



# **Research Methodology**

## **Chapter Six: Elements of Research Design**

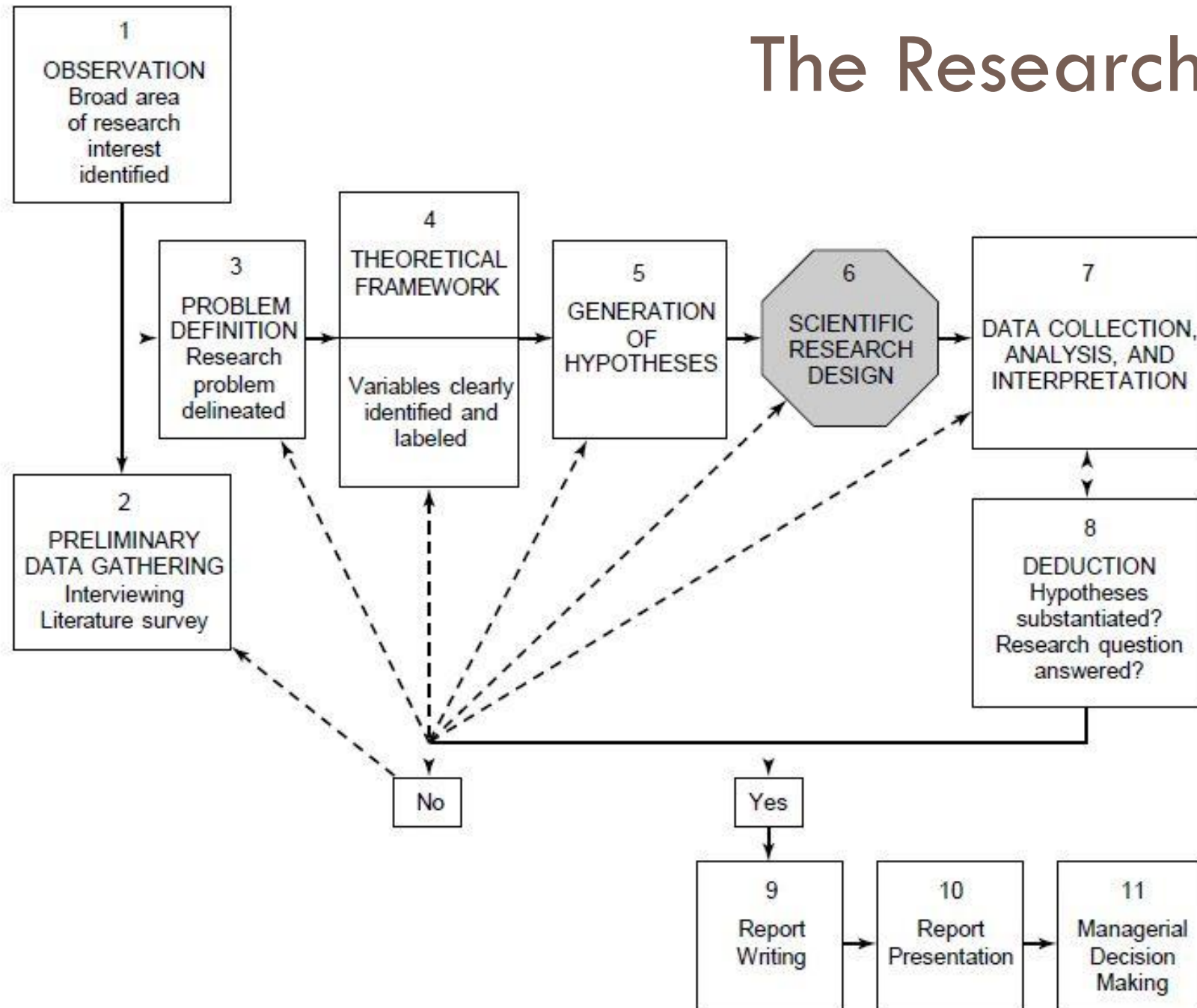
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# The Research Process



# The Purpose of the Study

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Studies may be:

- Exploratory
- Descriptive
- Hypotheses Testing

# Exploratory Study

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- An **exploratory study** is undertaken when not much is known about the situation at hand, or no information is available on how similar problems or research issues have been solved in the past.
- In such cases, extensive preliminary work needs to be done to gain familiarity with the phenomena in the situation, and understand what is occurring, before we develop a model and set up a rigorous design for comprehensive investigation.

# Exploratory Study cont.

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- **Example:** The manager of a multinational corporation is curious to know if the work ethic values of employees working in its subsidiary in Pennathur City would be different from those of Americans.
- There is very little information about Pennathur (except that it is a small city in southern India), and since there is considerable controversy about what work ethic values mean to people in other cultures, the manager's curiosity can be satisfied only by an exploratory study, interviewing the employees in organizations in Pennathur.

# Descriptive Study

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- A **descriptive study** is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation.
- For instance, a study of a class in terms of the percentage of members who are in their senior and junior years, gender composition, age groupings, number of semesters left until graduation, and number of business courses taken, can be considered as descriptive in nature.

# Descriptive Study cont.

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- Quite frequently, descriptive studies are undertaken in organizations to learn about and describe the characteristics of a group of employees, as for example, the age, educational level, job status, and length of service of Hispanics or Asians, for instance, working in the system.



# Descriptive Study cont.

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- **Example:** A bank manager wants to have a profile of the individuals who have loan payments outstanding for six months and more.
- It would include details of their average age, earnings, nature of occupation, full-time/part-time employment status, and the like.
- This might help him to elicit further information or decide right away on the types of individuals who should be made ineligible for loans in the future.

# Hypotheses Testing

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- Studies that engage in hypotheses testing usually explain the nature of certain relationships, or establish the differences among groups or the independence of two or more factors in a situation.
- Hypothesis testing is undertaken to explain the variance in the dependent variable or to predict organizational outcomes.

# Hypotheses Testing cont.

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- A marketing manager wants to know if the sales of the company will increase if he doubles the advertising dollars.
- Here, the manager would like to know the nature of the relationship that can be established between advertising and sales by testing the hypothesis: ***If advertising is increased, then sales will also go up.***

# Type of Investigation

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- A manager should determine whether a **causal** or a **correlational** study is needed to find an answer to the issue at hand.
- The **causal** study is done when it is necessary to establish a definitive cause-and-effect relationship.
- The researcher is keen on delineating one or more factors that are undoubtedly **causing** the problem.
- In other words, the intention of the researcher conducting a causal study is to be able to state that variable  $X$  causes variable  $Y$ .

# Type of Investigation cont.

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- However, if all that the manager wants is a mere identification of the important factors “associated with” the problem, then a **correlational** study is called for.
- Given the fact that most of the time there are multiple factors that influence one another and the problem in a chainlike fashion, the researcher might be asked to identify the crucial factors **associated** with the problem, rather than establish a cause-and-effect relationship.

# Type of Investigation cont.

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- **Example:** A *causal* study question:
  - ▣ Does smoking *cause* cancer?
  
- **Example:** A *correlational* study question:
  - ▣ Are smoking and cancer related?
  - ▣ Or, are smoking, drinking, and chewing tobacco *associated* with cancer?

# Extent of Researcher Interference with the Study

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- The extent of interference by the researcher with the normal flow of work at the workplace has a direct bearing on whether the study undertaken is causal or correlational.
- A **correlational** study is conducted in the natural environment of the organization with **minimum interference** by the researcher with the normal flow of work.

# Extent of Researcher Interference with the Study cont.

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- For example, if a researcher wants to study the factors influencing training effectiveness (a correlational study), all that the individual has to do is develop a theoretical framework, collect the relevant data, and analyze them to come up with the findings.
- Though there is some disruption to the normal flow of work in the system as the researcher interviews employees and administers questionnaires at the workplace, the researcher's interference in the routine functioning of the system is minimal as compared to that caused during causal studies.



# Extent of Researcher Interference with the Study cont.

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- In studies conducted to establish **cause-and-effect** relationships, the researcher tries to *manipulate* certain variables so as to study the effects of such manipulation on the dependent variable of interest.
- In other words, the researcher deliberately changes certain variables in the setting and interferes with the events as they normally occur in the organization.

# Extent of Researcher Interference with the Study cont.

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- As an example, a researcher might want to study the influence of lighting on worker performance, and hence manipulates the lighting in the work situation to varying intensities.
- Here, there is considerable researcher interference with the natural and normal setting.

# The Study Setting

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- As we have just seen, organizational research can be done in the natural environment where work proceeds normally (that is, in ***noncontrived*** settings) or in artificial, ***contrived*** settings.
- Correlational studies are invariably conducted in noncontrived settings, whereas most rigorous causal studies are done in contrived lab settings

# The Study Setting cont.

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There are three different settings in which a study may be conducted:

1. **Field studies**, where various factors are examined in the natural setting in which daily activities go on as normal with minimal researcher interference. (Correlational studies).
2. **Field experiments**, where cause and effect relationships are studied with some amount of researcher interference, but still in the natural setting where work continues in the normal fashion.
3. **Lab experiments**, where the researcher explores cause-and-effect relationships not only exercising a high degree of control but also in an artificial and deliberately created setting.

# The Study Setting cont.

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- **Example: *Field Study***
- A bank manager wants to analyze the relationship between interest rates and bank deposit patterns of clients. She tries to correlate the two by looking at deposits into different kinds of accounts (such as savings, certificates of deposit, golden passbooks, and interest-bearing checking accounts) as interest rates changed.
- This is a field study where the bank manager has merely taken the balances in various types of accounts and correlated them to the changes in interest rates. Research here is done in a noncontrived setting with no interference with the normal work routine.

# The Study Setting cont.

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- **Example: *Field Experiment***
- The bank manager now wants to determine the cause-and-effect relationship between interest rate and the incentives it offers to clients to save and deposit money in the bank.
- She selects four branches within a 60-mile radius for the experiment.
- For one week only, she advertises the annual rate for new certificates of deposit received during that week in the following manner: the interest rate would be 9% in one branch, 8% in another, and 10% in the third. In the fourth branch, the interest rate remains unchanged at 5%.

# The Study Setting cont.

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- **Example: *Field Experiment (cont.)***
- Within the week, she would be able to determine the effects, if any, of interest rates on deposit mobilization.
- The above would be a field experiment since nothing but the interest rate is manipulated, with all activities occurring in the normal and natural work environment.

# The Study Setting cont.

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- **Example: *Lab Experiment***
- The banker may now want to establish the causal connection between interest rates and savings.
- Because of this she wants to create an artificial environment and trace the true cause-and-effect relationship.
- She recruits 40 students who are all business majors in their final year of study and are more or less of the same age.
- She splits them into four groups and gives each one of them chips that count for \$1,000, which they are told they might utilize to buy their needs or save for the future, or both.



# The Study Setting cont.

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- **Example: *Lab Experiment (cont.)***
- She offers them by way of incentive, interest on what they save but manipulates the interest rates by offering a 6% interest rate on savings for group 1, 8% for group 2, 9% for group 3, and keeps the interest at the low rate of 1% for group 4.
- Here, the manager has created an artificial laboratory environment and has manipulated the interest rates for savings. She has also chosen subjects with similar backgrounds and exposure to financial matters (business students).

# The Unit of Analysis

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- The unit of analysis refers to the level of aggregation of the data collected during the subsequent data analysis stage.
- If, for instance, the problem statement focuses on how to raise the motivational levels of employees in general, then we are interested in individual employees in the organization and would have to find out what we can do to raise their motivation.
- Here the unit of analysis is the **individual**.
- We will be looking at the data gathered from each individual and treating each employee's response as an individual data source.

# The Unit of Analysis cont.

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- If the researcher is interested in studying two-person interactions, then several two-person groups, also known as **dyads**, will become the unit of analysis.
- Analysis of husband–wife interactions in families and supervisor–subordinate relationships at the workplace are good examples of dyads as the unit of analysis.

# The Unit of Analysis cont.

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- However, if the problem statement is related to group effectiveness, then the unit of analysis would be at the group level.
- In other words, even though we may gather relevant data from all individuals comprising, say, six groups, we would aggregate the individual data into group data so as to see the differences among the six **groups**.

# The Unit of Analysis cont.

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- If we compare different departments in the organization, then the data analysis will be done at the departmental level—that is, the individuals in the department will be treated as one unit—and comparisons made treating the department as the unit of analysis.

# The Time Horizon of the Study

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- A study can be done in which data are gathered just once, perhaps over a period of days or weeks or months, in order to answer a research question. Such studies are called **one-shot** or **cross-sectional studies**.
- **Example:** Data were collected from stock brokers between April and June of last year to study their concerns in a turbulent stock market.
- Data with respect to this particular research had not been collected before, nor will they be collected again from them for this research.

# The Time Horizon of the Study cont.

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- In some cases, however, the researcher might want to study people or phenomena at more than one point in time in order to answer the research question.
- For instance, the researcher might want to study employees' behavior before and after a change in the top management, so as to know what effects the change accomplished.
- Such studies, as when data on the dependent variable are gathered at two or more points in time to answer the research question, are called **longitudinal studies**.

# The Time Horizon of the Study cont.

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- **Example:** A marketing manager is interested in tracing the pattern of sales of a particular product in four different regions of the country on a quarterly basis for the next 2 years.
- Since data are collected several times to answer the same issue (tracing pattern of sales), the study falls under the longitudinal category.
- Longitudinal studies take more time and effort and cost than cross-sectional studies.