

EXPERIMENTAL/QUASI EXPERIMENTAL RESEARCH

WHAT IS IT?

- It is a highly regarded research method of manipulating variables to check for causal relationships. See the link below for basics of experimental design:

<http://www.okstate.edu/ag/agedcm4h/academic/aged5980a/5980/newpage2.htm>

- Purpose of an experiment is to show comparison—either before-and-after, or a side-by-side comparison.
- Involves a deliberate manipulation of one variable while keeping the others constant.
 - Manipulating the independent variable to see its effect on the dependent variable.
 - Many experiments are conducted in a controlled setting (laboratory) so that the researchers can control the environment as much as possible.
- Experiments are the cornerstone of research in psychology, but not as much in sociology or organization studies.

- See the following Youtube clip for an example of an experiment:

<http://www.youtube.com/watch?v=G7bpwbnged4>

- Common experimental terminology:
 - **Experimental group:** the groups or subjects receiving the experimental treatment
 - **Control, or comparison, group:** the group of subjects receiving no treatment at all or a placebo
 - See the following weblink for a quick overview:

<http://liutaalomottola.com/myth/expdesig.html>

DIFFERENCES BETWEEN EXPERIMENTS AND QUASI-EXPERIMENTS

- **True experiments:** these must have at least 3 things:

- 2 comparison groups, 1 receiving the experimental treatment and the other receiving no experimental treatment or a placebo
- Random assignment to the 2 groups
- Assessment of change in the dependent variable for both groups after the experimental treatment has been received
- Common true experimental designs:
 - Pre-test/ Post-test control group design
 - Posttest only control group design
 - Solomon 4 Group Design
 - The Multiple Experimental group
 - The Factorial Design
- **Quasi-Experiments:**
 - Maximizes internal validity
 - Assignment to groups may not necessarily be random
 - OR, just one group may be monitored before and after with no comparison group
- 3 major types of quasi-experimental designs:
 - **Nonequivalent control** group designs
 - Have experimental and comparison groups designated before experimental treatment
 - Not created by random assignment
 - **Before-and-after** designs
 - Have pre-test and post-test but no comparison group
 - Subjects exposed to the experimental treatment were also their own control at an earlier time
 - **Ex post facto control group** designs
 - Have experimental and control groups not created by random assignment
 - Groups are designated after the experimental treatment is given
 - Some researchers do not consider this design to be experimental, while others consider this to be quasi-experimental (Bachmann & Schutt, 2011)

RANDOM ASSIGNMENT

- Because comparisons are at the core of experimental designs, it is important to compare things that are basically the same.
- See the following weblink for information about random assignment:

<http://www.socialresearchmethods.net/kb/random.htm>

http://www.google.com/imgres?imgurl=http://psychology.ucdavis.edu/SommerB/sommerdemo/experiment/images/assign_ran1.gif&imgrefurl=http://psychology.ucdavis.edu/SommerB/sommerdemo/experiment/types.htm&usq=NLnpSlCkZcKn8idCLOoUSkRVJA0=&h=234&w=233&sz=10&hl=en&start=2&sig2=iTBuLPhmmg_dszmzlXKXqA&um=1&itbs=1&tbnid=d3S1ZPhrDKs30M:&tbnh=109&tbnw=109&prev=/images%3Fq%3Drandom%2Bassignment%26um%3D1%26hl%3Den%26sa%3DN%26rlz%3D1R2ADSA_enUS373%26tbs%3Disch:1&ei=KPwoTO6mDIWdlgfOy_j-Bw

- The importance of random assignment is that if subjects are selected without random assignment, then it would be difficult to generalize the findings of the study to the entire population.
- Random sampling maximizes generalizeability.

ADVANTAGES OF EXPERIMENTS

- Experiments are the best means by which to show cause-and-effect.
- Allows for precise control of variables.
- Can be replicated.
- Yields quantitative data.

LIMITATIONS OF EXPERIMENTS

- They are artificial and typical of “real life” situations.
- Behavior is narrow in laboratory settings.
- Presence of “demand characteristics” which refer to expectations of researchers and subjects.
- Many experiments use college students which is not representative of the entire population of a given society.

- Not possible to control all variables, so experimenter needs to be aware of all the other variables that may be at work which are not part of the experiment.
- Ethical considerations.

QUASI-EXPERIMENTS

- A quasi-experiment is an experiment in which one of the 3 conditions is missing.

WHAT QUESTIONS DOES IT ANSWER?

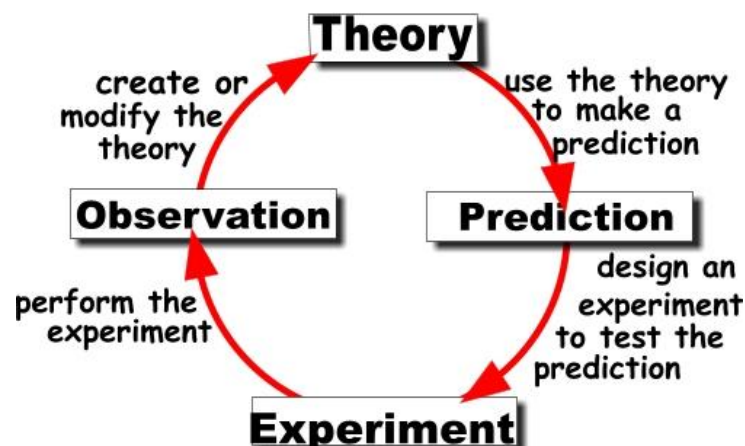
Experiments are not suited to answer opinions of a large number of people. According to Neumann (2009), “the social experiment is better for narrowly targeted short-term micro-level concerns” (p. 181).

Questions best answered in an experiment are:

- When the researcher can isolate the impact of a few variables in a controlled setting
- When the experiment has the ability to isolate a causal mechanism
- Targets 2 or more variables

HOW IS IT DONE?

- The researcher usually begins with a hypothesis based on a theory.
- The hypothesis is an educated guess, or statement, about what will happen if something is manipulated.
- The experiment is designed and conducted.
- Results of the experimental method are observed.
- The theory is then either supported (NEVER proven!!!) or modified.



THE ASSIGNMENT

You will need to conduct a specific experiment.

Find **at least 5 participants** with whom to conduct this experiment.

This experiment is designed so that you can do this with each participant individually.

You, as the researcher, will have to closely monitor this experiment and make sure that the conditions under which the experiment is conducted with ALL subjects is the same in all cases.

THE EXPERIMENT: this experiment takes 15 minutes to complete if you adhere to strict time guidelines.

1. For this experiment, you will need to print out 2 copies for each participant of the attached blank map of the USA AND 1 copy for each participant of the filled in map of the USA
1. Then, using a blank map of the USA and **with a timer set to 5 minutes**, ask the subject to write in as many of the states as he/she can possibly identify.
2. **STOP** at the end of 5 minutes! It is important that you stop at this time because everyone in your experiment MUST follow the same directions!
3. Remove the blank map with the written in states from the subject's possession.
4. Now, give the subject a map of the USA with the filled in names of the states. The subject is allowed to study this map for 5 minutes. No more! (Some subjects may look at this map for a minute or two and tell you that they are ready to take the test again. DO NOT do this! The subject MUST study the map for 5 minutes before re-taking the test.
5. Now, take away the filled-in map from the subject's possession, and give the subject another blank copy of the map of the USA.
6. Once you have done this with 5 participants, analyze the data.
 - How many states did each subject fill in?
 - How many states did each subject get right?
 - How many states did each subject leave blank?
 - How many states did each subject get wrong?
 - Collect demographic data such as gender, educational level, and age
7. Using Excel, create a chart or graph depicting the results.
 - Besides learning how many states, on average, each participant did or did not know, what else can you learn from the aggregate of this experimental data?

THE EXPERIMENT REFLECTION PAPER

8. WRITE A 1-2 PAGE REFLECTION PAPER IN WHICH YOU:

- DESCRIBE THE PURPOSE OF THE EXPERIMENT AND/OR THE RESEARCH QUESTION
- EXPLAIN THE TYPE OF EXPERIMENTAL METHOD CONDUCTED
- DESCRIBE THE FINDINGS OF THE EXPERIMENT
- DRAW CONCLUSIONS BASED ON THE RESULTS OF YOUR EXPERIMENT
- INCORPORATE WHAT THE TEXTBOOK HAS TO SAY ABOUT EXPERIMENTS
- THE FINAL ASSIGNMENT SHOULD INCLUDE:
 - COVER PAGE IN APA STYLE
 - 1-2 PAGES OF TEXT
 - REFERENCE PAGE
 - CHART (USE EXCEL) WITH THE RESULTS OF THE FINDINGS OF YOUR EXPERIMENT, INCLUDING:
 - WHICH STATES WERE MOST COMMONLY IDENTIFIED?
 - WHICH STATES WERE MOST COMMONLY NOT IDENTIFIED?
 - IN ADDITION, CREATE A CHART THAT SHOWS THE AGE RANGE OF YOUR EXPERIMENTAL GROUP MEMBERS ALONG WITH THEIR SCORES ON THE MAP.
 - WAS THERE A PATTERN BETWEEN AGE AND SCORE? IF SO, WHY DO YOU THINK THAT IS?
 - IS THERE ANY REASON TO BELIEVE THAT YOUR FINDINGS COULD BE GENERALIZED TO THE ENTIRE POPULATION? EXPLAIN YOUR ANSWER WITH SUPPORT FROM THE TEXT.

References

- Bachman, R. & Schutt, R. K. (2011). *The practice of research in criminology and criminal justice fourth edition*. Thousand Oaks, CA: SAGE.
- Chambliss, D. F. & Schutt, R. K. (2010). *Making sense of the social world methods of investigation third edition*. Los Angeles, CA: Pine Forge Press.
- Neumann, W. L. (2009). *Understanding research*. Boston: Pearson.
- Maxfield, M. G. & Babbie, E. (2008). *Research methods for criminal justice and criminology*. Belmont, CA: Thomson Higher Education.
- Remler, D. K. & Van Ryzin, G. G. (2011). *Research methods in practice strategies for description and causation*. Thousand Oaks, CA: SAGE.
- Salkind, N. J. (2009). *Exploring research seventh edition*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Schutt, R. K. (2009). *Investigating the social world 6th edition*. Los Angeles, CA: Pine Forge Press.