Business Research Method

Unit 2

By

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Research design: Concept,

- Research design refers to the framework of market research methods and techniques that are chosen by a researcher. The design that is chosen by the researchers allow them to utilise the methods that are suitable for the study and to set up their studies successfully in the future as well.
- Research design refers to the overall strategy utilized to carry out research that defines a succinct and logical plan to tackle established research .

Features of a good research design,

- The means of obtaining information;
- The availability and skills of the researcher and his staff, if any;
- The objective of the problem to be studied;
- The nature of the problem to be studied; and
- The availability of time and money for the research work.

Qualitative and Quantitative research approaches,

- Qualitative Research Design
- Qualitative research is implemented in cases where a relationship between collected data and observation is established on the basis of mathematical calculations. Theories related to a naturally existing phenomenon can be proved or disproved using mathematical calculations. Researchers rely on qualitative research design where they are expected to conclude “why” a particular theory exists along with “what” respondents have to say about it.

- Quantitative Research Design
- Quantitative research is implemented in cases where it is important for a researcher to have statistical conclusions to collect actionable insights. Numbers provide a better perspective to make important business decisions. Quantitative research design is important for the growth of any organization because any conclusion drawn on the basis of numbers and analysis will only prove to be effective for the business.

Comparison – Pros and Cons of both approaches.

	Qualitative	*Quantitative*
Objective / Purpose	To gain an understanding of underlying reasons and motivations To uncover prevalent trends in thought and opinion	To quantify data and generalise results from a sample to the population of interest To measure the incidence of various views and opinions in a chosen sample
Sample	Usually a small number of respondents	Usually a large number of cases representing the population of interest
Data collection	Qualitative data such as open-ended responses, interviews, observation and field notes	Quantitative data based on precise measurements using structured and validated data collection instruments
Data analysis	Identify patterns, features, themes	Identify statistical relationships
Outcome	Narrative report with contextual description and direct quotations from respondents	Statistical report with correlation, comparisons of means and statistical significance of findings

Types: Qualitative techniques – Projective Techniques,

- **Projective Techniques**
- **Projective Techniques** are indirect and unstructured methods of investigation which have been developed by the psychologists and use projection of respondents for inferring about underline motives, urges or intentions which cannot be secure through direct questioning as the respondent either resists to reveal them or is unable to figure out himself

Depth Interview,

- **Depth Interviews**
- A qualitative data collection method, in-depth interviews offer the opportunity to capture rich, descriptive data about people's behaviors, attitudes and perceptions, and unfolding complex processes. They can be used as a standalone research method or as part of a multi method design, depending on the needs of the research.

Experience Survey, Focus Groups, Observation.

- Experience Survey
- Most often taking the form of a text box in a survey, open-ended questions allow your respondents to provide a unique answer (as opposed to providing a list of predetermined responses to select from). This approach gives respondents the freedom to say exactly what they feel about a topic, which provides you with exploratory data that may reveal unforeseen opportunities, issues, or quotes. You can then use this information to support the hard numbers you've collected in the survey. Often it is these quotes or examples that create more powerful statements than many averages and percentages.
- Focus Groups
- Usually done in person or online, a focus group asks a small group of people to discuss their thoughts on a given subject. A focus group allows you to gauge the reactions of a small number of your target audience in a controlled but free-flowing group discussion. This form of research is a great way to test how your target audience would perceive a new product or marketing strategy.
- Observational Research
- This approach involves observing customers or people in their actual element. A perfect example would be watching shoppers while they visit your store. How long does it take them to find what they are looking for? Do they look comfortable interacting with your staff? Where do they go first, second? When do they leave without making a purchase? These real-world observations can lead you to findings that more direct forms of research, like focus groups and interviews, would miss.

Descriptive Research Designs: Concept,

- **Descriptive Research** is research used to "**describe**" a situation, subject, behavior, or phenomenon. It is used to answer questions of who, what, when, where, and how associated with a particular research question or problem. Descriptive studies are often described as studies that are concerned with finding out "**what is**". It attempts to gather quantifiable information that can be used to statistically analyze a target audience or a particular subject.
- Description research is used to observe and describe a research subject or problem without influencing or manipulating the variables in any way. Hence, these studies are really correlational or observational, and not truly experimental. This type of research is conclusive in nature, rather than exploratory. Therefore, descriptive research does not attempt to answer "**why**" and is not used to discover inferences, make predictions or establish causal relationships.

Types of Descriptive Research

- Observational Method: Used to review and record the actions and behaviors of a group of test subjects in their natural environment. The research typically does not have interaction with the test subject.
- Case Study Method: This is a much more in-depth student of an individual or small group of individuals. It may or may not involve interaction with the test subjects.
- Survey Method: Researchers interact with individual test subjects by collecting information through the use of surveys or interviews.

Concept of Cross-sectional and Longitudinal Research

- Cross-Sectional Study is defined as an observational study where data is collected as a whole to study a population at a single point in time to examine the relationship between variables of interest.
- In an observational study, a researcher records information about the participants without changing anything or manipulating the natural environment in which they exist.
- The most important feature of a cross-sectional study is that it can compare different samples at one given point in time. For example, a researcher wants to understand the relationship between joggers and level of cholesterol, he/she might want to choose two age groups of daily joggers, one group is below 30 but more than 20 and the other, above 30 but below 40 and compare these to cholesterol levels amongst non-joggers in the same age categories.
- Longitudinal Study
- Longitudinal study, like the cross-sectional study, is also an observational study, in which data is gathered from the same sample repeatedly over an extended period of time. Longitudinal study can last from a few years to even decades depending on what kind of information needs to be obtained.
- The benefit of conducting longitudinal study is that researchers can make notes of the changes, make observations and detect any changes in the characteristics of their participants. One of the important aspects here is that longitudinal study extends beyond a single frame in time. As a result, they can establish a proper sequence of the events occurred.

Cross-sectional Study	Longitudinal Study
Cross-sectional studies are quick to conduct as compared to longitudinal studies.	Longitudinal studies may vary from a few years to even decades.
A cross-sectional study is conducted at a given point in time.	A longitudinal study requires a researcher to revisit participants of the study at proper intervals.
Cross-sectional study is conducted with different samples.	Longitudinal study is conducted with the same sample over the years.
Cross-sectional studies cannot pin down cause-and-effect relationship.	Longitudinal study can justify cause-and-effect relationship.
Multiple variables can be studied at a single point in time.	Only one variable is considered to conduct the study.
Cross-sectional study is comparatively cheaper.	Since the study goes on for years longitudinal study tends to get expensive.

Experimental Design: Concept of Cause,

- The word experimental research has a range of definitions. In the strict sense, experimental research is what we call a true experiment. This is an experiment where the researcher manipulates one variable, and control/randomizes the rest of the variables.

- Experimental research design is centrally concerned with constructing research that is high in causal (internal) validity. Randomized experimental designs provide the highest levels of causal validity

Causal relationships,

- The philosophical concept of causality or causation refers to the set of all particular ""causal"" or ""cause-and-effect"" relations. Most generally, causation is a relationship that holds between events, properties, variables, or states of affairs.

- Causality always implies at least some relationship of dependency between the cause and the effect. For example, deeming something a cause may imply that, all other things being equal, if the cause occurs the effect does as well, or at least that the probability of the effect occurring increases.

Concept of Independent & Dependent variables,

- Independent Variables
- The independent variable and the dependent variable. The independent variable is the variable whose change isn't affected by any other variable in the experiment. Either the scientist has to change the independent variable herself or it changes on its own; nothing else in the experiment affects or changes it. Two examples of common independent variables are age and time. There's nothing you or anything else can do to speed up or slow down time or increase or decrease age. They're independent of everything else.

- Dependent Variable
- The dependent variable is what is being studied and measured in the experiment. It's what changes as a result of the changes to the independent variable. An example of a dependent variable is how tall you are at different ages. The dependent variable (height) depends on the independent variable (age).

- You want to see which type of fertilizer helps plants grow fastest, so you add a different brand of fertilizer to each plant and see how tall they grow.
- Independent Variable: Type of fertilizer given to the plant
- Dependent Variable: Plant height

CONCOMITANT VARIABLE,

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- A concomitant variable, or covariate, is a variable which we observe during the course of our research or statistical analysis, but we cannot control it and it is not the focus of our analysis.
- Although concomitant variables are not given any central recognition, they may be confounding or interacting with the variables being studied. Ignoring them can lead to skewed or biased data, and so they must often be corrected for in a final analysis.
- Examples of Concomitant Variables
- Let’s say you had a study which compares the salaries of male vs. female college graduates. The variables being studied are gender and salary, and the primary survey questions are related to these two main topics. But, since salaries increase the longer someone has been in the workplace, the concomitant variable ‘time out of college’ has the potential to skew our data if it is not accounted for.

EXTRANEOUS VARIABLE,

- EXTRANEOUS VARIABLE
- An Extraneous Variable is something that the experimenter cannot control, which can have an effect on the overall outcome of the experiment. The main four extraneous variables are demand characteristics, experimenter effects, participant variables and situational variables.
- (i) Demand Characteristics: Environmental clues that may tell the participant what is expected of them, such as the environmental setting or the researches body language. This in turn can affect their behaviour.
- (ii) Experimenter Effects: When the researcher themselves affect the outcome by giving subconscious clues about how to behave. This may involve unintentionally asking leading questions that inform the participant of the desired result.
- (iii) Participant variables: Something about the participant that is out of the researcher's control. For example, whilst researches may try and target individuals with a certain background for an experiment, existing variables such as their health, or prior knowledge, could affect the outcome. For example, a participant with prior knowledge of Milgram's experiment would be an extraneous variable in a reimagining of the experiment.
- (iv) Situational Variables: Whilst the researcher may do their best to control an experiment (for example, controlling the time of day), situational variables can still affect the results. For example, a field experiment conducted at the same time of day across a week may experience sporadic weather or unexpected noise pollution, changing the mood/actions of the participants.

Treatment Group,

- Treatment group is a group that receives a treatment in an experiment. The “group” is made up of test subjects (people, animals, plants, cells etc.) and the “treatment” is the variable you are studying. For example, a human experimental group could receive a new medication, a different form of counseling, or some vitamin supplements. A plant treatment group could receive a new plant fertilizer, more sunlight, or distilled water. The group that does not receive the treatment is called the control group.
- In an experiment, the factor (also called an independent variable) is an explanatory variable manipulated by the experimenter. Each factor has two or more levels, i.e., different values of the factor. Combinations of factor levels are called treatments.
- Treatment Group Examples
- Example no. 1: – You are testing to see if a new plant fertilizer increases sunflower size. You put 20 plants of the same height and strain into a location where all the plants get the same amount of water and sunlight. One half of the plants–the control group–get the regular fertilizer. The other half of the plants–the experimental group–get the fertilizer you are testing.

Control group

- Control group, the standard to which comparisons are made in an experiment. Many experiments are designed to include a control group and one or more experimental groups; in fact, some scholars reserve the term experiment for study designs that include a control group. Ideally, the control group and the experimental groups are identical in every way except that the experimental groups are subjected to treatments or interventions believed to have an effect on the outcome of interest while the control group is not. Inclusion of a control group greatly strengthens researchers' ability to draw conclusions from a study. Indeed, only in the presence of a control group can a researcher determine whether a treatment under investigation truly has a significant effect on an experimental group, and the possibility of making an erroneous conclusion is reduced.