International Journal of Methodology

Volume 2, Issue 1, pp. 1-1, 2022
DOI: https://doi.org/10.21467/ijm.2.1.6867

EDITORIAL

A Short Note on Scientific Research Methodologies

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Received: 01 February 2023 / Accepted: 08 February 2023 / Published: 10 February 2023

Scientific research methodologies are critical to the advancement of scientific knowledge and the development of new theories and concepts. Researchers use a variety of methodologies to investigate phenomena, test hypotheses, and answer research questions. Understanding the different research methodologies available is essential for selecting the appropriate approach to address specific research questions. This article provides a comprehensive overview of scientific research methodologies, including experimental research, observational research, survey research, case study research, and correlational research.

Scientific research methodologies are a set of principles, procedures, and techniques that researchers use to investigate phenomena and answer research questions [1]. These methodologies provide a structured and systematic approach to conducting research, which enhances the reliability, validity, and generalizability of research findings. Researchers shall select the appropriate research methodology [1] based on the nature of the research question and the data collection process. Here are few common research methodologies-

Experimental Research: It involves the manipulation of one or more variables to study their effects on a dependent variable. The goal of experimental research is to establish a cause-and-effect relationship between variables.

Observational Research: It involves observing and describing a phenomenon or behavior without intervening or manipulating any variables. The goal of observational research is to provide an accurate description of the phenomenon or behavior being studied.

Survey Research: It involves collecting data from a sample of participants to describe, compare, and analyze attitudes, opinions, behaviors, and experiences. The goal of survey research is to provide a representative sample of the population being studied. This methodology provides a large sample size that allows for statistical analysis.

Case Study: It involves in-depth investigation and analysis of a single case or a small number of cases to explore specific phenomena and understand their complexity. The goal of case study research is to provide a detailed understanding of the case being studied.

Correlational Research: It involves examining the relationship between two or more variables to determine whether they are related and, if so, to what extent. The goal of correlational research is to establish the strength and direction of the relationship between variables.

How to Cite this Article: A. A. Bahishti, "A Short Note on Scientific Research Methodologies", *Int. J. Methodol.*, vol. 2, no. 1, pp. 1–1, Feb. 2023. https://doi.org/10.21467/ijm.2.1.

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