Advance Qualitative and Quantitative Research Techniques

By

Dr. Rafiq Mansoor

* **Book Name:**

  Research Methodology Methods and Techniques,

  C.R. Kothari

Chapter One :

Research Methodology: An Introduction

What Is RESEARCH?

- Research in common parlance refers to a search for knowledge.
- Research is an art of scientific investigation. “a careful investigation or inquiry specially through search for new facts in any branch of knowledge.”

  “systematized effort to gain new knowledge.”
- Some people consider research as a movement, a movement from the known to the unknown. It is actually a voyage of discovery.

What IS RESERACHER?

* Research is an academic activity and as such the term should be used in a technical sense.

* According to Clifford Woody research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

* Research is, thus, an original contribution to the existing stock of knowledge making for its advancement. It is the pursuit of truth with the help of study, observation, comparison and experiment.

Objective of Research

* The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet.

Though each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:

1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulate research studies);

Objective of Research

3. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies);

4. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies)

5. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

MOTIVATION IN RESEARCH

* What makes people to undertake research? This is a question of fundamental importance. The possible motives for doing research may be either one or more of the following:

1. Desire to get a research degree along with its consequential benefits;

2. Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiates research;

MOTIVATION IN RESEARCH

3. Desire to get intellectual joy of doing some creative work

4. Desire to be of service to society

5. Desire to get respectability

* Many more factors such as directives of government, employment conditions, curiosity about new things, desire to understand causal relationships, social thinking and awakening, and the like may as well motivate (or at times compel) people to perform research operations.

TYPES OF RESEARCH

1. **Descriptive vs. Analytical:**

* Descriptive research includes surveys and fact-finding enquiries of different kinds.

* The major purpose of descriptive research is description of the state of affairs as it exists at present. In social science and business research we quite often use the term Ex post facto research for descriptive research studies.

* The main characteristic of this method is that the researcher has no control over the variables; he can only report **what has happened or what is happening.**

Descriptive vs. Analytical:

* Most ex post facto research projects are used for descriptive studies in which the researcher seeks to measure such items as, for example, frequency of shopping, preferences of people, or similar data.

* Ex post facto studies also include attempts by researchers to discover causes even when they cannot control the variables.

* The methods of research utilized in descriptive research are survey methods of all kinds, including comparative and correlational methods.

* In analytical research, on the other hand, the researcher has to use facts or information already available, and analyze these to make a critical evaluation of the material.

Applied vs. Fundamental

* Applied (or action) research or Fundamental (to basic or pure) research.
* Applied research aims at finding a solution for an immediate problem facing a society or an industrial/business organization
* Research to identify social, economic or political trends that may affect a particular institution or the copy research (research to find out whether certain communications will be read and understood) or the marketing research or evaluation research are examples of applied research.
* The central aim of applied research is to discover a solution for some pressing practical problem, whereas basic research is directed towards finding information that has a broad base of applications and thus, adds to the already existing organized body of scientific knowledge.

Applied vs. Fundamental

* Fundamental research is mainly concerned with generalizations and with the formulation of a theory. “Gathering knowledge for knowledge’s sake is termed ‘pure’ or ‘basic’ research.”

* Research concerning some natural phenomenon or relating to pure mathematics are examples of fundamental research.

* As well, research studies, concerning human behaviour carried on with a view to make generalizations about human behaviour, are also examples of fundamental research.

Quantitative vs. Qualitative:

* **Quantitative research** is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity.
  * Data are Collected through measuring things
  * Assume a fixed and measurable things
  * Quantitative research can be further sub-classified into inferential, experimental and simulation approaches to research.

Quantitative Approach

* The purpose of inferential approach to research is to form a data base from which to infer characteristics or relationships of population.
  * This usually means survey research where a sample of population is studied (questioned or observed) to determine its characteristics, and it is then inferred that the population has the same characteristics.

* Experimental approach is characterized by much greater control over the research environment and in this case some variables are manipulated to observe their effect on other variables.

* Simulation approach involves the construction of an artificial environment within which relevant information and data can be generated.
  * This permits an observation of the dynamic behaviour of a system (or its sub-system) under controlled conditions.

Qualitative Approach

* Qualitative research concerned with qualitative phenomenon, i.e., phenomena relating to or involving quality or kind.

* Investigating the reasons for human behaviour (i.e., why people think or do certain things), we quite often talk of 'Motivation Research', an important type of qualitative research.

Qualitative Approach

* Qualitative research aims at discovering the underlying motives and desires, using in depth interviews for the purpose.

* Other techniques are word association tests, sentence completion tests, story completion tests and similar other projective techniques.

* Attitude or opinion research i.e., research designed to find out how people feel or what they think about a particular subject or institution is also qualitative research.

Qualitative Approach

* Qualitative research we can analyze the various factors which motivate people to behave in a particular manner or which make people like or dislike a particular thing.

* Apply qualitative research in practice is relatively a difficult job and therefore, while doing such research, one should seek guidance from experimental psychologists

Conceptual vs. Empirical:

* Conceptual research is that related to some abstract idea(s) or theory.

* Generally used by philosophers and thinkers to develop new concepts or to reinterpret existing ones.

Empirical Research

* Empirical research relies on experience or observation alone, often without due regard for system and theory.

* It is data-based research, coming up with conclusions which are capable of being verified by observation or experiment.

* We can also call it as experimental type of research.

Empirical Research

* In Imperial researcher, must first provide himself with a working hypothesis or guess as to the probable results.
* Then works to get enough facts (data) to prove or disprove his hypothesis.
* Then sets up experimental designs which he thinks will manipulate the persons or the materials concerned so as to bring forth the desired information.
* Evidence gathered through experiments or empirical studies is today considered to be the most powerful support possible for a given hypothesis

Some Other Types of Research:

* All other types of research are variations of one or more of the above stated approaches, based on either the purpose of research, or the time required to accomplish research, on the environment in which research is done, or on the basis of some other similar factor.

Continue…

* Research can be field-setting research or laboratory research or simulation research, depending upon the environment in which it is to be carried out.

* Research can as well be understood as clinical or diagnostic research. Such research follow case-study methods or in-depth approaches to reach the basic causal relations.

Continue…

* The research may be exploratory or it may be formalized.
* exploratory research is the development of hypotheses rather than their testing
* formalized research studies are those with substantial structure and with specific hypotheses to be tested.

Continue…

* Historical research is that which utilizes historical sources like documents, remains, etc. to study events or ideas of the past, including the philosophy of persons and groups at any remote point of time.

Continue…

* Conclusion-oriented and Decision-oriented

* In conclusion oriented research, a researcher is free to pick up a problem, redesign the enquiry as he proceeds and is prepared to conceptualize as he wishes.

Continue…

* Decision-oriented research is always for the need of a decision maker and the researcher in this case is not free to embark upon research according to his own inclination.

* Operations research is an example of decision oriented research since it is a scientific method of providing executive departments with a quantitative basis for decisions regarding operations under their control.

Significance of Research

* Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization

* Through research we can devise alternative policies and can as well examine the consequences of each of these alternatives

* Decision-making may not be a part of research, but research certainly facilitates the decisions of the policy maker

Significance of Research

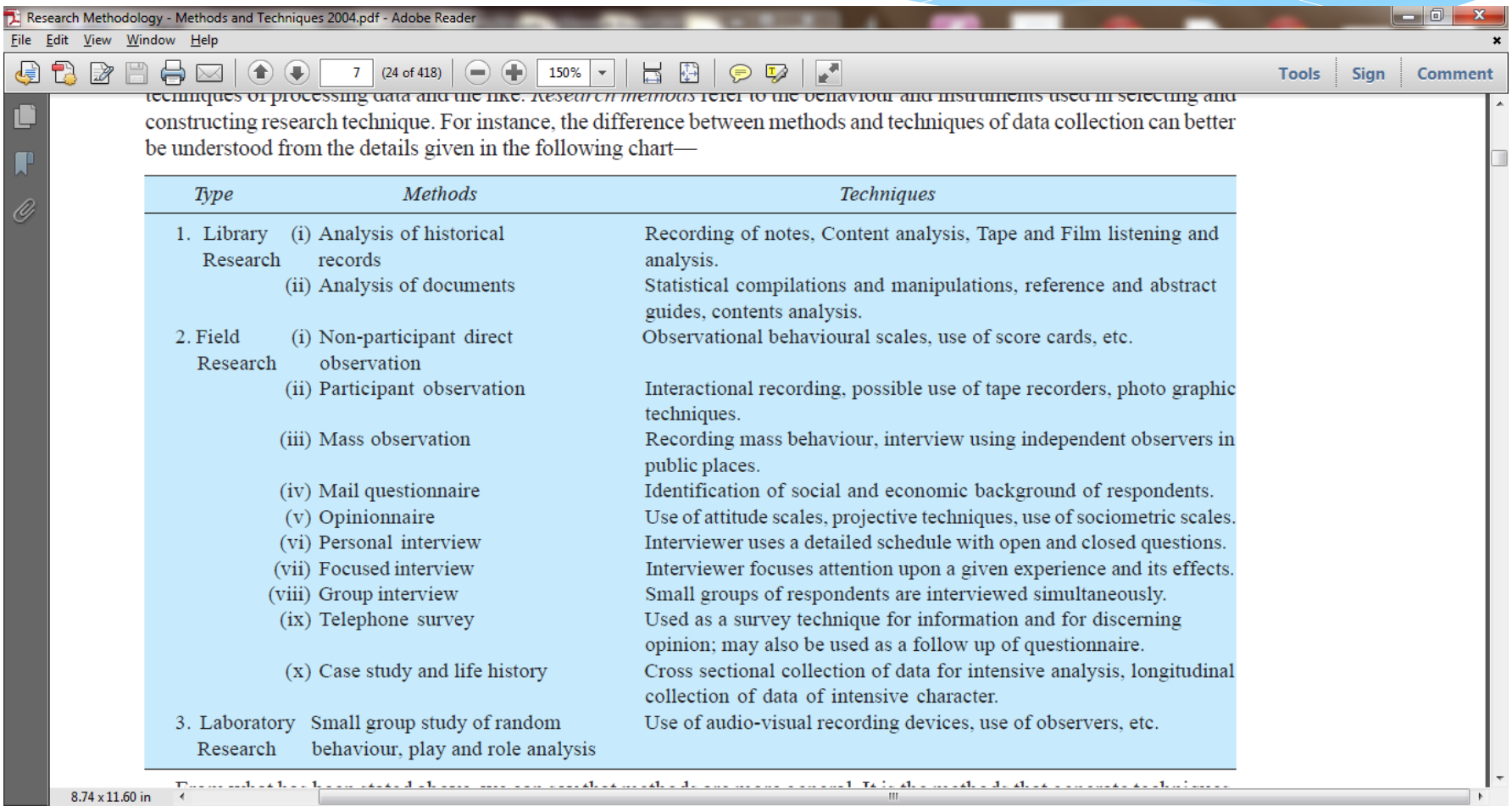
* Research is necessary, is collecting information on the economic and social structure of the nation. Such information indicates what is happening in the economy and what changes are taking place
* Research also replaces intuitive business decisions by more logical and scientific decisions
* Research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, governmental and social problems

Research Methods versus Methodology

* Research methods or techniques, thus, refer to the methods the researchers use in performing research operations.

* Thus, when we talk of research methodology we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.

the difference between methods and techniques of data collection


Research Methodology - Methods and Techniques 2004.pdf - Adobe Reader

File Edit View Window Help

7 (24 of 418) 150% Tools Sign Comment

techniques of processing data and the like. *Research methods* refer to the behaviour and instruments used in selecting and constructing research technique. For instance, the difference between methods and techniques of data collection can better be understood from the details given in the following chart—

Type	*Methods*	*Techniques*
1. Library Research	(i) Analysis of historical records	Recording of notes, Content analysis, Tape and Film listening and analysis.
	(ii) Analysis of documents	Statistical compilations and manipulations, reference and abstract guides, contents analysis.
2. Field Research	(i) Non-participant direct observation	Observational behavioural scales, use of score cards, etc.
	(ii) Participant observation	Interactional recording, possible use of tape recorders, photo graphic techniques.
	(iii) Mass observation	Recording mass behaviour, interview using independent observers in public places.
	(iv) Mail questionnaire	Identification of social and economic background of respondents.
	(v) Opinionnaire	Use of attitude scales, projective techniques, use of sociometric scales.
	(vi) Personal interview	Interviewer uses a detailed schedule with open and closed questions.
	(vii) Focused interview	Interviewer focuses attention upon a given experience and its effects.
	(viii) Group interview	Small groups of respondents are interviewed simultaneously.
	(ix) Telephone survey	Used as a survey technique for information and for discerning opinion; may also be used as a follow up of questionnaire.
	(x) Case study and life history	Cross sectional collection of data for intensive analysis, longitudinal collection of data of intensive character.
3. Laboratory Research	Small group study of random behaviour, play and role analysis	Use of audio-visual recording devices, use of observers, etc.

From what has been stated above, we can see that methods are more general. It is the methods that generate techniques

8.74 x 11.60 in

research process guideline:

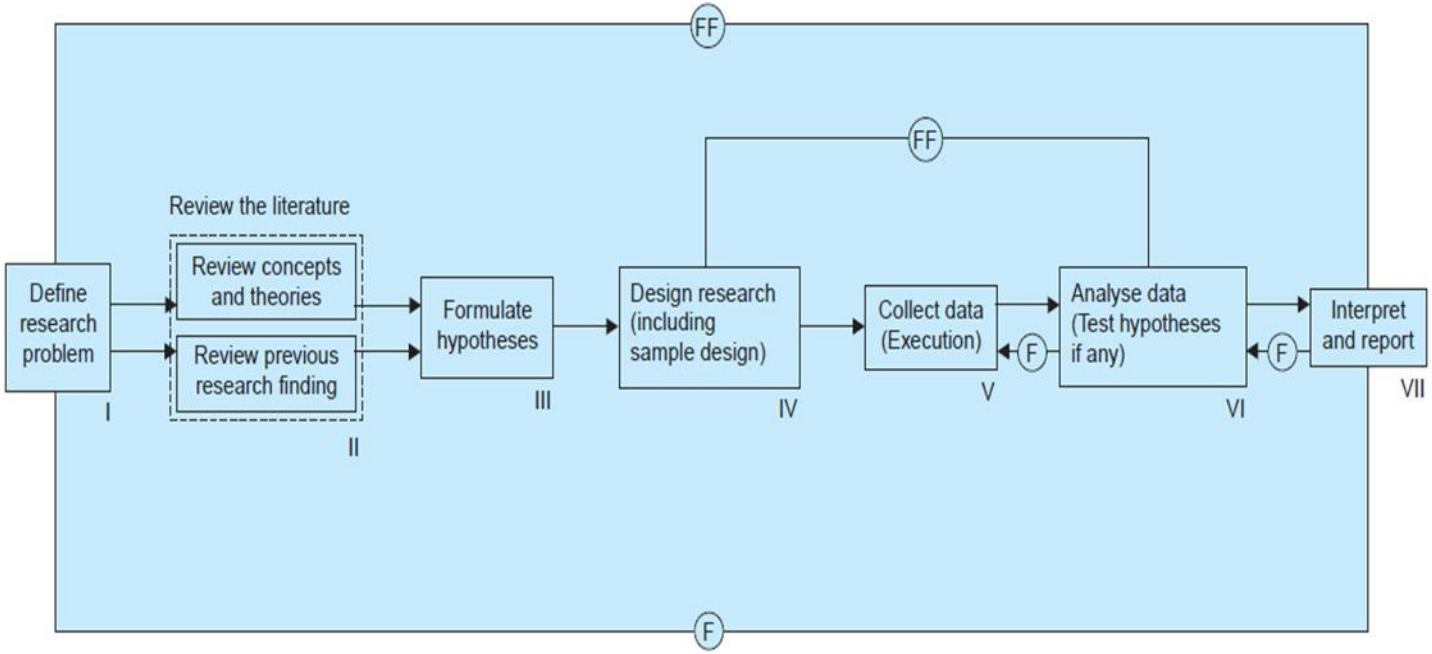
* 1) formulating the research problem;
* (2) extensive literature survey;
* (3) developing the hypothesis;
* (4) preparing the research design;
* (5) determining sample design;
* (6) collecting the data;
* (7) execution of the project;
* (8) analysis of data;
* (9) hypothesis testing;
* (10) generalisations and interpretation,
* (11) preparation of the report or presentation of the results ,i. e., formal write-up of conclusions reached.

Research Methodology - Methods and Techniques 2004.pdf - Adobe Reader

File Edit View Window Help

11 (28 of 418) 125% Tools Sign Comment

RESEARCH PROCESS IN FLOW CHART



Where (F) = feed back (Helps in controlling the sub-system to which it is transmitted)

(FF) = feed forward (Serves the vital function of providing criteria for evaluation)

Fig. 1.1

11.60 x 8.74 in

1. Formulating the research problem:

* There are two types of research problems, viz., those which relate to states of nature and those which relate to relationships between variables.

2. Extensive literature survey:

* Once the problem is formulated, a brief summary of it should be written down. It is compulsory for a research worker writing a thesis for a Ph.D. degree to write a synopsis of the topic and submit it to the necessary Committee or the Research Board for approval.

3. Development of working hypotheses:

* After extensive literature survey, researcher should state in clear terms the working hypothesis or hypotheses.

* Working hypothesis is tentative assumption made in order to draw out and test its logical or empirical consequences.

4. Preparing the research design:

* The research problem having been formulated in clear cut terms, the researcher will be required to prepare a research design, i.e., he will have to state the conceptual structure within which research would be conducted.

* Research purposes may be grouped into four categories, viz., (i) Exploration, (ii) Description, (iii) Diagnosis, and (iv) Experimentation.

Continues…

* There are several research designs, such as, experimental and non-experimental hypothesis testing.
* Experimental designs can be either
* Informal designs (such as before-and-after without control, after-only with control, before-and-after with control)
* Formal designs (such as completely randomized design, randomized block design, Latin square design, simple and complex factorial designs), out of which the researcher must select one for his own project.

5. Determining sample design:

* All the items under consideration in any field of inquiry constitute a ‘universe’ or ‘population’.
* A complete enumeration of all the items in the ‘population’ is known as a census inquiry.
* A brief mention of the important sample designs is as follows:

(i) Deliberate sampling: Deliberate sampling is also known as purposive or non-probability sampling.

Continues…

(ii) Simple random sampling:

This type of sampling is also known as chance sampling or probability sampling where each and every item in the population has an equal chance of inclusion in the sample and each one of the possible samples, in case of finite universe, has the same probability of being selected.

Continues…

(iii) Systematic sampling:

In some instances the most practical way of sampling is to select every 15th name on a list, every 10th house on one side of a street and so on.

(iv) Stratified sampling:

If the population from which a sample is to be drawn does not constitute a homogeneous group, then stratified sampling technique is applied so as to obtain a representative sample.

Continues …

(v) Quota sampling:

In stratified sampling the cost of taking random samples from individual strata is often so expensive that interviewers are simply given quota to be filled from different strata, the actual selection of items for sample being left to the interviewer's judgment.

Continues…

(vii) Multi-stage sampling:

This is a further development of the idea of cluster sampling.

(viii) Sequential sampling:

This is somewhat a complex sample design where the ultimate size of the sample is not fixed in advance but is determined according to mathematical decisions on the basis of information yielded as survey progresses.

6. Collecting the data:

* Data can be collected by any one or more of the following ways:

(i) By observation
(ii) Through personal interview
(iii) Through telephone interviews
(iv) By mailing of questionnaires
(v) Through schedules

7. Execution of the project:

8. Analysis of data:

* Requires a number of closely related operations such as establishment of
* Categories
* Coding
* Editing
* Tabulation
* Analysis work after tabulation is generally based on the computation of various percentages, coefficients, etc., by applying various well defined statistical formulae.

9. Hypothesis-testing:

* Various tests, such as Chi square test, t-test, F-test, have been developed by statisticians for the purpose.

* Hypothesis-testing will result in either accepting the hypothesis or in rejecting it.

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

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

(i) the preliminary pages;

(ii) the main text,

(iii) the end matter.

Continues…

2. Report should be written in a concise and objective style in simple language avoiding vague expressions such as ‘it seems,’ ‘there may be’, and the like.

3. Charts and illustrations in the main report should be used only if they present the information more clearly and forcibly.

4. Calculated ‘confidence limits’ must be mentioned and the various constraints experienced in conducting research operations may as well be stated.

End of First Chapter