



QUANTITATIVE RESEARCH



Numbers Lead to Deeper Understanding

MEANING



Quantitative research is a systematic, objective, and scientific method of research that collects **numerical data** and analyzes it using **statistical**, **mathematical**, or **computational** techniques.



SIMPLE DEFINITION

Quantitative Research = Numerical Data + Measurement + Statistical Analysis + Generalization

KEY CHARACTERISTICS



Objective and systematic



Based on numerical and measurable data



Uses structured research tools



Often involves a large sample



Tests hypotheses



Uses statistical analysis



Seeks cause-effect relationships



Findings can often be generalized to a larger population



Emphasizes reliability, validity, and replicability

RESEARCH PROCESS

1



Research Problem

2



Review of Literature

3



Formulation of Hypothesis

4



Research Design

5



Data Collection

6



Data Analysis

7



Interpretation

8



Conclusion

9



Report Writing



Systematic Data. Statistical Insights. Broader Impact.

MASTER THE NOTES? TAKE THE QUIZ



MAJOR TYPES / DESIGNS OF QUANTITATIVE RESEARCH



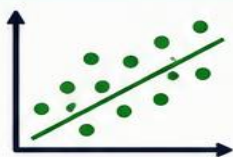
1



DESCRIPTIVE RESEARCH

Describes characteristics, conditions, or phenomena.

2



CORRELATIONAL RESEARCH

Examines the relationship between two or more variables.

3



EXPERIMENTAL RESEARCH

Studies cause-and-effect relationships by manipulating variables under controlled conditions.

4



CAUSAL-COMPARATIVE / EX POST FACTO RESEARCH

Examines possible causes of existing differences without manipulating the independent variable.

5



SURVEY RESEARCH

Collects numerical information from a sample using questionnaires or structured schedules.

COMMON DATA COLLECTION TOOLS



QUESTIONNAIRES

Written set of questions used to collect information from a sample.



STRUCTURED INTERVIEWS

Pre-planned questions asked in a fixed order.



TESTS

Standardized or teacher-made tests to measure ability, achievement, or performance.



RATING SCALES

Used to rate attitudes, opinions, or behaviors on a continuum.



STANDARDIZED INSTRUMENTS

Well-developed and normed tools with established reliability and validity.



OBSERVATION SCHEDULES

Systematic records of behavior or events using a prepared schedule.



SURVEYS

Collection of numerical data from a large number of respondents.



These designs and tools help researchers collect accurate **numerical data**, analyze it **statistically**, and draw valid and **generalizable** conclusions.

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QUANTITATIVE RESEARCH

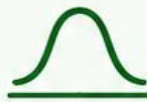


DATA ANALYSIS TECHNIQUES

DESCRIPTIVE STATISTICS

-  • **Mean**
-  • **Median**
-  • **Mode**
-  • **Standard Deviation**
-  • **Percentage**

INFERENCEAL STATISTICS

-  • **t-test**
-  • **ANOVA**
-  • **Chi-square test**
-  • **Correlation**
-  • **Regression**

ADVANTAGES

-  Provides precise and measurable results
-  Enables statistical comparison
-  Useful for testing hypotheses
-  Findings may be generalized
-  Facilitates prediction
-  More objective and replicable

LIMITATIONS

-  May not capture deep personal experiences
-  Can overlook social context
-  Depends heavily on the quality of tools and data
-  Often requires a larger sample
-  May be less flexible than qualitative research

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QUALITATIVE RESEARCH



— UNDERSTANDING PEOPLE. EXPLORING MEANINGS. DISCOVERING INSIGHTS. —

MEANING



Qualitative research is a systematic approach that seeks to understand human experiences, perceptions, behaviours, beliefs, and social phenomena through the collection and analysis of non-numerical data.

SIMPLE DEFINITION



Words

+



Experiences

+



Interpretation

+



Deep Understanding

KEY CHARACTERISTICS



Subjective and interpretative



Based on non-numerical data



Focuses on meanings, experiences, and perspectives



Uses a naturalistic approach



Usually involves a small and purposive sample



Research design is often flexible and emergent



Generates rather than tests hypotheses



Emphasizes depth over breadth



Researcher plays an active role in data interpretation



Findings are generally context-specific

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QUALITATIVE RESEARCH

TYPES, METHODS & ANALYSIS TECHNIQUES



MAJOR TYPES / DESIGNS

1



CASE STUDY

An in-depth investigation of a single individual, group, institution, event, or phenomenon.

2



PHENOMENOLOGY

Studies and describes the lived experiences of individuals.

3



ETHNOGRAPHY

Studies the culture, behaviour, and practices of a particular group or community.

4



GROUNDNED THEORY

Develops a theory from systematically collected and analyzed data.

5



NARRATIVE RESEARCH

Studies the stories and life experiences of individuals.

6



HISTORICAL RESEARCH

Examines past events using documents, records, and other historical sources.

COMMON DATA COLLECTION METHODS



1.

IN-DEPTH
INTERVIEWS



2.

FOCUS GROUP
DISCUSSIONS



3.

OBSERVATION



4.

PARTICIPANT
OBSERVATION



5.

DOCUMENTS
AND RECORDS



6.

DIARIES AND
PERSONAL
NARRATIVES



7.

AUDIO-VISUAL
MATERIALS

DATA ANALYSIS TECHNIQUES



1.

CODING



2.

THEMATIC
ANALYSIS



3.

CONTENT
ANALYSIS



4.

NARRATIVE
ANALYSIS



5.

DISCOURSE
ANALYSIS



6. CONSTANT
COMPARATIVE
METHOD

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QUANTITATIVE VS QUALITATIVE



A COMPREHENSIVE COMPARISON



QUANTITATIVE RESEARCH

QUALITATIVE RESEARCH



PURPOSE

Focuses on measuring variables and testing relationships.

Focuses on understanding meanings, experiences, and perspectives.



TYPES OF DATA

Uses numerical data and statistical analysis.

Uses non-numerical data (words, images, observations, documents).



SAMPLE

Large sample size, selected randomly.

Small sample size, selected purposively.



DATA COLLECTION TOOLS

Structured instruments (surveys, questionnaires, tests).

Unstructured or semi-structured instruments (interviews, observations, focus groups, documents).



APPROACH

Deductive approach (theory → hypothesis → testing → results).

Inductive approach (observations → patterns → themes → theory).



HYPOTHESES

Hypotheses are formulated and tested.

Hypotheses are generated during the research.



FOCUS

Seeks cause-effect relationships and generalization.

Seeks in-depth understanding of context and specific situations.



DATA ANALYSIS

Statistical analysis (mean, t-test, ANOVA, correlation, etc.).

Thematic analysis, content analysis, coding, interpretation.



GENERALIZABILITY

Findings are generalizable to a larger population.

Findings are context-specific and not easily generalizable.



ROLE OF RESEARCHER

Researcher is objective and independent.

Researcher is actively involved and is the key instrument.



RESEARCH DESIGN

More structured and fixed.

Flexible and emergent.



COMMONLY USED IN

Used in natural sciences, psychology, economics, education (testing), etc.

Used in social sciences, education, sociology, anthropology, etc.

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