

CHAPTER FOUR

Research Design (planning of research project)



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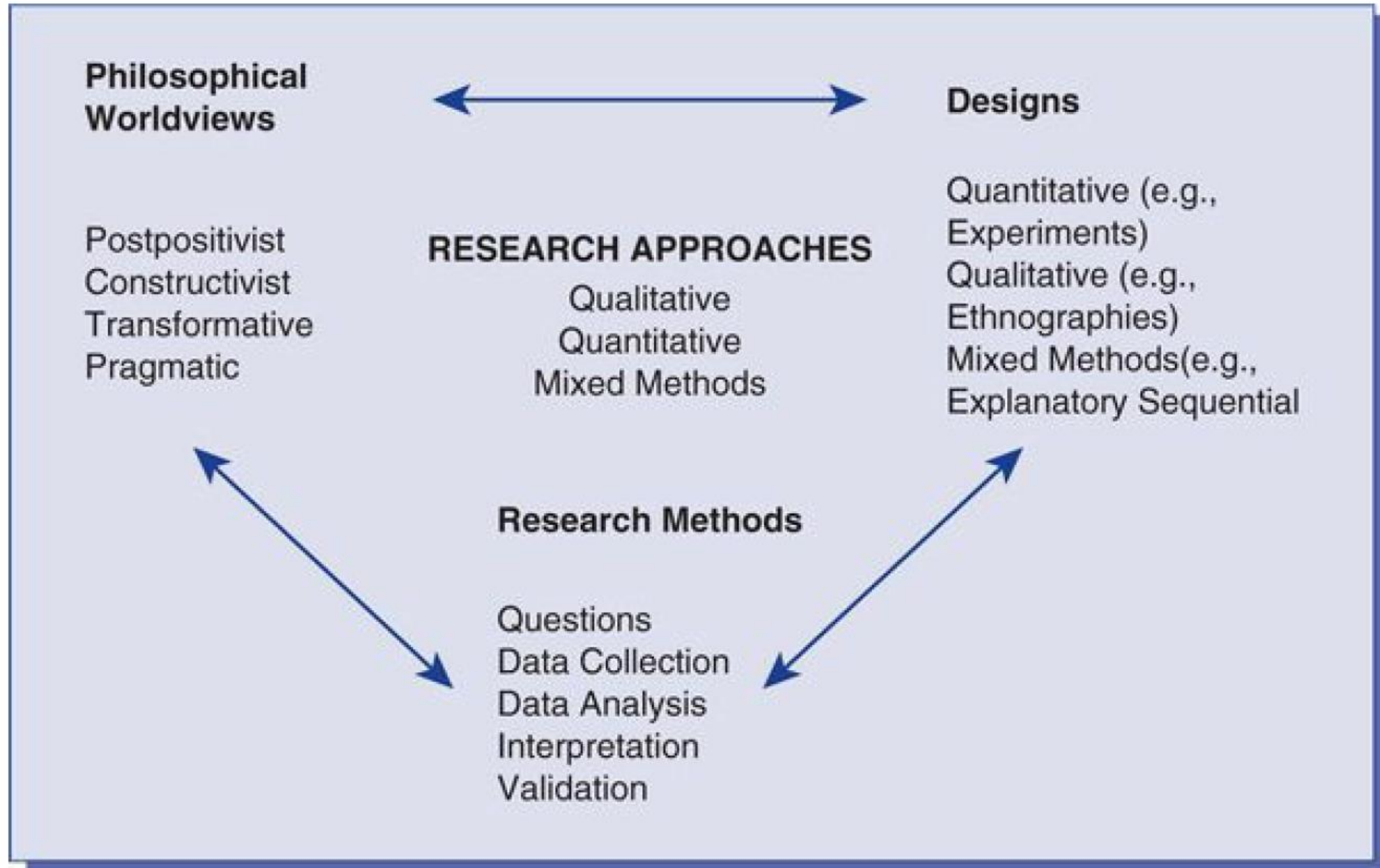
Meaning of Research Design

- A **research design** is a blueprint or plan for the collection, measurement, and analysis of data, created to answer your research questions.
 - a blueprint for fulfilling objectives and answering questions using empirical data
 - it entails plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation
- Research design is the process of building a structure, or plan, for your research project

Meaning of Research Design...

- A well-planned research design helps ensure that your methods match your research aims and that you use the right kind of analysis for your data.
- A research design provides a framework for the collection and analysis of data.
- Research designs can be associated with different kinds of research methods.

The interlink of philosophy, design and method



Choice of a Research Design

- A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process.
- The overall decision involves which approach should be used to study a topic. This decision is informed by the:
 - philosophical assumptions the researcher brings to the study;
 - procedures of inquiry (called **research designs**); and
 - specific **research methods** of data collection, analysis, and interpretation.
- The selection of a research approach is also based on the nature of the **research problem** or issue being addressed, the researchers' personal experiences, and the audiences for the study.
- There are three perspectives that need to be considered during this decision:
 - The choice of research approach, design and research method.

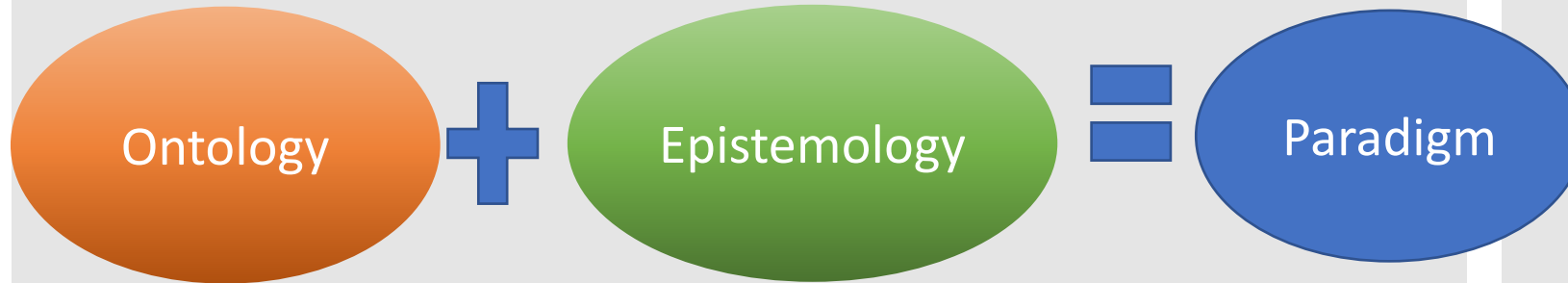
Choice of a research design...

- A research approach is an umbrella that contains research designs and methods
 - approaches are all characterized by different philosophical belief systems and rely on different methodological practices. These beliefs and practices are the elements of research.
- The choice of the research approach needs to be informed with the philosophical, praxis and ethics components of the research
- In planning a study, researchers need to think through the philosophical **worldview** assumptions that they bring to the study, the research design that is related to this worldview, and the specific methods or procedures of research that translate the approach into practice
- For simplicity, we will follow approach-design-method hierarchy whereby approach contains every other element

Philosophical Assumptions

- Philosophical assumptions the researcher brings to the study influences the way the research is executed
- Being explicit about the philosophical assumptions or worldviews helps in better justifying the choice of a research approach
- In general, the philosophical structure indicates “what do we belief”.
- These beliefs inform the researcher’s decision from topic selection all the way to the final representation and dissemination of the research findings

Philosophical Assumptions



- The philosophical substructure of research consists of three elements:
 - paradigm,
 - ontology, and
 - epistemology.

Paradigm

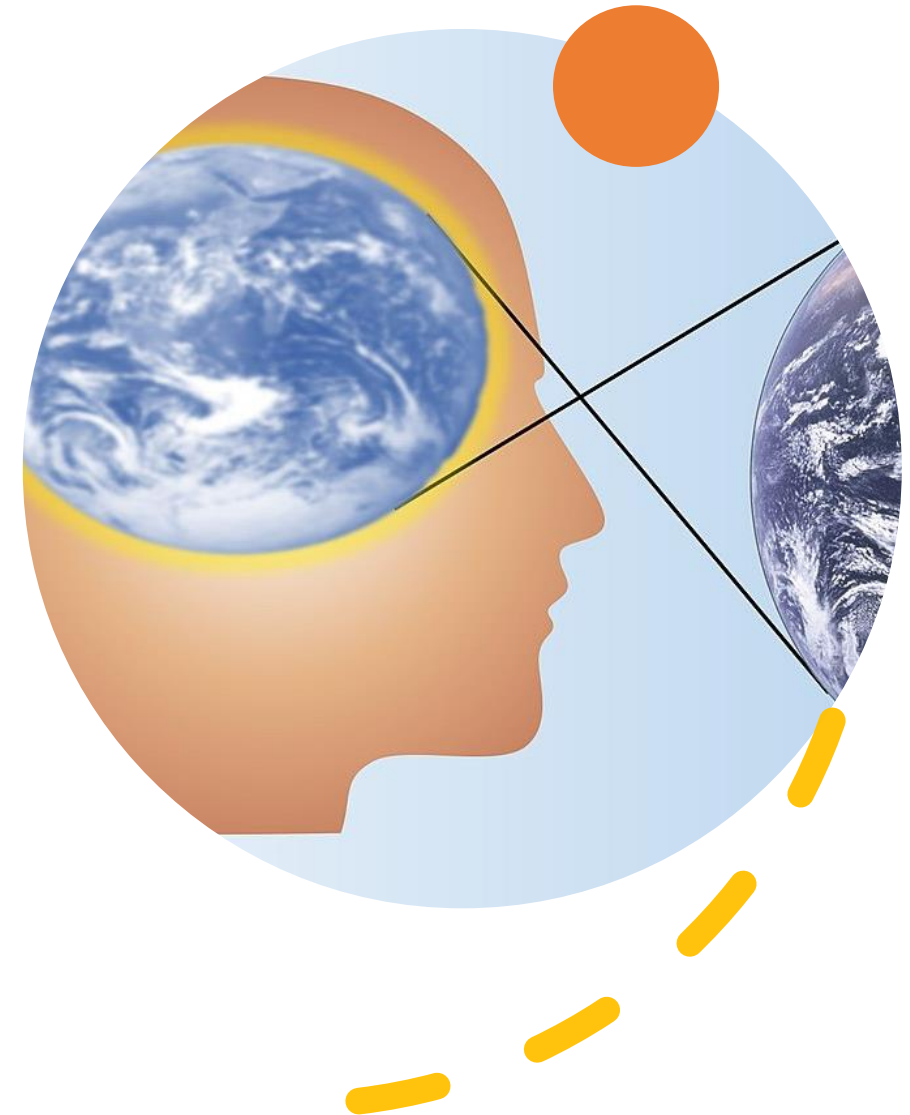


- A **paradigm** is a worldview or framework through which knowledge is filtered
- Paradigm is a foundational perspective carrying a set of assumptions that guides the research process.
- Paradigms are often difficult to see because they are taken for granted [by the researcher]
- Paradigms become the lenses through which research is conceived and executed, and thus they are often difficult to see
- Ontological and epistemological belief systems are joined in paradigms

Paradigm...

Ontology and Epistemology

- An **ontology** is a philosophical belief system about the nature of the world (or reality)
- Ontology relates to the question of “What is the form and nature of reality and, therefore, what is there that can be known about it?”
- An **epistemology** is a philosophical belief system about how research proceeds and what counts as knowledge.
- The researcher’s epistemological position informs how the researcher enacts the role of a researcher and how we understand the relationship between the researcher and research participants



Paradigm...

- There are multiple paradigms or world views that guide research
- Different researchers utilize different ways of grouping and naming paradigms, so note that there is some measure of inconsistency in the literature
- The following are common classifications:
 - Postpositivist
 - Constructivist/interpretive
 - Transformative
 - Pragmatist

Paradigm...

Positivism	Constructivism/Interpretive
• Determination • Reductionism • Empirical observation and measurement • Theory verification	• Understanding • Multiple participant meanings • Social and historical construction • Theory generation
Transformative	Pragmatism
• Political • Power and justice oriented • Collaborative • Change-oriented	• Consequences of actions • Problem-centered • Pluralistic • Real-world practice oriented

Postpositivist

- Originally developed in the natural sciences and espouses an objective, patterned, and knowable reality.
- Research involves making and testing claims, including identifying and testing causal relationships, such as A causes B or A causes B under certain conditions
- Researcher uses the scientific method to test or refute hypothesis
- This worldview values scientific objectivity, researcher neutrality, and replication
- The knowledge that develops through a postpositivist lens is based on careful observation and measurement of the objective reality that exists “out there” in the world

Interpretive or Constructivist

- Developed in disciplinary contexts in the social sciences and emphasizes people's subjective experiences, which are grounded in social–historical contexts
- This worldview suggests that we are actively engaged in constructing and reconstructing meanings through our daily interactions—often referred to as the *social construction of reality*
- Researchers therefore value people's subjective interpretation and understanding of their experiences and circumstances.
- Interpretive or constructivist worldviews are overarching categories that include a broad range of perspectives (reviewed in the discussion of theory), including symbolic interactionism, dramaturgy, phenomenology, and ethnomethodology

Pragmatism

- Holds no allegiance to a particular set of rules or theories but rather suggests that different tools may be useful in different research contexts.
- Researchers value utility and what works in the context of a particular research question.
- Pragmatists “focus on the outcomes of action” suggesting that whichever theories are useful in a particular context are thereby valid.
- Instead of focusing on methods, researchers emphasize the research problem and use all approaches available to understand the problem

Transformative

- Transformative inquirers feel that neither postpositivist nor social constructivist paradigm sufficiently advocate for action agenda to help marginalized people in a society
- There is no uniform body of literature characterizing this worldview, but it includes groups of researchers that are critical theorists; participatory action researchers; Marxists; feminists; racial and ethnic minorities; persons with disabilities; indigenous and postcolonial peoples; and members of the lesbian, gay, bisexual, transsexual, and queer communities

Research Approaches

Quantitative	Qualitative	Mixed Methods
• Experimental design • Nonexperimental designs such as surveys	• Narrative research • Phenomenology • Grounded theory • Ethnographies • Case study	• Convergent • Exploratory sequential • Explanatory sequential • Transformative, embedded or multiphase

Research Approaches

Qualitative	Quantitative
Understand subjective experiences, beliefs, and concepts	Measure variables and describe frequencies, averages, and correlations
Gain in-depth knowledge of a specific context or culture	Test hypotheses about relationships between variables
Explore under-researched problems and generate new ideas	Test the effectiveness of a new treatment, program or product

- Qualitative research designs tend to be more flexible and inductive, allowing you to adjust your approach based on what you find throughout the research process.
- Quantitative research designs tend to be more fixed and deductive, with variables and hypotheses clearly defined in advance of data collection.

Research Approach

- There is also a third research approach: mixed method
 - Combines both qualitative and quantitative research approaches in one project
 - There must be a justification of why mixing and strategy of mixing:
 - Sequential
 - Concurrent/Convergent
 - Transformative
 - Embedded

Comparing the three

Quantitative Methods	Mixed Methods	Qualitative Methods
Pre-determined	Both predetermined and emerging methods	Emerging methods
Instrument based questions	Both open and closed-ended questions	Open-ended questions
Performance data, attitude data, observational data, and census data	Multiple forms of data drawing on all possibilities	Interview data, observational data, document data, and audiovisual data
Statistical analysis	Statistical and text analysis	Text and image data
Statistical interpretation	Across databases interpretation	Themes patterns interpretation

Research Designs/genres

- Research designs are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research design.
 - Others have called them *strategies of inquiry*
- Research design is plan for how we will execute our research; it is related to the practice of research – called praxis.
 - *Praxis* refers to the doing of research—the *practice* of research
- The specific methods or tools we use to collect or generate data can be grouped into larger **genres or designs**.
 - These are overarching categories for different ways of approaching research

Quantitative Designs

Survey Research

- **Survey research** provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population.
- It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection—with the intent of generalizing from a sample to a population



Quantitative Designs...

Experimental Research

- **Experimental research** seeks to determine if a specific treatment influences an outcome.
- The researcher assesses this by providing a specific treatment to one group and withholding it from another and then determining how both groups scored on an outcome.
- Experiments include true experiments, with the random assignment of subjects to treatment conditions, and quasi-experiments that use nonrandomized assignments

Qualitative Designs

Narrative Research

- **Narrative research** is a design of inquiry from the humanities in which the researcher studies the lives of individuals and asks one or more individuals to provide stories about their lives.
- In business research, narratives can be applied on stories of typical business or organizational cases
- This information is then often retold or restoried by the researcher into a narrative chronology.

Qualitative Designs...

Phenomenological Research

- In this type of research, the researcher describes the lived experiences of individuals about a phenomenon as described by participants.
- This description culminates in the essence of the experiences for several individuals who have all experienced the phenomenon.
- This design has strong philosophical underpinnings and typically involves conducting interviews

Qualitative Designs...

Grounded Theory

- Grounded theory is a design of inquiry from sociology in which the researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants.
- This process involves using multiple stages of data collection and the refinement and interrelationship of categories of information



Qualitative Designs...

Ethnography

- Ethnography is a design of inquiry coming from anthropology and sociology in which the researcher studies the shared patterns of behaviors, language, and actions of an intact cultural group in a natural setting over a prolonged period of time.
- Data collection often involves observations and interviews.

Qualitative Designs...

Case Study

- Case studies are a design of inquiry found in many fields, especially evaluation, in which the researcher develops an in-depth analysis of a case, often a program, event, activity, process, or one or more individuals.
- Cases are bounded by time and activity, and researchers collect detailed information using a variety of data collection procedures over a sustained period of time
- Case study can be designed as:
 - Single Case
 - Multiple Cases

Mixed Methods Design

Convergent/Concurrent

- In this type of design, the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem.
- In this design, the investigator typically collects both forms of data at roughly the same time and then integrates the information in the interpretation of the overall results
- It is usually preferred for triangulation purpose

Mixed Methods Design...

Explanatory Sequential (Quan-Qual)

- In this design, the researcher first conducts quantitative research, analyzes the results and then builds on the results to explain them in more detail with qualitative research.
- It is considered explanatory because the initial quantitative data results are explained further with the qualitative data.
- It is considered sequential because the initial quantitative phase is followed by the qualitative phase.

Mixed Methods Design...

Exploratory Sequential (Qual-Quan)

- In this design, the researcher first begins with a qualitative research phase and explores the views of participants.
- The data are then analyzed, and the information used to build into a second, quantitative phase.
- The qualitative phase may be used to build an instrument that best fits the sample under study, to identify appropriate instruments to use in the follow-up quantitative phase, or to specify variables that need to go into a follow-up quantitative study.

Mixed Methods Design...

Transformative Mixed Methods Design

- **Transformative mixed methods** is a design that uses a theoretical lens drawn from social justice or power as an overarching perspective within a design that contains both quantitative and qualitative data.
- The data in this form of study could be converged or it could be ordered sequentially with one building on the other.

Mixed Methods Design...

Embedded Mixed Methods Design

- An **embedded mixed methods** design involves either the convergent or sequential use of data, but the core idea is that either quantitative or qualitative data is embedded within a larger design (e.g., an experiment) and the data sources play a supporting role in the overall design.
- In this design, the research is primarily qualitative or quantitative

Descriptors for classification of designs

Category	Options
The degree to which the research question has been crystalized	Exploratory study Formal study
The method of data collection	Monitoring Communication study
The power of the researcher to produce effects in the variables under study	Experimental Ex post facto
The purpose of the study	Reporting Descriptive Causal Explanatory Predictive

Descriptors for classification of designs...

Category	Options
The time dimension	Cross sectional Longitudinal
The topical scope—breadth and depth-of the study	Case study Statistical study
The research environment	Field setting Laboratory research Simulation
The participants' perception of research activity	Actual routine Modified routine

Need for Research Design

- Provides firm foundation to the endeavor.
- It reduces inaccuracy.
- Helps to get maximum efficiency and reliability.
- Eliminates bias and marginal errors.
- Minimizes wastage of time.
- Reduce uncertainty, confusion and practical haphazard related to any research problem.

Characteristics of a Good Research Design

- Research Design should clarify the Particular research problem.
- It Provides guideline for specific method of data collection & Analysis
- Research Design should be Flexible, efficient & Economical in nature
- Research Design minimizes Biasness of Study
- Research Design must support reliability of data
- Helps an investigator avoid making mistaken conclusions;
- Adequately controls the various threats of validity, both internal and external.