An Overview of Research Methodology : Methods And Techniques

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RESEARCH DESIGN

The overall framework for linking the conceptual research concerns to the relevant and doable empirical research is referred to as the research design. It is a question that gives detailed instructions on how to carry out the processes involved in a research project. Before beginning the process of data collecting and analysis, a researcher will follow this specific technique, which is broken down into a series of steps, in order to ensure that the study objective will be met in an appropriate manner. The purpose of research design is to take a research problem and convert it into data that can be analysed in such a way that it may provide pertinent answers to research questions while incurring the least amount of expense possible. It is always the research design that decides what kinds of analysis is going to be done in order to acquire the desired outcomes from the research. It describes the types of data that must be collected, the procedures that will be followed in order to gather and analyse the data, and the manner in which the data will be used to answer the research questions. In accordance with this, Jongbo (2014) identifies that research results are more likely to be fragile and persuasive if data collection precedes careful consideration of the research design and what facts are required to address the research questions, and as a result, the researcher will fail to achieve the research objectives in the end. There are four major research designs, namely, Exploratory, Experimental, Descriptive and Causal research designs.

Exploratory research designs, as opposed to research designs that try to verify or confirm hypotheses, look for patterns, concepts, ideas or hypotheses in the data. Any type of study that is considered exploratory has as its end goals the formulation of a problem for future investigation, often known as the formulation of a hypothesis. Due to its two-part nature, the exploratory design necessitates the use of qualitative information to inform the development and description of a strategy for collecting quantitative data. Studies that are exploratory are conducted with the goal of gaining new perspectives on a subject. The purpose of aiming for fresh insights or notions is to articulate an issue with greater specificity or to propose hypotheses for additional research.

The Experimental technique, on the other hand, examines the quantitative link between two or more factors that are systematically modified and are predicted to create a change in a person's behaviour. This method can be applied to a wide variety of scientific disciplines. This strategy offers the highest possible level of control, which, in the context of scientific inquiry, refers to the practise of systematically altering, randomising, or maintaining the status quo of the circumstances under which findings are taken.

The focus of Descriptive research design is on the interrelationships of the various variables, the validation of hypotheses, and the formulation of overarching generalisations, rules, or theories that are applicable in a variety of contexts. This method is primarily concerned with the current time period, and derives its generalisations from a study that takes a cross-sectional approach to the existing circumstance.

A causal research design is a quantitative design that does not involve an experiment and instead involves the researcher analysing two or more distinct groups. This distinction is made with relation to a potential cause that has already taken place (the independent variable). It is employed when a researcher wants to examine the variation in either the dependent or independent variables between two groups that vary on an independent variable.

RESEARCH PARADIGM

A research paradigm is an overarching theoretical framework that guides the conduct of a study. It lays up a set of assumptions and meanings from which one's research project's theories, methods; ideas, concepts, and practises can be developed and carried out. In the field of educational research, the concept of a researcher's 'worldview' is referred to as their paradigm. It consists of the non-specific convictions and guiding principles that determine how a researcher perceives the world, as well as how the researcher interprets and behaves in that world. It is the conceptual lens that the researcher looks through while examining the methodological parts of their research endeavour in order to identify the research methodologies

that will be employed and how the data will be analysed. It is essential to have clear research paradigms since these serve as the intellectual foundation for a research undertaking. Diverse fields of study, such as the sciences and the humanities, each have their own research methodologies, and these methodologies are influenced by different research paradigms. After settling on a research philosophy, the next step is to decide upon a suitable research methodology.

The philosophy known as positivism is intimately connected to objectivism in its conceptualization. The researchers present their points of view in order to conduct an analysis of the social environment using this philosophical methodology. However, rather than referring to subjectivity, they emphasise objectivity. This paradigm directs their attention to the gathering of broad information and extensive amounts of social data.

According to the interpretivist view, philosophy and the social sciences cannot be kept entirely apart from one another; rather, philosophy must be integrated or combined with the social sciences. The researchers, when using the interpretivism technique, take into account their own beliefs and values in order to justify the problem that has been posed by the research. The researchers are able to narrow down on the specifics of the research subject by adhering to this philosophical framework, which helps them concentrate on the facts and numbers at hand.

DATA COLLECTION

The process of acquiring and analyzing information on targeted variables in a defined and organized method that allows one to address research questions, test propositions or assumption if any, and assess outcomes is referred to as data collection. Data collecting is a part of the research process that is common to all scholarly sub disciplines, including the physical and social sciences, as well as the arts and commerce, amongst others. The fundamental goal of establishing fairness and accuracy in data gathering has not altered throughout time, despite the fact that different fields require different methodologies. The objective of all methods of data gathering is to gather sufficient evidence of good quality to enable data analysis and the construction of answers that are both convincing and credible to the questions that have been addressed. Data collecting methods are significant because the methodology and analytical approach that a researcher uses determines how the information that is collected is used and what kinds of explanations it might generate. This means that the data gathering methods itself are crucial. There is a range of variation in the data collection methods used for impact evaluation. Quantitative methods for data gathering are located on one end of this spectrum, whereas qualitative methods for data collection are located on the other end of the spectrum.

Quantitative data collecting approaches rely on standardised data collection equipment and random sampling to group a broad range of situations into predetermined response groups. They generate findings that are simple to summarise, evaluate, and generalise across contexts. Testing hypotheses that are drawn from theory or having the ability to determine the scale of a subject of interest are the two primary focuses of quantitative research.

In contrast to quantitative statistics, qualitative information is typically presented in a more detailed or conceptual format. These kind of data are reflective of the feelings, emotions, or subjective views of individuals with reference to a given notion. Qualitative questions are open-ended. Focus groups, group conversations, and individual interviews are examples of qualitative research methodologies. The use of qualitative methods is beneficial for conducting more research into the impacts and unforeseen consequences of a programme.

VALIDATIONS

Validation is a vital part of the design theory, and researchers make the most effective use of it by letting it guide the assessment and creation of new approaches.

RESEARCH ETHICS

When developing and carrying out research involving human subjects, researchers have a responsibility to take into account a set of guiding ethical principles and values. Ethical considerations, or the norms that should be followed when conducting research, are crucial to bear in mind. Researchers have ethical responsibilities to adhere to certain guidelines when interviewing participants. Researchers often conduct studies on human subjects with the hopes of learning more about the world as it actually is, improving existing therapies, understanding human behaviour, and ultimately improving lives of the people. Both, the topic that the researcher chooses to investigate and the method by which the investigation is carried out are important ethical issues. The preservation of the rights of the research participants, the strengthening of the reliability of the research, and the maintenance of scientific rigour are all helped along by these elements. When conducting any research, it is absolutely crucial to follow the appropriate ethical standards in order to keep the individuals safe who are helping with the investigation. This should be done in

order to protect the results of the study. A qualitative study lays a higher attention on the ethical issues that must be taken into consideration owing to the in-depth aspect of the research process. When carrying out in-person interviews with individuals that fall into susceptible demographic categories, ethical considerations inevitably rise to the top of the discussion. During the course of the interview, there is a possibility that they will experience stress as a result of their attempts to express their thoughts.

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