A Study about Research & Research Methods

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Introduction

This is a study to go in deep analysis of Research and the Methods that are used to complete and publish the Research.

Research is a commonly used tool in science, business, and society and in the day to day individual process. Some of the researches are written such as science, business and social, and some are not such as the individual one, ex. When an individual wants to buy something he searches for quality and price (It's a type of unwritten research)

Meaning of the word research (5)

*Noun*

Systematic investigation to establish facts or collect information on a subject

*Verb*

To carry out investigations into (a subject) [Old French researcher to search again]

What is Research?

“Careful study and investigation, especially in order to discover new facts or information” (1)

A voyage of discovery; A journey; An attitude; An experience; A method of critical thinking; A careful critical enquiry in seeking facts for principles. (2)

Scientific research differs from other kinds of research in that it is a continued search for scientific knowledge and understanding by scientific methods. (3)
**Definitions of Originality**

- Saying something nobody has said before
- Carrying out empirical work that has not been done before
- Synthesizing something that has not been put together before
- Making a new interpretation of someone else’s material or ideas
- Taking a new technique and applying it to an existing area
- Taking an existing technique and applying it to a new area
- Continuing a previously original piece of work
- Being cross-disciplinary and using different methodologies
- Testing existing knowledge in an original way"

"An organized, systematic, data-based, critical, objective, scientific, inquiry or investigation into a specific problem, undertaken with the purpose of finding answers or solution to it." (6)

**Why Research?**

Research is a way to:

1. Develop the independent learning ability required for continuing professional development.
2. Face challenges.
3. Find facts.
4. Solve a problem.
5. Investigate for a better solution.
6. Serve the society.
7. Earn a degree.
Research Approaches

There are two approaches for research:

1. **Qualitative Research**
   a. Aimed at exploring and understanding meanings and experience
   b. Data is often used to verify an existing theory, and the hypothesis is formulated at the beginning of the research.

2. **Qualitative Research**
   a. Tries to measure variables
   b. An initial hypothesis may be formulated at the beginning
   c. The data collected is often used to evolve an on-going hypothesis

Types of business research

1. **Applied research**: To solve a current problem faced by the manager in the work setting, demanding a timely solution. It is the type of research done with the intention of applying the results of the findings to solve specific problems currently being experienced in the organization.

2. **Basic research**: To generate a body of knowledge by trying to comprehend how certain problems that occur in the organization can be solved. It is done chiefly to enhance the understanding of certain problems that commonly occur in organizational settings, and seek methods to solve them. It is called basic or Fundamental, or pure research.

The hallmark of scientific research

1. **Purposiveness**: e.g. Focusing on employee's commitment to the organization, an increase in the commitment will translate into less turnover, less absenteeism and probably increase in performance levels.
2. **Rigor**: connotes carefulness, scrupulousness, and the degree of exactitude in research investigation.
3. **Testability**.
4. **Replicability**.
5. **Precision and Confidence**:
   a. **Precision**: refers to the closeness of the findings to reality.
   b. **Confidence**: refers to the probability that our estimations are correct.
6. **Objectivity**: the conclusions should be based on the facts of the findings derived from actual data, and not on our own subjective or emotional values.

7. **Generalizability**: refers to the scope of applicability of the research findings in one organization setting to other settings.

8. **Parsimony**: Simplicity in explaining the phenomena or problems that occur, and in generating solutions for the problem, is always preferred to complex research framework that considers an unmanaged number of factors.

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**The building blocks of science**

- Observation
- Identification of Problem area
- Theoretical Framework
- Research Design
- Concepts
- Hypotheses
- Interpretation
- Data Analysis
- Data Collection

**Pure and or Applied Research**
(1) The Broad Problem Area

1. The broad problem area refers to the entire situation where one sees a possible need for research and problem solving.

2. The broad problem area may contain:
   1. Current existing problems
   2. A situation requiring improvement.
   3. Conceptual issue that needs to be tightened

(2) Preliminary Data Collection

There are two types of data:

1. **Secondary data**: Data that already exist and do not have to be collected by the researcher (Statistical bulletins, government publications, information published or unpublished and available from either within or outside the organization)
2. **Primary data**: Data gathered for research from the actual site of occurrence of events (Observation, questionnaires to individuals).

1. **Background information of the organization such as**:
   - The origin and history of the company.
   - Size in terms of employees, assets, or both.
   - Charter: purpose and ideology.
   - Location.
   - Interdependent relationships with the external environment.
   - Financial positions.

2. **Structural factors and management philosophy such as**:
   - Roles and positions in the organization.
   - Extent of specialization.
   - Communication channels.
   - Control systems.
   - Coordination and span of control.
   - Reward systems.
• Workflow systems.

3. Perceptions, attitudes, and behavioral responses such as:

• Nature of the work.
• Workflow interdependencies.
• Participation in decision making.
• Clients systems.
• Opportunities for advancement in the organization.
• Organization’s attitudes toward employees’ family responsibilities.

**Literature Survey**

• Literature survey is the documentation of a comprehensive review of the published and unpublished work from secondary sources of data in the areas of specific interest to the researcher.

• The purpose of the literature review is to ensure that no important variable is ignored that has in the past been found to have an impact on the problem.

**A good literature review ensures that:**

1. Important variables that are likely to influence the problem situation are not left out of the study.

2. A clearer idea emerges as to what variables would be most important to consider (parsimony), why they would be considered important (Developing theoretical framework).

3. Testability and replicability of the findings of the current research are enhanced.

4. The problem statement can be made with precision and clarity.

5. One does not run the risk of “reinventing the wheel”.

6. The problem investigated is perceived by the scientific community as relevant and significant.

**(3) Problem Definition**

1. **Symptoms:** are indicators of the problem (low productivity, declining customer base).
2. **Problem:** any situation where a gap exists between the actual and desired ideal state.

3. Problem is a clear precise statement of the question or issue that is to be investigated with the goal of finding an answer or solution.

(4) **Theoretical Framework**

*Variables:*

A variable is anything that can take on differing or varying values.

*Types of Variables:*

1. The **dependent** variable: it is the variable of primary interest to the researcher. Example: A basic researcher is interested in investigating debt-to-equity ratio of manufacturing companies.

2. The **independent** variable: It is one that influences the dependent variable in either a positive or negative way. The variance in the dependent variable is accounted for by independent variable.

![Diagram showing new product success and stock market price](image)

Independent variable: New product success  
Dependent variable: Stock market price

3. The **moderating** variable: It is one that has a strong contingent effect on the independent variable – dependent variable relationship.

![Diagram showing availability of reference manuals and number of rejects](image)

Independent variable: Availability of Reference Manuals  
Dependent variable: # of Rejects

Moderating variable: Interest & Inclination
4. The **Intervening** Variable: It is one that surfaces between the time the independent variables start operating to influence the dependent variable and the time their impact is felt on it.

![Diagram](image)

The theoretical framework is the foundation on which the entire research project is based. It is a logically developed, described, and elaborated network of associations among the variables deemed relevant to the problem situation and identified through such processes as interviews, observations, and literature survey.

**Components of theoretical framework:**

A good theoretical framework identifies and labels the important variables in the situation that are relevant to the problem defined. There are five basic features that should be incorporated in any theoretical framework:

1. The variables considered relevant to the study should be clearly identified and labeled in the discussions.
2. The discussions should state how two or more variables are related to one another. This should be done for the important relationships that are theorized to exist among the variables.
3. If the nature and direction of the relationships can be theorized on the basis of the findings of previous research, then there should be an indication in the discussion as to whether the relationships would be positive or negative.
4. There should be a clear explanation of why we would expect these relationships to exist. The arguments could be drawn from the previous research findings.
5. A schematic diagram of the theoretical framework should be given so that the reader can see and easily comprehend the theorized relationships.
(5) Generation of Hypotheses

Hypotheses definition: It can be defined as a logically conjectured relationship between two or more variables expressed in the form of testable statement.

Statement of Hypotheses: Format

I. Propositions and If-Then Statements:
   a. Proposition: Ex. Employees who are more healthy will take sick leave less frequently
   b. If-Then: Ex. If employees are more healthy, Then they will take sick leave less frequently.

II. Directional and Non-directional:
   a. Directional: Ex. The greater the stress experienced in the job, the lower the job satisfaction of employees.
   b. Non-directional: Ex. There is a relationship between age and job satisfaction.

III. Null and Alternative Hypotheses:
   a. Null Hypotheses: is a proposition that stats a definitive, exact relationship between two variables. The null statement is expressed as no significant relationship between two variables or no significant difference between two groups.
   b. Alternate Hypotheses: is the opposite of null, it is a statement expressing a relationship between two variables or indicating differences between groups.
1) Purpose of the Study

1/1: Exploratory studies

1. Exploratory Study: is undertaken when not much is known about situation at hand, or when no information is available on how similar problems or research issues have been solved in the past.

2. Exploratory studies are undertaken to better comprehend the nature of the problem, since very few studies might have been conducted in that area.
1/2: Descriptive Studies

1. A descriptive study in undertaken in order to ascertain and be able to describe the characteristics of the variable of interest in situation.

2. The goal of the descriptive study is to offer a profile or to describe relevant aspects of the phenomena of interest to the researcher from an individual, organizational, industry-oriented, or other perspective.

1/3: Hypothesis Testing

1. A Hypothesis testing: It explains the nature of certain relationships, or establishes the differences among groups or the independence of two or more factors in a situation.

2) The Types of Investigation

1. A causal study: When the researcher wants to delineate the cause of one or more problems.

2. A co-relational study: When the research is interested in delineating the important variables that are associated with the problem.

3. Examples:

   1. A causal study question: Does smoking causes cancer?

   2. A co-relational study question: “Are smoking and cancer related?”

3) Extent of researcher influence.

1. The extent to which the researcher interferes with the normal flow of work at the workplace has a direct bearing on whether the study undertaken is causal or co-relational.

2. A co-relational study is conducted in the natural environment of the organization.
3. In a causal study, the researcher tries to manipulate certain variables so as to study the effects of such manipulation on the dependent variables.

4) The Study Setting

1. **Field Studies**: are co-relational studies done in the organization.

2. **Field Experiments**: studies conducted to establish cause and effect relationships using the same natural environment in which employees normally function.

3. **Lab experiments**: experiments done to establish cause effect relationships beyond the possibility of the least doubt require the creation of an artificial, contrived environment in which all the extraneous factors are strictly controlled.

5) Unit of Analysis

1. It refers to the level of aggregation of the data collected during the subsequent data analysis stage.

2. Examples of the different units of analysis are:
   1. Individual.
   2. Dyads.
   4. Organizations.
   5. Culture.
6) Time horizon

1. Cross-sectional studies: data are gathered just once, perhaps over a period of days or weeks or months, in order to answer a research question.

2. Longitudinal studies: to study people or phenomena at more than one point of time in order to answer the research question.

Measurement of Variables

How Variables are measured?

Data representing several demographic characteristics are obtained by asking employees simple question:

- How long have you been working in the organization?
- What is your job title?

Other information could be checked through company records such as absenteeism or employee performance.

Objective vs. Subjective Nature

There are variables that lend itself to objective and precise measurement and the other is more nebulous because of its subjective nature. Such as motivation, satisfaction, involvement, buyer’s behavior.

Abstract notions are broken to observable characteristics behaviors so that they can be measured in a tangible way

“Operationalizing the concepts”

Operational Definition

Operationalizing, or operationally defining the concept, to render it measurable, is done by looking at the behavioral dimensions, facets, or properties denoted by the concept. These are then translated into observable and measurable elements so as to form an index of measurement of the concept. Operationally defining a concept involves a series of steps.
Operationalizing the Concept of Achievement Motivation

• We expect that people with high Achievement Motivation would have the following characteristics which we will call dimensions.

1. Driven by work and constantly working to drive the satisfaction of having “Achieved and accomplished”

2. Find it hard to relax or devote their attention to other than work-related activity.

3. Prefer to work on their own rather than with others (because of wanting to achieve)

4. Engage in challenging jobs rather than easy routine ones but at the same time not excessively challenging jobs because their probability of their accomplishment is not very high.

5. They would like to get frequent feedback from their superiors and colleagues as they go along to know how they are performing.

Elements of Dimension 1

❑ Be constantly working (count the number of working hours)

❑ Reluctant to take time off from work (count of days-off worked)

❑ Preserve even if there are some setbacks (keep track for how frequently people continue to preserve doing their jobs despite failures).

Elements of Dimension 2

❑ How often do you think of work while you are away from the workplace?

❑ What are your hobbies?

❑ How do you spend your time when you are not at the workplace?

Elements of Dimension 3
- Impatient with ineffectiveness and reluctant to work with others.

**Elements of Dimension 4**

- A measure of how eager people are to seek challenging jobs can be found by asking employees what kinds of jobs they prefer.
- Employees preferences could vary from fairly routine jobs to jobs with progressive increase in challenge

**Elements of Dimension 5**

- Want to know others’ opinion on how well they are performing both positive and negative.
- Constantly seeking feedback from different sources (tracking how often individuals seek feedback)

**Scale Definition**

*A scale* is a tool or mechanism by which individuals are distinguished on how they differ from one another on the variables of interest to our study.

The scale could be a gross one (Broadly categorize individuals on certain variables), or it could be fine tunes (differentiate individuals on the variable with varying degree of sophistication).

### Scales

- Nominal Scale
- Ordinal Scale
- Interval Scale
- Ratio Scale

**Nominal Scale**

- A nominal scale is one that allows the researcher to assign subjects to certain categories or groups (such as male & female for example).
Nominal scales categorize individuals or objects into mutually exclusive and collectively exhaustive groups.

The information that can be generated from nominal scaling is to calculate the percentage (or frequency).

**Example of Nominal Scale:**

*Nationality:*

American      Japanese
Chinese        Russian
Australian    Polish
German        Swiss
Indian        Zambian
Others.............

**Ordinal Scale**

- An ordinal scale rank orders the categories in some meaningful way (not only categorizes the variables to denote differences among the various categories).
- In an ordinal Scale, the categories are to be ordered according to some preference.

**Example of Ordinal Scale:**

<table>
<thead>
<tr>
<th>Job Characteristic</th>
<th>Ranking of importance</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>The opportunity provided by the job to:</em></td>
<td></td>
</tr>
<tr>
<td>1- Interact with others</td>
<td>___</td>
</tr>
<tr>
<td>2- Use a number of different skills</td>
<td>___</td>
</tr>
<tr>
<td>3- Complete a whole task from beginning to end</td>
<td>___</td>
</tr>
<tr>
<td>4- Serve others</td>
<td>___</td>
</tr>
<tr>
<td>5- Work independently</td>
<td>___</td>
</tr>
</tbody>
</table>

**Interval Scale**

- An interval scale allows us to perform certain arithmetical operations on the data collected from the respondents.
Interval scale allows us to measure the distance between any two points on the scale. This helps us to compute the means & the standard deviations of the responses on the variables.

Example of interval scale:

Indicate the extent to which you agree with the following statements as they relate to your job, by circling the appropriate number against each, using the scale given below.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Neither Agree</th>
<th>Agree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

The following opportunities offered by the job are very important to me:

a- Interacting with others 1 2 3 4 5
b- Using a number of different skills 1 2 3 4 5
c- Completing a task from beginning to end 1 2 3 4 5
d- Serving others 1 2 3 4 5
e- Working independently 1 2 3 4 5

Ratio Scale

The ratio scale overcomes the deficiency of the arbitrary origin point of the interval scale, in that it has an absolute (in contrast to an arbitrary) zero point which is a meaningful measurement point.

The ratio scale not only measures the magnitude of the differences between points in the scale but also taps the proportions in the differences.

It is the most powerful of the four scales because it has a unique zero origin & subsumes all properties of the other three scales to calculate the ratio of the weights of two individuals.
Example of Ratio Scale

How many other organizations did you work for before joining this system?

How many stores do you operate?

Properties of the four scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Differences</th>
<th>Order</th>
<th>Distance</th>
<th>Unique origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ordinal</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Interval</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Ratio</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Rating Scale

The following rating scales are often used in organizational research:

● Dichotomous scale:

The dichotomous scale is used to elicit a yes or no answer. Note that a nominal scale is used to elicit the response:

Do you own a car?  ( ) Yes  ( ) No  
Do you smoke?  ( ) Yes  ( ) No  
Do you play football?  ( ) Yes  ( ) No

● Category scale:

The category scale uses multiple items to elicit a single response as per the following example. This also uses the nominal scale.
1. Where in Cairo do you reside?
   a) Maadi.
   b) Misr El Gateda.
   c) Helwan.
   d) Shoubra
   e) Others (specify .....)

● Likert scale:

The likert scale is designed to examine how strongly subjects agree or disagree with statements on a 5-point scale with the following anchors:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

● Numerical scales

● Semantic differential scale:

1. Several bipolar attributes are identified at the extremes of the scale, and respondents are asked to indicate their attitudes, on what may be called a semantic space, toward a particular individual, object, or event on each of the attributes. This is treated as an interval scale

2. Example:

<table>
<thead>
<tr>
<th>Responsive</th>
<th>Unresponsive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beautiful</td>
<td>Ugly</td>
</tr>
<tr>
<td>Courageous</td>
<td>Timid</td>
</tr>
</tbody>
</table>

● Itemized Rating Scale:

A 5-point or 7-point scale with anchors, as needed, is provided for each item and the respondent states the appropriate number on the side of
each item, or circles the relevant number against each item. The responses to the items are summated. This uses an interval scale.

Example: Respond to each item using the scale below, and indicate your response number on the line by each item:

<table>
<thead>
<tr>
<th>1 Very Unlikely</th>
<th>2 Unlikely</th>
<th>3 Neither Unlikely nor Likely</th>
<th>4 Likely</th>
<th>5 Very Likely</th>
</tr>
</thead>
</table>

1. I will be changing my job within the next 12 months. _____________

2. I will take on new assignments in the near future. _____________

3. It is possible that I will be out of this organization with the next 12 months. _____________

Fixed or constant sum scale:

The respondents are asked to distribute a given number of points across various items. This is more in nature of an ordinal scale.

Example: In choosing toilet soap, indicate the importance you attach to each of following five aspects by distributing a total of 100 points among them.

<table>
<thead>
<tr>
<th>Fragrance</th>
<th>Color</th>
<th>Shape</th>
<th>Size</th>
<th>Texture of lather</th>
<th>Total points</th>
</tr>
</thead>
</table>

100

Graphic rating scale:

A graphic representation helps the respondents to indicate their answers to a particular question by placing a mark at the appropriate point on the line. This is ordinal scale.
Example: *On a scale of 1 to 10, how would you rate your supervisor?*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very bad</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Excellent</td>
<td></td>
</tr>
</tbody>
</table>

**Consensus scale:**

Scales are also developed by consensus, where panel of judges select certain item they feel measure the concept desired to be measured. The items are chosen particularly based on their relevance to the concept.

Such a consensus scale is developed after the selected items are examined and tested for their validity and reliability.

**Goodness of the measures**

- Reliability
- Stability
  - Test-retest reliability
  - Parallel-form reliability
  - Interim consistency reliability
- Consistency
- Validity

*Goodness of the Data*
(7) Data Collection Methods

Data Collection defined as:-

They are an integral part of research design as there are several data collection methods each with its own advantages & disadvantages.

Sources of data:-

Primary Data:-

Data gathered for research from actual site of occurrence of events.

Secondary Data:-

Data already exists as company records or archives, government publications, industry analysis offered by the media, web sites.
Unstructured Interviews

- They are so labeled because the interviewer doesn’t enter the interview with a planned sequence of questions that will be asked to the respondent.

- It’s Objective is to bring some Preliminary Issues to surface & understand the situation in it’s totally so that the researcher can decide what variables need in depth investigations.

- The Type & the nature of the questions asked to the individuals vary according to their job level & type of work done, So Managers at top & middle level might be asked more direct questions about their Perceptions of problems & situations, while Employees at lower level may be asked broad, open end questions.

- Example:-

“Tell me something about your unit & department & perhaps even the organization as a whole, in terms of work, employees & whatever else you think it’s important.”

- Such request might elicit an elaborate response from some respondents while others might just give a one word reply which is not informative. ex (good, boring....).

Structured Interviews:-

- The interviewer has a list of predetermined questions to be posed to the respondent either personally or through the telephone or medium of pc.

- The questions considered relevant to the problems that has surfaced during the unstructured interview & the researcher will note them down.

- These questions will be asked to everybody in the same manner & the interviewer must comprehend the purpose & the goal of each question.

- Visual Aids :-

- Are tools that used in conducting interviews such as (Pictures, line drawings, cards & other materials) & these techniques are useful in marketing research, advertising in order to capture likes & dislikes of the customer to different types of packaging.
Questioning techniques:

Funneling:

- In the beginning of an unstructured interview, it’s advisable to ask open-end question to get a general idea & form some impressions about the situation.

- Example:-

  “What are some of your feelings about working for your organization?”

Unbiased questions:

- Question asked in a way that would ensure the least bias in the response & must not be loaded in order not to influence on the answers received from the respondent.

- Example:-

  “Tell me how you experience your job.”

Clarifying Issues:

The Researcher must understand issues as respondent means to represent them so it’s advisable to restate or rephrase important information given by respondent.

Example:-

“The facilities here are really poor.” We often have to continue working even when we are dying of thirsty.

Helping the respondent to think through issues:

If the respondent is not able to verbalize her perceptions or replies “I don’t know” so the researcher should ask the question in a simple way or rephrase it.

Taking notes:

The researcher must take notes as the researcher is taking place or as soon as the interview is terminated especially if there is more than one interview in the schedule & it will be better to record interviews on tapes if the respondent has no objection.
**Face To Face & Telephone interviews**

- Most Unstructured interviews in organizational research are conducted face to face. While Structured interviews could be either face to face or through telephone.

**Face To Face Advantages:**

- Researcher can adapt the questions as necessary, clarify doubts, & ensure that the respondent understand by repeating or rephrasing the questions.

- Researcher can also pick up how the respondent is nervous or under pressure through his body language & it’s obviously be impossible to detect this in a telephone interview.

**Face To Face disadvantages:**

- Geographical limitation & High cost of training interviewers.

**Telephone Interview advantages:**

- Different number of people can be reached (across the country or even internationally) in a short period of time.

- People feel more comfortable while introducing themselves through phone than face to face.

**Telephone Interview Disadvantages:**

- The respondent’s call could be terminated without warning before finishing the interview.

**Computer Assisted interviewing:**

There are 2 types of CAI:

**Computer Assisted telephone interviewing CATI:**

Used in research organization as surveys can be obtained from people all over the world since pc is networked in the telephone system.

**Computer Assisted Personal Interviewing CAPI:**

Respondent can use in their own computers to run programs by themselves once they receive the software & enter their response.
Questionnaires

- A questionnaire is a pre-formulated written set of questions to which respondent record their answers usually within rather closely defined alternatives.
- Questionnaires are an efficient data collection methods when the researcher knows exactly what is required and how to measure the variables of interest.
- Questionnaires can be administered personally, mailed to the respondents or electronically distributed.

Personally administered questionnaires

- When the survey is confined to a local area and the organization is willing and able to assemble groups of employees to respond to the questionnaires at the work place personally administering the questionnaires is a good way to collect data.

Mail questionnaires

- The main advantage of mail questionnaires is that a wide geographical area can be covered in the survey they are mailed to the respondents who can complete them at their own convenience, in their homes, and at their own pace.
- The return rates of mail questionnaire are typically low.

Guidelines for questionnaire design

- Questionnaire designer should focus on three areas
  1. The wording of the questions.
  2. Planning of categorizing the issues.
  3. The general appearance of the questionnaire.

Other methods of data collection

- Observational surveys
  - Is made by gathering data without asking questions of respondents. People can be observed in their natural work environments or in the lab setting, and their activities and behaviors or other items can be recorded.
  - The researcher can play one of two roles:
1. **Non participant observer**

   He can collect the needed data without trying to become an integral part of the organizational system.

2. **Participant observer**

   The researcher enters the organization or the research setting actually becoming a part of the work team.

**Structured observational studies**

- Where the observer has a predetermined set of categories of activates to be studied

**Unstructured observational studies**

- If the researcher has no definite ideas of the particular aspects that needs focus the observer will record almost everything that is observed.

(8) **Research Report**

**Research proposal**

The research proposal drawn up by the investigator is the result of a planned, organized, and careful effort, and basically contains the following:

1. The broad goals of the study.
2. The specific problem to be investigated.
3. Details of the procedures to be followed.
4. The research design offering details on:
   a. The sampling design.
   b. Data collection methods.
   c. Data analysis.
5. Time frame of the study, including information on when the written report will be handed over to the sponsors.
6. The budget, detailing the costs with reference to specific items of expenditure.
The report

It is important that the result of the study the recommendations to solve the problem are effectively communicated to the sponsor, so that the suggestions made are accepted and implemented.

The written report

The written report enables the manager to weight the facts and arguments presented therein, and implement the acceptable recommendations.

Integral parts of the report

The Title Page: The title of the report should succinctly indicate what the study is all about.

Table of Content: The table of content with page reference usually lists the important headings and subheadings in the report.


The Executive Summary or Synopsis: The executive summary (or synopsis) is a brief account of the research study that provides an overview.

The Introductory Section: the introductory section starts with a statement of the problem under investigation.

The Body of the Report: In this part, the details of the interviews conducted, the literature survey, the theoretical framework, and the hypotheses are furnished.

The Final Part: The final part of the report will contain the conclusions drawn from the findings. In most cases, a list of recommendations for implementation will follow.

Acknowledgments: help received others including the people participated in the study.
References

(1) Oxford paperback dictionary, 3rd edition

(2) Research Methodology by Dr. M S Sridhar, Head, Library & Documentation, ISRO Satellite Centre, Bangalore 560017

(3) THE PRINCIPLES OF SCIENTIFIC RESEARCH, By PAUL FREEDMAN, B.Sc., M.I.E.E., F.I.E.S., Head of Lamp Research, Messrs. Crompton Parkinson, Ltd.

(4) A presentation by Dr. Adel M. Zayed, one of my instructors in my MBA.

(5) Website: http://www.thefreedictionary.com/research