are methods used in determining the reliability of the responses given out by a respondent.

Validity : The researchers must make sure that any measuring instrument selected by him is said to be valid when it measures what is purports to

measure. For instance a originality test, constructed for measuring originality should measure only originality and nothing else. There are a good number of procedures for establishing the validity of test. Some such procedures are : validating the present data against a concurrent criterion or a future criterion on a theory etc.

Generalisation : Most research is concerned not only with the effect of one variable upon another under the particular setting studied, but also with its effect in a natural setting and on a larger population. That is how best the data collected from a sample can be utilised for drawing certain generalisations, applicable to a larger group (population) from which the sample is drawn. However, complete generality is only a myth and it is true only under given conditions.

Steps in Preparing a Research Design

A research design usually comprises of the following major of steps.

Selection of research problem

The research problem may be selected from the following sources :

1. Theory
2. Every day problems
3. Technological changes

4. Unexplored areas
5. Discussions with supervisor

The selection of research problem depends on whether research is being conducted for obtaining a degree or it is for academic interest. If the research is for Masters degree level, M.Phil. or Ph.D., the problem may be more specific and limited in scope and may offer itself for completion within a specified time. On the other hand if the research is for academic interest, time should not be a binding factor. Here the sole objective is to enrich the knowledge through the application of advanced research methods special assignments, research reports and articles may suggest some additional areas of needed research.

Title of the research project

The title should be brief, precise and should project the scope of the problem in generalised terms.

Purpose of the study

The purpose of any research is the acquisition of knowledge. A brief mention of the significance of the study area in the present context of social life should be attempted highlighting the main purpose which prompted the investigator to take up the present study.

Review of literature

As a next step the researcher should go through all the existing literature relating to his problem. This is essential to know whether the problem has already been investigated before. If so how and to what extent. Through the review, the researcher will get acquainted with the different areas covered by various studies. Finally a critical appraisal of previous studies is more meaningful, useful and a correct approach in any field of investigation.

Statement of the problem

Once the researcher is able to get a complete knowledge of the subject under study from various sources, he must be in a position to state his research problem in unambiguous and more precise terms. He should be very clear in his plan of research.

Scope of the investigation

The researcher should decide in the very beginning as so what he is going to investigate. He should take into consideration the time, money available to him, availability of sample, his ability to collect information from the respondents etc. Once the scope of the investigation is delimited, the investigator will report the scope in explicit terms while giving out the limitations of his study.

Objectives of the study

If the researcher lacks a clean understanding of the purpose of his research—its theoretical and practical implications, he is likely to be insensitive to the nature of the problem to be studied, the type of data needed, the appropriate approach and the level of precision required. Care has to be taken that the objectives of the study are well within the scope of the investigation

envisaged by him.

Concepts and variables used in the investigation

It is desirable that the research worker should make himself familiar with the concepts—normal and operational definitions used in the investigation. He should also possess the intimate knowledge of the variables that are to be applied to the problem. In the absence of such knowledge of the concepts and variables the researcher is likely to commit methodological errors and the deduction drawn by him may not be sound.

Selection of hypothesis

Hypothesis are tentative solution to a problem. The success of a research study depends upon how best hypothesis has been selected by the researcher. The hypothesis should be clear, specific, capable of empirical test and must be related to body of theory and available technique. So the researcher's job is to clearly lay down the hypothesis for testing and verification. This will help him in delimiting the scope of his study.

Selection of the sample

Sampling study is becoming more and more popular and important in any investigation. The vastness of population, the difficulties of contacting people, high refusal rate, difficulties of ascertaining the universe make sampling the best alternative in case of research studies. While selecting the sample, the investigator should consider the definition of the population, size of the sample, representatives of the sample. The results and sampling should attain a sufficiently high standard of accuracy.

Data collection

Collection of data is of atmost importance for a research investigation. If the data is not accurate and adequate, the findings are bound to be misleading. The researcher should decide the methods which are to be used for data collection; whether it is questionnaire, an interview schedule, a case study or observation method or a combination of any of these. All the same the researcher must be unbiased, sharp and courteous to respondents so that he can get proper feedback relevant to the research problem.

Processing, analysis and tabulation of data

All collected data need to be processed for their inconsistencies on inaccuracies. Planning of analysis in advance is not always possible because new ideas occur to the investigator as he collects the information. Depending on the nature of the data and the information required by the hypothesis the investigator should subject the data to appropriate statistical analysis. Each statistical technique serves a special purpose and has a special set of assumptions which must be met before it can be used for analysis and interpretation. The researcher is advised to tabulate the results in a meaningful way. Each table should be followed by a discussion.

Interpretation of the results

Knowledge of previous studies will have a great impact on the interpretation of results. The researcher should be very definite that his plan of research is based on sound scientific lines. He can safely generalise the findings obtained in his study through inductive inference. The results of the investigation are to be interpreted to uncover any additional factors which could not be visualised by the investigator earlier.

Verification

The conclusion drawn through a research study is subject to verification at any time. Verifiability presupposes that the phenomena must be capable of being observed and measured. The results should not contradict the earlier findings which were proved to be correct.

Conclusions

The results verified can be used for drawing conclusions. Hence verification helps in drawing specific conclusions.

Suggestions for future research

Research is not an end in itself. The researcher should be able to give right directions to the future researchers from the insights he has gained during the investigation.

Bibliography

In preparing the research design, the researcher is expected to give the references for further information on various aspects of research work. Name of the author, title, year, publication and page number should be included in bibliography.

Appendixes

Appendixes are relatively short sections normally reported before bibliography. Big tables, figures, notes, copy of questionnaire, case study, to name a few are included in the appendixes.

To conclude, research design varies in its complexity and adequacy depending on the nature of the problem, the data, the facilities for carrying out the study, the research sophistication and competence of the investigator.