



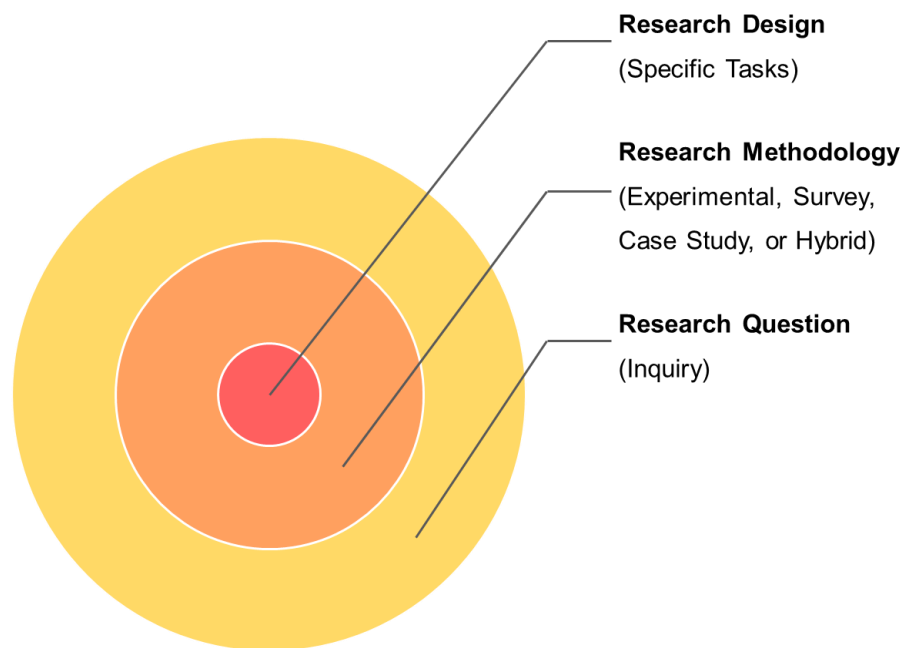
# Research Definitions

**Research Design and Three Fundamental Methodologies**

## RESEARCH DESIGN:

Research design is concerned with turning research questions into specific tasks to guide further inquiry. There are three fundamental research methodologies that provide the basis for all research designs: *experimental methodology*, *survey methodology*, and *case study methodology*. Each methodology has its strengths and weaknesses, and the most important consideration in selecting which to use is ensuring that the methods or techniques employed are appropriate for the questions that need to be answered.

The figure below provides a helpful illustration of how research questions, methodologies, and design are related.



## EXPERIMENTAL METHODOLOGY:

Experiments measure the effect of manipulating one variable on another variable. Two defining characteristics of experiments are (1) **control** over the isolation and manipulation of one or more variables and (2) **random assignment** of subjects to conditions. The only way to test causality (i.e., does A cause B?) is through careful, controlled experimentation. Experiments answer the questions “how” and “why.” Quasi experiments follow an experimental approach, but they lack random assignment of subjects to conditions.

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## **SURVEY METHODOLOGY:**

Survey methodology involves collecting information in a standardized way from groups of people. Surveys are used when the interest is not in individuals but rather on profiles and statistics drawn from the total sample that can be generalized to the population. Survey findings often include point estimates that reflect a specific population and answer questions such as “who,” “what,” “where,” “how many,” or “how much.” Sampling is the primary consideration in judging the accuracy and reliability of survey findings. Probability-based sampling is the gold standard. Nonprobability-based (or convenience) sampling produces point estimates that are inherently biased.

## **CASE STUDY METHODOLOGY:**

Case studies provide detailed, often intensive knowledge about a single "case," or a small number of related "cases." Similar to experimentation, case studies focus on the questions “how” and “why,” but they do not satisfy the requirements necessary to make valid causal inferences. Rather, the key strength of the case study methodology is that it is exploratory in nature; the goal is to find out what is happening, seek new insights, ask questions, and assess phenomena in a new light.

## **HYBRID METHODOLOGY:**

Research can and often does involve a mixture of more than one research strategy. Hybrid methodologies are particularly helpful in offsetting the weaknesses of one strategy with the strengths of another. For example, experimental manipulations can be incorporated into a survey methodology; as another example, qualitative interviews are commonly used to obtain more detailed information to supplement findings from experiments and surveys.

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