# CHAPTER 6

OBSERVATIONAL METHODS

Learning Objectives

- ✓ Compare quantitative and qualitative methods of describing behavior.
- ✓ Describe naturalistic observation and discuss methodological issues such as participation and concealment.
- ✓ Describe systematic observation and discuss methodological issues such as the use of equipment, reactivity, reliability, and sampling.
- ✓ Describe the features of a case study.
- ✓ Describe archival research and the sources of archival data

QUANTITATIVE APPROACHES

- ✓ *Quantitative Research focuses on specific behaviors that can be easily quantified*
  - ✓ Example: Survey research, IQ tests, Reaction times
- ✓ It uses large samples
- ✓ It assigns numerical values to responses
- ✓ Conclusions are based upon statistical analysis of data
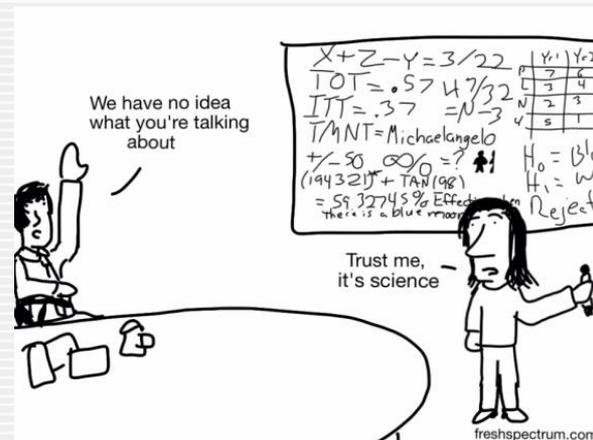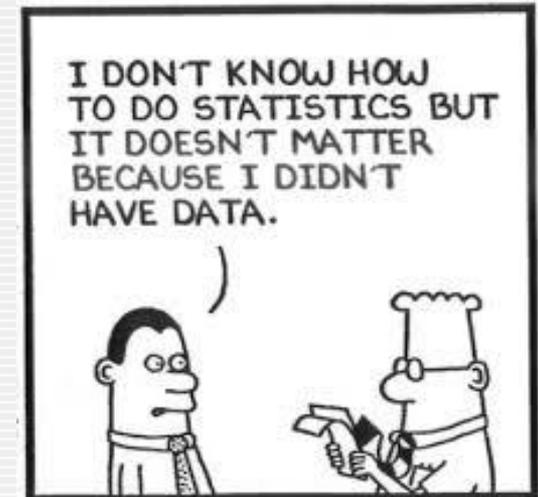
QUALITATIVE APPROACHES

- ✓ *Qualitative Approaches focus on behavior in Natural Settings*
  - ✓ Such as observing people at a gym.
- ✓ Small groups and limited settings
  - ✓ Focus groups
    - ✓ Useful for gaining information about topics for which you have little information
  - ✓ Interviews
    - ✓ Useful for obtaining more detailed information (the reasons and emotions behind a behavior, the context in which an event happened, etc.)
  - ✓ Field research
    - ✓ The researcher develops an understanding of the composition of a particular setting or society by taking part in the everyday routines and rituals alongside its members

QUALITATIVE APPROACHES

- ✓ Data are non-numerical
  - ✓ Expressed in language and/or images
    - ✓ Data can be used to formulate hypothesis
      - ✓ which can be tested using quantitative methods
    - ✓ Data can add to the body of knowledge concerning a construct
    - ✓ Data can be classified according to themes and given numerical values which can be analyzed

- ✓ Conclusions based on interpretations are made by the investigator
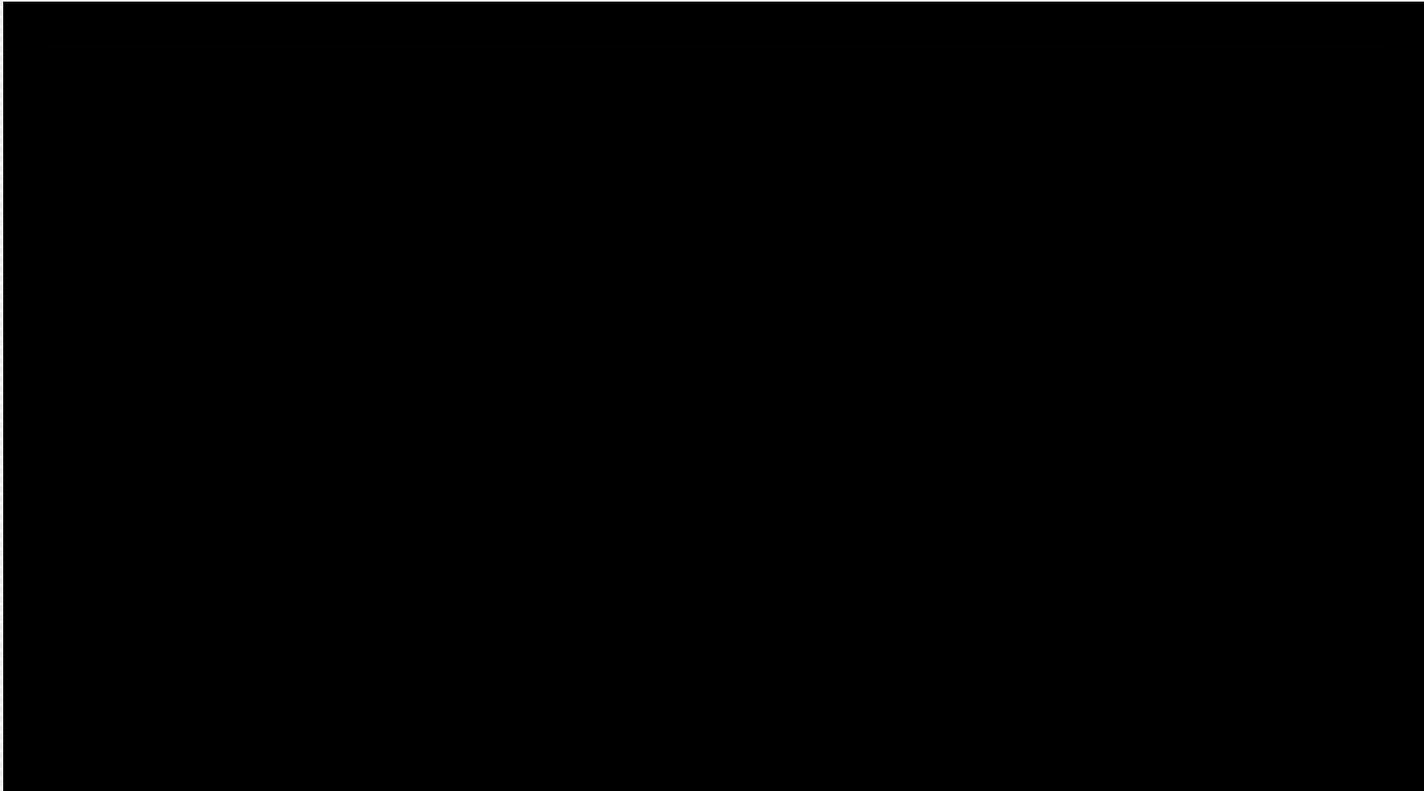 - ✓ Interpretations should be made based on already established theory and past research

I DON'T KNOW HOW TO DO STATISTICS BUT IT DOESN'T MATTER BECAUSE I DIDN'T HAVE DATA.

QUALITATIVE APPROACHES

- The "Piano Stairs" Experiment
    - Can you can catch the research hypothesis in this video?
    - https://loraconnor.com/psych280/psych_280/videos/PianoStairsExperiment.mp4 **(2 min)**

NATURALISTIC OBSERVATION

- ✓ Techniques Used
  - ✓ Observing
  - ✓ Interviewing
  - ✓ Surveying
  - ✓ Computerized Observations
- ✓ *Naturalistic Observation research PRIMARILY focuses on behavior in natural settings.*
- ✓ Uses Include Studying :
  - ✓ People in Social and organizational settings
  - ✓ Sports teams
  - ✓ *Animals in their natural habitat*
  - ✓ Individuals at work
  - ✓ Scribner (1997) used naturalistic observation to identify how business decisions are made.

NATURALISTIC OBSERVATION

- ✓ Crowd Counting at Grand Central Terminal in New York City
- ✓ Naturalistic observation differs from structured observation in that it involves looking at a behavior as it occurs in its natural setting with no attempts at intervention on the part of the researcher.
  https://loraconnor.com/psych280/psych_280/videos/Computerized_Naturalistic_Observation.mp4
  (38 seconds)

NATURALISTIC OBSERVATION

- Goal: *provide a complete and accurate picture of what occurred in the setting.*
  - *Naturalistic research is **less** useful to test well-defined hypotheses formed prior to the study in precisely specified conditions.*
  - Researchers must keep detailed field notes
    - Write, dictate, record on a regular basis everything that happened
    - Needs accurate descriptions and objective interpretation
      - Describe settings, events, and persons
      - Interpret what occurred
      - Generate hypotheses that help explain the data
  - Analyze the categories that emerge
  - Write a final report of results

NATURALISTIC OBSERVATION

✓ Issues

- ✓ Participation

- ✓ Time Consuming

- ✓ Concealment: Remaining unnoticed by the subject(s) under investigation

  - ✓ The decision to conceal:

    - ✓ depends on ethical concerns and nature of the research

  - ✓ Researcher may be able to experience events in the same way as natural participants

  - ✓ Sometimes a participant observer is non-concealed to certain members of the group, who give the researcher permission to be part of the group as a concealed observer.

NATURALISTIC OBSERVATION

- ✓ Strengths
  - ✓ Useful for exploring areas with little known information
  - ✓ Useful in complex and novel settings
    - ✓ to understand the settings
    - ✓ to develop theories
- ✓ Limitations
  - ✓ Cannot be used to study all issues
  - ✓ Less useful when studying well-defined hypotheses under precisely specific conditions
  - ✓ Constant reanalyzing and hypotheses revision needed

SYSTEMATIC OBSERVATION

- ✓ ***Systematic observation*** *refers to the careful observation of one or more specific behaviors in a particular setting.*
  - ✓ This research approach is much less comprehensive than naturalistic observation research.
- ✓ Coding systems
  - ✓ *The researcher must decide which behaviors are of interest, choose a setting in which the behaviors can be observed, and most important, develop a **coding system**,*
    - ✓ Having more than one researcher observe a setting and recording behaviors of interest

SYSTEMATIC OBSERVATION

- ✓ **Methodological issues**
  - ✓ Equipment
    - ✓ Video or Audio Recordings
      - ✓ Pros
        - ✓ Can provide a permanent record
        - ✓ Can be coded later
      - ✓ Cons
        - ✓ Can break down
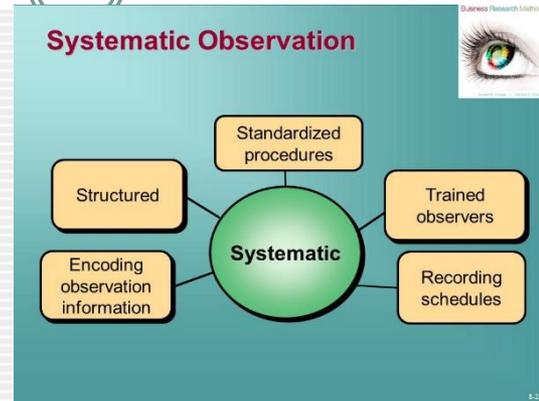   - ✓ Can be costly
  - ✓ Reactivity
    - ✓ A second issue is **reactivity**—*the possibility that the presence of the observer will affect people's behaviors.*
    - ✓ Can be reduced by concealed observation.
  - ✓ Reliability
    - ✓ People and settings can be unpredictable
  - ✓ Sampling
    - ✓ Difficult to obtain large samples
    - ✓ Can be Expensive and/or Time Consuming to obtain participants

SYSTEMATIC OBSERVATION

- ✓ Reliability
  - ✓ Reliable measures are stable, consistent, and precise.
  - ✓ When conducting systematic observation, two or more raters are usually used to code behavior
    - ✓ Develop coding system
    - ✓ Train and run pilot studies
  - ✓ ***Interrater Reliability*** = *high agreement among the raters*
  - ✓ Usually, samples of behavior taken over an extended period provide more accurate and useful data than single, short observations.

VIDEO: Observational Research Methods

- Non-Experimental Research Methods
  - **Naturalistic Observation ~4:04 min**

- https://ezproxy.occlib.nocccd.edu/login?url=https://digital.films.com/PortalPlaylists.aspx?wID=107831&xtid=121712&loid=453011

CASE STUDIES

- ✓ A **case study** *is an observational method that provides a description of an individual.*
  - ✓ Usually a person
  - ✓ can be an animal
  - ✓ may also be a setting (business, school, or neighborhood)
- ✓ A **psychobiography:** case study where a researcher applies psychological theory to explain the life of an individual, usually an important historical figure.
- ✓ Valuable for informing about rare, unusual, or noteworthy conditions
  - ✓ Often used by physicians, psychologists, historians, etc.

ARCHIVAL RESEARCH

✓ **Archival research** uses previously compiled information to answer research questions

✓ *Researcher does not actually collect the original data*

✓ *Researcher analyzes existing data*

  ✓ Public records

  ✓ Statistical records

  ✓ Survey archives

  ✓ ***Written and mass communication records***

    ✓ *Such as letters to the editor of a magazine to assess community attitudes*

ARCHIVAL RESEARCH

- ✓ Statistical records
  - ✓ Statistical records are collected by many public and private organizations.
    - ✓ The U.S. Census Bureau maintains the most extensive set of statistical records available
    - ✓ State and local agencies also maintain such records
- ✓ Survey archives: data from surveys stored on computers
  - ✓ Major polling organizations make many of their surveys available.
    - ✓ For example: General Social Survey (GSS; http://gss.norc.org/)
    - ✓ For more than four decades, the General Social Survey (GSS) has studied the growing complexity of American society.
      - ✓ Surveys on what Americans think about all kinds of issues:
        - ✓ national spending
        - ✓ crime and punishment
        - ✓ intergroup relations
        - ✓ confidence in institutions, etc.

ARCHIVAL RESEARCH

- ✓ Written and mass communication records
  - ✓ diaries and letters preserved by historical societies
  - ✓ ethnographies of other cultures by anthropologists
  - ✓ speeches by politicians
  - ✓ discussion board messages left by Internet users

ARCHIVAL RESEARCH

✓ **Content analysis** is the systematic analysis of existing documents.

  ✓ Like systematic observation, requires coding system to quantify

  ✓ Can answer questions that can be addressed in no other way

  ✓ Limitations

    ✓ Difficult to obtain

    ✓ Cannot be sure of accuracy

✓ When doing observational behavioral assessments,
  ✓ a broader category of behavior is called a "**molar**" category
    ✓ Example: Getting dressed
  ✓ a more specific category is called a "**molecular**" category
    ✓ Example: Tying your shoes
  ✓ Since tying shoes is more specific, it's a more molecular category than getting dressed

✓ When we assess behavior, we must be defined molecularly so that it is at the descriptive level
  ✓ At the Molecular level, behaviors can be more easily "**Operationally Defined**"

- ✓ There are three basic kinds of measurable behavioral dimensions: **Frequency**, **Duration**, and **Amplitude**.
  - ✓ *Frequency* is the number of times a target behavior occurs per unit time.
  - ✓ *Duration* is the length of time a target behavior occurs during a specified interval.
  - ✓ *Amplitude* is the intensity of the target behavior.
- ✓ The **frequency dimension is most popular in behavioral assessment**.
- ✓ A product of behavior is sometimes used as an indirect measure of behavior.
  - ✓ For example, if you want to assess the effectiveness of an anti-littering campaign, it would be more practical to measure the amount of litter in a given area before, during, and after the campaign than to try to count the number of times people are observed littering.

OBSERVATION LAB

✓ Three ways to classify behaviors:

- ✓ the **number of different target behaviors** observed (**single** or **multiple** behaviors)
- ✓ the **number of persons** being observed (**individual** or **group**)
- ✓ the **behavior sampling method**:
  - ✓ **Event Sampling**: recording every occurrence of the target behavior
  - ✓ **Time Sampling**: recording target behavior only if it occurs at predetermined points in time

OBSERVATION LAB

Number of Target Behaviors

✓ A psychologist is occasionally interested in a single target behavior (e.g., smoking cigarettes).

✓ In other situations, we want to measure multiple behaviors.

  ✓ For example, a child's aggressive behavior could be molecularized as hitting other people, throwing objects at other people, and spitting towards another person.

    ✓ i.e., three separate target behaviors would be measured rather than only one

✓ The observer may be interested in the behavior of only one individual or of an entire group.

✓ A person's behavior during an observation period is considered a "sample" of the behavior.

✓ This sample is used to infer how that person behaves in similar situations on other occasions.

TIME SAMPLING EXPERIMENT

1. Form **groups of three** and decide who will be the observers and who will be the timer. Be sure the timer has a watch/smartphone.

2. You're to record two target behaviors at the same time:

   - Examples: speaking, smiling, fidgeting, moving his/her foot, looking at phone, or touching one's face.

   1. Use a time sampling procedure to record your observations.

3. The *time* should indicate the **end of every 30 second interval** with an interval number (e.g. first, second, etc.).

   - The observation period will be **10 minutes long**.

4. Each observer must make two judgments the instant the timer states the interval number.

   o One judgement is whether the target person is performing the target behavior at that instant, and the other judgment is whether the person is performing the other target behavior at the instant.

5. Select a person who is talking with another person in a public place.

   o **It is important to remain unobtrusive by not staring, etc.!**

6. If the target person is performing one of your chosen behaviors when the timer states the interval number, place a check mark in the box that corresponds to that behavior and that interval number.

7. If the target person is performing your other target behavior at that instant, place a check mark in the box that corresponds to the behavior and that interval number.

7. Note that in time sampling you are **NOT** recording whether the target person performed the target behaviors **within** the entire 30 second interval: **ONLY IF** the target person performed those behaviors **AT THE SPECIFIC INSTANT** the timer indicated the interval number.

8. The judgments made by the two observers must be completely independent.

   ❖ This means that each observer must **NOT** know the ratings made by the other observer until all observations are complete.

   ❖ Doing it any other way **defeats the purpose** of this assignment.

   ❖ You will **NOT** be evaluated on the basis of amount of agreement between the two observers

TIME SAMPLING EXPERIMENT

7. Construct two "data recording sheets" (one for each observer; an example follows on a later slide).

8. Be sure that each data recording sheet lists two target behaviors and there are **20 time points** across the top (30 second intervals for 10 minutes).

9. Also be sure that all other relevant information is included just as it is shown in the example.

10. In this case, the person you observe will not be identified by name since he or she will remain anonymous.

EVENT SAMPLING EXPERIMENT

1. Construct grids like the one that follows.
2. The time span should be a **30 minute time span with 5 minute intervals**.
3. Instead of indicating whether the observed individual performed your chosen target behaviors at a certain point in time, put a check in the corresponding box (next to the chosen target behavior) for that 5 minute time interval **EVERY TIME** the observed individual performed one of the target behaviors.
4. Several checks can be in any one box depending on the number of times the observed individual performed one of your chosen target behaviors during that 5 minute time interval.

TIME SAMPLING GRAPH

- **Time Sampling**
- When using time sampling, specific points in time (e.g., **30 second** markers) are identified during an observation period (e.g., **10 minutes**).
- The target behaviors occurring at each time point are recorded. Target behaviors that occur before or after each point are ignored.

Observation Period: ___ 10 Minutes

Observer: ___Joanne Smith___

Client: ___John Smith___

Date: ___Oct 1___

TIME SEGMENTS (SECONDS)

	30	60	90	120	150	180	Total
Hitting		✓		✓	✓		3
Throw Rocks							0
Spitting	✓	✓			✓		3

Grand Total 6

EVENT SAMPLING GRAPH

- **Event Sampling**
- **30 minute** time span with **5 minute** intervals **(6 time points)**
- When using event sampling, every occurrence of the target behavior(s) is recorded during the specified intervals.

Observation Period: ___ 30 minutes ___

Client: ___John Smith___

Date: ___Oct 1___

TIME SEGMENTS (MINUTES)

	0-10	10-20	20-30	30-40	40-50	50-60	Total
Hitting		✓		✓	✓		3
Throw Rocks							0
Spitting	✓✓	✓		✓	✓		5

Grand Total 8

Observation Reliability Coefficients

Calculate the observation reliability coefficient for the smiling and talking target behaviors for the **Time Sampling** and **Event Sampling** exercises. Then **find the combined observation reliability coefficient**. Be sure to begin each coefficient with a formula and to label appropriately for full credit.

$$\text{Observation Reliability Coeff.} = \frac{\text{\# of Agreeing Cell Pairs}}{\text{Total \# of Cell Pairs}}$$

There should be **a total of 6 calculations** for the Time Sampling & Event Sampling, a calculation for each target behavior, as well as the calculation for the combined target behaviors, equaling 3 calculations for each sampling exercise

Occurrence Reliability Coefficients

Calculate each separate occurrence reliability coefficient and the combined occurrence reliability coefficient for the **Time Sampling** and **Event Sampling** exercises. For full credit, begin with the formula each time and label appropriately. (Also, remember that if the coefficient cannot be calculated, it is not given a value of zero.)

Occurrence Reliability Coeff. = # Cell Pairs Agreeing on # of Occurrences

 # Cell Pairs Agreeing + # Cell Pairs Disagreeing

There should be **a total of 6 calculations** for the Time Sampling & Event Sampling, a calculation for each target behavior, as well as the calculation for the combined target behaviors, equaling 3 calculations for each sampling exercise

Outcome Reliability Coefficients

Now determine the outcome reliability coefficients for the **separate target behaviors for each exercise**. Once again, for full credit, begin with the formula each time and label appropriately.

In some situations, reliability is based on the total frequencies of a given target behavior rather than on agreement between cells. This is called outcome reliability. The formula for the Outcome Reliability Coefficient is:

$$\text{Outcome Rel. Coef.} = \frac{\textbf{Smaller Frequency}}{\textbf{Larger Frequency}}$$

The Combined Outcome Reliability Coefficient is obtained by dividing the smallest **grand total** by the largest. The Combined Outcome Reliability formula is:

$$\text{Grand Total Rel. Coef.} = \frac{\textbf{Smaller Grand Total}}{\textbf{Larger Grand Total}}$$

OBSERVATION LAB

- After collecting the data, **be sure each of you records all of the data for yourselves**.

- Take the data home as homework to make the calculations
  - Observation Reliability Coefficients **(a total of 6 calculations)**
  - Occurrence Reliability Coefficients **(a total of 6 calculations)**
  - Outcome Reliability Coefficients **(a total of 4 calculations)**
  - Grand Total Outcome Reliability Coefficients **(a total of 2 calculations)**