

# CHAPTER 6

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## OBSERVATIONAL METHODS

# Learning Objectives

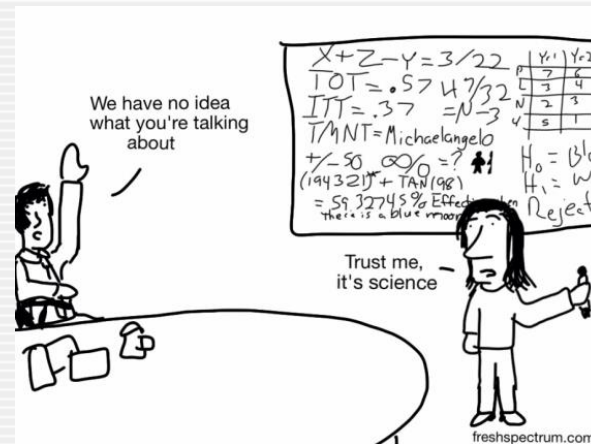
2

- ✓ 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

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- ✓ *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

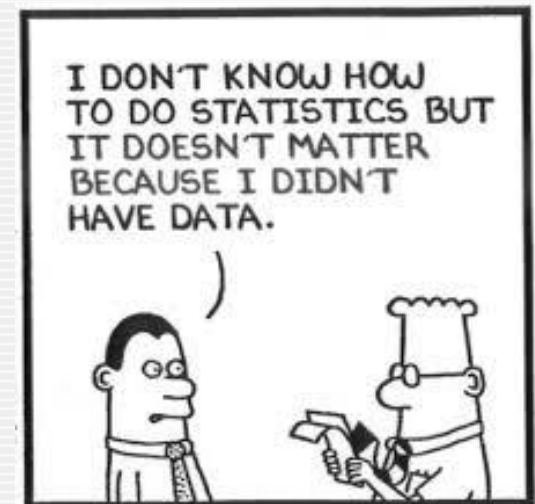
4

- ✓ *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

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- ✓ Data are non-numerical and 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



# QUALITATIVE APPROACHES

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- The “Piano Stairs” Experiment
  - See if you can catch the research hypothesis in this video?
- <https://youtu.be/qfcFWrckoLg>

# NATURALISTIC OBSERVATION

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- ✓ Techniques for Naturalistic Observation Research
  - ✓ Observing
  - ✓ Interviewing
  - ✓ Surveying
- ✓ *Naturalistic Observation research PRIMARILY focuses on behavior in natural settings.*
- ✓ Uses include:
  - ✓ Studying individuals in a social and organizational settings
  - ✓ Used to observe people in sports teams or other social settings, individuals at work, or *animals in their natural habitat*
  - ✓ Scribner (1997) used naturalistic observation to identify how business decisions are made.



# NATURALISTIC OBSERVATION

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## ✓ Goals:

- ✓ Describe settings, events, and persons
- ✓ Analyze the categories that emerge
- ✓ Researcher must interpret what occurred
- ✓ Generate hypotheses that help explain the data
- ✓ Write a final report of results
- ✓ Needs accurate descriptions and objective interpretation
  - ✓ *The goal of naturalistic observation is to 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.*
  - ✓ To achieve this goal, the researcher must keep detailed field notes—that is, write or dictate on a regular basis (at least once each day) everything that has happened.



# NATURALISTIC OBSERVATION

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## Issues

- ✓ Participation
- ✓ Concealment
  - ✓ Remaining unnoticed by the subject(s) under investigation
- ✓ Time Consuming
- ✓ Identifying the scope of the observation
  - ✓ Since **participant observation** allows the researcher to observe the setting from the inside, he or she may be able to experience events in the same way as natural participants.
  - ✓ The decision of whether to conceal one's purpose or presence depends on both ethical concerns and the nature of the particular group and setting being studied.
  - ✓ 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

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## ✓ Strengths

- ✓ Useful in complex and novel settings both to understand the settings and to develop theories based on the observations.
  - ✓ Therefore, it is useful for exploring areas with little known information

## ✓ 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

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- ✓ ***Systematic observation*** refers to the careful observation of one or more specific behaviors in a particular setting.
  - ✓ This research approach is much less global than naturalistic observation research.
- ✓ **Coding systems**
  - ✓ Numerous behaviors can be studied using systematic observation.
  - ✓ 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**,
    - ✓ For example: finding themes in qualitative data to quantify, and therefore measure.
    - ✓ Or, having more than one researcher observe a setting and recording behaviors of interest

# SYSTEMATIC OBSERVATION

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## ✓ Methodological issues

### ✓ Equipment

- ✓ It is becoming more common to use video recording equipment to make such observations because they provide a permanent record of the behavior observed that can be coded later.

### ✓ Reactivity

- ✓ A second issue is **reactivity**—*the possibility that the presence of the observer will affect people's behaviors.*
- ✓ Reactivity can be reduced by concealed observation.

### ✓ Reliability

- ✓ People and settings can be very unpredictable

### ✓ Sampling

- ✓ Difficult to obtain large samples
- ✓ Can be Expensive and/or Time Consuming to obtain participants



# SYSTEMATIC OBSERVATION

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- ✓ Reliability
  - ✓ Reliable measures are stable, consistent, and precise.
  - ✓ When conducting systematic observation, two or more raters are usually used to code behavior.
  - ✓ *Reliability is indicated by a high agreement among the raters. This is referred to **interrater reliability***
- ✓ Sampling
  - ✓ For many research questions, samples of behavior taken over an extended period provide more accurate and useful data than single, short observations.

# CASE STUDIES

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- ✓ A **case study** is an observational method that provides a description of an individual.
  - ✓ This individual is usually a person but can be an animal, and it may also be a setting such as a business, school, or neighborhood.
  - ✓ A **psychobiography** is a type of case study in which a researcher applies psychological theory to explain the life of an individual, usually an important historical figure.
- ✓ Are valuable in informing us of conditions that are rare, unusual, or noteworthy
  - ✓ Often used by practicing physicians, psychologists, historians, and other professionals

# ARCHIVAL RESEARCH

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- ✓ **Archival research** involves using previously compiled information to answer research questions.
- ✓ *The researcher does not actually collect the original data.*
- ✓ *Instead, he or she analyzes existing data such as statistics that are part of public records.*
  - ✓ Statistical records
  - ✓ Survey archives
    - ✓ Use of the General Social Survey (GSS)
  - ✓ **Written and mass communication records**
    - ✓ *Such as analyzing letters to the editor of a magazine to assess community attitudes.*

# ARCHIVAL RESEARCH

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- ✓ **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, but state and local agencies also maintain such records.
- ✓ **Survey archives**
  - ✓ Survey archives consist of data from surveys that are stored on computers and available to researchers who wish to analyze them.
  - ✓ Major polling organizations make many of their surveys available.
    - ✓ For example: General Social Survey (GSS; <http://gss.norc.org/>)
      - ✓ It's a general perspective on what Americans think and feel about issues such as national spending, crime and punishment, intergroup relations, and confidence in institutions, etc.



# ARCHIVAL RESEARCH

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- ✓ **Written and mass communication records**
  - ✓ These are documents such as diaries and letters that have been preserved by historical societies, ethnographies of other cultures written by anthropologists, and public documents as diverse as speeches by politicians or discussion board messages left by Internet users.

# ARCHIVAL RESEARCH

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- ✓ **Content analysis** is the systematic analysis of existing documents.
- ✓ Like systematic observation, content analysis requires researchers to devise coding systems that raters can use to quantify the information in the documents.
  - ✓ Systematic analysis of existing documents
  - ✓ Requires coding system
  - ✓ Can address questions that can be addressed in no other way
  - ✓ Limitations
    - ✓ Difficult to obtain
    - ✓ Cannot be sure of accuracy

# OBSERVATION LAB

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- ✓ When doing observational behavioral assessments, a broader category of behavior is called a “**molar**” category whereas a more specific category is called a “**molecular**” category.
  - ✓ Tying your shoes can be classified into the behavioral category of getting dressed.
  - ✓ Since tying shoes is more specific, it is a more molecular category than getting dressed (i.e., getting dressed is more molar).
- ✓ When assessing behavior, behavior must be defined molecularly so that it is at the descriptive level.
  - ✓ At the Molecular level, behaviors can be more easily “Operationally Defined”

# OBSERVATION LAB

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- ✓ 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

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- ✓ There are numerous ways to classify the many procedures used for recording behavioral observations.
- ✓ Three ways to classify them are on the basis of:
  - ✓ the **number of different target behaviors** observed (**single** or **multiple**)
  - ✓ the **number of persons** being observed (**individual** or **group**)
  - ✓ the **behavior sampling method**:
    - ✓ **Event Sampling** is recording every occurrence of the target behavior
    - ✓ **Time Sampling** is recording target behavior only if it occurs at predetermined points in time

# OBSERVATION LAB

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## **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 rocks at other people, and spitting towards another person.
  - ✓ In this case, three separate target behaviors would be measured rather than only one.
- ✓ The observer may be interested in the behavior of only one individual or that of an entire group.
- ✓ A person's behavior during an observation period is considered a "sample" of the behavior they display in their everyday life.
- ✓ This sample is used to infer how that person behaves in similar situations on other occasions.

# TIME SAMPLING EXPERIMENT

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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.
2. You're to record two target behaviors at the same time:
  - For example, speaking, smiling, fidgeting, moving his/her foot, 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**.

# TIME SAMPLING EXPERIMENT

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4. Each observer must make two judgments the instant the timer states the interval number.
  - One judgement is whether the target person is talking at that instant, and the other judgment is whether the target person is smiling at the instant.
5. Select a person who is talking with another person in a public place.
  - **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.



# TIME SAMPLING EXPERIMENT

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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

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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.
9. Also be sure that all other relevant information is included just as it is shown in the example. In this case, the person you observe will not be identified by name since he or she will remain anonymous.

# EVENT SAMPLING EXPERIMENT

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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

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- **Time Sampling**
- When using time sampling, specific points in time (e.g., 30 second markers) are identified during an observation period (e.g., 3 minutes). The target behaviors occurring at each time point are recorded. Target behaviors that occur before or after each point are ignored.

Observation Period: 3 minutes

Observer: Joanne Smith

Client: John Smith

Date: Oct 1

## TIME SEGMENTS (SECONDS)

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

Grand Total 6

# EVENT SAMPLING GRAPH

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- **Event Sampling**
- When using event sampling, every occurrence of the target behavior(s) is recorded during the specified intervals.

Observation Period: 60 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							0
Rocks							
Spitting	✓✓	✓		✓	✓		5

Grand Total 8

# Observation Reliability

(See Handout for details)

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## 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

# Observation Reliability

(See Handout for details)

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## 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.)

$$\text{Occurrence Reliability Coeff.} = \frac{\# \text{ Cell Pairs Agreeing on } \# \text{ of Occurrences}}{\# \text{ Cell Pairs Agreeing} + \# \text{ Cell Pairs Disagreeing}}$$

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

# Observation Reliability

(See Handout for details)

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## 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:

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

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

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



# OBSERVATION LAB

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- 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 6 calculations)**
  - Grand Total Outcome Reliability Coefficients **(a total of 2 calculations)**
- **Turn in your calculations as hard copies at the beginning of class next Tuesday.**