

# Research Methodology (CS3ES15)

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Re + Search = Research

# RESEARCH

- R- Rational way of thinking
- E-Expert and exhaustive
- S-Search for solution
- E-Exactness
- A-Analytical analyses of adequate data
- R-Relationship of facts
- C-Careful recording, critical observation and constructive attitude
- H-Honesty

# What is Research?

- **Search** for knowledge.
- **Scientific and systematic search** for relevant information on some topic.
- **Advanced Learner's Dictionary:**  
**Careful investigation or inquiry specially through search for new facts.**
- **Redman and Mory:** **Systematized effort to gain new knowledge.**

# What is Research? (Contd...)

- **Merriam-Webster's definition:**  
the **collecting of information** about a particular subject

# What is Research? (Contd...)

- **Clifford Woody:**

A combination of investigation of past work and effort in the present that will help others in the future”

# What Isn't Research

- Playing with technology
- Book report
- Programming project
- Doing what others have already done



# Who Does Research?

- Graduate Students
  - Masters Degree (lower standard)
  - Ph.D. Degree (higher standard)
- Researchers at universities
  - Post-Doctoral students
  - Faculty members
- Researchers in industry
  - Research scientists
  - Many other technical workers
- Undergraduate students

# Who Does Research? (Contd...)

- Individuals
- Teams
- Teams almost always make the process easier
  - Modular Approach
  - Feedback from team members
  - Each member can work to own strengths

# Scope of Research

- Varies by level of work
  - Ph.D. students – contribution expected at world level; e.g.
    - background investigation on all past work
    - make meaningful addition to world knowledge
  - Postgraduate students – contribution can be at local to national to world level; e.g.
    - background investigation at university up to world level
    - make meaningful addition to university up to world level of knowledge

# Some Other Terminologies

- Research Methods: methods(selection instruments)/techniques (operational instruments) used for the conduction of research
  - Data collection methods (survey)
  - Data analysis methods (statistical)
  - Accuracy evaluation methods
- Research Methodology: Way to systematically solve the research problem/science of studying how research is done
  - includes not only research methods but also the logic behind them
  - problem specific
- Hypothesis: an idea or theory that is not yet proven but that leads to further study or discussion

## OBJECTIVES 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 formulative research studies);
2. 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);
3. 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);
4. 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;
3. Desire to get intellectual joy of doing some creative work;
4. Desire to be of service to society;
5. Desire to get respectability. However, this is not an exhaustive list of factors motivating people to undertake research studies. 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

# Types of Research

- Basic vs Applied
- Quantitative vs. Qualitative
- Conceptual vs Empirical
- Descriptive vs. Analytical



# Basic

- Basic
  - Pure or Fundamental research
  - Types of Scientific research conducted for expanding the frontiers of knowledge
  - Involves investigation of natural phenomenon
  - Generate new ideas, principles, and theories
  - Attempts to explain **WHY** things happen.
  - Not used for immediate use or application
  - For example: Study on the symptoms of Coronavirus
  - Focus on making **Generalizations.**

# Applied

- Steps **After Basic research**
- Well accepted theories and principles built in the basic research are verified and **applied on real-life situations to find the solutions.**
- Outcomes of this research are meant for Immediate application.
- **Don't focus on making generalizations.**
- Focuses on solving practical problems related to specific area.
- Example: Marketing and Medical research

# Qualitative Research

- Primarily an **exploratory research**
- Used to gain an understanding of **underlying reason, opinions and motivations**.
- Provides insights into the problems by **understanding, interpreting the behavioral patterns**.
- It is **non-numerical** and does not involve any kind of quantifications of data.
- This is not focus about '**What**' but only focus '**Why**'
- Cover the reason of **underlying behaviors, attitudes & motivations**
- Focus groups and interviews are conducted **to gain insight into the feelings, perception, thoughts, and behavior of the respondents**.
- Open-ended **questions are asked to gather as much info as possible**.
- Mostly used in **psychology, sociology and consumer behavior**
- **Inductive in nature** and begin with social reality followed by the construction of the theory around it.
- Help in Quantitative research based on theory

# Quantitative Research

- Carried out to study a phenomenon that can be **expressed in numbers**.
- It is **numerical in nature**.
- Example: **Study conducted to find out the average number of people using online cab services in Delhi.**
- It is **deductive in nature (Theory to Conclusion)**
- **No Theory derive** only results or conclusion
- Steps:
  - **Data Collection**
  - **Hypothesis**
  - **Test Hypothesis**
  - **Conclusion**
- Result may be in form of **Table or Graphs**

# Conceptual Research

- Related to some abstract ideas.
- Philosophers and Thinkers use it developing new concepts for reinterpreting the existing ones.
- Example : What is life. (Different Answer given by different person)

# Empirical Research

- Relies on the observation or experience with hardly any regard for theory.
- Research based on data which often comes up with conclusions that can be verified through experiments or observations.
- Empirical = Observation/ Experience / Experiments
- Data : Fact + Observation + Techniques + Scientific method

## 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 Research Methodology: An Introduction 3 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. 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.

## Characteristics of Research

Keeping this in mind that research in any field of inquiry is undertaken to provide information to support decision-making in its respective area, we summarize some desirable characteristics of research:

1. The research should focus on priority problems.
2. The research should be systematic. It emphasizes that a researcher should employ a structured procedure.
3. The research should be logical. Without manipulating ideas logically, the scientific researcher cannot make much progress in any investigation.
4. The research should be reductive. This means that one researcher's findings should be made available to other researchers to prevent them from repeating the same research.
5. The research should be replicable. This asserts that there should be scope to confirm previous research findings in a new environment and different settings with a new group of subjects or at a different point in time.
6. The research should be generative. This is one of the valuable characteristics of research because answering one question leads to generating many other new questions.



7. The research should be action-oriented. In other words, it should be aimed at solving to implement its findings.
8. The research should follow an integrated multidisciplinary approach, i.e., research approaches from more than one discipline are needed.
9. The research should be participatory, involving all parties concerned (from policymakers down to community members) at all stages of the study.
10. The research must be relatively simple, timely, and time-bound, employing a comparatively simple design.  
The research must be as much cost-effective as possible.
11. The research results should be presented in formats most useful for administrators, decision-makers, business managers, or community members.

## Significance of Research

1. Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization.
2. The role of research in several fields of applied economics, whether related to business or to the economy as a whole, has greatly increased in modern times.
3. Research provides the basis for nearly all government policies in our economic system.
4. Research has its special significance in solving various operational and planning problems of business and industry.
5. Research is equally important for social scientists in studying social relationships and in seeking answers to various social problems.

# Research Methods

Research methods can be defined as the various ways and means of conducting a research that involve the

- Conduct of experiments
  - Tests
  - Surveys
  - Interviews
  - And many more.
- It can be said that research methods aim at finding solutions to research problems.

# Research Methodology

- Research methodology is the science of systematically solving a research problem. Often recognized as how a research is to be done scientifically,
- research methodology involves the learning of the various techniques we can use in the conduct of research such as the conduct of tests, experiments, surveys and critical studies. These methods have been properly tested and utilized and, therefore, each one has a logic behind them.

# Some Other Terminologies

- Research Methodology:
  - Research methodology aims at the employment of the correct procedures to find out solutions and paves the way for research methods to be conducted properly. Research methodology is the guidebook of research and is a science in itself.

# Research Methodology

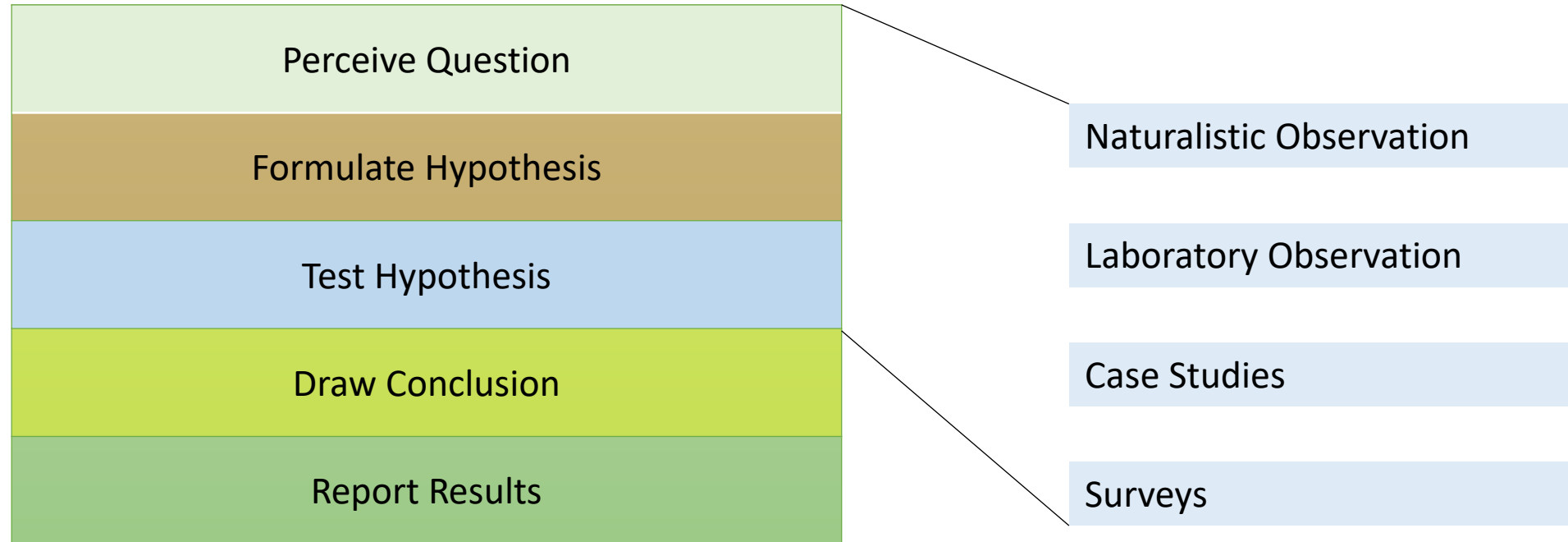
- Scientific Research

systematically investigate and understand phenomena through empirical observation, experimentation, and data analysis. It aims to uncover objective and verifiable facts or relationships within the natural or social world.

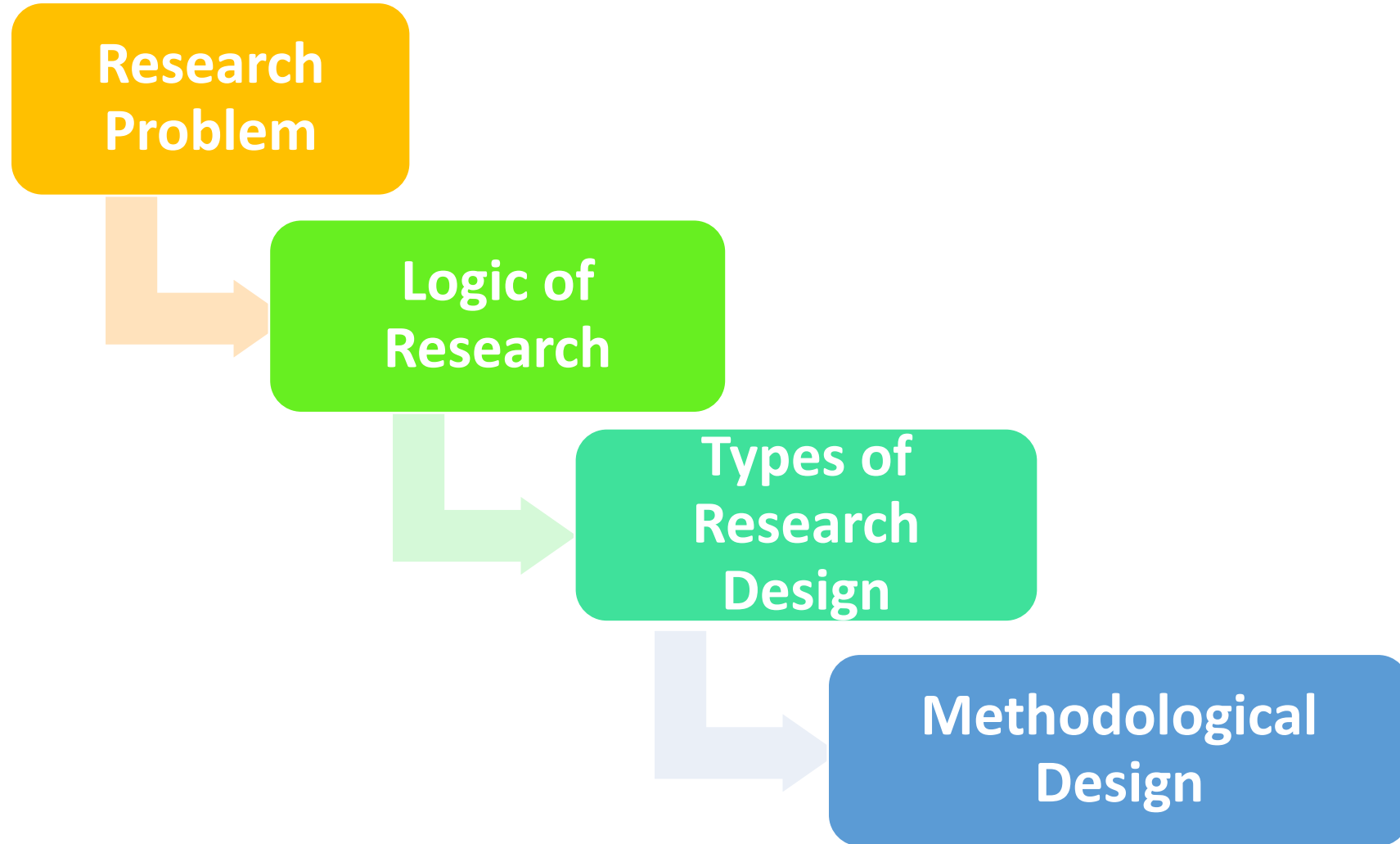
- No Presumption

based on making assumptions or presumptions without conducting systematic empirical investigations. It often involves making educated guesses or drawing conclusions without rigorous scientific methods.

# Basic Steps of Research Methodology



# Framework of Research





# Research Process

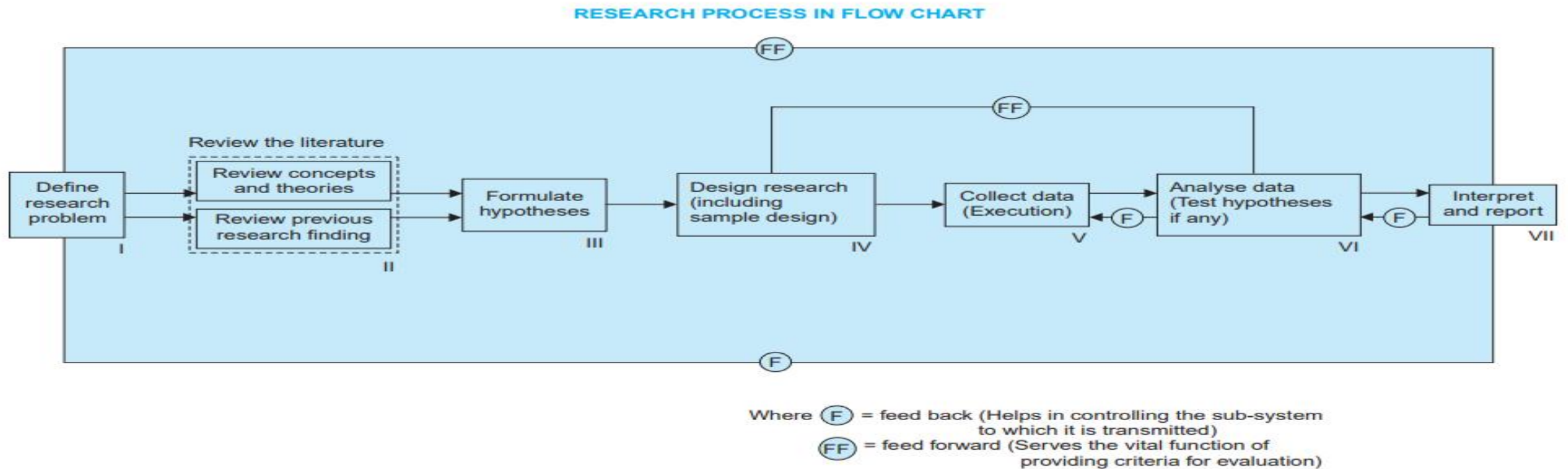


Fig. 1.1

, the following order concerning various steps provides a useful procedural guideline regarding the research process:

- (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, and
- (11) preparation of the report or presentation of the results,

# Defining/Formulating Research Problem

- **Problem:** a question/difficulty/issue
- **Research Problem:** refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to obtain a solution for the same.
- **Statement about**
  - An area of concern
  - A condition to be improved
  - A difficulty to be eliminated
  - A troubling question that exists in scholarly literature, in theory or in practice that points to the need for meaningful understanding and deliberate investigation

# Purpose of a problem statements

- Introduce the reader to the **importance of the topic** being studied.
- Places the problem into a **particular context that defines the parameters** of what is to be investigated.
- Provides the framework for **reporting the results** and indicates what is probably necessary to conduct the study.

# How Research Problem Define

- Statement of the problem in a general way:
  - Keeping in view either some **practical concern or some scientific** or intellectual interest.
- Understanding the nature of the problem:
  - Understanding its **origin and nature clearly**
- **Surveying the available literature**
- Developing the ideas through discussions:
  - A researcher must **discuss his problem with his colleagues** and others who have enough experience in the same area or in the working on similar problems.
- **Rephrasing the research problem:**
  - Rephrase the research problem into a working proposition.
  - Through rephrasing, the researcher puts the research problem in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses.

## 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. At this juncture the researcher should undertake extensive literature survey connected with the problem. For this purpose, the abstracting and indexing journals and published or unpublished bibliographies are the first place to go to. Academic journals, conference proceedings, government reports, books etc., must be tapped depending on the nature of the problem. In this process, it should be remembered that one source will lead to another. The earlier studies, if any, which are similar to the study in hand should be carefully studied. A good library will be a great help to the researcher at this stage.

### 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

How does one go about developing working hypotheses? The answer is by using the following approach:

- (a) Discussions with colleagues and experts about the problem, its origin and the objectives in seeking a solution;
- (b) Examination of data and records, if available, concerning the problem for possible trends, peculiarities and other clues;
- (c) Review of similar studies in the area or of the studies on similar problems; and
- (d) Exploratory personal investigation which involves original field interviews on a limited scale with interested parties and individuals with a view to secure greater insight into the practical aspects of the problem

#### 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.

, The function of research design is to provide for the collection of relevant evidence with minimal expenditure 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., (i) Exploration, (ii) Description, (iii) Diagnosis, and (iv) Experimentation

The preparation of the research design, appropriate for a particular research problem, involves usually the consideration of the following:

- (i) the means of obtaining the information;
- (ii) the availability and skills of the researcher and his staff (if any);
- (iii) explanation of the way in which selected means of obtaining information will be organised and the reasoning leading to the selection;
- (iv) the time available for research; and
- (v) the cost factor relating to research, i.e., the finance available for the purpose



## 6. Collecting the data:

In dealing with any real life problem it is often found that data at hand are inadequate, and hence, it becomes necessary to collect data that are appropriate

Primary data can be collected either through experiment or through survey. If the researcher conducts an experiment, he observes some quantitative measurements, or the data, with the help of which he examines the truth contained in his hypothesis

But in the case of a survey, data can be collected by any one or more of the following ways:

By observation:

Through personal interview:

Through telephone interviews:

By mailing of questionnaires:

Through schedules:

The researcher should select one of these methods of collecting the data taking into consideration the nature of investigation, objective and scope of the inquiry, financial resources, available time and the desired degree of accuracy.

## 8. Analysis of data:

After the data have been collected, the researcher turns to the task of analysing them. The analysis of data requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inferences. The unwieldy data should necessarily be condensed into a few manageable groups and tables for further analysis.

## 9. Hypothesis-testing:

After analysing the data as stated above, the researcher is in a position to test the hypotheses, if any, he had formulated earlier. Do the facts support the hypotheses or they happen to be contrary? This is the usual question which should be answered while testing hypotheses. Various tests, such as Chi square test, t-test, F-test, have been developed by statisticians for the purpose.

10. Generalisations and interpretation: If a hypothesis is tested and upheld several times, it may be possible for the researcher to arrive at generalisation, i.e., to build a theory. As a matter of fact, the real value of research lies in its ability to arrive at certain generalisations. 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. Writing of report must be done with great care keeping in view the following:

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

(i) the preliminary pages; (ii) the main text, and (iii) the end matter.

In its preliminary pages the report should carry title and date followed by acknowledgements and foreword. Then there should be a table of contents followed by a list of tables and list of graphs and charts, if any, given 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 an explanation of the methodology adopted in accomplishing the research. The scope of the study along with various limitations should as well be stated in this part.
- (b) Summary of findings: After introduction there would appear a statement of findings and recommendations in non-technical language. If the findings are extensive, they should be summarised.
- (c) Main report: The main body of the report should be presented in logical sequence and broken-down into readily identifiable sections.
- (d) Conclusion: Towards the end of the main text, researcher should again put down the results of his research clearly and precisely. In fact, it is the final summing up. At the end of the report, appendices should be enlisted in respect of all technical data. Bibliography, i.e., list of books, journals, reports, etc., consulted, should also be given in the end. Index should also be given specially in a published research report.

# Unit-2

# Defining/Formulating Research Problem

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# Purpose of a problem statements

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- Provides the framework for **reporting the results** and indicates what is probably necessary to conduct the study.

- (i) There must be an individual or a group which has some difficulty or the problem.
- (ii) There must be some objective(s) to be attained at. If one wants nothing, one cannot have a problem.
- (iii) There must be alternative means (or the courses of action) for obtaining the objective(s) one wishes to attain. This means that there must be at least two means available to a researcher for if he has no choice of means, he cannot have a problem.
- (iv) There must remain some doubt in the mind of a researcher with regard to the selection of alternatives. This means that research must answer the question concerning the relative efficiency of the possible alternatives.
- (v) There must be some environment(s) to which the difficulty pertains

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  - Through rephrasing, the researcher puts the research problem in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses.



# The following points must also be observed while defining a research problem:

- Technical terms and words or phrases-Should be clearly defined
- Basic assumptions- Should be clearly stated
- Criteria for the selection of the problem-Should be provided
- Suitability of the time-period, sources of data available-Should be considered by the researcher in defining the problem.

# Necessity of Defining the problem (Selecting the Problem)

- Don't choose overdone Subject
- Controversial Subject
- Too narrow or Too vague problem
- Familiar or feasible to researcher
- Costs & Time factors
- Preliminary Study

- (i) Subject which is overdone should not be normally chosen, for it will be a difficult task to throw any new light in such a case.
- (ii) Controversial subject should not become the choice of an average researcher
- (iii) Too narrow or too vague problems should be avoided
- (iv) The subject selected for research should be familiar and feasible so that the related research material or sources of research are within one's reach. Even then it is quite difficult to supply definitive ideas concerning how a researcher should obtain ideas for his research. , a researcher should contact an expert or a professor in the University who is already engaged in research.
- (v) The importance of the subject, the qualifications and the training of a researcher, the costs involved, the time factor are few other criteria that must also be considered in selecting a problem.
- (vi) The selection of a problem must be preceded by a preliminary study. This may not be necessary when the problem requires the conduct of a research closely similar to one that has already been done. But when the field of inquiry is relatively new and does not have available a set of well developed techniques, a brief feasibility study must always be undertaken.

# Technique involved in defining problem

- Statement of a problem in a general way

First of all the problem should be stated in a broad general way, keeping in view either some practical concern or some scientific or intellectual interest. For this purpose, the researcher must immerse himself thoroughly in the subject matter concerning which he wishes to pose a problem. In case of social research, it is considered advisable to do some field observation and as such the researcher may undertake some sort of preliminary survey or what is often called pilot survey. Then the researcher can himself state the problem or he can seek the guidance of the guide or the subject expert in accomplishing this task

- Understanding the nature of the problem

The next step in defining the problem is to understand its origin and nature clearly. The best way of understanding the problem is to discuss it with those who first raised it in order to find out how the problem originally came about and with what objectives in view. If the researcher has stated the problem himself, he should consider once again all those points that induced him to make a general statement concerning the problem.

- Surveying the available literature

All available literature concerning the problem at hand must necessarily be surveyed and examined before a definition of the research problem is given. This means that the researcher must be well-conversant with relevant theories in the field, reports and records as also all other relevant literature. He must devote sufficient time in reviewing of research already undertaken on related problem

- Developing the ideas through discussion

Discussion concerning a problem often produces useful information. Various new ideas can be developed through such an exercise. Hence, a researcher must discuss his problem with his colleagues and others who have enough experience in the same area or in working on similar problems. This is quite often known as an experience survey. People with rich experience are in a position to enlighten the researcher on different aspects of his proposed study and their advice and comments are usually invaluable to the researcher

- Rephrasing the research problem

Finally, the researcher must sit to rephrase the research problem into a working proposition. Once the nature of the problem has been clearly understood, the environment (within which the problem has got to be studied) has been defined, discussions over the problem have taken place and the available literature has been surveyed and examined, rephrasing the problem into analytical or operational terms is not a difficult task.

- (a) Technical terms and words or phrases, with special meanings used in the statement of the problem, should be clearly defined.
- (b) Basic assumptions or postulates (if any) relating to the research problem should be clearly stated.
- (c) A straight forward statement of the value of the investigation (i.e., the criteria for the selection of the problem) should be provided.
- (d) The suitability of the time-period and the sources of data available must also be considered by the researcher in defining the problem.
- (e) The scope of the investigation or the limits within which the problem is to be studied must be mentioned explicitly in defining a research problem

Literature review:

“A substantive, thorough, sophisticated literature review is a precondition for doing substantive, thorough, sophisticated research”. Boote and Baile 2005 .

Authors of manuscripts treat [writing a literature review](#) as a routine work or a mere formality. But a seasoned one knows the purpose and importance of a well-written literature review. Since it is one of the basic needs for researches at any level, they have to be done vigilantly. Only then the reader will know that the basics of research have not been neglected.

# Importance of Literature Review in Research



The importance of [literature review in scientific manuscripts](#) and Thesis can be condensed into an analytical feature to enable the multifold reach of its significance. It adds value to the legitimacy of the research in many ways:

1. Provides the interpretation of existing literature in light of updated developments in the field to help in establishing the consistency in knowledge and relevancy of existing materials.
2. It helps in calculating the impact of the latest information in the field by mapping their progress of knowledge.
3. It brings out the dialects of contradictions between various thoughts within the field to establish facts.
4. The [research gaps](#) scrutinized initially are further explored to establish the latest facts of theories to add value to the field.
5. Indicates the current research place in the schema of a particular field.
6. Provides information for relevancy and coherency to check the research.
7. Apart from elucidating the continuance of knowledge, it also points out areas that require further investigation and thus aid as a starting point of any future research.
8. Justifies the research and sets up the research question.
9. Sets up a theoretical framework comprising the concepts and theories of the research upon which its success can be judged.
10. Helps to adopt a more appropriate methodology for the research by examining the strengths and weaknesses of existing research in the same field.
11. Increases the significance of the results by comparing it with the existing literature
12. Provides a point of reference by writing the findings in the [scientific manuscript](#)



## Primary and Secondary Sources

### Primary Sources

A primary source contains original information that is not derived from interpretation, summarizing, or analyzing someone else's work.

For example:

- If you were studying a historical period, such things as diaries, letters and official records would be primary sources. Any works that make use of these would be secondary.
- If you were studying an educational theorist, the books written by them that discuss their theories are primary. Any sources that introduce, interpret, or critique their theories are secondary.
- Research that makes use of data collected by the author(s) is primary whereas research that relies on the findings of others is secondary.

Be aware that what constitutes a primary source is often relative to the topic at hand. For example, Maurice Shadbolt's *The New Zealand Wars* novels would be primary sources with regards to the author but could be considered secondary sources with regards to the accounts of historical figures, such as Te Kooti and Titokowaru, that he draws on.

## Secondary Sources

Secondary sources are work that has been based on primary (or other secondary) sources. They are usually an interpretation, a summary, an analysis, or a review.

For example:

- A biography of a famous person or a documentary about a historic event.
- A book that provides an introduction to a theorist's work, critiques it, or applies their theories in a particular context.
- An article that reviews research in a particular area and provides a summary of the key findings.

It's possible for secondary sources to also contain primary source material. For example, a biography would be secondary but could contain previously unpublished primary material such as diary entries or excerpts from an interview.

## Difference between a Literature Review and a Critical Review

As you read research papers, you may notice that there are two very different kinds of review of prior studies. Sometimes, this section of a paper is called a literature review, and at other times, it is referred to as a critical review or a **critical context**. These differences may be more commonly seen across different fields. Although both these sections are about reviewing prior and existing studies, this article aims to clarify the differences between the two.

### Literature review

A [literature review](#) is a **summary of prior or existing studies that are related to your own research paper**. A literature review can be a **part of a research paper** or can form a **paper in itself**. For the former, the literature review is designed as a basis upon which your own current study is designed and built. The latter forms a synthesis of prior studies and is a way to highlight future research agendas or a framework.

### Writing a literature review

In a literature review, you should attempt to discuss the arguments and findings in prior studies and then work to build on these studies as you develop your own research. You can also highlight the **connection** between existing and prior literature to demonstrate how the current study you are presenting can [advance your knowledge in the field](#).

When performing a literature review, you should aim to **summarise** your discussions using a specific aspect of the literature, such as by topic, time, methodology/[design](#) and [findings](#). By doing so, you should be able to establish an effective way to present the relevant literature and demonstrate the connection between prior studies and your research.

Do **note** that a literature review does not include a presentation or discussion of any results or findings – this should come at a later point in the paper or study. You should also not impose your subjective viewpoints or opinions on the literature you discuss.

### **Critical review**

A critical review is also a popular way of reviewing prior and existing studies. It can cover and discuss the main ideas or arguments in a book or an article, or it can review a specific concept, theme, [theoretical perspective](#) or key construct found in the [existing literature](#).

However, the **key feature that distinguishes** a critical review from a literature review is that the former is more than just a summary of different topics or methodologies. It offers more of a **reflection and critique** of the concept in question, and is engaged by authors to more clearly contextualize their own research within the existing literature and to **present their opinions, perspectives and approaches**.

Given that a critical review is not just a summary of prior literature, it is generally not considered acceptable to follow the same strategy as for a literature review. Instead, aim to organize and structure your critical review in a way that would enable you to discuss the key concepts, assert your perspectives and locate your arguments and research within the existing body of work.

## Structuring a critical review

A critical review would generally begin with an [introduction](#) to the concepts you would like to discuss. Depending on how broad the topics are, this can simply be a brief overview or it could set up a more complex framework. The discussion that follows through the rest of the review will then address and discuss your chosen themes or topics in more depth.

## Writing a critical review

The discussion within a critical review will not only present and summarize themes but also critically engage with the varying arguments, writings and perspectives within those themes. One important thing to note is that, **similar to a literature review**, you should keep your personal opinions, likes and dislikes out of a review. Whether you personally agree with a study or argument – and whether you like it or not – is immaterial. Instead, you should **focus upon the effectiveness and relevance of the arguments**, considering such elements as the evidence provided, the interpretations and analysis of the data, whether or not a study may be biased in any way, what further questions or problems it raises or what outstanding research [gaps](#) and issues need to be addressed.

## In conclusion

Although a review of previous and existing literature can be performed and presented in different ways, in essence, any literature or critical review **requires a solid understanding of the most prominent work in the field** as it relates to your own study. Such an understanding is crucial and significant for you to build upon and synthesise the existing knowledge, and to create and contribute new knowledge to [advance the field](#).

## What is a Research Gap?

A research gap is a question or a problem that has not been answered by any of the existing studies or research within your field. Sometimes, a research gap exists when there is a concept or new idea that hasn't been studied at all. Sometimes you'll find a research gap if all the existing research is outdated and in need of new/updated research (studies on Internet use in 2001, for example). Or, perhaps a specific population has not been well studied (perhaps there are plenty of studies on teenagers and video games, but not enough studies on toddlers and video games, for example). These are just a few examples, but any research gap you find is an area where more studies and more research need to be conducted.

Research gap refers to an area or topic within a field of study that has not yet been extensively researched or is yet to be explored. It is a question, problem or issue that has not been addressed or resolved by previous research.

## How to Identify Research Gap

Identifying a research gap is an essential step in conducting [research](#) that adds value and contributes to the existing body of knowledge. Research gap requires critical thinking, creativity, and a thorough understanding of the existing [literature](#). It is an iterative process that may require revisiting and refining your research questions and ideas multiple times.

**Here are some steps that can help you identify a research gap:**

**Review existing literature:** Conduct a thorough review of the existing literature in your research area. This will help you identify what has already been studied and what gaps still exist.

**Identify a research problem:** Identify a specific research problem or question that you want to address.

**Analyze existing research:** Analyze the existing research related to your research problem. This will help you identify areas that have not been studied, inconsistencies in the findings, or limitations of the previous research.

**Brainstorm potential research ideas:** Based on your analysis, brainstorm

**Consult with experts:** Consult with experts in your research area to get their opinions on potential research ideas and to identify any additional gaps that you may have missed.

**Refine research questions:** Refine your research questions and hypotheses based on the identified gaps and potential research ideas.

**Develop a research proposal:** Develop a research proposal that outlines your research questions, objectives, and methods to address the identified research gap.

## Importance of Research Gap

The importance of research gaps can be summarized as follows:

**Advancing knowledge:** Identifying research gaps is crucial for advancing knowledge in a particular field. By identifying areas where additional research is needed, researchers can fill gaps in the existing body of knowledge and contribute to the development of new theories and practices.

**Guiding research:** Research gaps can guide researchers in designing studies that fill those gaps. By identifying research gaps, researchers can develop research questions and objectives that are aligned with the needs of the field and contribute to the development of new knowledge.

**Enhancing research quality:** By identifying research gaps, researchers can avoid duplicating previous research and instead focus on developing innovative research that fills gaps in the existing body of knowledge. This can lead to more impactful research and higher-quality research outputs.

**Informing policy and practice:** Research gaps can inform policy and practice by highlighting areas where additional research is needed to inform decision-making. By filling research gaps, researchers can provide evidence-based recommendations that have the potential to improve policy and practice in a particular field.