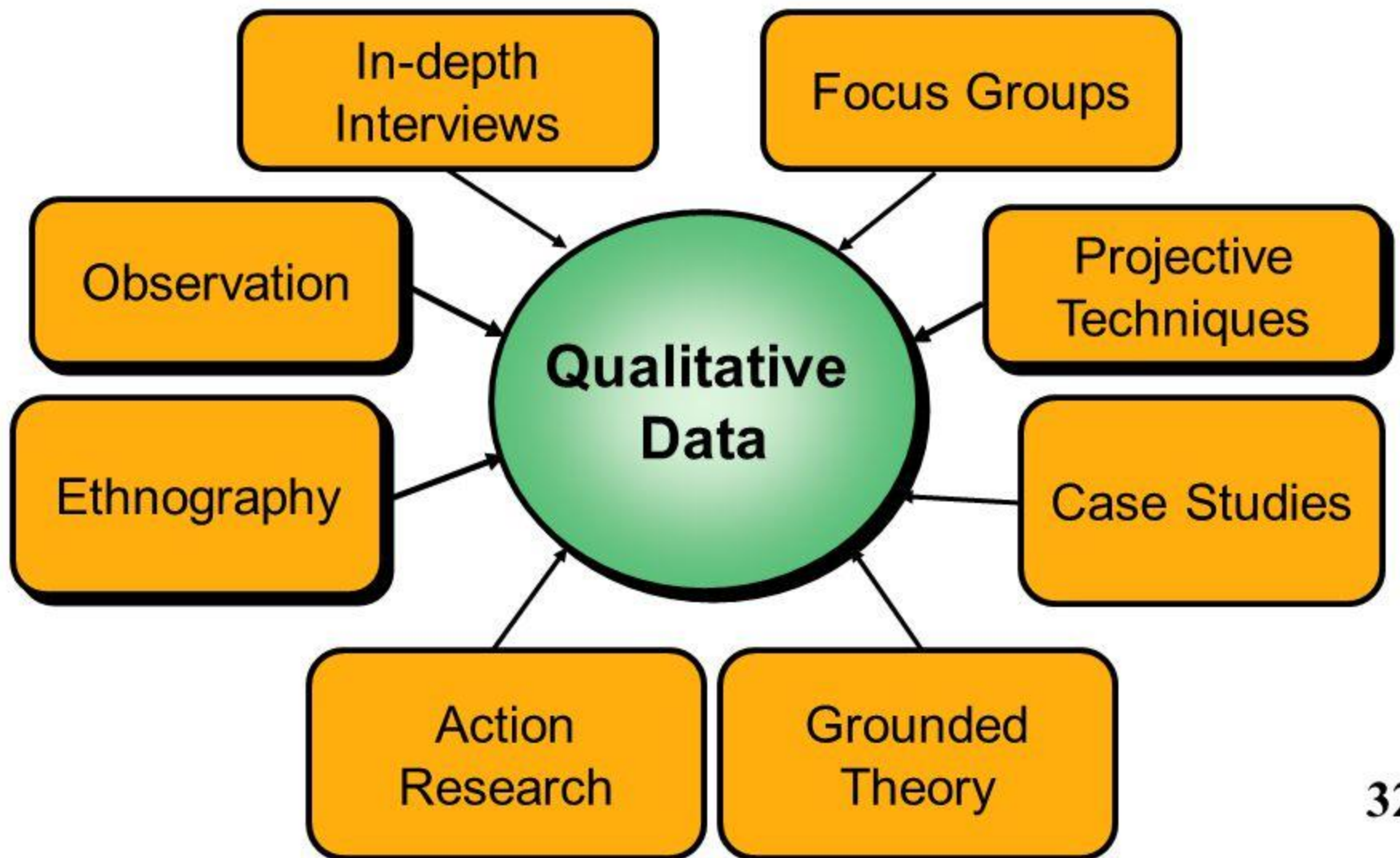


Rule of qualitative research

- Lecturer Pr. Aitkhazha Bigaliyev
- Doctor of biological sciences

Qualitative Research Designs



Qualitative vs. Quantitative Research

	Qualitative Research	Quantitative Research
Purpose	Discover ideas/To gain a qualitative understanding of the underlying reasons and motivations	Test hypotheses or specific research questions/To quantify the data and generalize the results from the sample to the population of interest
Approach	Observe and interpret	Measure and test
Data Collection Methods	Unstructured; free- forms	Structured; response categories provided
Researcher Independence	Researcher is intimately involved; results are subjective	Researcher is uninvolved; results are objective
Sample	Small samples – often natural setting	Large samples to allow generalization
Most often used in:	Exploratory research designs	Descriptive and causal research designs
Outcome	Develop an initial understanding	Recommend a final course of action

Qualitative vs. Quantitative research

Criteria	Qualitative Research	Quantitative Research
View of Human Behavior	Dynamic, situational, social, & personal.	Regular & predictable.
Most Common Research Objectives	Explore, discover, & construct.	Describe, explain, & predict.
Focus	Wide-angle lens; examines the breadth & depth of phenomena.	Narrow-angle lens; tests a specific hypotheses.
Nature of Observation	Study behavior in a natural environment.	Study behavior under controlled conditions; isolate causal effects.
Nature of Reality	Multiple realities; subjective.	Single reality; objective.
Final Report	Narrative report with contextual description & direct quotations from research participants.	Statistical report with correlations, comparisons of means, & statistical significance of findings.

Overview of Quantitative and Qualitative Research Characteristics

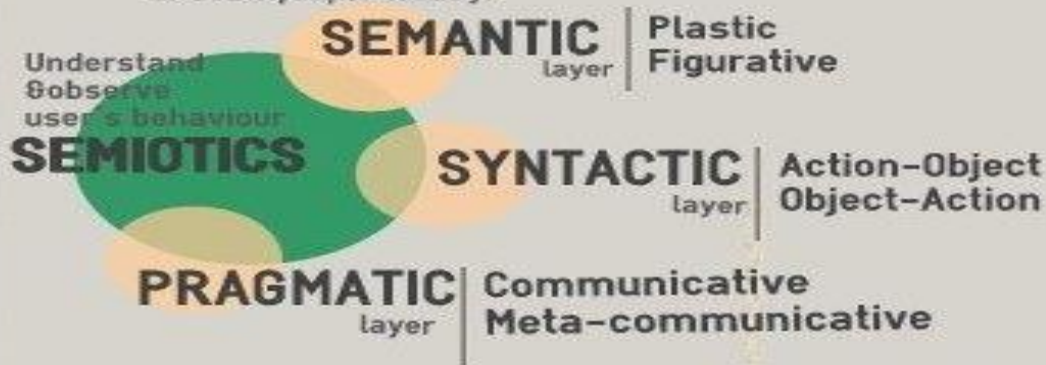
	Quantitative Research	Qualitative Research
Type of data collect	Numerical data	Non-numerical narrative and visual data
Period of data collection	Shorter period	Longer period
Research Problem	Hypothesis and research procedures stated before	Research problems and methods evolve as understanding of topic deepens
Manipulation of context	Yes	No
Research procedures	Relies on statistical procedures	Relies on categorizing and organizing data into patterns to produce a descriptive, narrative synthesis
Participant interaction	Little interaction	Extensive interaction
Underlying belief	We live in a stable and predictable world that we can measure, understand and generalize about	Meaning is situated in a particular perspective or context that is different for people and groups; therefore, the world has many meanings

Research Methods

Qualitative vs. Quantitative

double click to change this text! Drag a corner to scale proportionally.

How to analyze a website?



- Interface as a production device.
- Propose a framework for understand & design websites as sign systems.
- Semiotic Engineering

- Limits the interaction between human and computers.
- Semiotic has not yet produced a an integral theoretical framework.

Identity + sociability online
Social organization in virtual contexts

VIRTUAL ETHNOGRAPHY

Technology is social

Direct observation

Interviews

Researcher's immersion

- Objective + subjective information
- No distance observation and registration
- Symmetric: researchers = participants
- Sincerity and confidence
- Technological mediation*

- Difficulty to get the objectivity and the real immersion.

- The analysis of usability can say many things about the web and interaction system.
- It's an instrumental approach.

- the analysis of the usability can hide some elements.
- This methodology cannot say WHY. It is focused on saying WHAT.

INQUIRY

Collecting quantitative data from users and getting information about them

- Field observation
- Interviews/focus group

These are qualitative methods but the answers can be quantified

More a DISCOVERY process

- Bruce Tognazzini's 16 principles
- Ben Scheiderman's 8 golden rules
- Lund usability maxims

Subjective measurements
satisfaction
comfort
...

Performance measurements

Task Analysis/ Use Case:
succes, errors, time, clicks...

Analysis of the USABILITY

according to Jakob Nielsen

INSPECTION

Analysis of the interface to detect possible interaction errors

- Cognitive Walkthroughs.
- Heuristic evaluation.

10 Nielsen's heuristics (and more)

5 participants

TESTING

To get feedback from users

Create Scenarios



Qualitative vs. Quantitative Research

Table 5.1

	Qualitative Research	Quantitative Research
Objective	To gain a qualitative understanding of the underlying reasons and motivations	To quantify the data and generalize the results from the sample to the population of interest
Sample	Small number of non-representative cases	Large number of representative cases
Data Collection	Unstructured	Structured
Data Analysis	Non-statistical	Statistical
Outcome	Develop an initial understanding	Recommend a final course of action

Qualitative vs Quantitative Research

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Quantitative & Qualitative Research

Differences between Quantitative and Qualitative research strategies

Research Aspect	Quantitative	Qualitative
Common Purpose	Test Hypotheses or Specific Research Questions	Discover Ideas, used in Exploratory Research with General Research Objects
Approach	Measure and Test	Observe and Interpret
Data Collection Approach	Structured Response Categories Provided	Unstructure, Free-Form
Research Independence	Researcher Uninvolved Observer. Results Are Objective.	Researcher Is Intimately Involved. Results Are Subjective.
Samples	Large Samples to Produce Generalizable Results	Small Samples – Often in Natural Settings
Most Often Used	Descriptive and Causal Research Designs	Exploratory Research Designs

(Zikmund, 2010)

Qualitative vs. Quantitative Research

	Qualitative Research	Quantitative Research
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Most often used in:	Exploratory research designs	Descriptive and causal research designs

Definitions of Quantitative and Qualitative Research (Creswell)

The term quantitative refers to the type of data or variables that this research examines

Quantitative Research

*A type of research in which the researcher **decides what to study**; asks **specific, narrow questions**; collects **quantifiable data** from participants; **analyzes** these numbers using **statistics**; and conducts the inquiry in an **unbiased, objective** manner.*

Qualitative Research

*A type of research in which the researcher relies on the **views of participants**; asks **broad, general** questions; collects data consisting largely of words (or **text**) from participants; describes and **analyzes** these words for **themes**; and conducts the inquiry in a **subjective, biased** manner.*

Qualitative and Quantitative Research

Quantitative Research Examples

- ▶ Application forms
- ▶ Closed ended Questionnaires
- ▶ IQ Tests
- ▶ Measurements

Qualitative Research Examples

- ▶ Diary accounts
- ▶ Document review
- ▶ Open ended Questionnaires
- ▶ Unstructured interviews
- ▶ Unstructured observations

Overview of Research Methodologies

- ◆ Qualitative Research
 - Ethnography, Case Study, Grounded Theory, Autobiography, Participatory Action Research, Phenomenology (each grounded in a specific discipline and philosophical assumptions)
- ◆ Quantitative Research
 - Survey methods, Experiments
- ◆ Mixed Methods
 - Draw from qualitative and quantitative methods



Qualitative vs. quantitative research

Criteria	Qualitative Research	Quantitative Research
Type of Data Analysis	Identify patterns, features, themes.	Identify statistical relationships.
Objectivity and Subjectivity	Subjectivity is expected.	Objectivity is critical.
Role of Researcher	Researcher & their biases may be known to participants in the study, & participant characteristics may be known to the researcher.	Researcher & their biases are not known to participants in the study, & participant characteristics are deliberately hidden from the researcher (double blind studies).
Results	Particular or specialized findings that is less generalizable.	Generalizable findings that can be applied to other populations.
Scientific Method	Exploratory or bottom-up: the researcher generates a new hypothesis and theory from the data collected.	Confirmatory or top-down: the researcher tests the hypothesis and theory with the data.

Table 1.2, Qualitative and Quantitative Research Contrasted

QUALITATIVE

- Multiple realities
- Reality is socially constructed
- Reality is context interrelated
- Holistic
- Strong philosophical perspective
- Reasoning is inductive
- Discovery of meaning is the basis of knowledge
- Develops theory

QUANTITATIVE

- Single reality
- Reality is objective
- Reality is context free
- Reductionistic
- Strong theoretical base
- Reasoning is deductive and inductive
- Cause-and-effect relationships are the bases of knowledge
- Tests theory

Qualitative Vs. Quantitative Research

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Examples

Quantitative Data ("Numerical")

- Height of 1st graders
- Weight of sumo wrestlers
- Duration of red lights
- Age of Olympians
- Distance of planets
- Money in 401k plans
- Temperature of coffee (200 F)

Qualitative Data ("Categorical")

- Happiness rating
- Gender
- Pass/Fail
- Eye Color
- Interview transcript
- Categories of plants
- Descriptive temperature of coffee ("very hot")

Research Methods

Quantitative Methods	Mixed Methods	Qualitative Methods
<ul style="list-style-type: none">■ Pre-determined■ Instrument-based questions■ Performance, attitude, observational, and census data■ Statistical analyses■ Statistical interpretation	<ul style="list-style-type: none">■ Both pre-determined and emerging methods■ Both open- and closed-ended questions■ Multiple forms of data drawing on all possibilities■ Statistical and text analyses■ Across databases interpretation	<ul style="list-style-type: none">■ Emerging methods■ Open-ended questions■ Interview, observation, document, and audio-visual data■ Text and image analyses■ Themes, patterns interpretation

Comparison:

Quantitative vs. Qualitative Research:

Quantitative Methods:

- Formulate hypothesis
- Observe events/present questionnaire with fixed answers.
- Tabulate responses
- Summarize data
- Analyze and draw
- conclusions

Qualitative Methods:

- Observe events and/or ask questions with open-ended answers.
- Record observations
- Interpret observations
- Return for new and refined observations
- Review data and draw conclusions
- Formulate hypothesis or theory