

Introduction to Research Methods

Fall, 2010

MAN 390.2, McCombs School of Business, University of Texas at Austin

Jeffrey Loewenstein

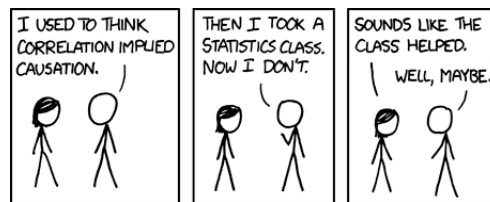
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Class: Mondays 2-5pm in GSB 5.154

Office hours: come by and knock, or by appointment

This course is an introduction to doing social science research, intended for business school graduate students. The goal is to provide a sense of what doing such research is about, so as to prepare students to read and do it, and to provide a basis for subsequent courses on analyzing data. Our focus is on methods, not statistics, yet we will discuss some conceptual statistical issues.



<http://xkcd.com/552/>

The course format will be based on discussions and mini-lectures. Most weeks, we will spend time examining your homework assignments together, analyzing the issues raised and not raised in concrete instances, then comparing and contrasting across them to understand the core ideas involved in research methods. We will learn by ascending from the concrete to the general, engaging in constant efforts to recognize consistent methodological issues within ever-changing research contexts.

This class is intended to help you launch a career conducting research. As such, I am listing both required readings, and a list of optional readings and links to serve as a starting point whenever those issues arise for you more forcefully in the future and you need more involved guidance.

Readings

We will be use two books (listed below). These books make plain that research is about describing phenomena and proposing explanations for phenomena. Accordingly, their emphasis is on articulating how research methods and statistics are tools for doing these tasks well. We will also use various articles and chapters, most of which will be posted online through the UT Blackboard course website (<http://courses.utexas.edu>). Additional resources are available at: <http://www.mcombs.utexas.edu/faculty/Jeffrey.Loewenstein>.

Abelson (1995). *Statistics as principled argument*. Erlbaum.

Shadish, Cook & Campbell (2001). *Experimental and quasi-experimental designs for generalized causal inference*. Houghton Mifflin.

Assignments

I provide detailed descriptions of all out-of class assignments as we meet them during the semester; what follows is a brief indication of what to expect.

Your main assignment this semester is to generate a research proposal. It should be about 15 pages, plus an abstract. I will use as a guideline the central National Science Foundation criteria for evaluating

proposals (below), although naturally I will have a particular focus on your methods. *It must contain two methodological approaches* (e.g., an experiment and a survey; a survey and an archival study; etc).

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

You will generate ideas for the proposal (5%), a first draft of a proposal (20%), and a final proposal (25%).

You will also critique another student's first draft proposal, and do various smaller assignments so you can try your hand at some of the various methodological stages and approaches we'll be discussing (30%). These small assignments will be due the day before class so I can read and return them to you quickly and so we can discuss and learn from them together. And of course, you are expected to participate in class discussion, informed by the readings (20%). There are not that many of us, and we are together for a fair amount of time. I expect everyone to make contributions, one way or another, every class session.

Academic Honesty

You should hand in work that is yours, and that is original work for this class. You are free to hand in assignments drawing on topics that you are working on with other people and for other classes. You may discuss the topic with others you are working with. This is in many ways a good thing. However, you must motivate distinct hypotheses and introduce something distinct in the methods. I should be grading your work, not anyone else's.

I have no tolerance for acts of academic dishonesty. Such acts damage the reputation of the school and the degree and demean the honest efforts of the majority of students. The minimum penalty for an act of academic dishonesty will be a zero for that assignment. The responsibilities for both students and faculty with regard to the Honor System are described on <http://mba.mcombs.utexas.edu/students/academics/honor/index.asp> and on the following pages. As the instructor for this course, I agree to observe all the faculty responsibilities described therein. If the application of the Honor System to this class and its assignments is unclear in any way, it is your responsibility to ask me for clarification.

Students with Disabilities

Upon request, the University of Texas at Austin provides appropriate academic accommodations for qualified students with disabilities. Services for Students with Disabilities (SSD) is housed in the Office of the Dean of Students, located on the fourth floor of the Student Services Building. Information on how to register, downloadable forms, including guidelines for documentation, accommodation request letters, and releases of information are available online at <http://deanofstudents.utexas.edu/ssd/index.php>. Please do not hesitate to contact SSD at (512) 471-6259, VP: (512) 232-2937 or via e-mail if you have any questions.

Possibility of Changes

In rare circumstances it is necessary to change the above policies and schedules during the semester. Any changes will be announced in class and accompanied by a written notice.

Research Methods Course Schedule Fall 2010

Week	Topic	Readings	Task
1 8/30	Doing organizational research		
2 9/?	Statistics 1	Cohen [2 articles]; Abelson Ch1-5	
3 9/13	Statistics 2	Abelson Ch6-9; Anderson U&L	
4 9/20	Statistics 3	Bobko	Submit questions
5 9/27	Explanations	<i>Lave & March</i> ; Sutton & Staw	Generate explanations
6 10/4	Validity	SCC Ch1-3, 14	Read well!
7 10/11	Experiments 1	Platt; SCC Ch8; Goldreich	Design an experiment
8 10/18	Experiments 2	Aiken & West	Experiment exercise
9 10/25	Quasi-experiments 1	SCC Ch4-5; Schwarz et al	Proposal ideas
10 11/1	Quasi-experiments 2	SCC Ch6; Morris & Moore; McWilliams & Siegel	Design a quasi-experiment
11 11/8	Quasi-experiments 3	Kilduff & Tsai; Wasserman & Faust; Galaskiewicz; Provan et al	Expanded proposal ideas
12 11/15	Measurement 1	Podsakoff et al; Perdue & Summers; Murphy	Question assignment
13 11/22	Measurement 2	Bobko; Schmidt & Hunter; Bollen & Lenox	Submit proposal
14 11/29	Ethics	SCC Ch9; On being a scientist; UT IRB	Turn in critique of research proposal
12/6			Turn in Final Research Proposal

“Abelson” = Abelson (1995). *Statistics as principled argument*. Erlbaum.

“SCC” = Shadish, Cook & Campbell (2001). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Houghton Mifflin.

Additional readings are posted on Blackboard, *except those in italics, which will be distributed in class.*

Assigned readings and extensions

What follows are discussions of readings. On this page are books of broad relevance. On the subsequent pages are the assigned readings and optional extensions by week. At the end is a long list of references you might consider of value in your future explorations of methodological issues.

Rosenthal & Rosnow (2008). Essentials of behavioral research, Third Edition. McGraw Hill.

A general textbook and useful reference.

Pedhazur, E. J., & Schmelkin, L. P. 1991. Measurement, Design, and Analysis: An Integrated Approach. Erlbaum.

An alternative overview, emphasizing measurement issues.

Judd & Kenny 1981 Estimating the effects of social intervention, downloadable at <http://davidakenny.net/doc/JuddKenny1981.pdf>

An out of print but still useful introduction to research methods.

Kline, R. B. 2009. Becoming a behavioral science researcher. New York: Guilford Press.

A new overview with rare attention on early stages of data analysis, writing and giving presentations.

Darley, J. M., Zanna, M. P., & Roediger, H. L. (Eds.). 2004. The Compleat Academic: A career guide. Washington, DC: American Psychological Association.

A book by psychologists on career issues, many of which are common to other academic disciplines.

Booth, W. C., Colomb, G. G., & Williams, J. M. 2008. The craft of research. Chicago, IL: University of Chicago Press.

A book by humanities professors with helpful suggestions about getting from broad topics to focused research questions, and about forming, writing and presenting arguments.

Statistics

Cohen, J. 1992. A power primer. *Psychological Bulletin*, 112(1), 155-159.
A brief introduction to power.

Cohen, J. 1992. The earth is round ($p < .05$). *American Psychologist*, 49(12), 997-1003.
A brief introduction to effect size.

The Abelson chapters march through a host of statistical issues that are important for methodology and often not the focus of statistics courses.

Anderson, D. R. 1991. Umbrellas and lions. *Journal of Clinical Epidemiology*, 44(3), 335-337.
A brief introduction to research mendacity.

Bobko, P. (2001). Correlation and regression: Applications for industrial organizational psychology and management (2nd edition). Thousand Oaks, CA: Sage.
A selection from an outstanding discussion of correlation and regression that is worth the somewhat heavy-handed writing style.

Extensions:

http://davidakenny.net/doc/cc_v1.pdf

<http://davidakenny.net/statbook/kenny87.pdf>

Two out of print but useful books by Kenny that you can download in their entirety.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum

The dominant guide to analyzing statistical power.

Killeen, P. R. 2005. An alternative to null-hypothesis significance tests. *Psychological Science*, 16(5), 345-353.

The case for P_{rep} , an estimate of the likelihood of replication.

Maxwell, S. E. (2004). The persistence of underpowered studies in psychological research: Causes, consequences, and remedies. *Psychological Methods*, 19(2), 147-163.

Statistical power remains a concern; some thoughts.

Explanations

Lave, C. A., & March, J. G. (1975). *An introduction to models in the social sciences*. New York: Harper and Row.

Help for developing explanations, with earnest but heavy-handed author instructions. It also discusses what makes a good explanation—compare it to Abelson's MAGIC.

Sutton, R. I., & Staw, B. M. 1995. What theory is not. *Administrative Science Quarterly*, 40, 371-384.

An influential discussion on separating explanations from other components of a paper.

Extensions:

Simon, H.A. (1968). On judging the plausibility of theories. In B. van Rootselaar and J.F. Staal (Eds.), *Logic, methodology and philosophy of sciences III* (pp. 439-459). Amsterdam: North-Holland. Available online at:

<http://diva.library.cmu.edu/webapp/simon/item.jsp?q=box00067/fld07244/bdl0001/doc0001>

Read for a discussion of parsimonious explanatory models and the roles of moderators and statistics in clarifying them.

Pearl, J. (2000). *Causality*. New York: Cambridge University Press.

A leading approach to causality from a causal models approach.

Wolff, P. (2007). Representing causation. *Journal of Experimental Psychology: General*, 136(1), 82-111.

A leading approach to causality from a force dynamics approach.

Rips, L. J. (1998). Reasoning and conversation. *Psychological Review*, 105(3), 411-441.

A leading approach to understanding arguments.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

James, L. R., & Brett, J. M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology*, 69, 307-321.

Well-cited classic articles on mediators and moderators.

Preacher, K. J., & Hayes, A. F. (2008). Contemporary approaches to assessing mediation in communication research. In A. F. Hayes, M. D. Slater, & L. B. Snyder (Eds.), *The Sage sourcebook of advanced data analysis methods for communication research* (pp. 13-54). Thousand Oaks, CA: Sage.

Kris Preacher's website, <http://www.people.ku.edu/~preacher/> has several recent papers (2004, 2007) and accompanying SPSS and SAS macros for conducting mediation and indirect effect analyses using bootstrap methods.

Validity

The Shadish, Cook and Campbell reading is the most recent formulation of the most influential approach to validity in social science research. Because validity is the most central concern of research methodology, this reading is the core content of the class.

Extensions:

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, 281-302.

A classic paper that argued construct validity was based on articulating a nomological net or network: a system of related theoretical constructs, a system of related measurable variables, and the relations between those two systems. A source for the paper is: <http://psychclassics.yorku.ca/Cronbach/construct.htm>.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 81-105.

A classic paper on convergent and discriminant validity.

There are extensive discussions of validity in work on measurement; for an introduction, see e.g., discussions in Ghiselli et al and in Bobko noted in the section on measurement.

Experiments

Platt, J. R., (1964). Strong inference. *Science*, 146(3642), 347-353.

This paper forcefully presents the idea of a critical experiment testing between the predictions made by two alternative explanations, and questions you might ask yourself about any study you intend to conduct.

The Shadish, Cook and Campbell reading provides an overview of what an experiment is and outlines most of the basic experimental designs you will see.

Goldreich, D. (1995). Positive result prejudice. In journal Neuroscape on WWW at

<http://neurocog.lrdc.pitt.edu/neuroscape/journal/moles/>

On the difficulties of knowing what was manipulated in an experiment.

Aiken L.S. & West, S. (1991). Multiple Regression: Testing and Interpreting Interactions.

Newbury Park CA: Sage.

A commonly used guide for analyzing interactions using a regression approach.

Extensions:

Rosch, E., Mervis, C. B., Gray, W. D., Johnson, D. M., & Boyes-Braem, P. (1976). Basic objects in natural categories. *Cognitive Psychology*, 8, 382-439.

This paper is a tour de force of generating an explanation then pursuing it in multiple types of experiments. As a bonus, it does so for one of the most compelling ideas about categories that social science has discovered.

Keppel, G. (1991). Design and analysis. Englewood Cliffs, NJ: Prentice Hall.

A standard source on experimental design and ANOVA; more in depth than RR Ch14-18.

Fischhoff, B. (1996). The real world: What good is it? *Organizational Behavior and Human Decision Processes*, 65(3), 232-248.

This reading provides a discussion of the sometimes fraught and sometimes debated relationship between experimental research and applied concerns.

Wiseman, D. B., & Levin, I. P. (1996). Comparing risky decision making under conditions of real and hypothetical consequences. *Organizational Behavior and Human Decision Processes*, 66(3), 241-250.

This paper compares decisions made hypothetically and for keeps, as this is a common concern in some literatures.

Quasi-experiments & questionnaires

The Shadish, Cook and Campbell chapters present overviews of quasi-experimental designs and sampling issues.

Much of the research done in the business school consists of field studies and archival/ empirical/ analytical studies. These are almost always quasi-experiments, so understanding the tradeoffs involved in this kind of work is important.

Schwarz, N., Groves, R., & Schuman, H. (1998). Survey methods. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th edition, Vol. 1, pp. 143-179). New York: McGraw-Hill.

This is a brief overview of constructing a questionnaire by some of the current leading practitioners.

Extensions:

The following are leading guides for designing and conducting survey research.

Bradburn, N. M., Sudman, S., & Wansink, B. (2004). *Asking questions: The definitive guide to questionnaire design*. Jossey-Bass, San Francisco.

Sudman, Bradburn & Schwarz (1996). *Thinking about answers: The application of cognitive processes to survey methodology*. Jossey-Bass, San Francisco.

Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). *The Psychology of Survey Response*. New York: Cambridge University Press.

Dillman, D. A. (2000). *Mail and Internet Surveys*. New York: Wiley.

Quasi-experiments & archival studies

The Shadish, Cook and Campbell reading presents an overview of another common kind of archival quasi-experimental design, interrupted time series designs.

McWilliams, A., & Siegel, D. (1997). Event studies in management research: Theoretical and empirical issues. *Academy of Management Journal*, 40(3), 626-657.

This reading presents an overview of a common kind of archival quasi-experimental design.

Morris, M. W., & Moore, P. C. (2000). The lessons we (don't) learn: Counterfactual thinking and organizational accountability after a close call. *Administrative Science Quarterly*, 45, 737-765.

A rare paper that combines an experiment and an archival study within the same paper (but wait there's more; content analysis too!). It's a nice example of methodological triangulation in one paper.

Extensions:

The broad types of methods—such as experiments and quasi-experiments—have many sub-types. As you enter into a particular area of research, you will learn the particulars of specific sub-types, and the methodological issues involved.

Professor Andy Henderson's longitudinal analysis class is strongly recommended for anyone engaging in archival (or "empirical") research. I'll let him assign you further readings.

Social networks

Kilduff, M., & Tsai, W. 2003. *Social Networks and Organizations*. London: Sage.
An overview from an introductory textbook.

Wasserman, S., & Faust, K. 1994. *Social network analysis: methods and applications*. New York, Cambridge University Press.
An introduction from the leading methods book for social networks.

Galaskiewicz, J. (2007). Has a network theory of organizational behavior lived up to its promises? *Management and Organization Review*, 3, 1-18.

Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network level: a review of the empirical literature on whole networks. *Journal of Management*, 33, 479-516.
Two papers with recent over-views of network research to give a feel for its use.

Extensions:

Software: Borgatti, Everett, & Freeman UCINET Network Analysis Software.
<http://www.analytictech.com/>

UCINET tutorial by Bob Hanneman
<http://faculty.ucr.edu/~hanneman/nettext/>

The most commonly used software for conducting network analyses.

Measurement

Podsakoff, P. M., MacKenzie, S. B., Podsakoff, N. P., & Lee, J.-Y. (2003). Common method biases in behavioral research: A critical review of the literature and some recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Focus on the first part of the article on method biases; I leave the latter part on possible statistical remedies as an extension for future reference.

Perdue, B. C., & Summers, J. O. (1986). Checking the success of manipulations in marketing experiments. *Journal of Marketing Research, 23*(4), 317-326.

A discussion of the validity of treatments.

Murphy, K. R. (2009). Validity, validation and values. *Academy of Management Annals, 3*(1), 421-461.

A discussion of validity issues related to measurement.

Bobko, P. (2001). Correlation and regression: Applications for industrial organizational psychology and management (2nd edition) Chapter 4. Thousand Oaks, CA: Sage.

From an excellent book on correlation; in the Lave and March style of writing.

Schmidt, F. L., & Hunter, J. E. (1999). Theory testing and measurement error. *Intelligence, 27*, 183 – 198.

An argument for correcting for measurement error.

Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin, 110*(2), 305-314.

A discussion of measurement largely centered on the difference between reflective and formative indicators.

Extensions:

Curhan, J. R., Elfenbein, H. A., & Xu, H. (2006). What do people value when they negotiate? Mapping the domain of subjective value in negotiation. *Journal of Personality and Social Psychology, 91*, 493-512.

A recent sample article generating a scale.

Cortina, J. M. 1993. What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology, 78*(1), 98-104.

A nice discussion of Cronbach's alpha.

Schmidt, F. L., & Hunter, J. E. (1996). Measurement error in psychological research: Lessons from 26 research scenarios. *Psychological Methods, 1*(2), 199-223.

Examples of correcting measurements.

Ghiselli, E. E., Campbell, J. P., & Zedeck, S. 1981. Measurement theory for the behavioral sciences. Freeman.

Nunnally, J. C., & Bernstein, I. H. 1994. Psychometric theory. New York: McGraw Hill.

Well-known textbook introductions to measurement theory.

Ethics

The Shadish, Cook and Campbell chapter provides a discussion of ethics in experiments.

Committee on Science, Engineering, and Public Policy. (2009). *On being a scientist: A guide to responsible conduct in research, third edition*. Washington, DC: National Academies Press.

A pretty user-friendly guide to ethical research.

The UT IRB file provides guidelines for human subjects research; please look at pp. 1-57, and if you haven't already done so, flip through the IRB human subjects training slides starting on p. 222. Better yet, go through it online so you can be verified online as having done it.

<http://www.utexas.edu/research/rsc/humansubjects/training/index.html>

Extensions:

Marino, G. (2004). Before teaching ethics, stop kidding yourself. *Chronicle of Higher Education*, 50(24), B5. <http://chronicle.com/weekly/v50/i24/24b00501.htm>

A reminder that being ethical is about the actions you do and do not take, not what you know about theories of ethics.

<http://www.research.illinois.edu/ethics/>

A varied and useful set of starting points on research ethics.

<http://www.web-miner.com/socsciethics.htm>.

A somewhat dated but useful bibliography.

Academy of Management. (1990). The Academy of Management code of ethical conduct. *Academy of Management Journal*, 33, 901-908.

Many fields have ethical codes for their members (although apparently economics does not); you should become familiar with your own.

Online sources

An up-to-date listing is maintained at:

<http://www.mcombs.utexas.edu/faculty/Jeffrey.Loewenstein/resources.htm>

Statistical simulations

http://onlinestatbook.com/stat_sim/index.html

Online calculators for running simple statistical tests, places to download more advanced tools, and commentary that prior students have found useful.

<http://faculty.vassar.edu/lowry/VassarStats.html>

<http://www.quantitativeskills.com/sisa/>

<http://www.changbioscience.com/calculator/scientific/cal0.htm>

<http://www.randomizer.org/>

<http://www.people.ku.edu/~preacher/>

<http://faculty.ucmerced.edu/wshadish/index.htm>

<http://www2.gsu.edu/~psyraab/BakemanPrograms.htm>

<http://davidakenny.net/kenny.htm>

<http://www.psych.cornell.edu/Darlington/index.htm>

Online statistical textbooks/guides

<http://www2.chass.ncsu.edu/garson/pa765/statnote.htm> (pretty broad)

<http://www.statsoft.com/textbook/stathome.html> (pretty broad)

<http://web.uccs.edu/lbecker/SPSS/content.htm> (ANOVA using SPSS)

<http://www.cmm.bristol.ac.uk/links/index.shtml> (multi-level modeling)

<http://www.tufts.edu/~gdallal/LHSP.HTM> (learn some nutrition while you're at it)

http://www.palass.org/modules.php?name=palaeo_math (learn some paleontology while you're at it)

Statistical software tutorials from UT

<http://ssc.utexas.edu/consulting/tutorials/index.html>

A sampling of online content analysis related sites:

<http://www.webuse.umd.edu:9090/>

<http://www.liwc.net/>

<http://lsa.colorado.edu/>

An accessible online modeling resource:

<http://ccl.northwestern.edu/netlogo/>

A small sampling of online resources with archival data to get you thinking

<http://www.sec.gov/edgar.shtml>

<http://gss.norc.og/>

<http://www.worldvaluessurvey.org/>

Sample resources for background/classic information from related disciplines

<http://cepa.newschool.edu/het/>

<http://plato.stanford.edu/>

<http://psychclassics.yorku.ca/>

A listing of methods/statistics courses across UT. Yes, for every topic on which we spent one class, you can now go spend an entire semester learning more about it.

http://www.ischool.utexas.edu/courses/phd_methods_courses.php

A few things for your enduring curiosity... (w/ thanks to Mark Fitchman, Dave Harrison)

- Allison, P. (1990). Change scores as dependent variables in regression analysis. In Clogg, C., editor, *Sociological Methodology*, pages 93-114. Jossey-Bass.
- Aronson, E., Brewer, M., & Carlsmith, J.M. (1985). Experimentation in Social Psychology, volume 1, pages 441-486. Knopf, New York.
- Austin, J. T., Boyle, K. A., & Lualhati, J. C. (1998). Statistical conclusion validity for organizational science researchers: A review. *Organizational Research Methods*, 1(2), 164-208.
- Bagozzi, R. (1980). Performance and satisfaction in an industrial sales force: An examination of their antecedents and simultaneity. *Journal of Marketing*, Spring, 65-77.
- Bangert-Drowns, R. (1986). Review of developments in meta-analysis. *Psychological Bulletin*, 99(3), 388-399.
- Baron, J. N., Dobbin, F.R. & Jennings, P.D. (1986). War and peace: the evolution of modern personnel administration in u.s. industry. *American Journal of Sociology*, 92:350-383.
- Bem, D. (1987). Writing an Empirical Journal Article, pages 171-201. Random House, New York.
- Bem, D. (1995). Writing a review article for psychological bulletin. *Psychological Bulletin*, 118(2), 172-177.
- Berk, R. (1983). An introduction to sample selection bias in sociological data. *American Sociological Review*, 48(June), 386-398.
- Blalock, H. (1965). Theory building and the statistical concept of interaction. *American Sociological Review*, 30(June), 374-380.
- Bradburn, N. (1982). Discrepancies Between Concepts and Their Measurements: The Urban-Rural Example, pages 137-148. University of Chicago, Chicago.
- Brief, A. P., & Dukerich, J. M. 1991. Theory in organizational behavior: Can it be useful? In B. M. Staw (Ed.), *Research in Organizational Behavior*, 13, 327-352.
- Campbell, J. (1986). Labs, fields, and straw issues. In Locke, E., editor, *Generalizing from laboratory to field settings: research findings from industrial-organizational psychology, organizational behavior, and human resource management*, pages 269-279. Lexington, Lexington.
- Cohen, I. B. (1985). *Revolution in Science*. Belknap Press, Cambridge, Massachusetts.
- Cohen, J. (1978). Partialled products are interactions; partialled powers are curve components. *Psychological Bulletin*, 85(4), 858-866.
- Cook, T.D. & Campbell, D. (1979). *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Houghton, Mifflin, Boston, MA.
- Crutcher, R. (1994). Telling what we can know: the use of verbal report methodologies in psychological research. *Psychological Science*, 5(5), 241-244.
- Dunbar, K. (1995). How scientists really reason: Scientific reasoning in real-world laboratories., pages 365-395. Bradford, MIT Press, Cambridge, Mass.
- Duncan, O. (1984). *Notes on Social Measurement*. Russell Sage, New York.
- Eigen, M. & Winkler, R. (1981). *Laws of the Game: How the principles of nature govern chance*. Harper & Row, New York.
- Embretson, S. (1983). Construct validity: construct representation versus nomothetic span. *Psychological Bulletin*, 93(1), 179-197.
- Epstein, S. & O'Brien, E. (1985). The person-situation debate in historical and current perspective. *Psychological Bulletin*, 98(3), 513-537.
- Epstein, S. (1979). The stability of behavior: I. on predicting most of the people much of the time. *Journal of Personality and Social Psychology*, 37(7), 1097-1126.
- Fischhoff, B. (1991). Value elicitation: Is there anything in there? *American Psychologist*, 46(8), 835-847.
- Fisher, R. (1926). *The Design of Experiments*. Hafner, New York. Chapter 2 is "The principles of experimentation, illustrated by a psycho-physical experiment".

- Fiske, D.W. & Campbell, D. (1992). Citations do not solve problems. *Psychological Bulletin*, 112(3), 393-395.
- Garcia, J. (1981). Tilting at the paper mills of academe. *American Psychologist*, 36(2), 149-158.
- Gigerenzer, G. (1991). From tools to theories: A heuristic of discovery in cognitive psychology. *Psychological Review*, 98(2), 254-267.
- Glymour, C., Scheines, R., Spirtes, P., & Kelly, K. (1987). *Discovering Causal Structure*. Academic Press, New York.
- Graham, J.W. & Stablein, R.E. (1985). A funny thing happened on the way to publication: Newcomer's perspectives on publishing in the organizational sciences, pages 138-154. Irwin, Homewood Ill.
- Greenberg, J., Pyszczynski, T., Solomon, S. & Steinberg, L. (1988). A reaction to Greenwald, Pratkanis, Leippe, & Baumgardner (1986), Under what conditions does research obstruct theory progress? *Psychological Review*, 95(4), 566-571.
- Greenwald, A.G & Pratkanis, A.R. (1988). On the use of "theory" and the usefulness of theory. *Psychological Review*, 95(4), 575-579.
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