

Chapter Three

The Research Design

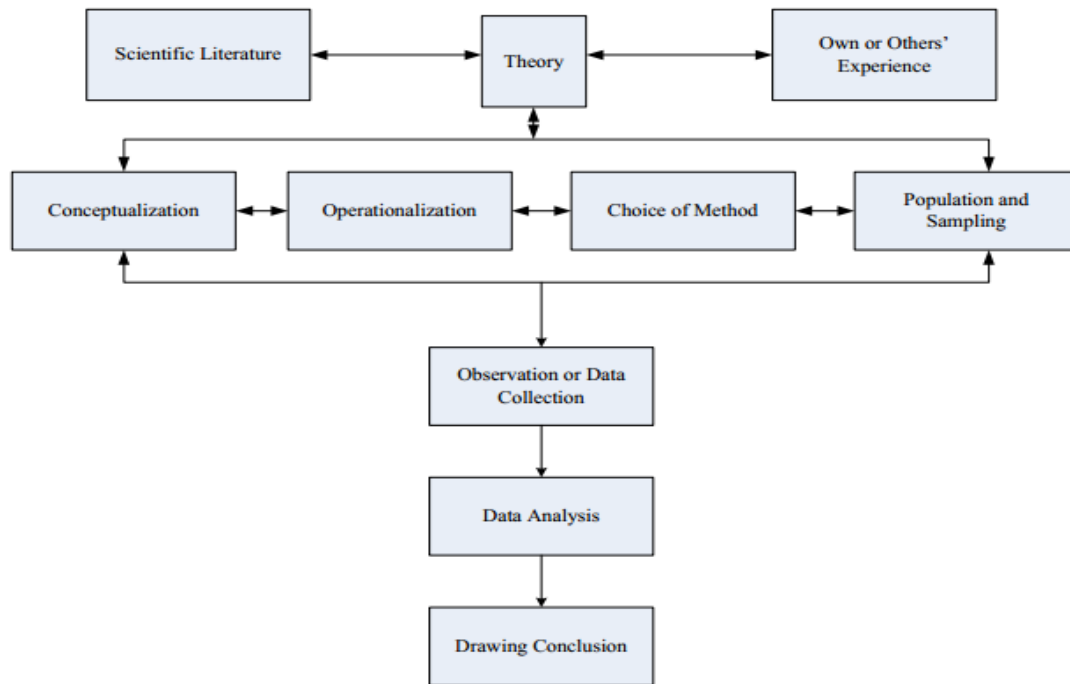
3.1 Introduction

The preceding chapters should have given you a broader picture of what research is all about and formulation of research problem and hypothesis. This chapter presents the “blue print” of research, that is, research design. In designing the research, the researcher acts like an architect. An architect prepares blue print of a building. The blue print is given to a civil engineer in order to construct an actual building. Likewise, the researcher prepares a research design before the actual research is done. This chapter presents the components of a research design.

3.2 What is research design?

Research design is the plan and structure of investigation so as to obtain answers to research questions. The plan is an overall scheme or program of the research process. It includes an outline of what the researcher will do starting from statement of the problem and hypotheses formulation to the final analysis of data.

Figure 1: Schematic Presentation of the research process



Source: Adapted from Babbie (1986)

Figure 1 presents holistic view of the research process. Research design starts from asking research questions. Not all questions are research questions though. For instance, a question whose answer is known beforehand is not research question. Once a research question is clearly defined in light to literature, the researcher has to plan for how the actual research will be done. The how aspect of a research design has to clearly answer questions pertaining to: 1) conceptualization and operationalization of key concepts in the research, 2) the research method to be used and 3) the data source and research subjects to whom conclusion is to be inferred. Besides, it is not uncommon for research designs to include the expected outcomes and possible applications or possible value addition of the research.

3.2 Types of research designs

Types of research designs are analogous to types of “blue prints”. An architect can choose among different types of possible building designs depending on factors such as purpose of the building, method of construction, time of construction and the like. Similarly, researchers choose among different types of possible research designs depending on such dimensions as purpose of the

research, method of data collection, control of variables, the time dimension, the research environment, depth of the research, and the like.

Purpose of research is the first dimension of research design. As explained in the first chapter, research has purpose of exploration, description or explanation or a combination of them. Therefore, based on the “purpose of research” dimension, there are at least three classes of research designs: exploratory, descriptive and explanatory. Change of purpose, say from exploration to explanation, changes all components of the research process in Figure 1.

Method of data collection is the second dimension resulting in new classes of research designs. In chapter 5, you are going to learn about the different methods of data collection. Based on the level of involvement of the data collector we may orderly classify data collection methods into participant observation, unstructured interview, focus group discussion, non-participant observation, and mail questionnaire. The level of data collector involvement decreases as you go on from participant observation to mail questionnaire or survey. Hence, method of data collection generally ranges between observation and survey. It is important to note that a combination of purposes of research and method of data collection could result in new breeds of research designs.

Control of variables is a third dimension that could result in additional classes of research designs. As you are going to see later in this chapter, variables are operationalization of concepts in your research. For example, wear and tear of a fixed asset can be considered as a variable that operationalizes the concept of depreciation. Similarly, net income is a variable that operationalizes the concept of wealth. You may want to do research on “the relationship between depreciation and wealth” in order to come up with a generalized statement or proposition regarding depreciation and wealth of a company. But you know that depreciation is not the only factor that determines wealth. Can you put a boundary on the part of wealth that is totally determined by depreciation? If you can then you have control over your variable. Therefore, you may conduct an experiment. Particularly in social sciences, it is very difficult to put clear boundary on a variable hence it is difficult to conduct experiments. The only option you have is to observe past data about depreciation of different companies and relate it with their past data about wealth. Research design that plans to use past data, instead of experimental data, is known as ex post design. In short, based

on control over variables we differentiate research designs between experimental and ex post designs.

The time dimension of the research is the fourth dimension of research design. You may plan to collect data across geographical space, that is, from respondents located in different geographical locations or you may plan to collect data across time. Data that involve respondents from different geographical locations as of a single point of time are known as cross-sectional data. For example, research on “measuring relative efficiency of Ethiopian banks” is cross-sectional study because it does not require observation or survey across time periods. Data that involve a respondent in one geographical location across different time periods are known as longitudinal data. For example, a research on “On the dynamics of share holders’ wealth in Awash International Bank” is longitudinal study because it requires observation or survey across time. In short, we classify research design based on time dimension as cross-sectional and longitudinal designs.

Research environment is fifth dimension of research design. There are at least two possible ways of getting data for your study. You may collect actual or real data from the field, say, by interviewing respondents or you may also generate artificial data using simulation. Simulation is a statistical method of generating artificial data based up on statistical parameters such as mean and standard deviation and the type of distribution. Based on the research environment dimension, we classify research designs into field and simulation.

Last but not least, depth of research is the sixth dimension of research design. The depth and breadth of research are on a constant tradeoff. If a research has to increase its depth it usually gives up some part of its breadth. Research projects that emphasize on depth of analysis are usually aimed at particularization. Whereas, research projects that emphasize on breadth of analysis are usually aimed at generalization. Qualitative research designs are usually meant for researches that require depth instead of breadth and quantitative research designs are commonly used in research projects aiming at generalization.

Table 1: Dimensions of research designs

Dimensions of the Research	Purpose of the Research			Method of Data Collection		Control of Variables		Time Dimension		Research Environ		Depth of Research	
	Exy	Des	Exp	Obs	Sur	Exl	Pos	Cro	Lon	Fie	Sim	Qnt	Qul
Exploratory (Exy)													
Descriptive (Des)													
Explanatory (Exp)													
Observation (Obs)													
Survey (Sur)													
Experimental (Exl)													
Ex post (Pos)													
Cross-sectional (Cro)													
Longitudinal (Lon)													
Field (Fie)													
Simulation (Sim)													
Quantitative (Qnt)													
Qualitative (Qul)													

Table 1 presents different types of research designs. New research designs can be formed by combining the 13 different types of research designs in Table 1. For instance, exploratory research design could be formed as a combination of observation method of data collection, ex post design, cross-sectional time dimension, field research design and qualitative analysis. Likewise, varieties of research designs can be identified by combining the different research designs in Table 1. Given 13 alternatives among which we have to select 6 (i.e., one for each dimension like the shaded boxes in Table 1), there are 1,716 (i.e., $13 C_6 = 13! / (7!6!)$) possible number of research designs. You need to choose one of the 1,716 possible research designs and state your justification why you did not select the rest possible designs.