

An Study of Research Methodology

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ABSTRACT

Research methodology is an approach to methodically explain the research problem. It may be implicit as a science of studying how research is through scientifically. In it we study the different steps that are usually adopted by a researcher in studying his research problem along with the logic after them. It is required for the researcher to identify not only the research methods/techniques but also the methodology. Researchers not only require to identify how to increase confident indices or tests, how to analyze the mean, the mode, the center or the normal departure or chi-square, how to relate particular research techniques, but they also require to identify which of these methods or techniques, are significant and which are not, and what would they signify and designate and why. Researchers also need to appreciate the assumption essential various techniques and they require to know the criteria by which they can choose that convinced techniques and events will be related to certain evils and others will not. All this means that it is essential for the researcher to aim his methodology for his trouble as the same may fluctuate from problem to problem. Keywords: Research, Methodology, Research Methodology, Research Techniques, Qualitative research, Quantitative Research

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I. INTRODUCTION

Research in universal parlance refers to a search for information. One can moreover describe research as a technical and efficient search for relevant information on a specific theme. In fact, research is an art of technical exploration. The higher Learner's glossary of Current English lays down the denotation of research as "a watchful investigation or investigation especially through search for new particulars in any branch of information." Redman and Moray define research as a "systematized attempt to gain new comprehension."

Methodology is the methodical, theoretical examination of the methods functional to a field of study. It comprises the hypothetical analysis of the body of methods and ethics associated with a branch of information. Typically, it encompasses concepts such as example, academic model, phases and quantitative or qualitative techniques. Research Methodology is science of studying how research is through scientifically. A way to systematically explain the research problem by sensibly adopting various steps. Methodology helps to appreciate not only the products of scientific question but the development itself. Research Methodology aims to explain and examine methods, pitch light on their restrictions and resources,

elucidate their confines and property, clarify their presuppositions and consequences, linking their potentialities to the sunset zone at the “frontiers of information”.

II. Objectives of research:

The principle of research is to determine answers to questions through the request of scientific events. The main aim of research is to discover out the reality which is hidden and which has not been open as yet. While each research study has its own precise purpose, we may believe of research objectives as diminishing into a numeral of following large groupings:

1. To gain knowledge with a occurrence or to achieve new insights into it (studies with this object in view are termed as investigative or formularize research studies);
2. To represent accurately the character of a particular entity, situation or a group (studies with this object in view are recognized as descriptive research studies);
3. To resolve the occurrence with which incredible occurs or with which it is connected with something else (studies with this article in view are famous as diagnostic research studies);
4. To test a hypothesis of a contributory association amid variables (such studies are known as hypothesis-testing research studies).

III. Types of Research

Research can be confidential on the foundation of time, reason, settings, place and method. Some researchers have similarity and some have small variations. But all the types of research have its own importance.

Basic Research:

It is moreover called as clean research. Research for the sake of improvement of information is termed as Basic Research. It is done with the aim of overriding of the indefinite facts. It is troubled with the generalization and also with the formulation of new speculation. Basic research may not create solutions or outcome to

the here problem but it contributes impressive to the systematic information. While its work may have zero significance, but it may befall useful in the future. Applied Research: It is also called as practical research or „need based“ research. The main intention is to find solutions to the current problems being faced by an institution, society, business or in government offices. Research to identify social, supporting and financial changes, which has unpleasant effects in dissimilar sectors are some of the examples of applied research. This type of research is generally approved on with the secondary data.

Empirical Research:

It is often referred to as tentative research. In this primary data is composed, analyzed, explanation is done and subjected to hypothesis testing. Researcher should increase his untried designs and should supply working hypothesis by the start of his research for good production.

Qualitative Research:

As the name itself suggests, this research is troubled with the qualitative process. It usually plant with the study of human performance. By this research one can find the body speech, approach, opinions, approach etc. from the conflicting person during scrutiny. It is largely helpful for Psychiatrists and interviewers. Many techniques are organism used like word relationship test, decree completion, drawing cinema, Thematic Apperception Test. It is wanted in times where quantitative research does not effort. Hence, it is also called as „Motivation Research“.

Quantitative Research:

This research is largely afraid with the dimension of occurrence in terms of amount. Many a times a discuss is conducted between qualitative and quantitative terms. A pattern for the quantitative research is carrying out senses for collecting people, social, economic figures of a fastidious area. They are subjected to statistical psychiatry. It relays largely on

primary data like survey process and questionnaire method. However, one can observe the inter-dependence among one another.

Descriptive Research:

As the name itself indicates, this research straight deals with account. It includes diverse data compilation like survey method and fact verdict techniques. The main quality of this research is that, the researcher does not have managed over the variables. He should explain what has happened and what is incident. Most Ex post facto projects use expressive research.

Several other types of research:

Distant from the beyond types of research; there are various other classifications like Longitudinal Research which is increase over for a long epoch of time. In this vary takes place regularly. Historical Research which is troubled with the collecting of auto biographies, letters, documents, enquiries for significant the past. Imitation Research deals with the formation of a reproduction atmosphere which is quite comparable to real surroundings. Depending upon the want of the condition we can create and adjust to it.

Importance of Research:

- It helps in framing of policies: Research helps in the framing of different government policies. Almost all the government policies and budgets are intended and executed during research with the help of researcher. Yearly budget, monthly budget, financial and financial policies are all framed by the government. The government is assist by different organizations for framing the policies during research.
- Basic aim is to gain knowledge: It leads to many ideas and changes old facts.
- It is used in trade organization: Many business companies hire researcher to work on different things. It is worn in studying the change taking place in the promoter. It helps in assets budgeting, tax organization and cost economy policies.

- It leads to detection and modernism of indefinite facts and unknown theories. It leads to the increase of the society and its people. It gives possibility to the researcher to go deep into the theme and to innovate it.
- It avoids irrational beliefs, myths and prejudices: Many community are motionless not aware of the research actions and its significance. Many ancient attitude and myths have been proven incorrect with the help of research.
- It leads to expansion of social interests and society.
- It is helpful for PhD students to write their thesis.

Thus, Research is a spout of knowledge, which helps in solving all government policies, business problems, avoids credulous attitude and helps in the growth and ripeness of society and its people.

Research practice:

1. Formulating the research problem:

There are two types of research problems, viz., those which communicate to states of character and those which narrate to relations between variables. At the very outset the researcher must only out the difficulty he wants to study, i.e., he must choose the general area of attention or feature of a subject-matter that he would resemble to request into. Firstly the trouble may be affirmed in a broad universal way and then the ambiguities, if any, connecting to the trouble be determined. Then, the possibility of a meticulous solution has to be careful before a working formulation of the difficulty can be set up. The formulation of a universal topic into a precise research trouble, thus, constitutes the first stride in a precise enquiry. Basically two ladder are troubled in formulating the research problem, viz., concerned the problem thoroughly, and rephrasing the same into significant terms from an logical point of view.

2. Extensive Literature Survey

Once the problem is formulated, a brief summary of it should be printed down. It is obligatory for a research

worker dedication a thesis for a Ph.D. degree to write a dilapidated of the topic and present it to the essential Committee or the Research Board for sanction. At this juncture the researcher should assume extensive literature survey linked with the problem. For this reason, the abstracting and indexing journals and published or unpublished bibliographies are the first place to go to. Educational journals, discussion events, government gossip, books etc., must be tapped depending on the scenery of the problem. In this procedure, it should be remember that one basis will lead to another. The previous studies, if any, which are alike to the study in hand, should be cautiously studied. A good record will be an immense help to the researcher at this stage.

3. increasing a working hypothesis:

A research in any pasture of study does not give correct results unless and until we expand a effective hypothesis. It is a uncertain statement or supposition regarding the answer to the problem of study. It is an supposition which is used to draw the logical consequences. It is the key point of study and hence it should be limited and should hold much knowledge. It is caring for researcher for predictions and also maintains complete focus on the study. It should be accurate and evidently defined. It gives a plan of the type of data to be worn and type of method or techniques for the study. In some research actions like exploratory or invent, hypothesis is not used for testing.

4. Preparing the research design:

The research problem having been formulated in clear cut conditions, the researcher will be necessary to prepare a research design, i.e., he will have to state the abstract structure within which research would be conducted. The homework of such a design facilitates research to be as competent as possible elastic maximal information. In other words, the purpose of research design is to supply for the compilation of applicable evidence with negligible expenses of effort, time and money. But how all these can be achieved depends

mainly on the research purpose. Research purposes may be grouped into four categories, viz., Exploration, Description, Diagnosis, and Experimentation.

A supple research design which provides occasion for allowing for many dissimilar aspects of a problem is careful appropriate if the principle of the research study is that of examination. But when the reason happens to be a precise description of a condition or of a relationship among variables, the opposite design will be one that minimizes bias and maximizes the consistency of the data composed and analyzed. There are numerous research designs, such as, investigational and no untried hypothesis testing. Experimental designs can be also informal designs (such as before-and after exclusive of control, after-only with control, before-and-after with control) or formal designs (such as wholly randomized design, randomized block design, Latin plaza design, easy and compound factorial designs), out of which the researcher should select one for his own scheme. The research of the research design, suitable for a particular research problem, involves typically the thought of the following: (i) the means of obtaining the information; (ii) the accessibility and skills of the researcher and his workers (if any); (iii) elucidation of the way in which elected means of obtaining information will be prepared and the analysis leading to the collection; (iv) the time obtainable for research; and (v) the cost issue relating to research, i.e., the economics obtainable for the reason.

5. Determining sample design:

The researcher must decide the way of selecting a sample or what is generally identified as the sample design. In further words, a sample design is a specific plan resolute before any data are really collected for obtaining a sample from a agreed populace. A brief mention of the significant sample designs is as follows:

- Deliberate sampling
- Simple random sampling
- Systematic sampling
- Stratified sampling

- Quota sampling
- Cluster sampling and area sampling
- Multi-stage sampling
- Sequential sampling

6. Collecting the data:

The method of meeting or collecting the data is intended in data compilation design. There are many types for collecting the data. The two types of collecting data are principal data and Secondary data. Some of the significant methods for collecting the Primary data are as follows: Questionnaire:

The process of collecting data in enormous physical areas is done during Questionnaire method. Therefore questionnaires are mailed to the research areas and they are dispersed between the respondents. It is a time reduction and inexpensive method but the main problem is that the answers given by the respondents are not precise.

Interview:

The investigators prepare a set of questions and ask them in a successive wise to the respondents. There are dissimilar types of interview like personal, group, mock and telephone interview. It is fast process. We can get extra information which is connected to the topic. But it is expensive. Some respondents may try to hide some answers. It saves much time of the researcher.

Observation:

This is also one type of collecting data principally. In this researcher observes the day to day procedure of the society or a only person. Sometimes researcher has to engross in the course. It discovers the human behavior of the respondent. No doubt this method is cost effectual but the data composed is also limited. It can't predict the activities of the future. Secondary data can be composed through books, published articles, and internet and association services. Association military are companies which gather and sell data to different people who are in need. It is appropriate for researcher who needs to survey on large population.

The difficulty of this method is that the researcher will not like extra information and it is very costly.

7. Though the data can be composed in a short span of time but the correctness cannot be affirmed.

Execution of the project:

After preparing a good design for the procedure of research, the researcher must move on to the next step of finishing. From this stage the researcher starts executing the research design. Preparation should be given to the surveyors and an prepared manual should be identified to them. The collection of data should be carefully handled.

8. Analysis of data:

Soon after the compilation of data, the researcher turns to the procedure of analyzing the collected data. The raw data will be tuned. There are many clothes used for scrutiny like coding, tabulation, editing and statistical analysis. Data will be composed in the form of questionnaires or schedules. Hence the data collected in short forms will be elaborated through coding. Editing can be done at the time of collecting or collecting the data. During editing the researcher removes all the mistakes in the project. It will be refined. Through tabulation the researchers do the work of preparing the tables.

9. Hypothesis-testing:

After analyzing the data as stated above, the researcher is in a situation to test the hypotheses, if any, he had formulated earlier. Do the facts sustain the hypotheses or they happen to be contrary? This is the common question which should be answered while testing hypotheses. Different tests, such as Chi square test, t-test, F-test, have been developed by statisticians for the rationale. The hypotheses may be tested through the use of one or more of such tests, depending upon the scenery and object of research inquiry. Hypothesis testing will effect in either compliant the hypothesis or in rejecting it. If the researcher had no hypotheses to create with, generalizations recognized

on the basis of data may be stated as hypotheses to be tested by following researches in times to come.

10. Generalizations and interpretation:

If a hypothesis is tested and upheld several times, it may be possible for the researcher to arrive at generalization, i.e., to build a theory. As a matter of fact, the real value of research lies in its ability to arrive at certain generalizations. If the researcher had no hypothesis to start with, he might seek to explain his findings on the basis of some theory. It is known as interpretation. The process of interpretation may quite often trigger off new questions which in turn may lead to further researches.

11. Preparation of the report or the thesis:

Finally, the researcher has to prepare the report of what has been done by him. symbols of report must be done with immense care charge in view the following:

1. The explain of the report should be as follows:

(i) The preliminary pages; (ii) the main text, and (iii) the end material. In its preliminary pages the report should carry title and date followed by acknowledgements and preface. Then there should be a table of inside followed by a list of tables and list of graphs and charts, if any, known in the report.

The main text of the report should have the following parts:

(a) Introduction: It should contain a clear statement of the objective of the research and a clarification of the methodology adopted in accomplishes the research. The reach of the study down with different confines should as well be affirmed in this part.

(b) Summary of findings: After introduction there would emerge a statement of findings and recommendations in non-technical language. If the findings are general, they should be summarized.

(c) Main report: The main body of the report should be accessible in logical series and crashed into readily individual sections.

(d) Conclusion: Towards the end of the main text, researcher should over put down the results of his

research obviously and correctly. In fact, it is the final summing up.

Research Approach can be alienated into three types:

1. Deductive Research approach.
2. Inductive Research approach.
3. Adductive Research approach.

The significance of hypotheses to the study is the main characteristic point among deductive and inductive approaches. Deductive approach tests the strength of assumption (or theories/hypotheses) in hand, where inductive approach contributes to the emergence of new theories and generalizations. Adductive research, on the other hand, starts with „startling facts“ or „puzzles“ and the research progression is dutiful their account.

In Deductive Research Approach if you have formulated a set of hypotheses for your thesis that need to be established or discarded during the research procedure you would be following a deductive approach. Otherwise, inductive advance does not engage formulation of hypotheses. It starts with research questions and aims and objectives that require to be achieved through the research process.

In adductive approach, the research process is stanch to explanation of „incomplete observations, surprising facts or puzzles specified.

Major Changes in Research Situation

• Information Technologies in Research:

The sustained exponential rise in the influence of information and computing technologies has had a staged impact on research crossways many disciplines. These technologies have not only enlarged the alacrity and scope of investigate but have made it probable to actions investigations that were not probable before. Information technology advances have enabled new forms of question such as those based on arithmetical simulation of physical and organic systems and the study of massive datasets to detect and assess the nature of relations that otherwise would go concealed.

The Globalization of Research:

Because information passes generously across national borders, technical research has always been a global endeavor. But this internationalization has intensified over the past two decades. Nations have realized that they cannot imagine benefiting from the universal research venture lacking national research systems that can absorb and construct on that information. As a result, they have included science and technology into national plans and have recognized goals for augmented R&D investments.

• Significance of Research Results to Policy and Political Debates

Research also comes into play in debates and decisions over frequent controversial policy issues. Science is not the only issue in these deliberations. Many considerations outside of science influence policy choices, such as personal and political beliefs, lessons from experience, trial-and-error learning, and reasoning by comparison. To contribute to public policy decisions, researchers must be clever to divide their skill as scientists from their views as advocates for exacting public policy positions.

Criteria of Good Research anything may be the types of research works and studies; one thing that is significant is that they all meet on the common earth of systematic method employed by them. One expects technical research to please the following criteria:

1. The reason of the research should be obviously definite and common concepts be used.
2. The research procedure worn should be described in enough detail to permit a different researcher to recur the research for additional advancement, custody the permanence of what has previously been attain.
3. The procedural design of the research should be carefully planned to yield results that are as objective as possible.
4. The researcher should report with complete frankness, flaws in procedural design and estimate their effects upon the findings.
5. The scrutiny of data should be adequately adequate to reveal its meaning and the methods of analysis used

should be suitable. The soundness and consistency of the data should be tartan warily.

6. Conclusions should be cramped to those warranted by the data of the research and incomplete to those for which the data present an adequate basis.

7. Greater assurance in research is necessary if the researcher is skilled, has a good reputation in research and is a someone of integrity.

IV. CONCLUSION

Research is a mission of discovery; a voyage; an attitude; an experience; a method of unsafe thinking; an activity caused by character of curiosity to gain fresh insight/find answers to question/acquire information.

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