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1. Research Design

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Abstract:

A research design is a broad plan that states objectives of research project and provides the guidelines what is to be done to realize those objectives. It is, in other words, a master plan for executing a research project. Research design is the framework of research methods and techniques chosen by a researcher to conduct a study. The design allows researchers to sharpen the research methods suitable for the subject matter and set up their studies for success.

1.1 Introduction:

This chapter discusses in detail the methodological choice and the research design process of the study. It has mainly relied on the philosophical stance and the research problem to guide on the methodological choice. More, specifically, it explains why explanatory sequential mixed methods research approach is considered appropriate for the research. The word 'design' has various meanings. But, in relation to the subject concern, it is a pattern or an outline of research project's workings.

It is the statement of essential elements of a study that provides basic guidelines of conducting the project. It is same as the blue print of architect's work. The research design is similar to broad plan or model that states how the entire research project would be conducted. It is desirable that it must be in written form and must be simple and clearly stated. The real project is carried out as per the research design laid down in advance.

1.2 Process of Research Design:

The research process entails a number of organized steps that a researcher must take in order to provide knowledge that will be valued by the project and concentrate on the pertinent topic. Basic and applied research can be conducted in a variety of ways. The following steps outline a simple and effective process for conducting both basic and practical research. The five (5) steps in the research process are:

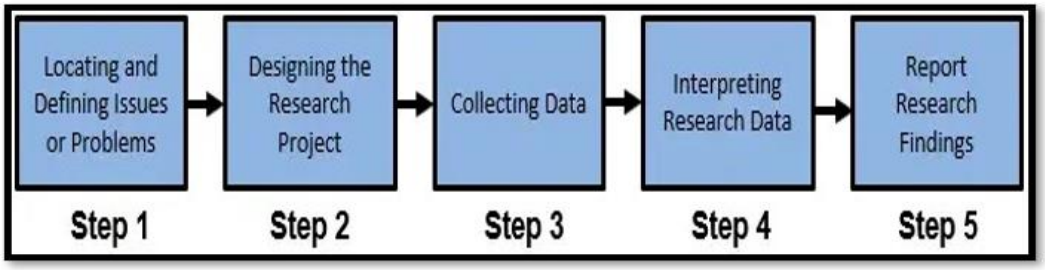

Figure 1.1: Process Of Research Design

Step 1 – Locating and Defining Issues or Problems:

This step focuses on uncovering the nature and boundaries of a situation or question that needs to be answered or studied. In defining the issues or problems, the researcher should take into account the purpose of the study, the relevant background information, what information is needed, and how it will be used in decision-making. A well-defined problem will help the researcher through all steps of the research process**,**

Step 2 – Designing the Research Project:

This step is focused on creating a research plan or overall approach to how you are going to solve the issue or problem identified. A research plan or approach is a framework or blueprint for conducting a research project.

The research design involves the following steps:

- Step 1: Conduct secondary data analysis

- Step 2: Do qualitative research
- Step 3: Determine methods of collecting quantitative data (survey, observation, and experimentation)
- Step 4: Determine the definition of the information needed
- Step 5: Determine measurement and scaling procedures
- Step 6: Design a questionnaire
- Step 7: Sampling process and sample size
- Step 8: Plan of data analysis

Step 3 – Collecting Data:

This step revolved around obtaining the information needed to solve the identified issue or problem. Data collection can involve experiments, observations, personal interviewing (in-home, mall intercept, or computer-assisted personal interviewing.

Data collection techniques can include:

- Interviews: Asking people questions about their known information
- Observations: collecting data without asking questions.
- Questionnaires: Ask questions among a group of people
- Focus Groups: Interviewing and observing a group of people

Step 4 – Interpreting Research Data: This step is focused on interpreting and examining the research data and coming up with a conclusion that solves the problem. Make sure the conclusion is easy to understand and well thought out based on the data collected.

Analysis Steps:

- Step A: Review your research plan
- Step B: Organize your finding and the information you have collected from Step 3.
- Step C: Create a rough draft of your finding, recommendations, and conclusion. The rough draft will help you get your thoughts organized.

- Step D: Polish the rough draft into your final research finding. You will most likely revise the draft many times before the final product is ready for Step 5.

Step 5 – Report Research Findings

The final step is to report the research findings to those who need the data to make decisions. The findings should be presented in an understandable format so that they can be readily used in the decision-making process. In addition, an oral presentation should be made to management using tables, figures, and graphs to enhance clarity and impact.

Research Reporting Formats:

- Formal Paper
- Published Article
- PowerPoint Presentation
- Audio or Video
- Spreadsheet

1.3 Need and Importance of Research Design:

Research design carries an important influence on the reliability of the results attained. It therefore provides a solid base for the whole research. It is needed due to the fact that it allows for the smooth working of the many research operations. This makes the research as effective as possible by providing maximum information with minimum spending of effort, money and time.

For building of a car, we must have a suitable blueprint made by an expert designer. In a similar fashion, we require a suitable design or plan just before data collection and analysis of the research project.

Planning of design must be carried out cautiously as even a small mistake might mess up the purpose of the entire project. The design helps the investigator to organize his ideas, which helps to recognize and fix his faults, if any.

In a **good research design**, all the components go together with each other in a coherent way. The theoretical and conceptual framework must with the research goals and purposes. In the same way, the data gathering method must fit with the research purposes, conceptual and theoretical framework and method of data analysis.

The importance of research design in research methodology is due to the following:

- It may result in the preferred kind of study with helpful conclusion.
- It cuts down on inaccuracy.
- Allows you get optimum efficiency and reliability.
- Reduce wastage of time.
- Reduce uncertainty, confusion and practical haphazard related to any research problem.
- Of great help for collection of research material and testing of hypothesis.
- It is a guide for giving research the right path.
- Gets rid of bias and marginal errors.
- Provides an idea concerning the type of resources needed in terms of money, effort, time, and manpower.
- Smooth & efficient sailing (sets boundaries & helps prevent blind search)
- Maximizes reliability of results.
- Provides firm foundation to the endeavor.
- Averts misleading conclusions & thoughtless useless exercise.
- Provides opportunity to anticipate flaws & inadequacies (anticipates problems).
- Incorporates by learning from other people's critical comments & evaluations.

1.4 Research Design Types:

A researcher must clearly understand the various types to select which model to implement for a study. Like research itself, the design of your analysis can be broadly classified into quantitative and qualitative.

- **Qualitative research:** It determines relationships between collected data and observations based on mathematical calculations. Statistical methods can prove or

disprove theories related to a naturally existing phenomenon. Researchers rely on qualitative observation research methods that conclude "why" a particular theory exists and "what" respondents have to say about it.

- **Quantitative research:** It is for cases where statistical conclusions to collect actionable insights are essential. Numbers provide a better perspective for making critical business decisions. Quantitative research methods are necessary for the growth of any organization. Insights drawn from complex numerical data and analysis prove to be highly effective when making decisions about the business's future.

Qualitative Research vs Quantitative Research:

Here is a chart that highlights the major differences between qualitative and quantitative research:

Table 1.1: Qualitative Research vs Quantitative Research

Qualitative Research	**Quantitative Research**
Focus on explaining and understanding experiences and perspectives.	Focus on quantifying and measuring phenomena.
Use of non-numerical data, such as words, images, and observations.	Use of numerical data, such as statistics and surveys.
Usually uses small sample sizes.	Usually uses larger sample sizes.
Typically emphasizes in-depth exploration and interpretation.	Typically emphasizes precision and objectivity.
Data analysis involves interpretation and narrative analysis.	Data analysis involves statistical analysis and hypothesis testing.
Results are presented descriptively.	Results are presented numerically and statistically.

You can further break down the types of research design into five categories:

Figure 1.2: Types of Research Design

A. Descriptive:

In a descriptive composition, a researcher is solely interested in describing the situation or case under their research study. It is a theory-based design method created by gathering, analyzing, and presenting collected data.

This allows a researcher to provide insights into the why and how of research. Descriptive design helps others better understand the need for the research. If the problem statement is not clear, you can conduct exploratory research.

B. Experimental:

Experimental research establishes a relationship between the cause and effect of a situation. It is a causal research design where one observes the impact caused by the independent

variable on the dependent variable. For example, one monitors the influence of an independent variable such as a price on a dependent variable such as customer satisfaction or brand loyalty. It is an efficient research method as it contributes to solving a problem.

C. Correlational research:

Correlational research is a non-experimental research technique. It helps researchers establish a relationship between two closely connected variables. There is no assumption while evaluating a relationship between two other variables, and statistical analysis techniques calculate the relationship between them.

1.4 Benefits Of Research Design:

There are several benefits of having a well-designed research plan. Including:

- **Clarity of research objectives:** Research design provides a clear understanding of the research objectives and the desired outcomes.
- **Increased validity and reliability:** To ensure the validity and reliability of results, research design help to minimize the risk of bias and helps to control extraneous variables.
- **Improved data collection:** Research design helps to ensure that the proper data is collected and data is collected systematically and consistently.
- **Better data analysis:** Research design helps ensure that the collected data can be analyzed effectively, providing meaningful insights and conclusions.
- **Improved communication:** A well-designed research helps ensure the results are clean and influential within the research team and external stakeholders.
- **Efficient use of resources:** reducing the risk of waste and maximizing the impact of the research, research design helps to ensure that resources are used efficiently.

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