

Notes on Observational Research.

1) Review: Observational research focuses on the observable behavior of individuals (rather than by-products of behavior or self-reports of behavior), usually in a context of natural reinforcements and contingencies.

CASUAL OBSERVATION: often done to develop ideas about what behaviors might be important to study systematically, how to operationally define them, and how to select the best strategy for sampling subjects and/or situations. Problems with using casual obs. alone: you typically don't know which behaviors to focus on, and because your coding strategy isn't defined, you tend to forget what you have observed.

SYSTEMATIC OBSERVATIONS:

- a) serve a formulated research purpose (hypothesis testing: eg. little boys play with killer toys more than little girls).
- b) are planned.
- c) data is recorded systematically, and according to some operational def.
- d) subjected to checks on reliability and validity.

Decisions you make in doing systematic observations:

- *Who will observe? You want "coders" who can do reliable job.
- *Who will be observed? Goal is generalizability to target population.
- *What behaviors are to be observed, and how will they be operationally defined?
- *What dimension of the behavior are you interested in studying?

Possible dimensions: a) Presence/absence (eg. dismount from bicycle or not?).

- b) Frequency - at what rate do(es) target subject(s) emit behavior X?
- c) Duration - do subjects differ in how long they take to complete response?
- d) Latency of behavior after an eliciting stimulus.
- e) Magnitude of behavior

*When and where will you observe subjects? Goal is generalizability to other times and other situations.

*How is data to be recorded? Your operational definition should result in categories which can be applied consistently (by different raters, to different subjects, in different situations). Options: Coding sheet and pencil

Stopwatch
computer

*Video/audiotape

*advantage: other categories of behavior can be coded at a later time. Also, reliability can be assessed by reviewing tape.

2) Additional points about observational research in general:

RELIABILITY: the degree to which two or more observers agree on their observations.

Standard formula: $\frac{\text{Number of times 2 observers agree}}{\text{Number of opportunities for agreement}} \times 100$

BEHAVIOR SAMPLING

Time sampling: the intervals at which observations are made in a given setting are chosen either systematically or randomly, with the goal of obtaining a representative sample of behavior (eg. standing in each of four dismount zones for .5 hr. at different times of day to observe the relation between wearing a helmet and getting off bike).

Continuous real-time sampling: record every occurrence of a behavior for target subject(s) during period of observation.

Time-interval sampling: for each interval of time (eg 60 seconds) record a 1 or 0 on coding sheet in appropriate category to indicate whether the behavior in question occurred one or more times during the interval, or not at all. This strategy is useful in preventing information overload when lots of behaviors are being monitored at once without the help of recording equipment, or when more than one subject is being monitored at the same time.

Event sampling: used when the event (behavior) of interest occurs infrequently (eg. if you didn't expect to observe bicyclists on a campus very frequently, you might count every case of a bicyclist that you see over a five-day period, regardless of whether you'd planned the observation or not).

When the behavior of interest is extremely rare or difficult to witness, researchers can contrive a laboratory situation that will tend to evoke behaviors similar (one hopes) to those that occur in the natural environment (eg. having a couple come into a lab with a one-way mirror and video-equipment to discuss a problem that they face is a more reliable strategy for getting data about communication patterns than listening in at the Fall Creek Bakery or at someones kitchen window.

VALIDITY of observations refers to the extent to which the recorded observations represent what they are supposed to represent according to the researchers theory (eg. physical proximity or duration and frequency of eye-contact might be a valid measure of physical attraction between individuals observed in their natural environment. Whether their hands are in their pockets (their own) while they are interacting, or whether they are using a spoon or a fork to eat their lunch is probably not.

REACTIVITY: when awareness of being observed changes the behavior of target subject the method of overt observation is said to be "reactive". This is exceedingly common, and can lead to problems of interpretation.

Solutions:

- a) observer can hide (use disguise, camouflage, or one-way mirror).
- b) observer can act like participant in the natural setting.
- c) observer can disguise purpose or focus of observations
- d) observer can wait until subjects get used to his/her presence (become habituated)
- e) choose unobtrusive measure (archival data, or physical trace)

Advantages of systematic observational approach:

- 1) useful in describing human behavior that can't be talked about out of a) ignorance/inability, b) fear/embarrassment. So much of human behavior is routinized and automatic, you can't assume that self-report can give you complete information.
- 2) inexpensive in terms of equipment.
- 3) has high predictive validity, especially if reactivity is ruled out: the best predictor of future behavior is present and past behavior.

Disadvantages:

- 1) expensive in terms of time.
- 2) reactivity a problem.
- 3) reliability often difficult to establish and maintain over the course of the study. "Observer drift" refers to the tendency of observers whose reliability has become good with training to become less reliable as they forget the precise operational definitions of the behavioral variables (also called "content codes"). Reliability checks need to be conducted on a frequent basis to correct observer drift before measurements become invalid.

Information specific to current assignment:

- 1) pick interesting hypothesis for your own sake. It will make the whole process more enjoyable.
- 2) derive precise operational definitions of your variables: specify what the behavior will look like, and if you are using physical features to categorize people (eg. "jocks" wear sweats and/or tennis shoes and/or baseball cap) be specific so that you will all agree (try a reliability check: either an informal one, or, if you are really ambitious, try using the formula). Don't intrude on people or ask them questions. This is naturalistic observation.
- 3) decide on sampling strategy, scale of measurement and statistical tools. Ask for help if you're unsure. If using time-interval sampling, you can use a little matrix of "time windows", which you should label ahead of time.
- 4) Collect data (at least two hours of observat. per person). Don't duplicate observations among yourselves. Second or third person can serve as relief (take turns alternating every 10-15 minutes), or as a reliability check, or in some cases, as a "prop". Turn in data collection sheets and data with your reports, and identify yourselves as a member of the research team to which you belonged.
- 5) pool data from all observers in group
- 6) write complete write-up separately. It's fine if you work together on methods, results. Turn in something that is written like a formal research report. Tips: Method should include description of the sampling strategy used. Use appropriate descriptive and inferential statistics. Tables and/or graphs if they would be useful to the reader. Discussion section should include discussion of possible reactivity of the procedure, and a critique of your own design. You all did great on the alternative hypothesis assignment. Keep an open mind about your own research as well. Good luck!

Identification Choose 20. Worth 1.5 points each.

1. Independent Variable (Non-subject) --
2. Reactivity --
3. Inter-observer reliability --
4. Interaction --
5. Control condition --
6. Experimental design --
7. Systematic observation --
8. Ceiling effect --
9. Counterbalancing --
10. Within subjects design --

11. Factorial experimental design --

12. Latent content --

13. Random assignment --

14. Order effect --

15. Scales of measurement --

16. $P < .01$ --

17. Null hypothesis --

18. Descriptive statistics --

19. Frequency distribution --

20. Dependent variable --

21. Double-blind experiment --

22. External validity --

23. Regression to the mean --

24. Stratified random sampling --

Choose 7. Worth 5 points each.

1. In what primary way does experimentation differ from other major research methods (e.g., observation, interview) we've discussed? How does the researcher make sure that this goal is reached?

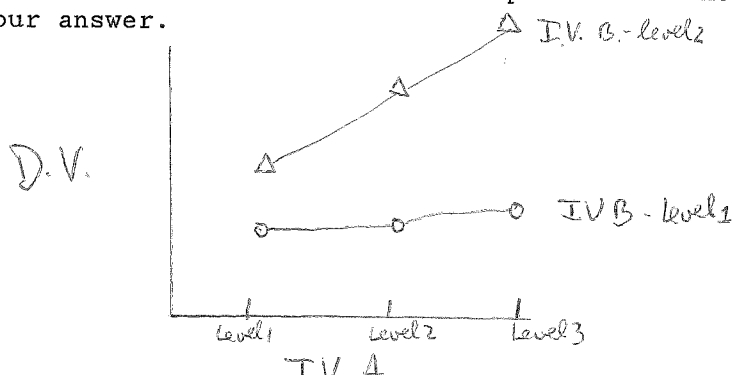
2. What is reactivity? Discuss several ways that reactivity can be minimized during research? Are there ethical issues related to any of these techniques? If so, discuss how researchers might resolve those issues - give an example.

3. List the six steps followed in the construction of questionnaires and interview schedules. Give examples of issues you might face in this process. Discuss the relative advantages and disadvantages of using interview schedules as opposed to questionnaires for research purposes. (Hint - consider the relative advantages of greater or lesser personal involvement as part answering).

4. Explain some of the who's, where's, when's, what's, and how's that need to be decided upon by someone interested in conducting observational research on a particular question. What are some possible dimensions on which a researcher might be interested in measuring behavior?

5. Consider an experiment in which two independent variables have been manipulated. Variable A has been manipulated at three levels and Variable B has been manipulated at two levels.

a) Is there an interaction present in the following display? Explain your answer.



b) Draw a graph showing a main effect of Variable A, no effect of Variable B, and no interaction of the two variables. (Label axes and graphs)

c) Draw a graph showing no effect of Variable B, no effect of Variable A, and an interaction between the two variables. (Label axes and graphs)

d) Print a table showing an effect of Variable A, an effect of Variable B, and no interaction. (Provide labels)

6. List four sources of data utilized in psychological research, and give an example of each.

7. Including accidental sampling, 4 kinds of sampling procedures were discussed. Briefly describe the distinguishing features of each strategy.

8. What are descriptive statistics and why are they used? Give two examples. What are inferential statistics and why are they used? Give two examples.

9. You are interested in studying the effect of people's "emotional state" on their "ability to learn a new motor task" (e.g., a backflip off the spring board). Discuss the kinds of decisions you would be faced with, emphasizing the problems in choosing a measurement strategy (i.e., discuss in reference to various scales of measurement).