Overview of Research Designs

A research design is the "blueprint" of a study that describes its steps, methods, and techniques used to collect, measure, and analyze data. Examples of study designs we frequently use in management are cross-sectional studies, experiments, case studies, and meta-analyses. However, in our field, all kinds of study designs a e used, sometimes with exotic names that make it difficult to fathom exactly which research methods were used. Below we provide a table that describes the elements of common research designs in the social sciences. It is by no means comprehensive, but it provides a basic frame of reference.

Name	Description	Elements
Systematic review	A study that aims to identify as thoroughly as possible all the scientific studies relevant to a particular subject and to assess the validity and quality of the evidence in each study. As the name indicates, a systematic review takes a systematic approach to identifying studies and having their methodological quality critically appraised by multiple researchers. Sometimes includes a *meta-analysis*	Depends on the studies included. Uses a systematic and transparent search process that specifies the criteria used to include or exclude studies.
Meta-analysis	A study that statistically summarizes a large number of studies on the same topic by combining the results of individual studies to get a more accurate estimate of the statistical effect. Sometimes includes a *systematic review*	Depends on the studies included. Averages effect sizes of quantitative studies on a given topic.
Randomized controlled study	A study wherein participants are randomly assigned to a group in which an intervention is carried out (experimental group) and a group in which no (or an alternative) intervention is conducted (control group), and the effect is measured after (and also often before) the intervention. Also referred to as *randomized controlled trial (RCT), experiment, true-experiment*	Random assignment, control group, before-after measurement.
Controlled before-after study	A study wherein participants are (not randomly) assigned to a group in which an intervention is carried out (experimental group) and a group in which no (or an alternative) intervention is conducted (control group), and the effect is measured both before and after the intervention. Also referred to as *CBA, nonrandomized controlled trial (NRCT), quasi-experiment, observational study, controlled longitudinal study, comparison group before-after study, nonequivalent control group design*	Control group, before-after measurement.

Name	Description	Elements
Longitudinal study	A study that involves repeated observations (measurements) of the same variable(s) over a certain period of time. Also referred to as *observational study*	Before-after measurement
Cohort study	A study wherein large groups of participants (also called a cohort or panel) are followed over a long period (prospectively) to see whether differences arise among the groups. Also referred to as *panel study, observational study, longitudinal study*	Control group, before-after measurement (prospective).
Case-control study	A study wherein one group of participants with a particular outcome is compared (retrospectively) with a group that did not experience this outcome. The starting point of the study is the outcome (dependent variable) rather than the intervention or exposure (independent variable). Also referred to as *observational study*	Control group, before-after measurement (retrospective).
Controlled study	A study wherein subjects are (not randomly) assigned to a group in which an intervention is carried out (experimental group) and a group in which no (or an alternative) intervention is conducted (control group), and the effect is measured only after the intervention. Also referred to as *controlled posttest only/comparison group design*	Control group, after measurement.
Before-after study	A study wherein data are obtained or particular variables are measured before and after an intervention, exposure, or event. Also referred to as *single group before-after study* or *longitudinal study*	Before-after measurement.
Posttest only	A study wherein data are obtained or particular variables are measured only after an intervention, exposure, or event. Also referred to as *pre-experimental design, one-shot survey,* or *one-shot case study*	After measurement (prospective).
Cross-sectional study	A study wherein a large number of data or variables is gathered at one point in time, and the intervention or exposure (independent variable) and outcome (dependent variable) are measured simultaneously. It provides a snapshot of the current situation. Also referred to as *survey* or *correlational study*	Cross-sectional (retrospective).
Case study	A study wherein a large number of aspects of a single case (organization or team) are investigated in depth over a long period within the case's own context. A case study is often used to narrow down a broad field of research into an easily researchable practical example. It is a useful design when not much is known about an issue or phenomenon. Researchers using a case study design often apply a variety of (often qualitative) methodologies and rely on a variety of information and data sources. Sometimes referred to as *field study*	Often qualitative methods are used.

Name	Description	Elements
Action research	A study carried out during an activity or intervention to improve the methods and approach of the people involved. The research is conducted by (and for) those taking the action: it is typically designed and conducted by practitioners who analyze their own data to improve their practice. Action research follows a characteristic cycle whereby an exploratory stance is adopted to learn by doing. Often, a variety of (qualitative and quantitative) methodologies are applied. Also referred to as *community-based research, participatory action research*, or *collaborative inquiry*	Often a variety of methods are used.
Ethnographic study	A study wherein researchers completely immerse themselves in the lives, culture, context, or situation (e.g., merger between two organizations) that they are studying. The study is designed to explore cultural phenomena where the researcher observes the organization from the point of view of the participants (e.g., employee or manager) in the study. Also referred to as *field research* or *naturalistic inquiry*	Qualitative methods.
Mixed methods study	A study that involves collecting, analyzing, and integrating quantitative (e.g., experiments, surveys) and qualitative (e.g., focus groups, interviews) research. Also referred to as a *triangulation design*	Both qualitative and quantitative methods are used.

What about other classifications, such as experimental research and observational studies?

You are correct – in addition to the research designs discussed in this module, several other classifications and dichotomies are used. We provide an overview of the most common:

- **Descriptive versus exploratory versus causal research**

Descriptive research describes events or states and aims to find out "what is," so we frequently use observational and survey methods to collect the data. *Exploratory* research aims to generate new questions and hypotheses, investigating underlying reasons or gaining a better understanding of a certain topic. Qualitative methods are often used. Causal research aims to discover causal relationships; hence, we often use research designs with a control group and a pre-measure and designs that assess or measure at multiple time points.

- **Prospective versus retrospective research**
  Most studies are *prospective*: first a research question or hypothesis is developed, then a representative sample of participants is selected and a baseline measure obtained, and finally, after an intervention (or exposure to a variable), the data about the participants are analyzed to examine the effect. In *retrospective studies*, researchers investigate an intervention or exposure by looking back at events that have already happened. Such studies can yield important scientific findings without taking a long time following the participants to find out the outcome

- **Experimental versus observational research**
  Experimental research refers to studies in which the researcher manipulates one or more variables and controls the other variables to determine whether there is a causal relationship between the manipulated variable and the outcome. *Observational* research refers to studies in which the researcher merely observes but does not intervene, and the intention is to find associations among the observed data

- **Experimental versus correlational research**
  In this case, *experimental* research refers to studies that are regarded as "true" experiments (i.e., randomized controlled studies) that allow drawing causal conclusions, whereas *correlational* research concerns studies (e.g., non-randomized or non-controlled studies) that allow conclusions only about correlations or associations.

- **Cross-sectional versus longitudinal research**
  Longitudinal research concerns studies that involve repeated observations (measurements) of the same variable(s) over a certain period of time (sometimes even years); examples are cohort studies and interrupted times series. *Cross-sectional* research refers to studies – such as surveys – in which a large number of data or variables is gathered only at one point in time. It provides a snapshot of the current situation.