**Lecture-3**

**Research design**

A detailed outline of how an investigation will take place. A research design will typically include how data is to be collected, what instruments will be employed, how the instruments will be used and the intended means for analyzing data collected.

**Type of research design**

1. **Action Research Design**

The essentials of action research design follow a characteristic cycle whereby initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventionary strategy. Then the intervention is carried out (the "action" in Action Research) during which time, pertinent observations are collected in various forms. The new interventional strategies are carried out, and this cyclic process repeats, continuing until a sufficient understanding of (or a valid implementation solution for) the problem is achieved. The protocol is iterative or cyclical in nature and is intended to foster deeper understanding of a given situation, starting with conceptualizing and particularizing the problem and moving through several interventions and evaluations.

**What do these studies tell you?**

1. This is a collaborative and adaptive research design that lends itself to use in work or community situations.
2. Design focuses on pragmatic and solution-driven research outcomes

rather than testing theories.

1. When practitioners use action research, it has the potential to increase the amount they learn consciously from their experience; the action research cycle can be regarded as a learning cycle.
2. Action research studies often have direct and obvious relevance to improving practice and advocating for change.
3. There are no hidden controls or pre-emption of direction by the researcher.

**What these studies don't tell you?**

1. It is harder to do than conducting conventional research because the researcher takes on responsibilities of advocating for change as well as for researching the topic.
2. Action research is much harder to write up because it is less likely that you can use a standard format to report your findings effectively [i.e., data is often in the form of stories or observation].
3. Personal over-involvement of the researcher may bias research results.
4. The cyclic nature of action research to achieve its twin outcomes of action (e.g. change) and research (e.g. understanding) is time-consuming and complex to conduct.
5. Advocating for change requires buy-in from participants.

**2. Case Study Research Design**

A case study is an in-depth study of a particular research problem rather than a sweeping statistical survey or comprehensive comparative inquiry. It is often used to narrow down a very broad field of research into one or a few easily researchable examples. The case study research design is also useful for testing whether a specific theory and model actually applies to phenomena in the real world. It is a useful design when not much is known about an issue or phenomenon.

**What do these studies tell you ?**

1. Approach excels at bringing us to an understanding of a complex issue through detailed contextual analysis of a limited number of events or conditions and their relationships.
2. A researcher using a case study design can apply a variety of methodologies and rely on a variety of sources to investigate a research problem.
3. Design can extend experience or add strength to what is already known through previous research.
4. Social scientists, in particular, make wide use of this research design to examine contemporary real - life situations and provide the basis for the

**What these studies don't tell you ?**

1. A single or small number of cases offers little basis for establishing reliability or to generalize the findings to a wider population of people, Places, or things.
2. Intense exposure to the study of a case may bias a researcher's interpretation of the findings.
3. Design does not facilitate assessment of cause and effect relationships.
4. Vital information may be missing, making the case hard to interpret.
5. The case may not be representative or typical of the larger problem being investigated.

**3. Cross-Sectional Research Design**

Cross-sectional research designs have three distinctive features: no time dimension; a reliance on existing differences rather than change following intervention; and, groups are selected based on existing differences rather than random allocation. The cross -sectional design can only measure differences between or from among a variety of people, subjects, or phenomena rather than a process of change. As such, researchers using this design can only employ a relatively passive approach to making causal inferences based on findings.

**What do these studies tell you?**

1. Cross -sectional studies provide a clear 'snapshot' of the outcome and the characteristics associated with it, at a specific point in time.
2. Unlike an experimental design, where there is an active intervention by the researcher to produce and measure change or to create differences, cross-sectional designs focus on studying and drawing inferences from existing differences between people, subjects, or phenomena.
3. Entails collecting data at and concerning one point in time.

**What these studies don't tell you?**

1. Finding people, subjects, or phenomena to study that are very similar except in one specific variable can be difficult.
2. Results are static and time bound and, therefore, give no indication of a sequence of events or reveal historical or temporal contexts.
3. Studies cannot be utilized to establish cause and effect relationships.
4. Cross-section studies are capable of using data from a large number of subjects and, unlike observational studies, is not geographically bound.
5. Can estimate prevalence of an outcome of interest because the sample is usually taken from the whole population.
6. Because cross-sectional designs generally use survey techniques to gather data, they are relatively inexpensive and take up little time to conduct.
7. There is no follow up to the findings.

**4. Descriptive Research Design**

Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation.

**What do these studies tell you?**

1. The subject is being observed in a completely natural and unchanged natural environment.
2. Descriptive research is often used as a pre-cursor to more quantitative research designs with the general overview giving some valuable pointers as to what variables are worth testing quantitatively.
3. If the limitations are understood, they can be a useful tool in developing a more focused study.
4. Descriptive studies can yield rich data that lead to important recommendations in practice.
5. Approach collects a large amount of data for detailed analysis.

**What these studies don't tell you?**

1. The results from a descriptive research cannot be used to discover a definitive answer or to disprove a hypothesis.
2. Because descriptive designs often utilize observational methods [as opposed to quantitative methods], the results cannot be replicated.
3. The descriptive function of research is heavily dependent on instrumentation for measurement and observation.

**5. Experimental Research Design**

A blueprint of the procedure that enables the researcher to maintain control over all factors that may affect the result of an experiment. In doing this, the researcher attempts to determine or predict what may occur. Experimental research is often used where there is time priority in a causal relationship (cause precedes effect), there is consistency in a causal relationship (a cause will always lead to the same effect), and the magnitude of the correlation is great. The classic experimental design specifies an experimental group and a control group. The independent variable is administered to the experimental group and not to the control group, and both groups are measured on the same dependent variable. Subsequent experimental designs have used more groups and more measurements over longer periods.

**What do these studies tell you?**

1. Experimental research allows the researcher to control the situation. In so doing, it allows researchers to answer the question, “What causes something to occur?”
2. Permits the researcher to identify cause and effect relationships between variables and to distinguish placebo effects from treatment effects.
3. Experimental research designs support the ability to limit alternative explanations and to infer direct causal relationships in the study.
4. Approach provides the highest level of evidence for single studies.

**What these studies don't tell you?**

1. The design is artificial, and results may not generalize well to the real world.
2. The artificial settings of experiments may alter the behaviors or responses of participants.
3. Experimental designs can be costly if special equipment or facilities are needed.
4. Some research problems cannot be studied using an experiment because of ethical or technical reasons.
5. Difficult to apply ethnographic and other qualitative methods to experimentally designed studies.

**6. Exploratory Research Design**

An exploratory design is conducted about a research problem when there are few or no earlier studies to refer to or rely upon to predict an outcome. The focus is on gaining insights and familiarity for later investigation or undertaken when research problems are in a preliminary stage of investigation. Exploratory designs are often used to establish an understanding of how best to proceed in studying an issue or what methodology would effectively apply to gathering information about the issue. The goals of exploratory research are intended to produce the following possible insights:

•Familiarity with basic details, settings, and concerns.

•Well-grounded picture of the situation being developed.

•Generation of new ideas and assumptions.

•Development of tentative theories or hypotheses.

•Determination about whether a study is feasible in the future.

•Issues get refined for more systematic investigation and formulation of new research questions.

•Direction for future research and techniques get developed.

**What do these studies tell you?**

1. Design is a useful approach for gaining background information on a particular topic.
2. Exploratory research is flexible and can address research questions of all types (what, why, how).
3. Provides an opportunity to define new terms and clarify existing concepts.
4. Exploratory research is often used to generate formal hypotheses and develop more precise research problems.
5. In the policy arena or applied to practice, exploratory studies help establish research priorities and where resources should be allocated.

**What these studies don't tell you?**

1. Exploratory research generally utilizes small sample sizes and, thus, findings are typically not generalizable to the population at large.
2. The exploratory nature of the research inhibits an ability to make definitive conclusions about the findings. They provide insight but not definitive conclusions.
3. The research process underpinning exploratory studies is flexible but often unstructured, leading to only tentative results that have limited value to decision-makers.
4. Design lacks rigorous standards applied to methods of data gathering and analysis because one of the areas for exploration could be to determine what method or methodologies could best fit the research problem.

7. Historical **Research** Design

The purpose of a historical research design is to collect, verify, and synthesize evidence from the past to establish facts that defend or refute a hypothesis. It uses secondary sources and a variety of primary documentary evidence, such as, diaries, official records, reports, archives, and non-textual information [maps, pictures, audio and visual recordings]. The limitation is that the sources must be both authentic and valid.

**What do these studies tell you?**

1. The historical research design is unobtrusive; the act of research does not affect the results of the study.
2. The historical approach is well suited for trend analysis.
3. Historical records can add important contextual background required to more fully understand and interpret a research problem.
4. There is often no possibility of researcher-subject interaction that could affect the findings.
5. Historical sources can be used over and over to study different research problems or to replicate a previous study.

**What these studies don't tell you?**

1. The ability to fulfill the aims of your research are directly related to the amount and quality of documentation available to understand the research problem.
2. Since historical research relies on data from the past, there is no way to manipulate it to control for contemporary contexts.
3. Interpreting historical sources can be very time consuming.
4. The sources of historical materials must be archived consistently to ensure access. This may especially challenging for digital or online-only sources.
5. Original authors bring their own perspectives and biases to the interpretation of past events and these biases are more difficult to ascertain in historical resources.
6. Due to the lack of control over external variables, historical research is very weak with regard to the demands of internal validity.
7. It is rare that the entirety of historical documentation needed to fully address a research problem is available for interpretation, therefore, gaps need to be acknowledged.

**8. Longitudinal Research Design**

A longitudinal study follows the same sample over time and makes repeated observations. For example, with longitudinal surveys, the same group of people is interviewed at regular intervals, enabling researchers to track changes over time and to relate them to variables that might explain why the changes occur. Longitudinal research designs describe patterns of change and help establish the direction and magnitude of causal relationships. Measurements are taken on each variable over two or more distinct time periods. This allows the researcher to measure change in variables over time. It is a type of observational study sometimes referred to as a panel study.

**What do these studies tell you?**

1. Longitudinal data facilitate the analysis of the duration of a particular phenomenon.
2. Enables survey researchers to get close to the kinds of causal explanations usually attainable only with experiments.
3. The design permits the measurement of differences or change in a variable from one period to another [i.e., the description of patterns of change over time].

**What these studies don't tell you?**

1. The data collection method may change over time.
2. Maintaining the integrity of the original sample can be difficult over an extended period of time.
3. It can be difficult to show more than one variable at a time.
4. This design often needs qualitative research data to explain fluctuations in the results.
5. A longitudinal research design assumes present trends will continue unchanged.
6. It can take a long period of time to gather results.
7. Future outcomes based upon earlier factors.
8. There is a need to have a large sample size and accurate sampling to reach representativeness.