

# Essential Key Concepts in Social Research Methods: A Comprehensive Guide

Social research involves the systematic and scientific investigation of social phenomena. It encompasses a wide range of methods and techniques used to collect, analyze, and interpret data to understand social issues and human behavior. To conduct effective social research, it is crucial to have a firm grasp of its key concepts and principles.

## 1. Research Problem and Hypothesis

Every social research project begins with identifying a specific research problem or question. This problem should be clearly defined and focused, and it should have theoretical or practical significance. Once the research problem has been identified, the researcher formulates a hypothesis, which is a tentative explanation or prediction about the relationship between variables.



### Key Concepts in Social Research Methods by Roger Gomm

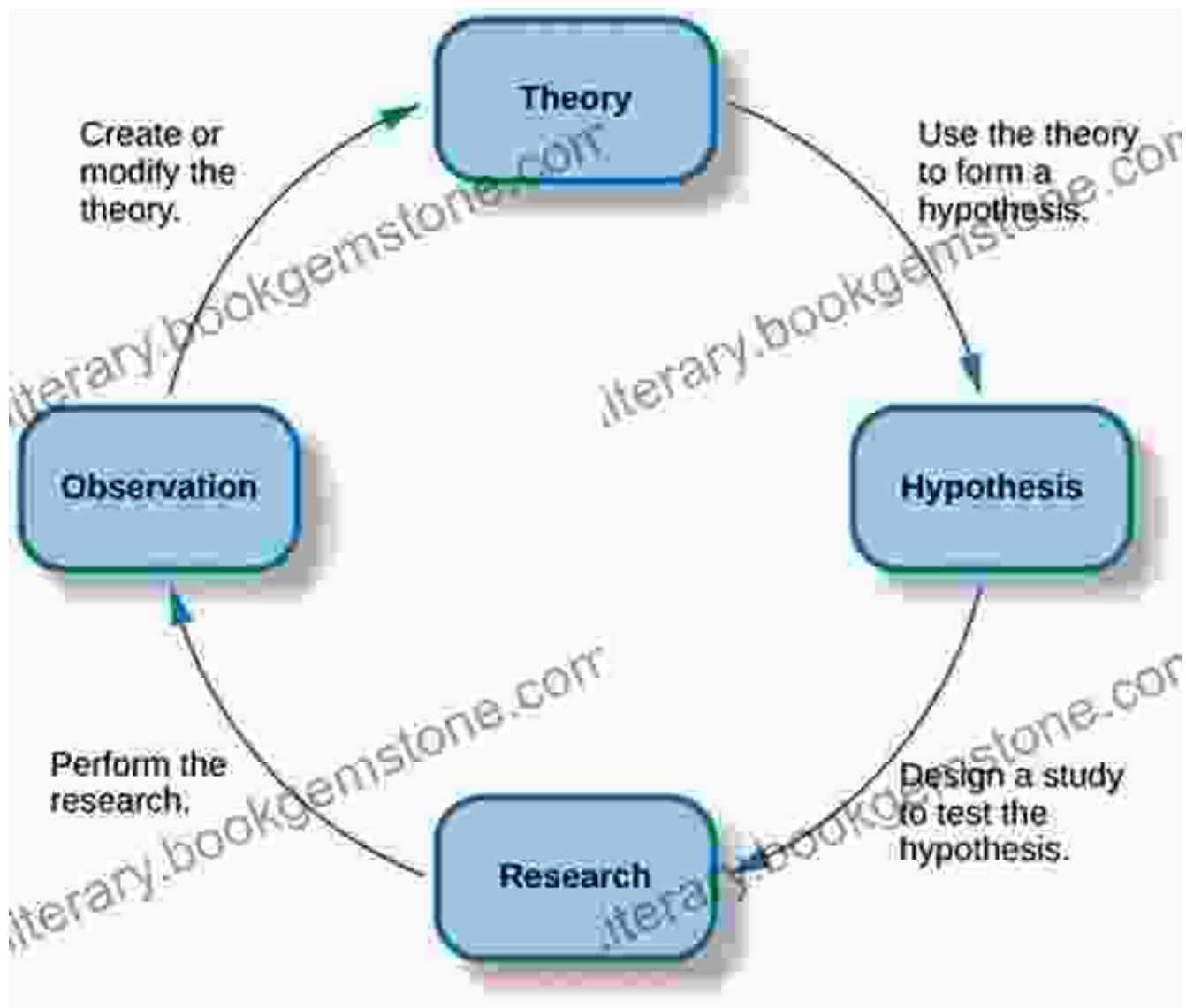
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## 2. Research Design

The research design outlines the specific methods and procedures the researcher will use to collect and analyze data. It involves decisions about the type of research (e.g., quantitative, qualitative, mixed methods), the sample size, data collection methods, and data analysis techniques.

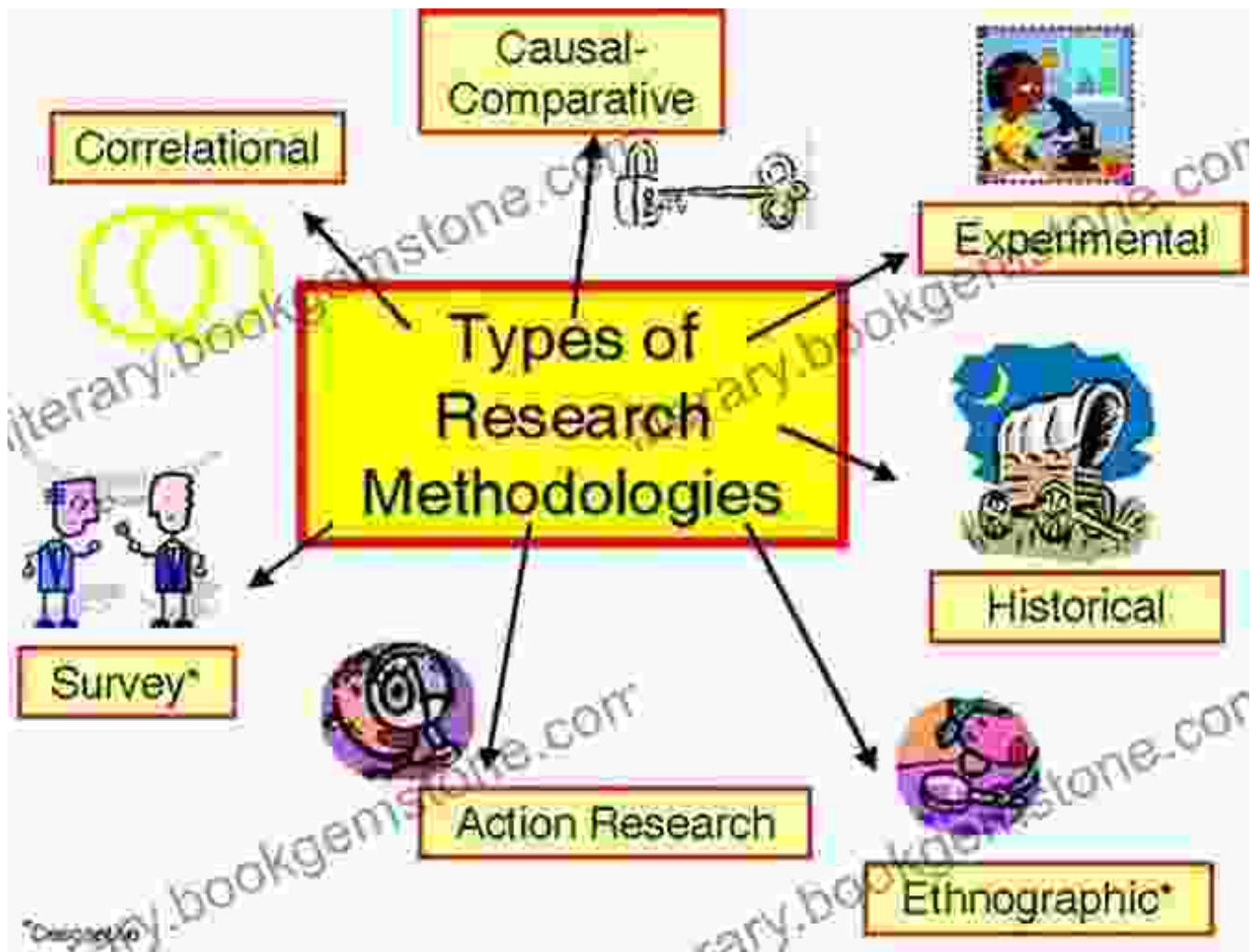


Diagram showing various types of research designs used in social research

### 3. Sampling

Sampling refers to the process of selecting a subset of the population to represent the entire population. The researcher determines the sample size and selects participants using probability or non-probability sampling methods. The sampling technique should ensure that the sample is representative and minimizes bias.



#### 4. Data Collection

Data collection involves gathering information from participants or sources. Quantitative research methods often employ surveys or experiments, while qualitative research methods include interviews, observations, and document analysis. The choice of data collection method depends on the research question and the type of data required.

# Method of data collection

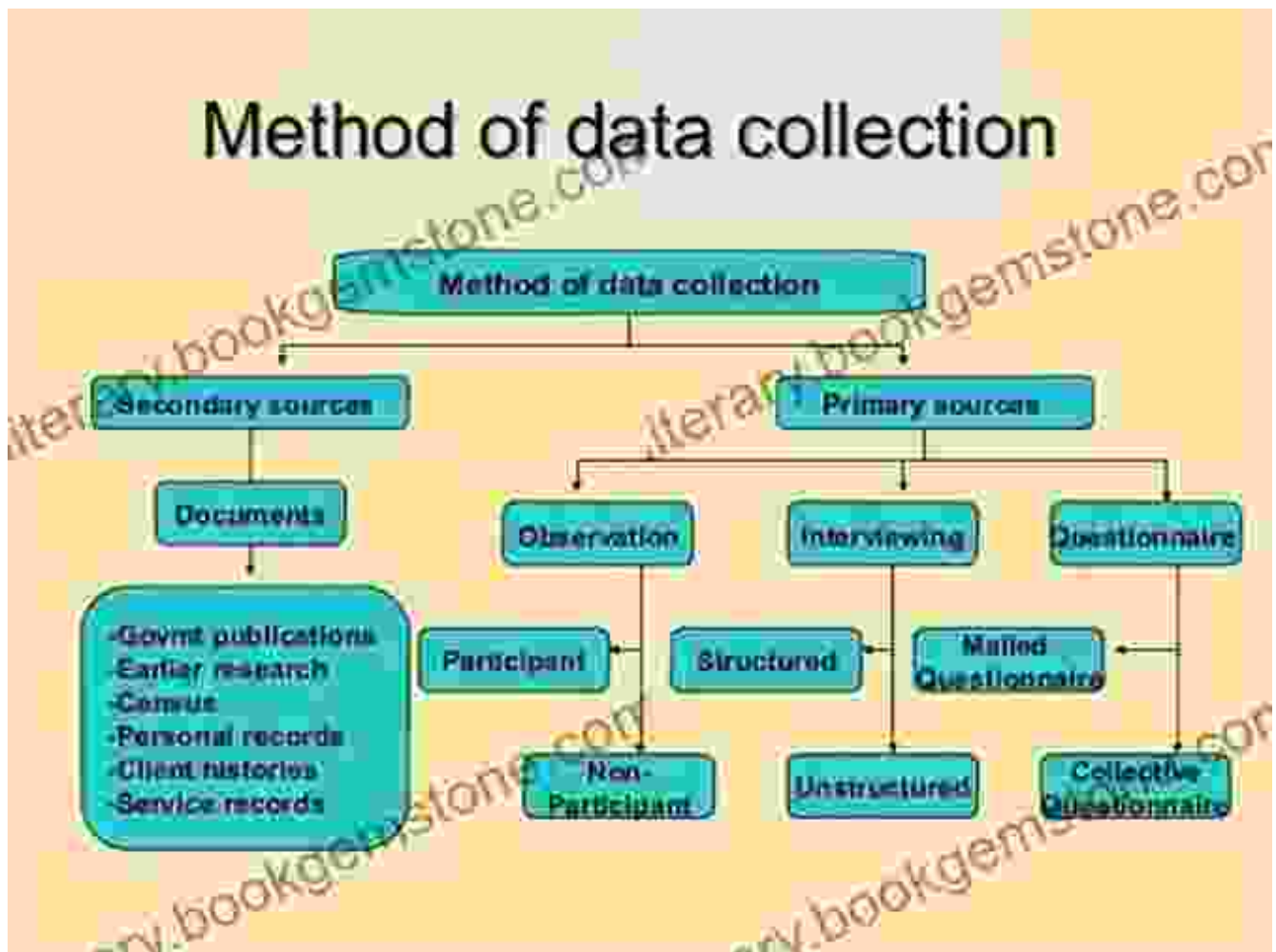


Diagram showcasing different data collection methods used in social research

## 5. Data Analysis

Data analysis involves examining, interpreting, and drawing s from the collected data. Quantitative data analysis typically uses statistical techniques to test hypotheses and identify relationships between variables. Qualitative data analysis involves thematic analysis, coding, and interpretation to uncover patterns and insights.

# 10 KEY TYPES OF DATA ANALYSIS METHODS

Data mining does not have own methods of data analysis, It uses the methodologies and techniques of other related areas of science.

## Mathematical and Statistical Methods

### DESCRIPTIVE ANALYSIS

It does what the name suggests, "Descriptive". It looks at data and analyzes past events for deciding how to approach the future.

### REGRESSION ANALYSIS

It allows you to find the relationship between a dependent variable and one or more independent variables.

### FACTOR ANALYSIS

Factor analysis is a regression based data analysis technique used to find an underlying structure in a set of variables.

### DISPERSION ANALYSIS

Dispersion is the spread to which a set of data is stretched. It is a technique of describing how extended a set of data is.

### DISCRIMINANT ANALYSIS

The discriminant analysis of two variable measurements on different groups of items to underline points that distinguish the groups.

### TIME SERIES

It is the process of modeling and explaining time-dependent series of data points. The goal is to draw meaningful information (rules, patterns) from the shape of data.

## Methods Based on The Artificial Intelligence, Machine Learning and Heuristic Algorithms

### NEURAL NETWORKS

They present a brain structure for information processing.

These models are biologically inspired computational models. They consist of an interconnected group of artificial neurons that process information by using complex algorithms.

### DECISION TREES

The decision tree is a tree-structured diagram that represents classification or regression models.

It divides data into groups and smaller sub-groups while at the same time, uses decision tree to automatically developed.

### EVOLUTIONARY ALGORITHMS

A common concept that combines many different types of data analysis using evolutionary algorithms. More popular of them are: genetic algorithms, genetic programming, and co-evolutionary algorithms.

### FUZZY LOGIC

Fuzzy logic is an innovative type of many-valued logic in which the truth values of variables are a real number between 0 and 1.

In this form, the truth value can range between completely true and completely false.

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## 6. Reliability and Validity

Reliability and validity are crucial concepts in social research. Reliability refers to the consistency of measurements, while validity refers to the accuracy or correctness of the measurements. Ensuring reliability and validity helps ensure that the research findings are trustworthy and meaningful.

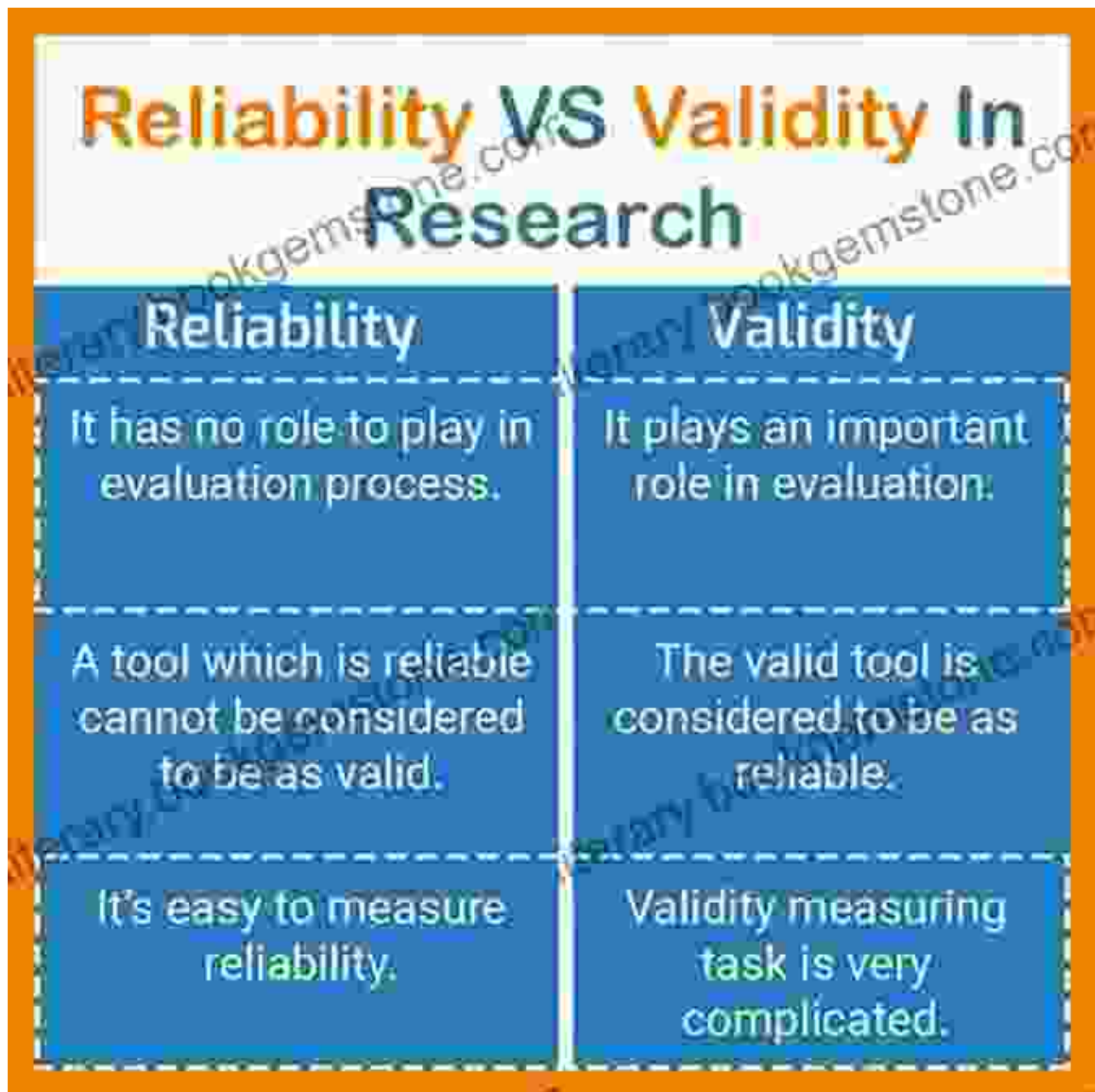
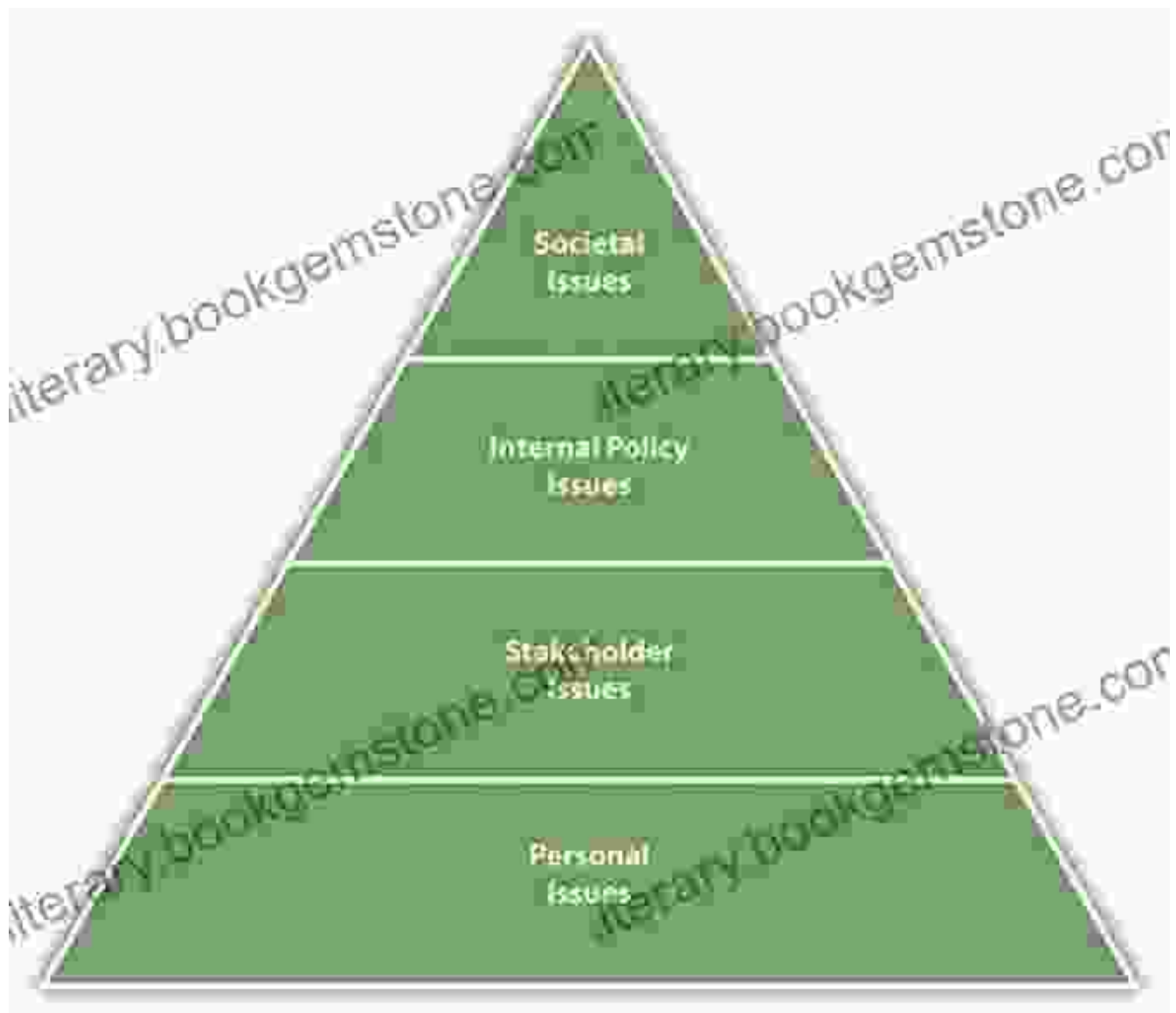


Diagram illustrating the concepts of reliability and validity in social research

## 7. Ethics in Social Research

Ethical considerations are paramount in social research. Researchers have an ethical responsibility to protect the rights and well-being of participants.

Ethical principles include obtaining informed consent, ensuring confidentiality, and avoiding potential harm or coercion.



## 8. Reporting Research Findings

Once the research has been conducted and analyzed, the researcher presents the findings in written reports, journal articles, conference presentations, or other formats. The report should be clear, concise, and objective, providing a complete account of the research process, findings, and implications.



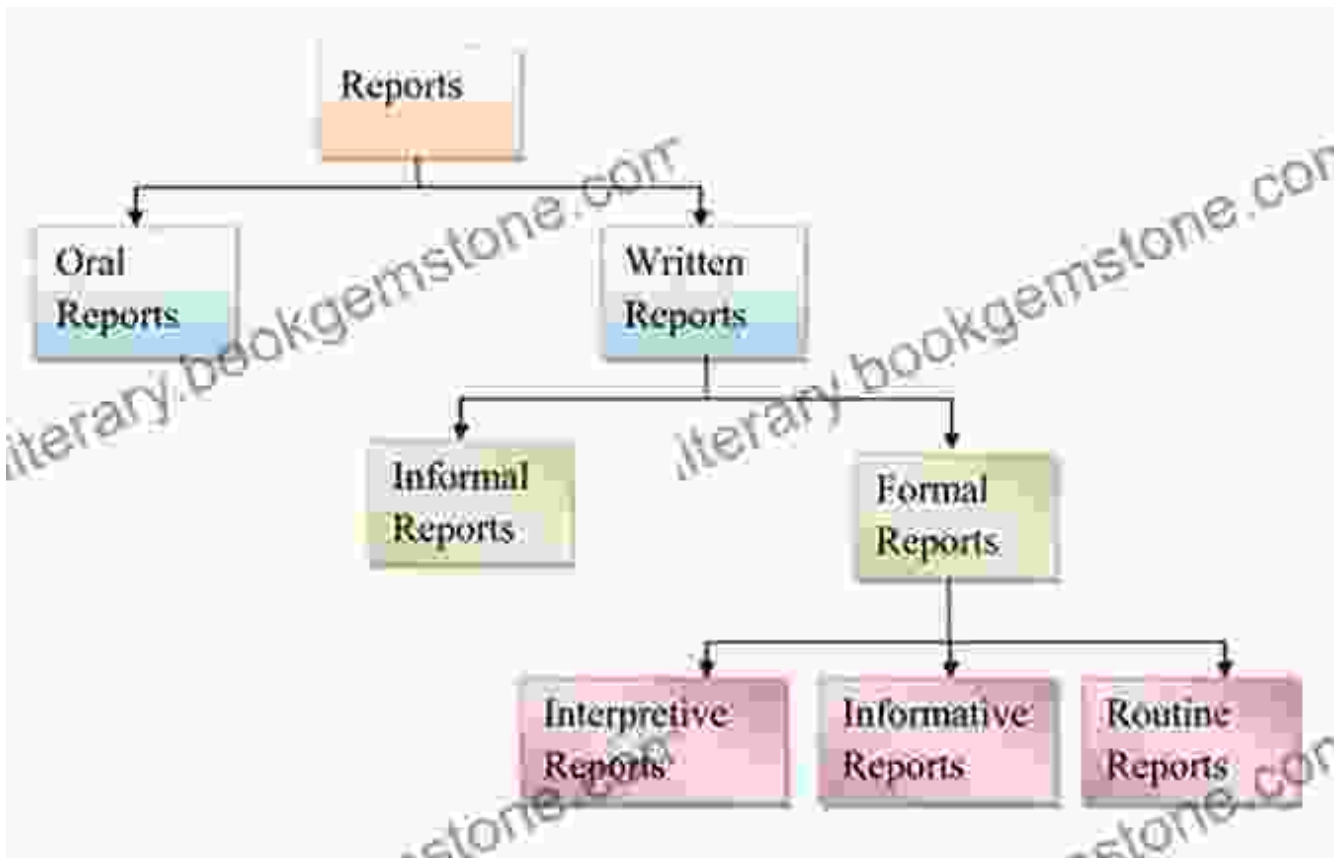


Diagram showing different ways of reporting research findings

Understanding the key concepts of social research methods is foundational for conducting rigorous and meaningful social research. By mastering these concepts, researchers can effectively address research problems, design appropriate methodologies, collect and analyze data, and draw valid conclusions. Ultimately, the application of social research principles contributes to advancing our understanding of society and human behavior, informing policies, and addressing social issues.

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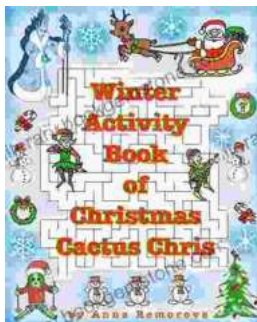


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