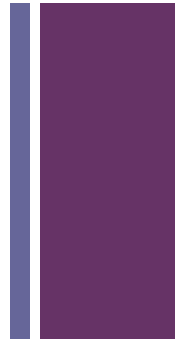**Survey and Qualitative Research**

John C. Ricketts

What is survey research?

+ What is survey research?

■ Type of research that allows us to **quantitatively** **measure**, **explore**, or **describe** present **status**, **incidence**, or **distribution** of phenomena among a **sample** of individuals that has a certain amount of **error** in it.


Free online book @ http://www.whatisasurvey.info/
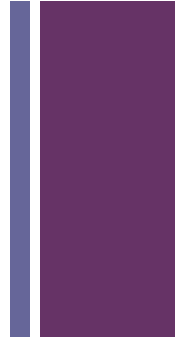
+ Question

- When is survey research the best method available?
    - A. when collecting original data
    - B. when describing a population too large to observe directly
    - C. when measuring attitudes
    - D. all of these choices

Answer: D

- Survey research is the best method available **when collecting original data**, **when describing a population too large to observe directly** and **when measuring attitudes**.
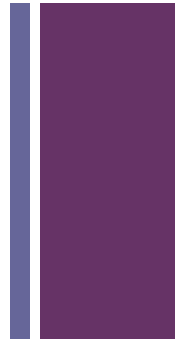
When should you use this type of research? (Survey Research)

- When you want to describe…

- When you want to explore…

- When you want to explain…???

- Miller (1998)

Quantitative research types

- Survey Research

- Correlational/Ex Post Facto
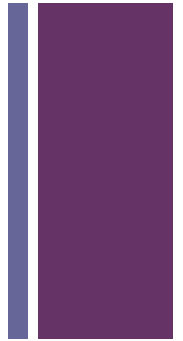
- Experimental (True or Quasi)

*See Miller (1998)

+

Other types of social science research

- Census (doesn't use statistics, it uses parameters)

- Mixed-methods (use the best tool for the job or several tools)

- Qualitative (includes Interview and open-ended questions)

Research designs (just to name a few)

1. The One-Shot Case Study

2. The One-Group Pretest-Posttest Design

3. The Static Group Comparison

4. The Pretest-Posttest Control Group Design

5. The Solomon Four-Group Design

6. The Posttest-Only Control Group Design

7. The Time Series Experiment

8. The Equivalent Time-Samples Design

9. The Equivalent Materials Design

10. The Nonequivalent Control Group Design

11. Counterbalanced Designs

12. The Separate-Sample Pretest-Posttest Design

13. The Separate—Sample Pretest-Posttest Control Group Design

14. The Multiple time-Series Design

15. The Recurrent Institutional Cycle Design: A "Patched-Up" Design

16. Regression-Discontinuity Analysis

(Campbell & Stanley, 1963)

Research Designs Diagrammed

Pre-experimental and Experimental Designs

One shot case study
X O

One group pretest postest
O X O

Static Group Comparison
X O

   O

Pretest Posttest Control
R O X O   Group
             Design

R O   O

The goal of design is to eliminate alternative explanations

Solomon Four Group Design
R O X O

R O   O

R   X O

R   O

R = randomization   X = treatment   O = observation
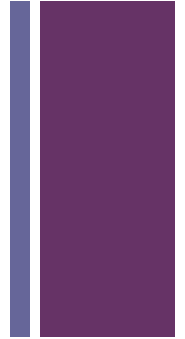
My favorite research design

- Retrospective-Post OR Post-Then

EMI: Critical Thinking Disposition Assessment

Directions: There are 2 columns beside each statement below. The first column asks you to select a level of agreement with the statement that you had *before* FFA Camp. The second column asks you to select your level of agreement with the statement *after* completing FFA Camp. Level of agreement responses are as follows: SD = Strongly disagree, D = Disagree, U = Uncertain, A = Agree, SA = Strongly agree. Please check one box for each column for each of the 26 items.

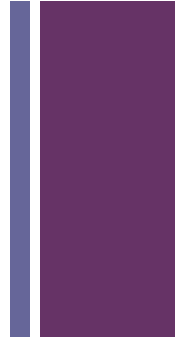|		Thinking back, **BEFORE** you started FFA Camp – Please check the box that would best describe your level of agreement with each statement.						**NOW** that you've completed FFA Camp – Please check the box that currently describes your level of agreement with each statement.				
		SD	D	U	A	SA		SD	D	U	A	SA
1.	I listen carefully to the opinions of others even when they disagree with me.											
2.	I look for opportunities to solve problems.											
3.	I am interested in many issues.											
4.	I enjoy learning about many topics.											
5.	I am able to relate to a wide variety of issues.											
6.	I ask lots of questions in a learning environment.											
7.	I enjoy finding answers to challenging questions.											

+ The Survey Process

- Stating objectives (or hypotheses)

- Determining the population and sample

- **Questionnaire** construction

- Determining the quality of the survey
  - Reliability
  - Validity

- Determining how to collect data

- Data analysis

Stating Objectives or Hypotheses
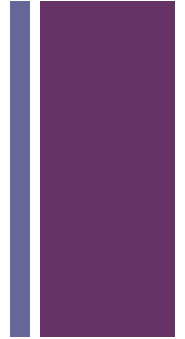
- After identifying your theory base OBJECTIVES OR HYPOTHESES must come next.

- They guide an entire research study.

- What is the difference between the two?

- When would you use one or the other?
  - Goes back to design?
    - Objectives – describe or explore (most survey research)
    - Hypotheses – explain, predict, or control

+ Determining population and sample

- Who is the population?

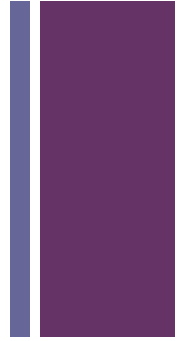- What is a sample?

- Why do we sample?

- What is a frame?

Population and Sample

- Population: People you want to generalize about

- Sample: Part of the population

- Parameter: Property of the population

- Statistics: Property of the sample

- Sampling: Technique for choosing respondents

- Sampling frame: List of people in a population

- WHY DO WE CARE? WHY NOT JUST GIVE SURVEY TO WHOMEVER IS CONVIENIENT TO ACCESS?
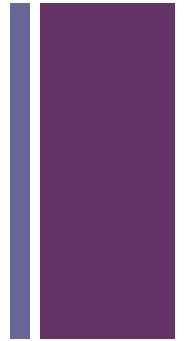
VALIDITY f ERROR

Estimated mean – mean = error

5 Errors to Control in Survey Research

- Sampling: The difference between the characteristics of a sample and the characteristics of the population from which the sample was drawn. (*f, size; error largest when sample is small*)

- Frame

- Selection

- Measurement

- Non-response errors

+ 5 Errors to Control in Survey Research

- Sampling

- Frame: discrepancy between the intended target population and the actual population from which the sample is drawn

- Selection: if certain elements in the frame have a greater chance of being selected for the sample than others

- Measurement: all the systematic effects which operate to bias recorded results given that a result was obtained from the sampling unit
  - 2 types: Validity & Reliability

- Non-response errors: some portion of the planned sample that could not be reached or that refused to respond.
  - Ignore
  - Compare respondents to the population
  - Compare respondents to non-respondents
  - Compare early to late respondents
  - Double dip respondents

Random Sampling Techniques

- **Simple Random Sampling**: All individuals in the defined population have an equal and independent chance of being selected in the sample. (table of random numbers or www.random.org/)

- **Systematic Random Sampling**: All members in the defined population are placed on a list for random selection, and e.g., every 6th person is chosen after a random starting place.
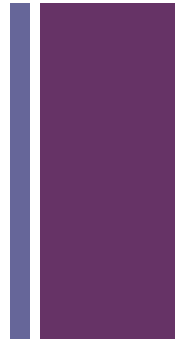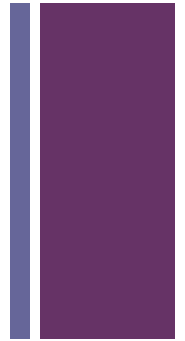
Random Sampling Techniques
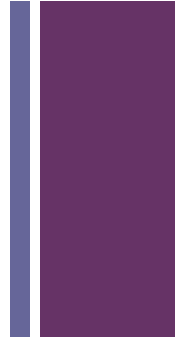
- **Stratified Random Sampling**: This is the assure that certain sub-groups are represented in proportion to their numbers in the population. Each list (frame) is separately numbered and random selection is used. A definite rationale should exist for using strata. Proportionate stratified random samples are often chosen wherein the % in the sample is = to the % in the population for the given characteristics.

- **Cluster Random Sampling**: The unit of sampling is not the individual but rather a naturally occurring group of individuals, e.g., counties, schools, clubs. Called "Experimental Unit" in experimental studies and affects degrees of freedom (df). Therefore if you select 16 random schools from a state, your unit of analysis (EU) is schools and not 960 students who might be in the schools.
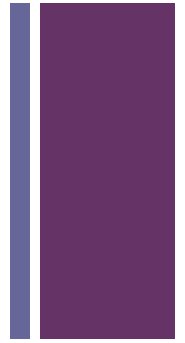
Nonprobalistic Sampling

- Purposive sampling

- Volunteer subjects

- Quota sampling

- Snowball sampling

Sample Size

- Cochran's

- Krejcie & Morgan (table ☺)

- Sample size calculators online (e.g., http://www.surveysystem.com/sscalc.htm)
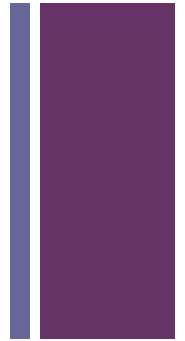
Questionnaire Quality

+ Measurement error

- Questions not clearly stated

- Ambiguously stated questions

- Instructions not clear

- Tendency of respondents to give socially acceptable answers
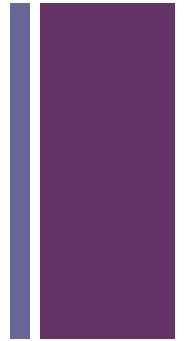
- Respondents deliberately lie

REPORT YOUR VALIDITY AND RELIABILITY INFORMATION IN EVERY REPORT, PAPER, ARTICLE, ETC... YOU PREPARE!

+ What do you think?

- What is validity?

- What is reliability?

+ Reliability

■ Reliability is when your measurement is consistent.

■ If I gave you a personality test today, tomorrow, and next week, the results should be the same with a reliable instrument

*(unless you have split personalities or something)*
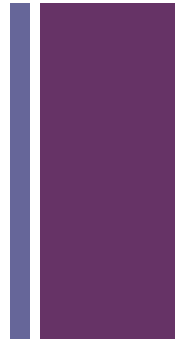
+ Reliability

- Test-Retest
  - 2 measurements, different times, compare results

- Internal consistency
  - Different sets of questions that measure same factor, concept, idea, construct
  - Questions given to different people, different groups, different places
  - Even if questions are answer differently, and everyone tested came up with the same thought, then its reliable
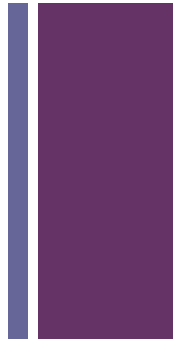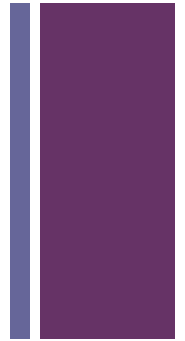
Validity (relevant data)

- How strong are the outcomes of the hypotheses?

- Are we right?

- If we conducted an experiment _(measured with survey research)_ in our ag classes to develop stronger scientific reasoning skills, and we found that at the end of the experiment/classes students had stronger scientific reasoning skills, then we' have a valid instrument.

- Thorndike and Hagen describe it best:
  - "we are inquiring whether the instrument measures what we want it to measure, all of what we want it to measure, and nothing but what we want it to measure."

+ Validity types

- Content: Representativeness of the items on the instrument as they relate to the entire domain or universe of content being measured.
    - Criterion-related
    - Concurrent
    - Predictive

- Construct: What does the instrument really measure?
    - Elements purported to be indicators of the construct should be highly correlated

- Face: Simplest kind. The appeal and appearance of the instrument

+ Constructs

- Opposite of a construct is a demographic (single faceted)

- Constructs are multi-faceted
  - Construct is Anxiety
    - Sleeplessness
    - Obsessive behavior
    - Sweating
    - Increased heart rate
    - Constant thinking
  - Construct is Academic Proficiency
    - Science proficiency
    - Math proficiency
    - Reading proficiency

Tied closely to reliability…

+ Constructs

- How do you identify a construct or a group of constructs if you are building an instrument?
  - The literature
  - Psychometric Item Analysis
  - Factor Analysis

IF YOU ARE NEEDING TO MEASURE SOMETHING, MAKE SURE AN INSTRUMENT THAT DOES WHAT YOU NEED DOESN'T ALREADY EXIST!

+ Face

- Make it pretty

- Make it easy to read

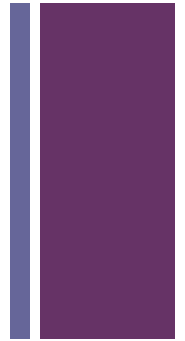- Other considerations for design…
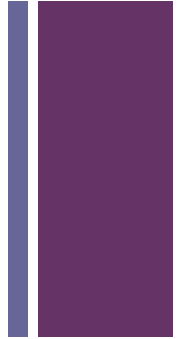
+ Questionnaire

- Instrument designed to elicit information that will be useful for analysis.
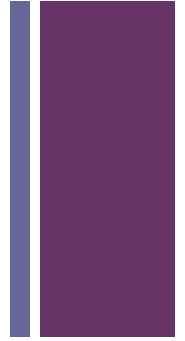
+ Questionnaire design

- Best to work with scales (constructs) – If each question is a variable, you better know you are measuring the right thing.

- To identify the scale (construct) start with more items than you will need. You can actually have as little as 3 items in a construct/scale.

- Scales can't use nominal variables.

- Many surveys use a summated rating scale (e.g. Likert-type)
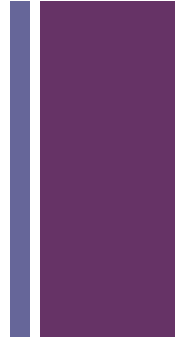 - Ordinal variables (ranked data)

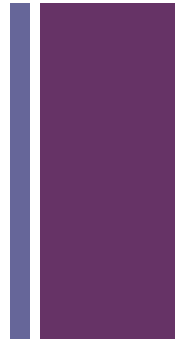# Questionnaire Design and Construction

- **phrasing of questions is critical**

- **avoid vague, nebulous questions**

- **questions must be clear, unambiguous**

- **avoid lengthy questions; keep questions short, succinct**

questionnaire design and construction--continued

- avoid **double-barreled** questions (compound questions)
  - Bad example: "Do you favor stricter hand gun controls and mandatory minimum sentences for carjackers?"

- avoid **loaded language (push polling)**
  - Bad example: "Don't you think that...?" "Isn't it true that...?"
  - Bad example: Emotionally charged words: " gang member," "welfare mother," "extremist groups," "spin doctor," etc.

- avoid **slang, jargon, abbreviations and acronyms**
  - Bad example: "Should states regulate PETA and the ALF?"

- avoid or minimize negative wording

+ Item forms

- Open-ended
  - Short answer
  - Extended response

- Close-ended
  - Agree/disagree
  - Multiple choice questions
  - Rating scale (summated rating scale)
    - # points on the scale
    - Should there be a middle?
  - Semantic differential

INSTRUMENT REVISION
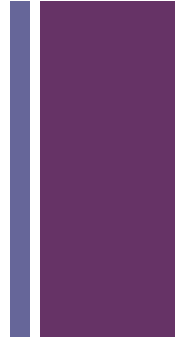
- PILOT

- ANALYZE FOR VALIDITY AND RELIABILITY

- MAKE ADJUSTMENTS

- COULD PILOT AGAIN

How to collect data?

- Options:
  - Paper and pencil through the mail
  - Paper and pencil on-site
  - Internet

TSU - Qualtrics

How do you decide which one to do?

Steps in conducting a mailed survey
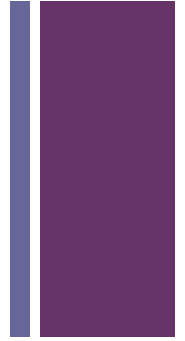
- Pre-card

- First mail packet

- Postcard reminder

Internet procedures are similar. They simply use electronic means.

- First follow-up (2nd complete packet)

- Postcard reminder

- Phone call reminders

- Other follow-ups (up to 6 have proven successful)

+ Response Rate

- What is a good response rate?

+ Qualitative Research
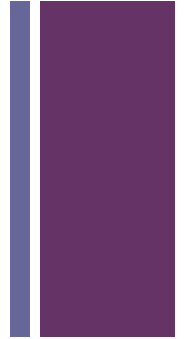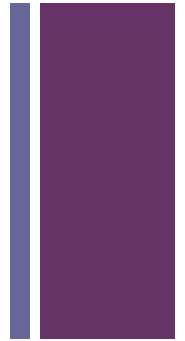
The objectives for this session include:

- Define what qualitative research is

- Describe the most common qualitative data collection methods

- Explain the benefits of (i.e., when to use) qualitative forms of evaluation

What is qualitative research?

Qualitative research is a type of scientific research that:

• seeks answers to a question

• systematically uses a set of procedures to answer the question

• collects evidence

• produces findings that were not determined in advance

• produces findings that are applicable beyond the immediate boundaries of the study

Characteristics of Qualitative Research

- Starts with general question or problem

- No pre-defined hypothesis

- Uses a purposeful sample, not a random one

- Uses a relatively small sample

- Data collected with semi-structured and unstructured instruments

- Presents results descriptively

- Utilizes researcher's awareness of own orientations, biases, experiences that might affect data collection and interpretation
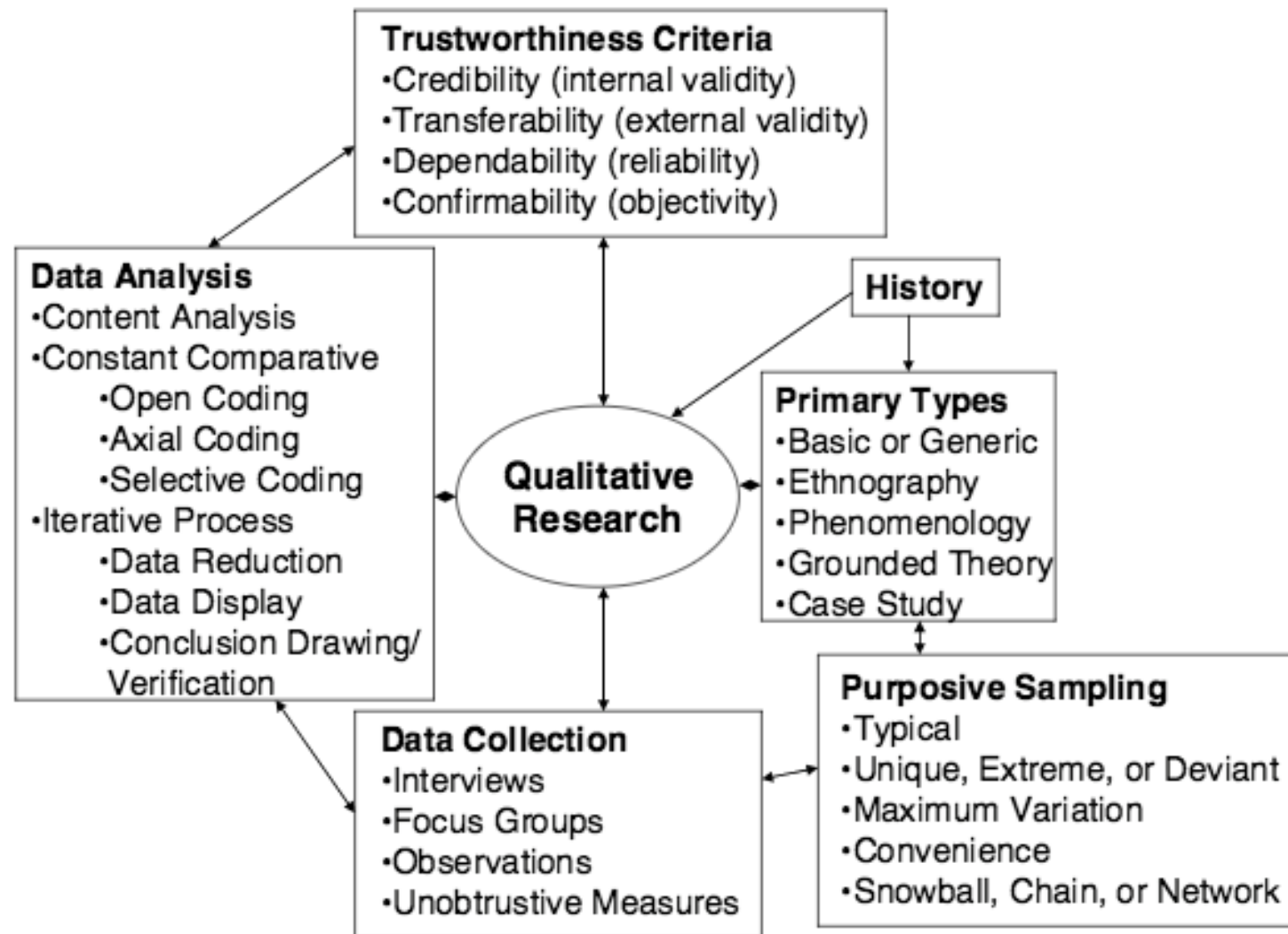
Figure 1. A qualitative research conceptual framework for agricultural educators.

+ Qualitative vs. quantitative

- Typically qualitative research will provide in-depth information into fewer cases whereas quantitative procedures will allow for more breadth of information across a larger number of cases.

- Benefits of combining qualitative and quantitative procedures, resulting in greater methodological mixes that strengthen the research design
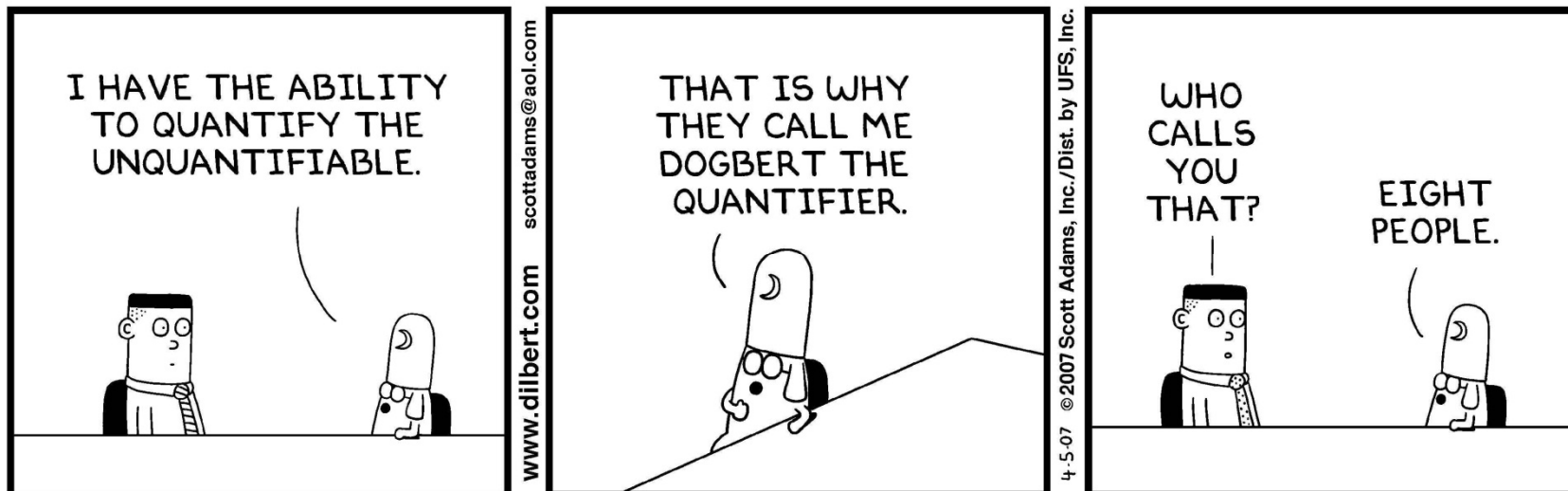
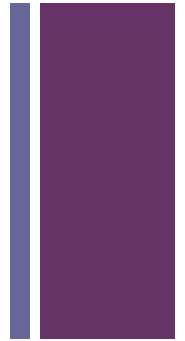|	Qualitative	Quantitative
General Aim	To understand (what, how, & why)	To predict and control
Treatment of Data	Defines very general concepts and searches for patterns Wide lens (inductive) Applied & theoretical	Isolates and defines variables and tests hypotheses on data Narrow lens (deductive) Measure and evaluate
Toolbox	Participant-Observation (fieldwork) In-depth Interviews Focus Groups Document Analysis	Surveys Questionnaires Randomized controlled trials Systematic reviews/meta-analyses
Focus	Rich "thick" description Naturalistic enquiry Similarities & contrasts Process & context	Prediction Outcomes Generalizability Controlled & experimental

Combining qualitative and quantitative

Qualitative data collection can be used in four different ways in relation to quantitative methods:

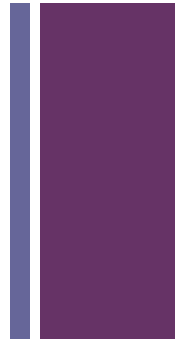1. Precede quantitative procedures

2. Used at the same time as quantitative procedures

3. Follow quantitative procedures

4. Used alone

+

Techniques

- Open-ended survey data

- In-depth interviewing

- Focus groups

+ Open Ended Surveys

Open and closed questions
(from Oppenheim, 1992)

	Strength	Limitation
OPEN	Freedom & spontaneity of answer	Time-consuming
	Opportunity to probe	Coding more problematic
	Useful for testing hypothesis about ideas or awareness	More effort from respondents
CLOSED	Requires little time	Loss of spontaneous responses
	No extended writing	Bias in answer categories
	Low costs	Sometimes too crude
	Easy to process	May irritate respondents
	Make group comparisons easy	
	Useful for testing specific hypothesis	

+ Open-ended questions

- Typically used in exploratory/qualitative studies.

- Typically used in personal interview surveys involving small samples.

- Allows respondent freedom of response.

- Respondent must be articulate <u>and</u> willing to spend time giving a full answer.

- Data is in narrative form which can be time consuming and difficult to code and analyze.

- Possible researcher bias in interpretation.

- Narrative can be analyzed using content analysis. Software is available.

+ Example

Please provide additional comments and suggestions about the cohort review process. Your comments do give us direction so please feel free to express any criticism or comments.

_____

_____

_____

_____

_____

_____

Advantages of open questions

- Not directive

- Detailed and unexpected answers possible
  - Allow exploration of issues to generate hypotheses

- Useful for exploring knowledge and attitudes
  - Qualitative research
  - Focus groups
  - Trawling questionnaires

Disadvantages of open questions

- Interviewer bias

- Time-consuming

- Coding problems

- **Difficult to analyze**

- Difficult to compare groups

Interviewing

+ In-depth Interview

An **in-depth interview** is a formal interview process in which a well-trained interviewer asks a subject a set of semi-structured questions in a face-to-face setting.
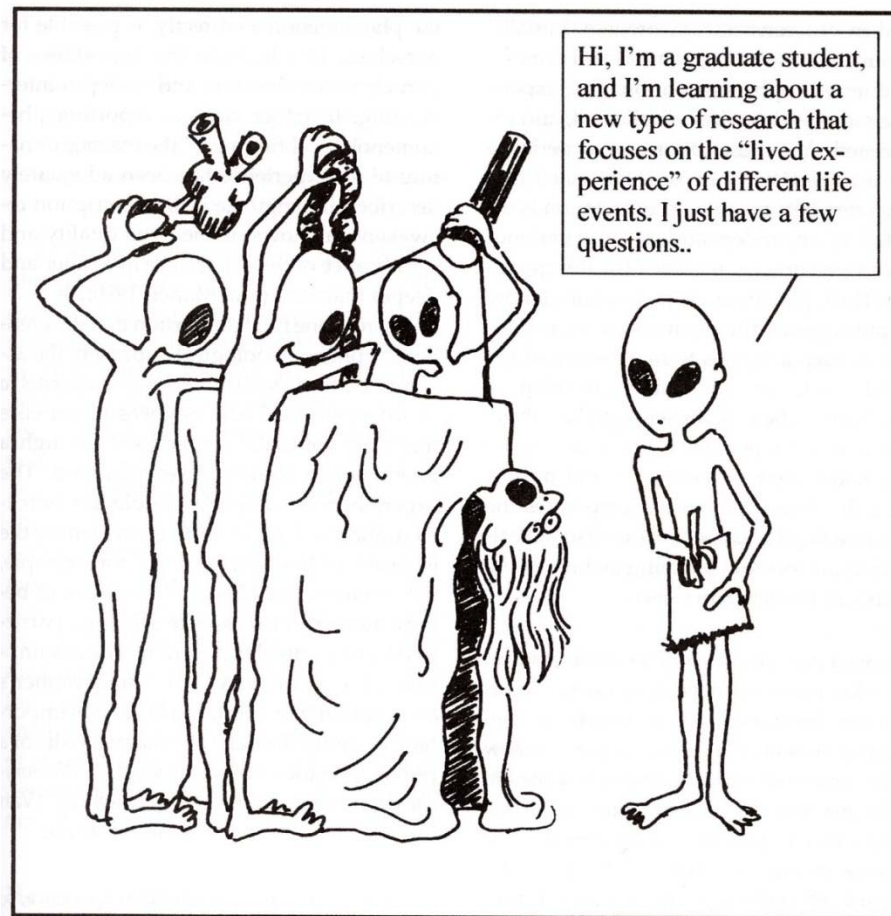
Along with questionnaires, interviews are the most common form of data collection.

Interviews

Interviews are usually grouped on a continuum as follows:

- Structured

- Semi–structured

- Unstructured

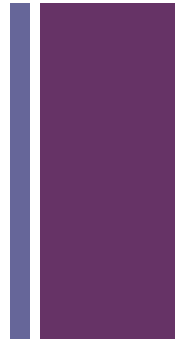Phenomenological abduction

+ Structured

- Closed fixed-response interview- quantitative interviewing
  - Predetermined set of response categories

- Standardized open-ended interview- qualitative interviewing
  - Interviewers closely follow the 'script' of the interview questions
  - Responses are open-ended

+ Standardized open ended interview

- Useful for reducing bias
    - When several interviewers are involved
    - When interviewers are less experienced or knowledgeable
    - When it is important to compare the responses of different respondents

- Most efficient qualitative interviewing technique
    - Reduces amount of time and money needed for analysis

- Drawback
    - Interviewer has little flexibility to respond to the particular concerns of the individual
    - No guarantee that the questions asked tap into the issues that are most relevant to this particular respondent.

Semi-structured

- Semi – structured interviews are those that incorporate both closed and open questions, and are more concerned with explanation of motives, actions and thoughts.

- The interviewer may also look for further information, for example asking

  "Why do you think that?"

  "What happened next"

  "What exactly do you mean?"

- If something unanticipated comes up the interviewer can follow-up.

+Unstructured

- An unstructured interview is one where the interviewer has a theme they wish to talk about, or a topic guide that lists a number of themes.

- In both semi – structured and unstructured interviews the order in which you ask the questions is not so important.

- Sometimes the interviewee may answer a question before it is asked.

+ Interviewing

- Sometimes the interviewee may go off on a tangent, and reveal something new, but sometimes they may go off on a tangent and not reveal anything worth having.

- The less structured an interview is, the more likely a conversation it becomes.

- However, it is not the same as a conversation as the interviewer needs to keep it focused on the research questions.

+Interviewing

- The interviewer also has to play the role of being a good listener.

- How the question is formulated and asked is very important.

- Leading, loaded, or 'trick' questions should be avoided, for example
  - "I don't like the current policy on child care provision, what do you think?"
  - "When did you stop taking drugs?"
  - "Given that at the age of 18 people are old enough to fight and die for your country, don't you think they should be able to drink alcohol as well?"
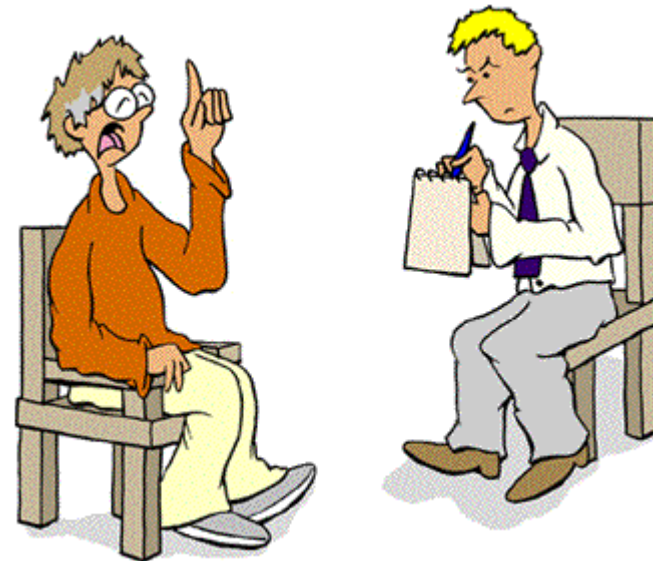
+ Interviewing

- Avoid normative questions which require the interviewee to give a socially acceptable answer.

- Avoid over long or complicated questions, specialist language and jargon that the interviewee will not understand but bear in mind that in some instances interviewees will use specialist words and jargon.

- Pre-test questions.

- Establish and maintain rapport during the interview.

+Interviewer responses

Whyte's hierarchy of interviewer responses:

- 'Uh-huh'
- 'That's interesting'
- Reflection - Repeating the last statement as a question
- Probe - Inviting explanations of statements
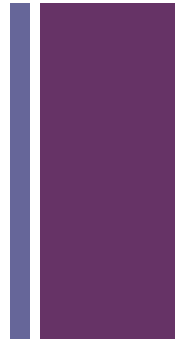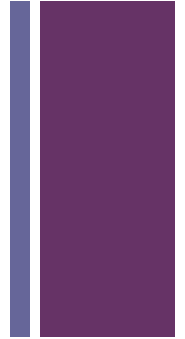- Back tracking
- New topic

+Interviewing

- It is best to record the interview with a digital voice recorder.

- Taking verbatim notes is very difficult unless the interviewer can write in shorthand.

- It takes a long time to transcribe interviews. The usual estimate is that it takes 3 hours to transcribe 1 hour of recording.

- It can be a tiring process for both parties so don't schedule more than a few a day.
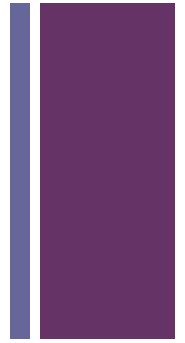
QUALITATIVE INTERVIEWING IS MOST USEFUL FOR:

- Evaluating programs that are aimed at individualized outcomes

- Capturing and describing program processes

- Exploring individual differences between participants' experiences and outcomes

- Evaluating programs that are seen as dynamic or evolving

- Understanding the meaning of a program to its participants

- Documenting variations in program implementation at different sites

QUALITATIVE INTERVIEWING IS NOT AS USEFUL FOR:

- Evaluating programs that emphasize common outcomes for all participants

- Measuring specific, predetermined effects of a program on participants

- In impact evaluations, deciding whether the intervention caused changes or effects in participants (since determining causality requires more controlled conditions)
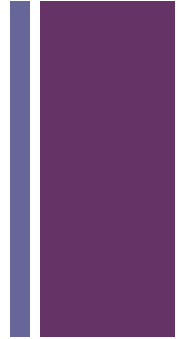
Focus Groups

+ Definition of a focus group

- A carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, nonthreatening environment.

- Discussion is relaxed, comfortable, and often enjoyable for participants as they share their ideas and perceptions.

- Group members influence each other by responding to ideas and comments in the discussion.

Main Purpose of a Focus Group

- In a one to one interview, the interviewer will ask the interviewee to explain certain thoughts and actions.

- In focus groups it is often the participants themselves who will ask each other to explain certain actions/thoughts.

- Focus groups allow us to study the ways in which individuals make sense of particular topics and construct social meanings around it.

+ Focus groups
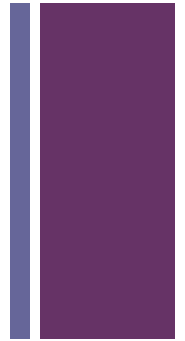
- Focus groups produce qualitative data through the use of open-ended questions that provide insights into the attitudes, perceptions, and opinions of participants.

- Particularly appropriate procedure to use when the goal is to explain how people regard an experience, idea, or event.

- Group discussion is conducted several times (about four) with similar types of participants to identify trends and patterns in perceptions.

- Researcher conducts a careful and systematic analysis of the discussions.
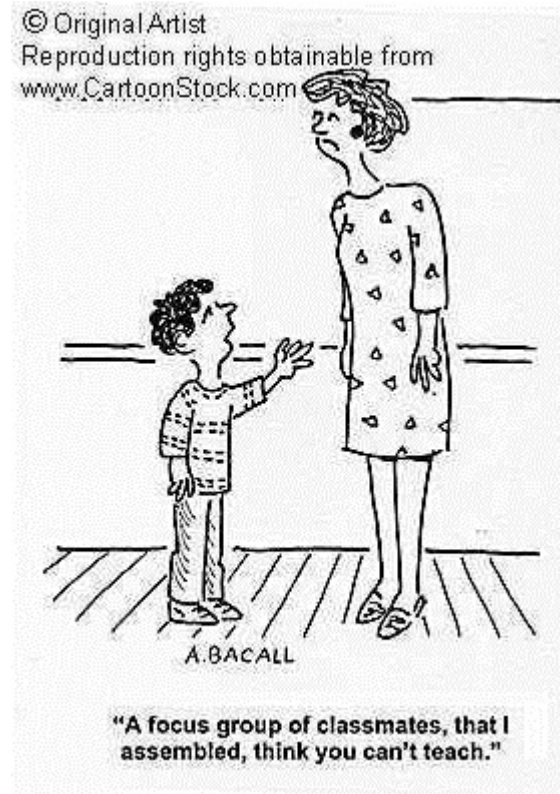
+ Group makeup

- Conducted with approximately seven to ten people by a skilled interviewer.

- Researcher serves several functions: moderating, listening, observing, and analyzing using an inductive process.

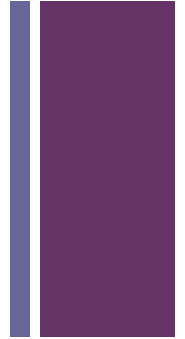- Neutral moderator similar to participants (age, gender, race, etc.)

+Participants

- Unfamiliar with each other (preferably strangers)

- Selected because they have certain characteristics in common that relate to the topic of the focus group
  - Age
  - Gender
  - Occupation
  - Marital status
  - Similar attitudes

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A.BACALL

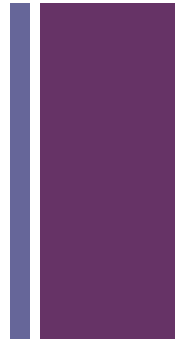"A focus group of classmates, that I assembled, think you can't teach."
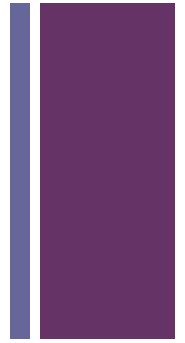
+ Topics of discussion

- Carefully predetermined and sequenced open ended questions (about 5 – 6 questions)

- Understandable and logical to the participant

- Avoid dichotomous questions (yes/no)

+ Planning

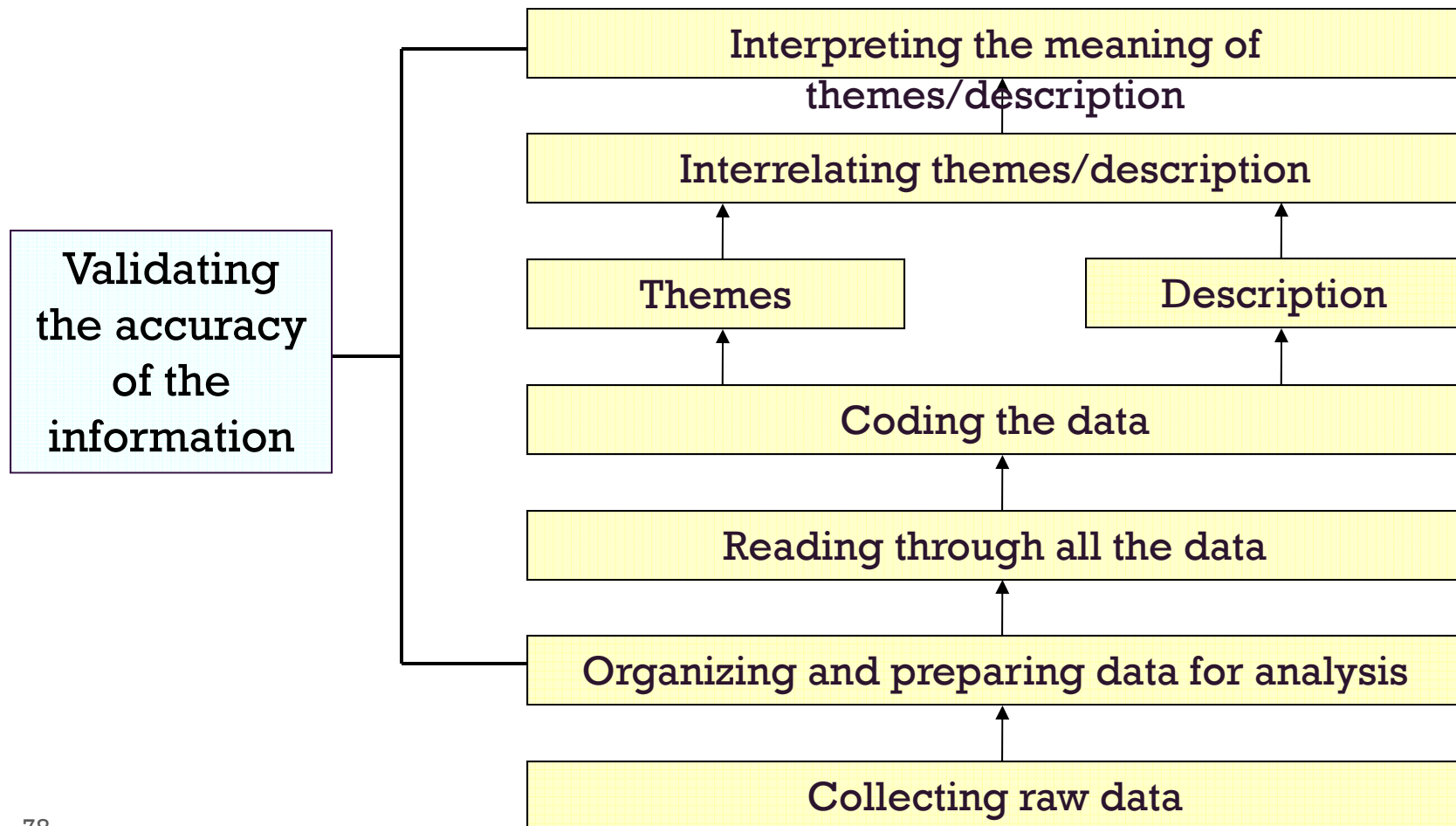- Inviting people may require a lot of phone calls and planning.

- Need some incentive for people to attend such as food and drink, travel expenses or a gift voucher as a form of payment.

- Two facilitators/moderators, one to ask the questions and the other to observe/take notes.

- High quality recording equipment, especially a good quality external stereo microphone

Analysis of Qualitative Data

Data Analysis in Qualitative Research

Validating the accuracy of the information

Interpreting the meaning of themes/description

Interrelating themes/description

Themes

Description

Coding the data

Reading through all the data

Organizing and preparing data for analysis

Collecting raw data

Then we engage in the coding process that involves several steps:

Initially read through data

Divide text into segments of information

Label segments of information with codes

Reduce Overlap and redundancy of codes

Collapse codes into themes

Many Pages of Text

Many Segments of Text

30-40 codes

Codes reduced to 20

Reduce Codes to 5-7 Themes

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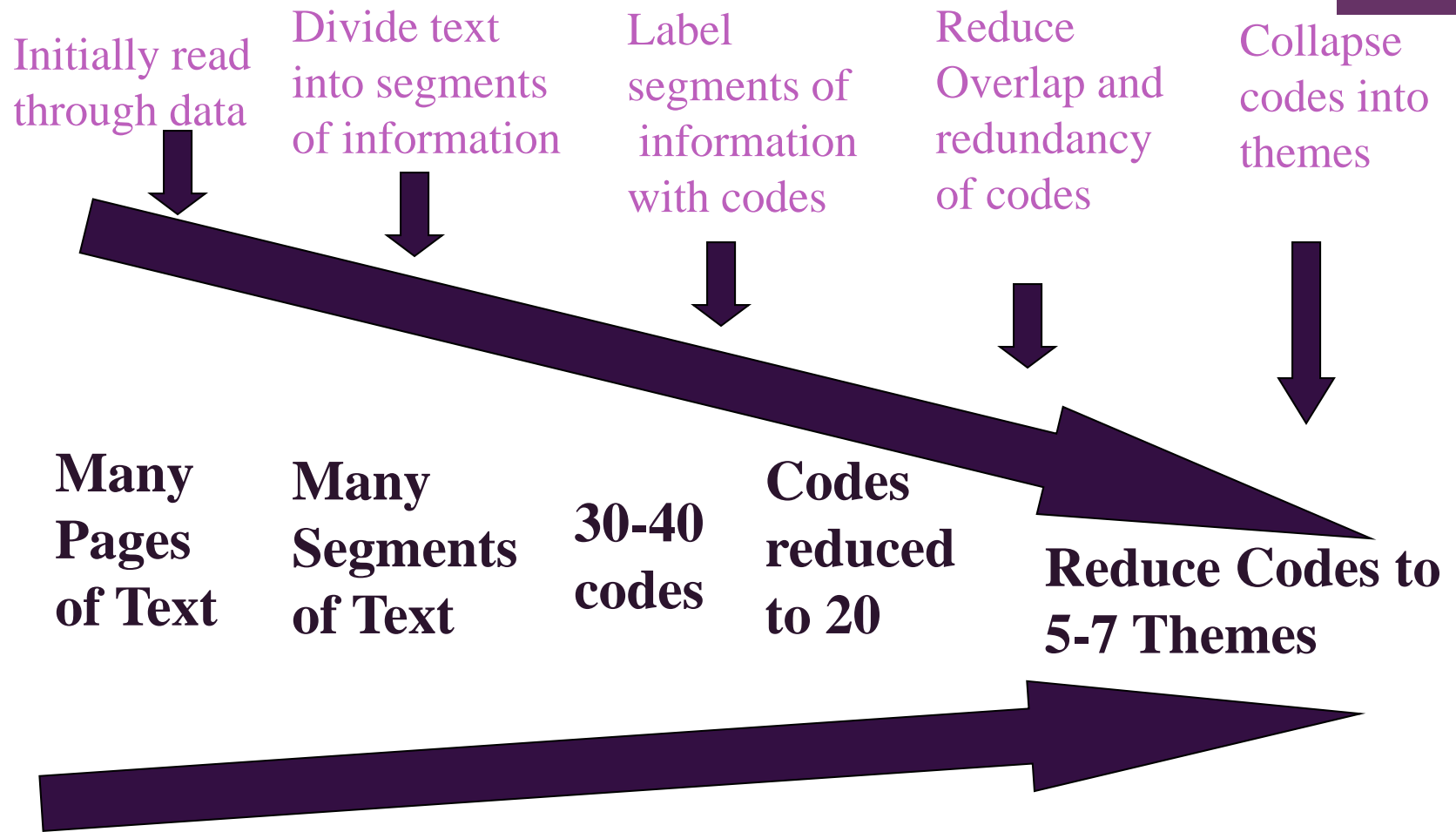
+ Levels of Coding
(For qualitative data)

- Open
  - Break down, compare, and categorize data

- Axial
  - Make connections between categories after open coding

- Selective
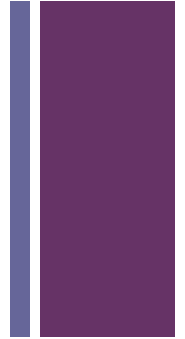 - Select the core category, relate it to other categories and confirm and explain those relationships

Strauss, A. and J. Corbin. *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage, 1990.

Computer Assisted/Aided Qualitative Data AnalysiS (CAQDAS)
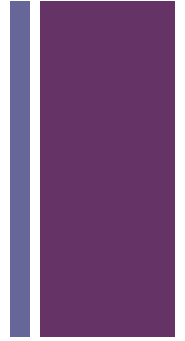
- An 'indispensable tool for storage retrieval and manipulation of the text' (Kelle, 1995).

- Allows the researcher to sort the data into easily accessible categories to enable quick retrieval of data

- Comparison of segments

- Refinement and development of codes

- Examples include NVivo, Atlas, Ethnograph, and Hypersoft
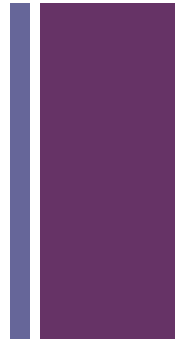
Methods of Evaluating Qualitative Research

- Developing standards of quality

- Lincoln and Guba's classic work shed light on how to assess truth in a qualitative report

- Offered four alternate tests of quality that reflect the assumptions of the qualitative paradigm:
  - Credibility
  - Dependability
  - Transferability
  - Confirmability

Lincoln and Guba's 'naturalistic' criteria

Aspect	Scientific Term	Naturalistic Term
Truth value	Internal validity	Credibility
Applicability	External validity or generalizability	Transferability
Consistency	Reliability	Dependability
Neutrality	Objectivity	Confirmability

Source: Adapted from Guba and Lincoln (1981) and Lincoln and Guba (1985).

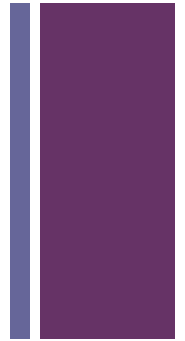# Alternate Tests of Quality

Credibility refers to accuracy

- Description must be plausible and recognized by participants

Enhanced by:

- Prolonged time in the field repeatedly observing and interacting with participants

- Using different data sources, methods, data type

- Conducting *member checks*
 - Involving other investigators in the study

+ Alternate Tests of Quality

Dependability refers to the stability and trackability of the changes in data over time and conditions

- Want to determine the extent to which another researcher with similar training and rapport with participants would make the same observations

- This is determined by an **audit trail**
  - Involves auditing research process, documenting all the raw data generated, and assessing method of data analysis
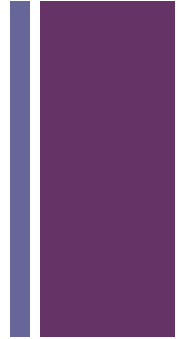
Alternate Tests of Quality
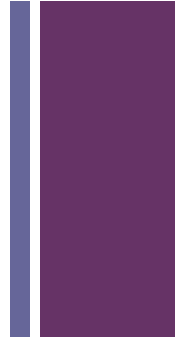
Transferability refers to the generalizability of the study findings to other settings, populations, and contexts

- Report must provide sufficient detail so that readers can assess this

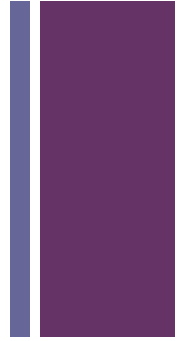- Lack of transferability is viewed as a weakness of qualitative methods

Alternate Tests of Quality

Confirmability refers to the objectivity of the data

- Would another researcher agree about the meanings emerging from the data?

- An **audit trail** is used in which the researcher explains how personal biases may have come into play

Advantages and Limitations of Qualitative research

- Focus on the whole of the human experience and the meanings ascribed to them by participants

- They provide the researcher with deep insights that would not be possible using quantitative methods

- The major strength of qualitative work is the validity of the data it produces

- Participants true reality is likely to be reflected

- Major limitation is its perceived lack of objectivity and generalizability

- Researchers become the research tools and may lack objectivity