Research Methodology

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Syllabus

- Unit : 1 (20%)

1. Fundamentals of Research
   - Meaning, Objectives and Significance
2. Types of Research
   - Basic Research, Applied, Descriptive, Historical, Exploratory, Experimental, Ex-Post-factor and Case study approach
3. Approaches to Research
   - Quantitative and Qualitative

- Unit : 2 (20%)

1.Sampling:

- Meaning, Sample and Sampling, Essentials of Good Sample, Sample Size

2.Methods of Sampling:

a. Probability Sampling

- Simple random Sampling, Stratified Random Sampling, Cluster Sampling, Multi Stage Sampling,

b. Non Probability Sampling

- Purposive Sampling, Quota Sampling, Convenience Sampling

3. Sources and Methods of Data Collection

a. Primary Sources

- Observation, Interview, Questionnaire, Schedules

b. Secondary Sources

4. Data Collection and Tabulation

- Unit : 3 (20%)

Research Process :

  - Selecting the topic, Defining the Research problem, objectives of research, Literature survey, sample design, data Collection, Execution of project

- Unit: 4 (20%)

  Analysis of Data and Hypothesis Testing

  Generalization and Interpretation

  Preparation of Research Project

- Unit : 5 (20%)

Case Study :

  F-Test, ANOVA, T-test, Chi – Square Test

Introduction

- An Introduction:

  MEANING OF RESEARCH:

  Research in common parlance refers to a search foreknowledge.

  Once can also define research as a scientific & systematic search for pertinent information on a specific topic.In fact, research is an art of scientific investigation.

- 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 and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

Objectives of research

- 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 some thing occurs or with which it is associated with some thing 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

- Desire to get Research Degree
- Desire to face Challenges in solving the unsolved Problems
- Desire to get intellectual joy doing some creative Work
- Desire to be of service to the Society
- Desire to get responsibility

Characteristics of Research

- systematic
- logical
- empirical
- reductive
- replicable

Types of Research

- Pure and Applied Research
- Exploratory or Formulative Research
- Descriptive Research
- Diagnostic Study
- Evaluation Studies
- Action Research
- Experimental Research
- Analytical study or statistical Method
- Historical Research
- Surveys
- Case Study

Pure and Applied Research

- Pure
- it is the study of search of knowledge.

- Applied
- It is the study of finding solution to a problem.

Purpose of Pure and Applied Research

- **Pure**
- It can contribute new facts
- It can put theory to the rest
- It may aid in conceptual clarification
- It may integrate previously existing theories.
- **Applied**
- It offers solutions to many practical problems.
- To find the critical factors in a practical problem.

Exploratory or Formulative Research

- **Exploratory**

- Exploratory research is preliminary study of an unfamiliar problem about which the researcher has little or no knowledge.

Purpose

- To Generate new ideas
- To increase the researcher's familiarity with the problem
- To Make a precise formulation of the problem
- To gather information for clarifying concepts
- To determine whether it is feasible to attempt the study.

Descriptive Research

- Descriptive study is a fact- finding investigation with adequate interpretation.
- It is the simplest type of research.
- It is designed to gather descriptive information and provides information for formulating more sophisticated studies
- Data are collected using observation, interview and mail questionnaire.

Purpose

- It can focus directly on a theoretical point.
- It can highlight important methodological aspects of data collection and interpretation.
- It obtained in a research may be useful for prediction about areas of social life outside in the boundaries of research.
- Descriptive studies are valuable in providing facts needed for planning social action programmes

Diagnostic Study

- It is directed towards discovering what is happening, why is it happening and what can be done about.
- It aims at identifying the causes of a problem and the possible solutions for it.

Purpose

- This study may also be concerned with discovering and testing whether certain variables are associated.
- To determine the frequency with which something occurs or with which it is associated with something else.

Evaluation Studies

- It is one type of applied research.
- It is made for assessing the effectiveness of social or economic programmes implemented or for assessing the impact of developmental projects area.
- The determination of the results attained by some activity designed to accomplish some valued goal or objectives.

Purpose

- It directed to assess or appraise the quality and quantity of an activity and its performance.
- To specify its attributes and conditions required for its success.

Action Research

- Researcher attempts to study action. E.g. Eradication of Malariya, Maritime Navigation
- Action research is a reflective process of progressive problem solving led by individuals working with others in teams or as part of a "community of practice" to improve the way they address issues and solve problems

Purpose

- A baseline survey of the pre-action situation
- A feasibility study of the proposed action programme
- Planning and launching the programme
- Concurrent evaluation of the programme
- Making modifications and changes in the programme.

Experimental Research

- Experimental research is commonly used in sciences such as sociology and psychology, physics, chemistry, biology and medicine etc.
- It is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables.

Purpose

- Experiments are conducted to be able to predict phenomenons.
- To maintain control over all factors
- A blueprint of the procedure that enables the researcher to test his hypothesis

Analytical Study

- Analytical study is a system of procedures and techniques of analysis applied to quantitative data.
- A system of mathematical models or statistical techniques applicable to numerical data.

Purpose

- It aims at testing hypothesis and specifying and interpreting relationship.
- It concentrates on analyzing data in depth and examining relationships from various angles by bringing in as many relevant variables as possible in the analysis plan.

Historical Research

- The systematic collection and evaluation of data related to past occurrences in order to describe causes, effects, and trends of those events that may help explain present events and anticipate future events.
- Data is often archival-including newspaper clippings, photographs, etc.- and may include interviews.

Purpose

- To draw explanations and generalizations from the past trends in order to understand the present and to anticipate the future.
- It enables us to grasp our relationship with the past and to plan more intelligently for the future.
- The past contains the key to the present and the past and the present influences the future.
- It helps us in visualizing the society as a dynamic organism and its structures and functions as evolving, steadily growing and undergoing change and transformation.

Survey Research

- Survey research is one of the most important areas of measurement in applied social research. The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents. A "survey" can be anything form a short paper-and-pencil feedback form to an intensive one-on-one in-depth interview.

Purpose

- It is always conducted in a natural setting.
- It seeks responses directly from the respondents.
- It can cover a very large population
- A survey may involve an extensive study or an intensive study.
- A survey covers a definite geographical area, a city, district, state

Case Study

- A case study is a research methodology common in social science.
- It is based on an in-depth investigation of a single individual, group, or event to explore causation in order to find underlying principles

Purpose

- To examine limited number of variables
- case study methods involve an in-depth, longitudinal examination of a single instance or event.
- It provides a systematic way of looking at events, collecting data, analyzing information, and reporting the results

Types of research

- (i) Descriptive vs. Analytical:

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

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.

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

- (ii) Applied vs. Fundamental:
- Applied (or action) research : aims at finding a solution for an immediate problem facing a society or an industrial/business organization,
- Fundamental(to basic or pure)research : is mainly concerned with generalizations and with the formulation of a theory.

- (iii) Quantitative vs. Qualitative:
- Quantitative research is based on theme a surement of quantity or amount.
- Qualitative research, on the other hand, is concerned with qualitative phenomena on,i.e.,phenomena are lating to or involving quality or kind.

- Conceptual Research vs Empirical Research
  - Related to some abstract ideas or theory. Used by philosophers and thinkers to develop new concepts or re-interpret existing ones.
  - Relies on experience or observations alone, often without due regard for system and theory.

Research Methods vs. Research Methodology

- Research Method:

  - Refers to the methods/techniques researchers use in performing research operations.

- Research Methodology:

  - It may be understood as a science of studying how research is done scientifically. In it we study by researcher in studying his research problem along with the logic behind them.

Difference between Methods and Techniques

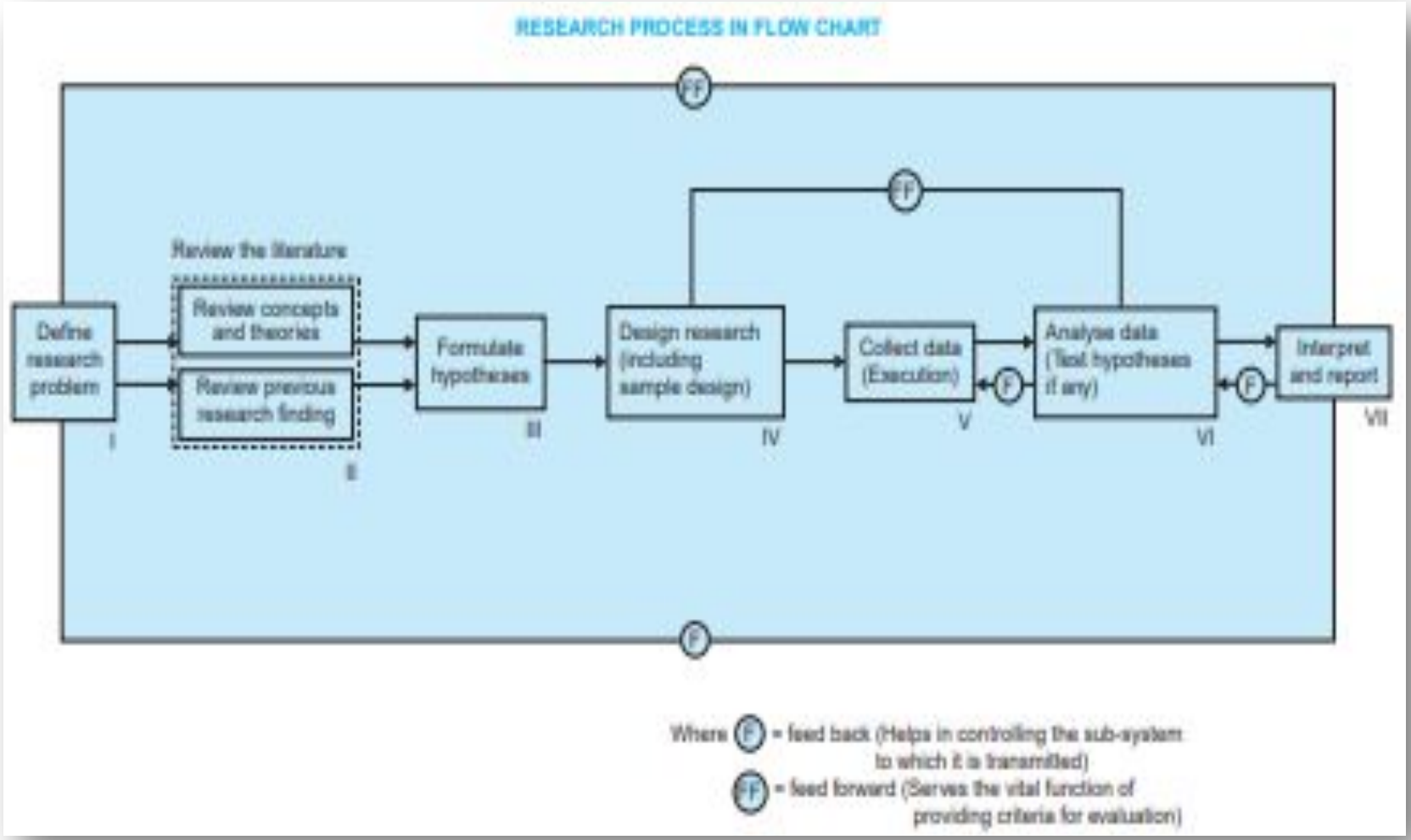
Type	*Methods*	*Techniques*
1. Library Research	(i) Analysis of historical records	Recording of notes, Content analysis, Tape and Film listening and analysis.
	(ii) Analysis of documents	Statistical compilations and manipulations, reference and abstract guides, contents analysis.
2. Field Research	(i) 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.

Research and Scientific Method

- For a clear perception of the term research, one should know the meaning of scientific method. The two terms, research and scientific method, are closely related. Research, as we have already stated, can be termed as "an inquiry into the nature of, the reasons for, and the consequences of any particular set of circumstances, whether these circumstances are experimentally controlled or recorded just as they occur. Further, research implies the researcher is interested in more than particular results; he is interested in the repeatability of the results and in their extension to more complicated and general situations."

- The scientific method is, thus, based on certain basic postulates which can be stated as under:
  1. It relies on empirical evidence;
  2. It utilizes relevant concepts;
  3. It is committed to only objective considerations;
  4. It presupposes ethical neutrality, i.e., it aims at nothing but making only adequate and correct statements about population objects;
  5. It results into probabilistic predictions;
  6. Its methodology is made known to all concerned for critical scrutiny are for use in testing the conclusions through replication;
  7. It aims at formulating most general axioms or what can be termed as scientific theories.

Research Process Flow Chart



Criteria Of Good Research

1. The purpose of the research should be clearly defined and common concepts be used.
2. The research procedure used should be described in sufficient detail to permit another researcher to repeat the research for further advancement, keeping the continuity of what has already been attained.
3. The procedural design of the research should be carefully planned to yield results that are as objective as possible.
4. The researcher should report with complete frankness, flaws in procedural design and estimate their effects upon the findings

5. The analysis of data should be sufficiently adequate to reveal its significance and the methods of analysis used should be appropriate. The validity and reliability of the data should be checked carefully.
6. Conclusions should be confined to those justified by the data of the research and limited to those for which the data provide an adequate basis.
7. Greater confidence in research is warranted if the researcher is experienced, has a good reputation in research and is a person of integrity

1. Good research is systematic: It means that research is structured with specified steps to be taken in a specified sequence in accordance with the well defined set of rules. Systematic characteristic of the research does not rule out creative thinking but it certainly does reject the use of guessing and intuition in arriving at conclusions.
2. Good research is logical: This implies that research is guided by the rules of logical reasoning and the logical process of induction and deduction are of great value in carrying out research. Induction is the process of reasoning from a part to the whole whereas deduction is the process of reasoning from some premise to a conclusion which follows from that very premise. In fact, logical reasoning makes research more meaningful in the context of decision making

3. Good research is empirical: It implies that research is related basically to one or more aspects of a real situation and deals with concrete data that provides a basis for external validity to research results.
4. Good research is replicable: This characteristic allows research results to be verified by replicating the study and thereby building a sound basis for decisions.

Problems Encountered by Researchers in India

1. The lack of a scientific training in the methodology of research
2. There is insufficient interaction
3. Research studies overlapping one another are undertaken quite often for want of adequate information.
4. There does not exist a code of conduct for researchers
5. Library management and functioning is not satisfactory at many places
6. There is also the problem that many of our libraries are not able to get copies of old and new Acts/Rules
7. There is also the difficulty of timely availability of published data from various government and other agencies

Research Approaches and designs

KRUNAL VANGRI

- Research Approaches and designs – two terms frequently used interchangeably
- It is a description of the plan to investigate the phenomenon under study in a structured (quantitative) or unstructured (qualitative) or combination of both methods. It helps to decide about presence or absence of manipulation and control over variables, comparison between the groups
- Research design is a broader term
- It is a framework or guide for planning, implementation and analysis of the study.

What is a research design?

- A researcher's overall plan for obtaining answers to the research questions or for testing the research hypotheses is referred to as the research design.
- Aspects of research design
- Intervention
- Comparison
- Controls of extraneous variables
- Timing of data collection
- Research sites and settings
- Communication with the study participants

Research design

Definitions

- It is a master plan specifying the methods and procedures for collecting and analyzing the needed information in a research study.
- It is a blue print to conduct a research study, which involves the description of research approach, study setting, sample size, sampling technique, tools and methods of data collection and analysis to answer a specific research question for testing the research hypothesis

Elements of research design

- Approach
- Population, sample, sampling technique
- Time and place of data collection
- Tools and methods of data collection
- Method of data analysis

Selection of research design

- Nature of the research problem
- Purpose of the study
- Researchers knowledge and experience
- Researchers interest and motivation
- Research ethics and principles
- Resources available (cost, time, expertise)
- Accessibility
- Subjects and study participants
- Time
- Possible control over extraneous findings

Types of research designs

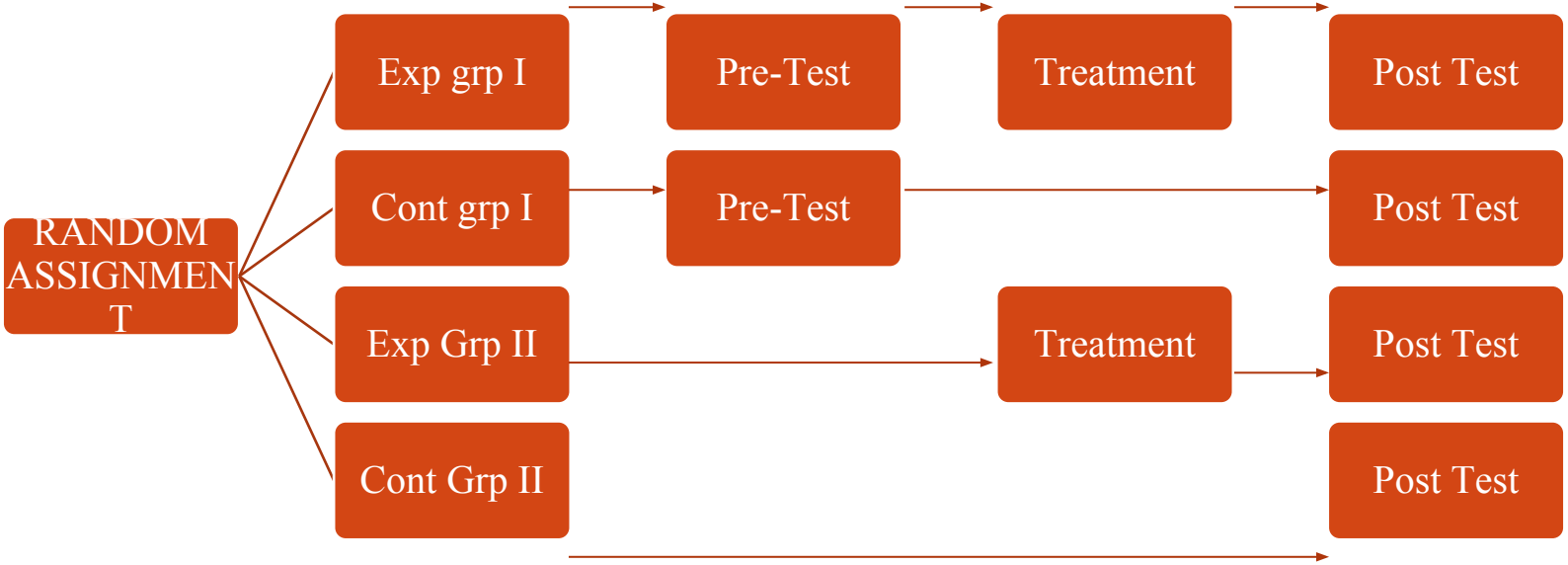
Qualitative

- Grounded theory
- Phenomenology
- Ethnography
- Historic
- Case study
- Action Research

Quantitative

- Experimental
- Non experimental

SOLOMON FOUR NGROUP Design



QUALITATIVE RESEARCH

- well suited to study the human experience of health, a central concern of nursing science.
- focus on the whole of human experience and the meaning ascribed by individuals living the experience
- permit broader understanding and deeper insight into complex human behaviours
- Study social and cultural phenomena
- Helpful in exploring facts and developing concepts

Types of qualitative research design

- Grounded theory
- Phenomenology
- Ethnography
- Historic
- Case Study
- Action Research

1. Grounded theory

- Theory is developed inductively from a corpus of data acquired by a participant observer
- The theory developed from research is grounded or has its roots in data from which it was derived
- Seeks to understand and describe human behavior
- Begins with a research situation
- Researcher to understand what happens there and how the players manage their role **(Data co lection)**
- Then note down key issues **(Note taking)**
- Comparison of data, and from this comparison a theoryemerges
- The result of the comparison written **(coding)** ; identify categories and their properties from these codes

- Proceeding to this provides the researcher with a final theory, the researcher writes further notes on this theory **(memoing)**
- To draw explanations and generalizations from the past trends in order to understand the present and to anticipate the future
- The goal is the discovery of new knowledge and not the summary of existing knowledge

Types:

- Biographical Histories
- Social histories
- Intellectual histories

*Data collection from – Primary and Secondary sources

2. phenomenology

- Describe the structure of experiences as they present themselves to consciousness and social life, without resources to theory, deduction or assumptions from their disciplines
- It's a science whose purpose is to describe particular phenomena or the appearance of things as lined experience
- Necessary to acquire a depth understanding of the approach
- To draw explanations and generalizations from the past trends in order to understand the present and to anticipate the future
- The goal is the discovery of new knowledge and not the summary of existing knowledge

Types:

- Biographical histories
- Social histories
- Intellectual histories

*Data collection from – primary and secondary sources

3. Ethnography

- Ethnography is the systematic process of observing, detailing, describing, documenting and analyzing the life ways or particular patterns of culture or subculture in order to group the life ways or patterns of the people in their familiar environment.
- Ethnography attempts to describe the culture of group from the perspective of the members-that is, how they view their own culture-through in-depth study that involves systematic observations of the group activities language and customs.
- To draw explanations and generalizations from the past trends in order to understand the present and to anticipate the future

- The goal is the discovery of new knowledge and not the summary of existing knowledge

Types:

- Biographical histories
- Social histories
- Intellectual histories

*Data collection from – primary and secondary sources

4. Historical Research

- The use of history is to understand the past and try to understand the present in the light or past event and development.
- Historical study is a study of past records and other information source with view to restructuring the origin and development of an institution or a movement or a system and discovering the trends in the past.
- History is a meaningful record of human achievement. It is not merely a list of chronological event but a truthful integrated account of the, relationships between persons, events, times and places.
- To draw explanations and generalizations from the past trends in order to understand the present and to anticipate the future

- The goal is the discovery of new knowledge and not the summary of existing knowledge.

Types:

- Biographical histories
- Social histories
- Intellectual histories

*Data collection from – primary and secondary sources

5. Action research

- Applied research tries to empower people through a process that constructs and uses knowledge
- It tries to find the practical solution to problems existing in framework
- Data collection: Interview, observation, story telling, socio drama, & painting, plays and skits

6. Case study

- In depth examination of people, places and institutions
- Development of detailed intensive knowledge about a single case or small number of related cases.

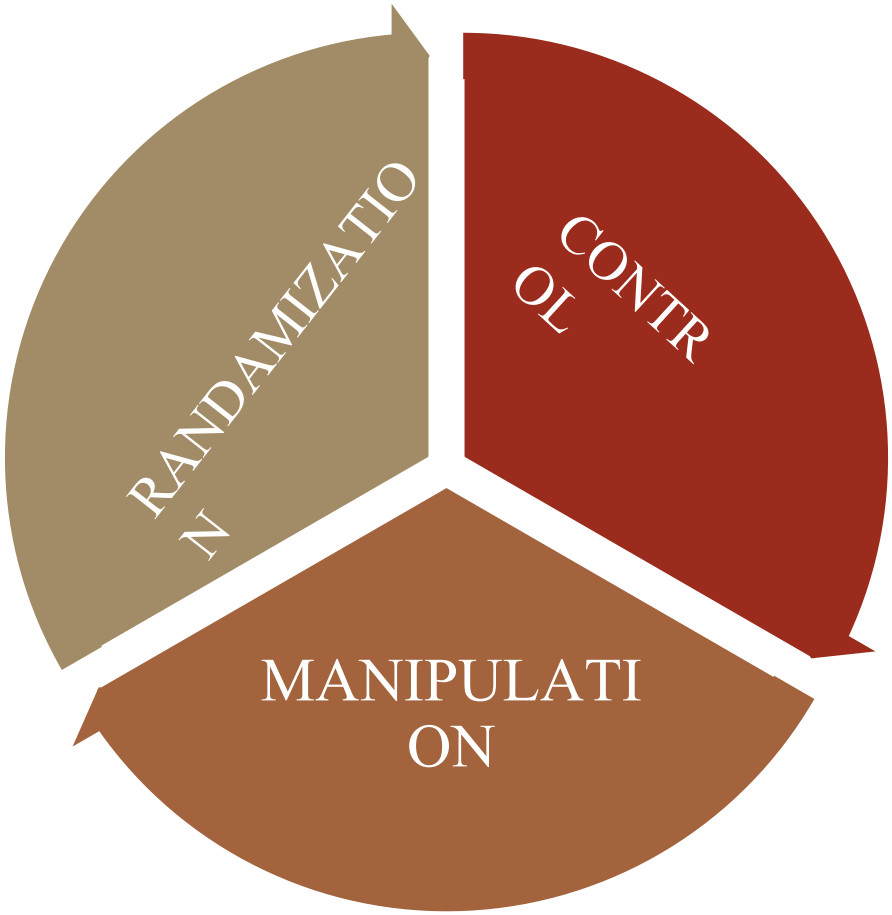
Quantitative research

1. EXPERIMENTAL RESEARCH

Experimental Research

- Are concerned with experimentation of the effect of independent variable on the dependent variable, where the independent variable is manipulated through the treatment or interventions and the effect of these intervention is observed on the dependent variable.

TRUE EXPERIMENTAL



TYPES

- Basic experimental

(Post test only control group & Pre test – Post test control group design)

- Solomon 4 group design
- Randomized block design
- Cross over design

Post test only control group design

- Composed of 2 randomly assigned groups: control and experimental
- No Pretest
- Intervention given to experimental group
- Post test in both the groups

Pretest-Posttest Control Group Design

Experimental Group	O_1	X	O_2
Control Group	O_1		O_2

Pre test post test only design

- Subjects randomly assigned into 2 groups
- Pretest in both the groups
- Treatment/ intervention to the experimental group only
- Post test in both the groups

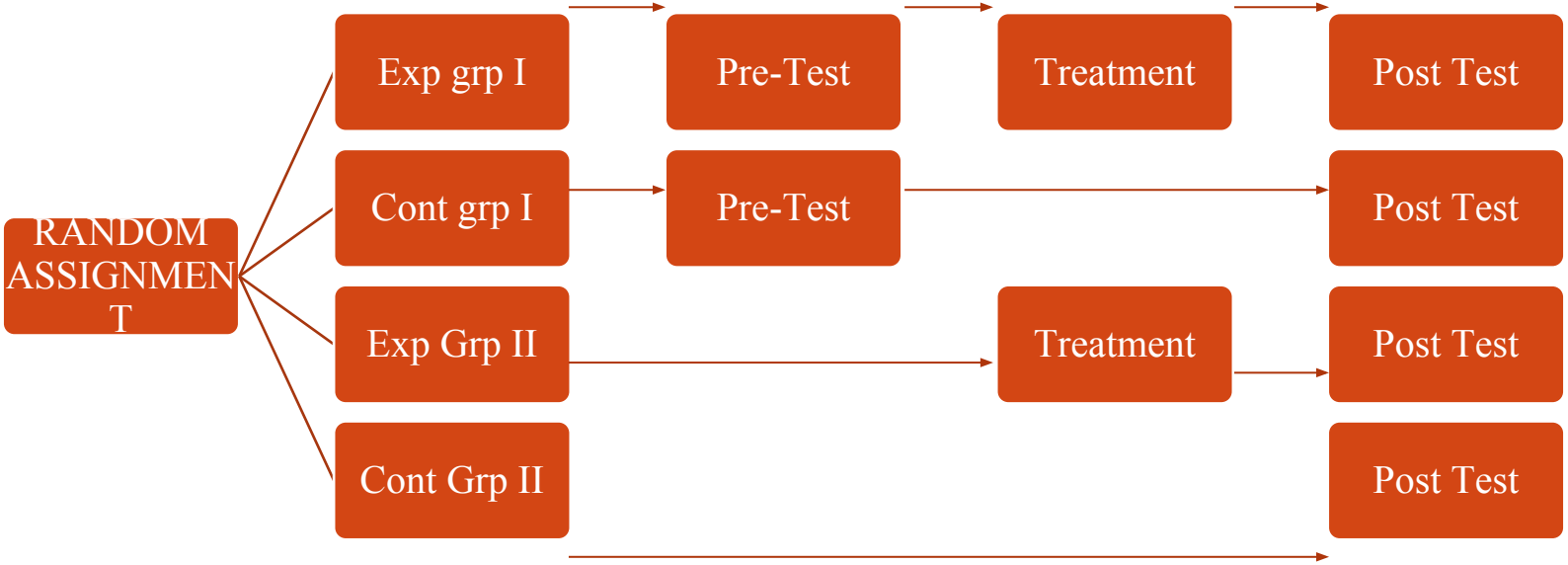
Pretest-Posttest Control Group Design

Experimental Group	O_1	X	O_2
Control Group	O_1		O_2

Solomon four group design

- Two experimental and two control groups
- Random assignment to the four groups
- Only experimental 1 and control 1 groups receive [retest
- Treatment / Intervention for both experimental groups
- Post test to all the four groups
- It minimizes the threat to internal and external validity also the reactive effects of pretest

SOLOMON FOUR NGROUP Design



Factorial design

- Researcher manipulated two or more independent variables simultaneously to observe their effects on dependent variables
- Useful when two independent variables called factors to be tested
- E.g., Effectiveness of tactile stimulation vs auditory stimulation for premature infants

Factorial design [eg. 2x3]

Daily Exposure		Type of Stimulation	
		Auditory A1	Tactile A2
	15 min B1	A1 B1	A2 B1
	30 min B2	A1 B2	A2 B2
	45 min B3	A1 B3	A2 B3

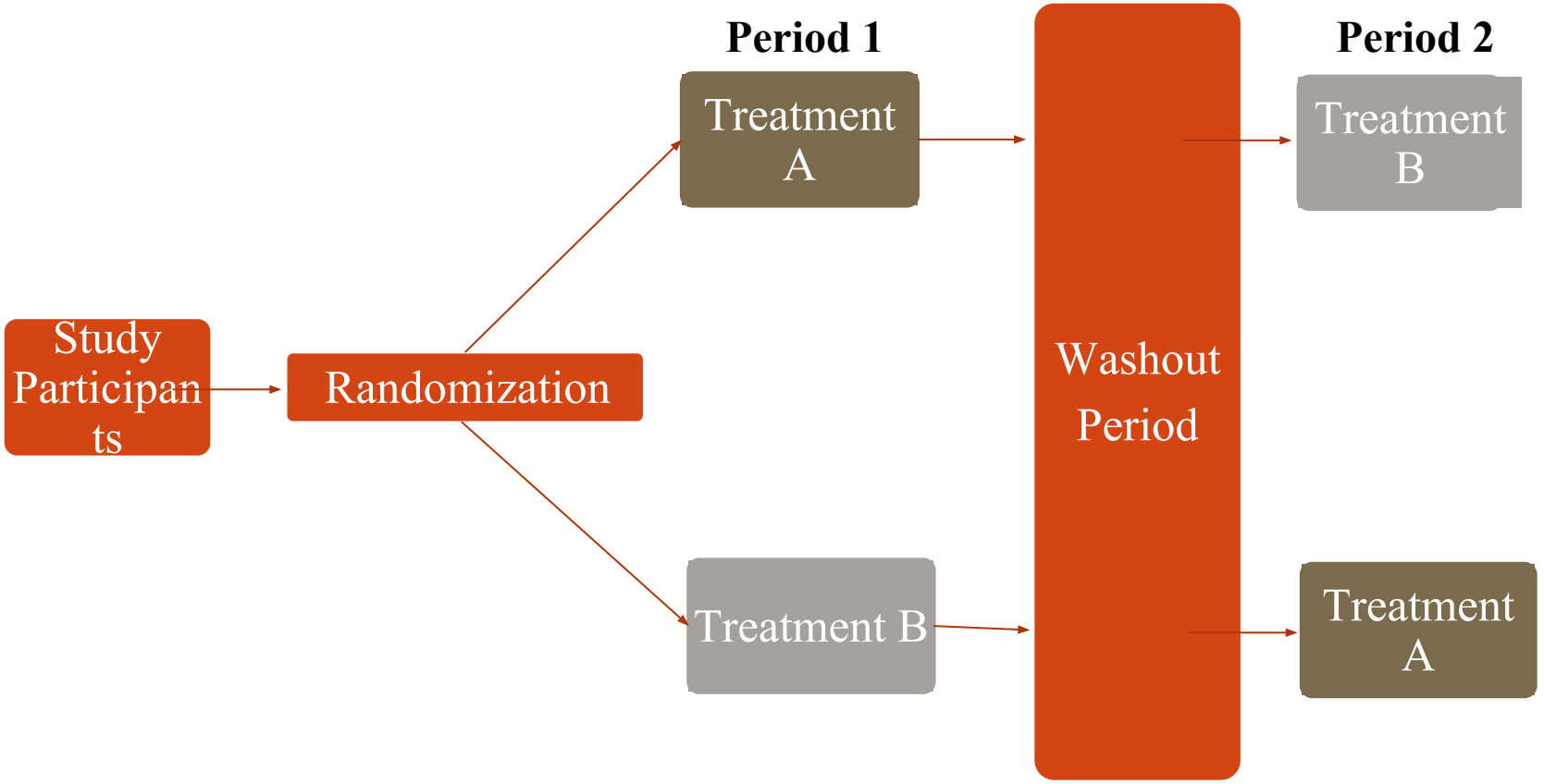
Randomized block design

Type of antihypertensive drug	Blocks		
	Patients with pulmonary HTN 1	Diabetic patients With HTN 2	Renal patients With HTN 3
A	A1	A2	A3
B	B1	B2	B3
C	C1	C2	C3

Cross over design

- Subject are exposed to more than one treatment, where subjects are randomly assigned to different orders of treatment
- Repeat measures design

Cross design



Quasi-experimental research designs

A quasi-experimental design, may be defined as a quantitative research design in which there is always manipulation of the independent variable(s) and control measures are employed, but the other element of a true experiment, random assignment of subjects, is absent.

1. Nonrandomized control group design
2. Time series design

Nonrandomized control group design

- The **nonrandomized control group design,** also termed the none equivalent control group design is often used in nursing research studies.
- Pretest in both groups
- Intervention in experimental group
- Post test in both the groups

Time series design

- The **time series design** is useful when an experimenter wants to measure the effects of a treatment over a long period of time. In this design, the experimenter would continue to administer the treatment and measure the effects a number of times during the course of experiment.

Multiple Time Series Design

EG	O_1	O_2	O_3	O_4	O_5	**X**	O_1	O_2	O_3	O_4	O_{10}
CG	O_1	O_2	O_3	O_4	O_5		O_1	O_2	O_3	O_4	O_{10}

PRE-EXPERIMENTAL DESIGNS

- Pre-experiments are the simplest form of research design. In a pre-experiment either a single group or multiple groups are observed subsequent to some agent or treatment presumed to cause change. Very weak design.

Types of Pre-Experimental Design

- One-shot case study design
- One-group pretest-posttest design

Non experimental Quantitative research designs

- In non experimental research, the researcher collects data and describes phenomena as they exist. Unlike experimental research variables are not manipulated because no interventions take place.

The following are non experimental designs

1. Univariate descriptive studies: (Prevalence & Incidence)
2. Comparative
3. Exploratory

- Correlational research (Retrospective and Prospective)
- Developmental research (Cross sectional & Longitudinal)
- Epidemiological research (Cohort, Case control)
- Survey research

Descriptive research

- The purpose of descriptive studies is to observe, describe, and document aspects of a situation as it naturally occurs, and sometimes to serve as a starting point for hypothesis generation and theory development

Univariate Descriptive Research

- Univariate descriptive studies - undertaken to describe the frequency of occurrence of a phenomenon.
- One or more variables involved in the study

Exploratory Design

- Used to identify, explore, and describe the existing phenomenon and its related factors
- In depth exploration and a study of its related factors to improve further understanding about a less understood phenomenon

Comparative Design

- Comparing and contrasting two or more samples of study subjects on one more variables, often at single point of time.
- This design is used to compare the two groups on the basis of selected attributes such as knowledge level, perceptions & attitudes; physical or psychological symptoms and so on.

Correlational / Ex-post facto design

- Researcher examines the relationship between two or more variables in a natural setting without manipulation or control.
- Researcher study the relationship of two or more variables with out any intervention

Types:

- Prospective
- Retrospective

Prospective

- The researcher relates the present to the future is a prospective research design. Prospective studies start with a presumed cause and then go to presumed effect.
- Researcher observes phenomena from cause to effect
- Longitudinal but some times cross sectional

retrospective

- The researcher studies the current phenomenon by seeking information from past.
- The researcher links the present phenomenon with the past events
- The researcher has a backward approach to study a phenomenon, where he or she moves from effect to identify the cause.

Developmental research design

- Examines the phenomenon with reference to time
- Used as adjunct research designs with other research descriptive, longitudinal correlational research designs

Types:

- Cross sectional
- Longitudinal

Cross Sectional

- The researcher collects data at particular point of time (one period of data collection)
- Easier and convinient

Longitudinal

- Used to collect over an extended time (long time study)
- Its value is in ability to demonstrate change over a period of time

Epidemiological research Designs

- Is the study to investigate the distribution of causes of the diseases in population.
- Epidemiological studies are generally conducted to investigate causes of different diseases in either prospective (cause to effect) or retrospective (effect to cause) approaches

Types:

- Cohort
- Case control

Cohort studies

- A longitudinal approach is used to investigate the occurrence of a disease in existing presumed causes. Eg: A researcher longitudinally observes the smokers for the development of cancer

Case control studies

- Causes of a disease are investigated after the occurrence of the disease. Eg: A researcher investigates the history of smoking in a patient diagnosed with lung cancer

Survey research design

- Used to collect information from different subjects within a given population having same characteristics of interest
- Information is collected regarding prevalence, distribution and interrelationship of variables within a population
- Helps to collect wide range of data from a given population such as actions, attitudes, opinions, perceptions, behaviours, awareness, practices etc.

Types of survey

Depending on the nature of phenomenon under study

- Descriptive survey
- Exploratory survey
- Comparative survey
- Correlational survey

Based on methods of data collection

- Written survey
- Oral survey
- Electronic survey

- **Descriptive survey:** Describe the frequency of occurrence of a phenomenon rather than to study relationships.
- **Exploratory survey:** Survey of a phenomenon and its related factors about which much is not known
- **Comparative survey:** Comparing and contrasting the existence of a certain phenomenon in two or more groups
- **Correlational survey:** Study a relationship between two or more variables in natural setting without manipulation or control
- **Written survey:** Data collected using written structured tool questionnaires, opinionnaires
- **Oral Survey:** Face to face, telephonic conversation, Oral interview
- **Electronic survey:** emails, Short Message System (SMS)

Meta-analysis

- Quantitatively combining and integrating the findings of the multiple research studies on a particular topic.
- It statistically combines the results of several studies that address a shared research hypothesis

Thank You !!