

SYLLABUS

6J: 270

Research Methods in Behavioral and Social Science

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This course is the survey (or overview) methods course in the Ph.D. program. It covers a wide variety of methods and methodological issues that cannot be covered in the required statistics courses, the measurement course, and related courses. These include:

1. Philosophy of Science Issues
2. Role of Theory in Behavioral Research
3. Construction of Hypotheses and Theories
4. Overview of Methods
5. Research Designs
6. Correlation and Regression methods
7. Path Analysis
8. Exploratory Factor Analysis
9. Confirmatory Factor Analysis & Structural Equation Modeling
10. Survey Research Methods
11. Hierarchical Linear Modeling (Multilevel Modeling)
12. Secondary Research (Secondary Data Analysis)
13. Reviewing, Editing, and Re-writing Research Papers; Responding to Reviews.

The topics covered in this course are numerous and complex. A semester long course could be devoted to any of the first 12 topics. The objective of this

course is to provide you with a working knowledge of each of these methods, rather than to make you an expert in any of them. After completing this course, you should have mastered the knowledge necessary to (a) communicate with scholars in any social science discipline about empirical research, (b) critically review the methods used in empirical studies—for yourself, for peers seeking feedback, or for journal editors, and (c) design your own research to maximize the knowledge to be gained from it while at the same time recognizing its limitations. These are the course objectives.

Some of our Ph.D. students will take courses covering some of these topics in the Psychological and Quantitative Foundations Department in the College of Education (e.g., multivariate statistics). Others will take no methods courses beyond those required. To be successful as a researcher, reviewer, and research consumer today, you need a working understanding of each of the topics covered by this course. That is, you need to know (a) what the basic principles underlying each method are; (b) when it is appropriate to use the method; and (c) what advantages (and disadvantages) the method may have compared to other methods that might be used. No one can find time to take a separate course in each of these topics; hence the need for a course of this sort.

Required Readings:

This course centers on class discussion of required readings. Required readings are organized into packets by topic. I have chosen these readings from among a much larger possible selection because they provide clear and direct conceptual overviews of each topic and can be understood by anyone with basic knowledge of statistics and measurement. Well ahead of class discussion of a topic, I will deliver a copy of the relevant reading materials to the first floor copy center in PBB (Room C102). You can then go there and order your “free and fair use” copy of the materials. Some of the class readings are from the books you will purchase for the course; these readings will not be put in the copy room. You can purchase them at Iowa Book & Supply.

For most topics, I will prepare a list of questions based on the readings. This list will be included with the reading materials, e-mailed to you, or given to you in class. The class facilitator or I will call on you to give your answers to these questions in class. Be prepared to discuss them. Also, much of the content of the final exam will come from, or be related to, these questions.

In addition to materials to be copied, materials will be assigned from the text used in the Measurement course (6J:273), which you should already have if you took that course:

Nunnally, J.C., & Bernstein, I.H. (1994). Psychometric Theory. (3rd Edition). NY: McGraw-Hill.

If you have not yet had that course, you will find the Nunnally and Bernstein book on reserve in the Business Library (3rd Floor). Also, it can be purchased at Iowa Book & Supply or on the internet.

Also, six paperback books from Sage will be required:

1. Smithson, M. (2003). Confidence Intervals. Sage QASS Series, No. 140.
2. Fowler, F.J. (2002). Survey Research Methods. (3rd Ed.) Sage (Applied Social Research Methods Series, Vol. 1) (165 pp.)
3. Kalton, G. (1983). Introduction to Survey Sampling. Sage QASS Series, no. 35. (96 pp.)
4. Keicolt, K.J., & Nathan, L.E. (1985). Secondary Analysis of Survey Data. Sage QASS Series, no 53. (87 pp.)
5. Spector, P.E. (1981). Research Designs. Sage QASS Series, no. 23 (80 pp.)
6. Stewart, D.W., Kamins, D. W. (1993). Secondary Research. (2nd Ed). Sage (Applied Social Research Series, Vol. 4). (138 pp.) (Note: there is no newer edition of this.)

These books are available at Iowa Book and Supply. I have also asked for them to be put on reserve in the Business Library.

Readings for the first topic (Philosophy of Science) will be available at least a week prior to the first class. You will be expected to have read these materials when you come to the first class. I will include a list of the questions you should be prepared to answer in class.

All topic readings have been carefully chosen: (1) to be clear and accurate; (2) to show the “big picture”; (3) to not be too technical (a big problem in the methods literature); and (4) to not be too lengthy and time consuming.

We will cover all 13 of these topics by proceeding through them as expeditiously as possible. To do this we will be able to devote only one week (2 classes) to most individual topics. Some topics (e.g., Topic 9, Confirmatory Factor Analysis and Structural Equation Modeling) will require more time. I have attempted to map out a schedule of coverage for the semester which I will give you.

Organization of Classes:

This is not a lecture class. It is a seminar class. I will make presentations (usually at the beginning of the class) on the topics but these will not amount to a full lecture presentation. Given the straightforward nature of the readings, a full lecture presentation should not be necessary. Nor is it necessarily the best way to learn this material. For most of the classes, the discussion will be facilitated by students rather than by me. If there are any particular topics you would like to facilitate, let me know: please e-mail me your top 3 choices the first week of class. Otherwise, I will assign topics. For some topics, two or more students may be assigned to facilitate. As a facilitator, you will be expected to summarize key points in the materials, identify issues raised by the readings, and pose questions for the class.

One class in advance, the designated facilitator will provide a handout outlining the key points made in the readings and the issues to be discussed. However, the class should not be run as a lecture. All students and the instructor are expected to participate in the discussion, and the facilitator should attempt to ensure that everyone stays active and involved.

All students are expected to have read all assigned materials prior to class and are expected to come to class with comments and questions on the material to be covered.

Remember that you can be asked (by the facilitator or by me) to give your answer to any of the discussion questions prepared for that topic. These are sometimes hard questions with no "correct" answers. But you are expected to have an opinion and to back up your opinion. You should come to class prepared to do this. It may take a few classes for you to get the hang of this mode of class operation; the fact that we start with the less quantitative topics may help in this respect.

Exercises

The exercises in this course require application of research methods to data. For example, there will be an exercise in conducting a confirmatory factor analysis and another in conducting a path analysis after correcting intercorrelations for measurement error. There are 5 exercises. I will pass out (or send by e-mail) a schedule showing due dates for the exercises.

Examination:

There will be a final exam. The final will probe your understanding of the methods and research issues covered in the class. Most questions will be essay questions and may be presented in the form of “research problems” for which you are asked to provide the best solutions in light of course content. Before the final, I will provide you with sample questions of the sort that will be on the final. The class discussion questions also provide a useful guide to the kind of material that will be on the final.

Grading:

Grading will be as follows:

Classroom facilitation and discussion.....	40%
Exercises.....	20%
Final Exam.....	40%

Academic Honesty. I expect you to honor the standards of academic honesty described in the document “Clarification of Expectations of Academic Conduct”. This document applies to the Tippie College as a whole and can be found on the college web site. (Click on Faculty, then on EFC; it is listed under EFC Documents.) Please read this carefully. In this course, this is most relevant to the class exercises, which are expected to reflect your own individual work and not that of others in the class. Copying of exercises is a serious offense against academic honesty standards. You can and should discuss concepts, principles, and methods with other students. But in the end you must do the exercises on your own. These are *not* group exercises.

Special Needs. I would like to hear from anyone who has a disability that may require some modification of seating, testing, or other class requirements so that appropriate arrangements can be made. Please see me after class or during my office hours.

Research Methods (6J:270): Topics

One topic will extend over most of the semester: Writing journal reviews, responding to reviews you receive, and writing, re-writing and editing research papers. We will discuss the peer review and editorial process in general. We will also look at some real reviews, discuss how to respond to them, and look at the actual responses and the outcomes. We will read the following paper:

Sternberg, R.J. (1992). How to win acceptance by psychology journals: 21 tips for better writing. APS Observer, September, pp. 1-13 and 18.

The website for the Research Methods Division of the Academy of Management is: www.aom.pace.edu/rmd You might want to browse this website.

The readings listed below have been chosen from among a much larger number to provide clear and direct conceptual overviews of each topic. They are in general not the most advanced technical treatments of the topic.

Topic 1: Philosophy of Science

Asimov, Isaac (1988). The relativity of wrong. Chapter in Asimov, I., The relativity of wrong. NY: Kensington Books. Pp. 226–238.

Schmidt, F.L, Hunter, J.E., & Pearlman, K. (1981). Task differences and the validity of aptitude tests in selection: A red herring. Journal of Applied Psychology, 66, 166-185. (Examines philosophy of science issues in I/O psychology research.)

Toulmin, Stephen. (1961). Foresight and understanding: An enquiry into the aims of science. NY: Harper Torchbooks. (115 pp.) (Best presentation critical realism as “best” philosophy of science.)

Kerlinger (1986) book, Ch. 1 (Science and the scientific approach).

Note: We will also discuss the detective theory of philosophy of science for the behavioral and social sciences.

Other:

Brown, H.I. (1977). Perception, theory, and commitment: The new philosophy of science. Chicago: University of Chicago Press. (Reviews all schools of the philosophy of science and shows why critical realism is the best philosophy of science.)

Horgan, John (1999). The end of science. Reading, MA: Addison Wesley. (Discusses and interviews the important 20th century philosophers of science.)

Additional references on the web: www.aom.pace.edu/rmd/phil.html

Topic 2: The Role of Theory

Campbell, John P. (1990). The role of theory in industrial and organizational psychology. In M.D. Dunnette & L. Hough (eds.), Handbook of industrial/organizational psychology. Vol. 1.

Kerlinger (1986) book, Ch. 2 (Problems and hypotheses).

Topic 3: Generation of Hypotheses and Theories; Identifying and Selecting Important Research Topics

Campbell, J.P., Daft, R.L., & Hulin, C.L. (1982). What to study: Generating and developing research questions. Beverly Hills: Sage, pp. 91-114.

McCall, M.W., & Bobko, P. (1990). Research methods in the service of discovery. In Dunnette & Hough (Eds.), Handbook of I/O psychology, Vol. 1, pp. 381–418.

Weick, K. (1989). Theory construction as disciplined imagination. Academy of Management Review, 14, 516–531.

Topic 4: Overview of Research Methods in I/O Psychology; Correlational vs. Experimental Methods; Data-Analysis and Statistical Significance Testing

Cohen, Jacob (1990). Things I have learned (so far). American Psychologist, 45, 1304 – 1312.

Cohen, Jacob (1994). The earth is round ($p < .05$). American Psychologist, 49, 997–1003.

Cumming, G., & Finch, S. (2005). Inference by eye: Confidence intervals and how to read pictures of data. American Psychologist, 60, 170 – 180.

Hunter, J.E. (1997). Needed: A ban on the significance test. Psychological Science, 8, 3–7 (with an introduction by Patrick Shrout).

Loftus, G.R. (1996). Psychology will be a much better science when we change the way we analyze data. Current Directions in Psychological Science, 8, 161 – 171.

Sackett, P. R., & Larson, J. R. Jr. (1990). Research strategies and tactics in I/O psychology. In M. D. Dunnette & L. Hough (Eds.), Handbook of I/O Psychology, vol. 1, pp. 419 – 489. (We will look at only the main ideas in this long chapter.)

Schmidt, F.L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. Psychological Methods, 1, 115–129.

Schmidt, F.L., & Hunter, J.E. (1997). Eight common but false objections to the discontinuation of significance testing in the analysis of research data. In L.L. Harlow, S.A. Mulaik, & J.H. Steiger (Eds.), What if there were no significance tests? Mahwah, NJ: Erlbaum.

Sedlmeier, Peter. (1999). Improving Statistical Reasoning. Erlbaum. Pp. 206 – 215: “Is there a future for null hypothesis testing in psychology?”

Smithson, Michael (2003). Confidence Intervals. Sage QASS Series, No. 140. (89pp.) (This is one of the purchased course books.)

Other Materials

Sackett, P., & Larson, J.R., Jr. (1990). Research strategies and tactics in industrial and organizational psychology. In M.D. Dunnette & L. Lough (Eds.), Handbook of I/O Psychology, Vol. 1, pp. 419 – 489.

Smithson, M. (2000). Statistics with confidence. London: Sage. (An introductory statistics textbook based on confidence intervals, not significance testing.)

Lockhart, R. S. (1998). Introduction to statistics and data analysis. NY: W.H. Freeman and Co. (Another introductory statistics textbook based on confidence intervals, not significance tests.)

Fidler, F. (2006). From statistical significance to effect estimation: Statistical reform in psychology, medicine, and ecology. Doctoral dissertation, Department of History and Philosophy of Science, University of Melbourne, Australia. (Highly recommended; you may be able to get this online.)

Topic 5: Research Designs

Cook, T.D., Campbell, D.T., and Peracchio, L. (1990). Quasi-experimentation. In M.D. Dunnette & L. Hough (Eds.), Handbook of I/O psychology, Vol. 1, pp. 491–576.

Spector, Paul E. (1981). Research Designs. Sage QASS Series. (80 pp.)

Carlson, K.D., & Schmidt, F.L. (1999). Impact of experimental design on effect size: Findings from the research literature on training. Journal of Applied Psychology, 84, 851 – 862.

Kerlinger (1986) book, Ch. 22 (Nonexperimental Research)

Kerlinger (1986) book, Ch. 23 (Lab Experiments, Field Experiments, and Field Studies) [These two chapters not required.]

Classic References (not required reading):

Campbell, D.T., & Stanley, J.C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Cook, T.D., & Campbell, D.T. (1979). Quasi-experimentation: Design & analysis for field settings. Boston: Houghton Mifflin.

Other Material:

See special issue of Personnel Psychology on Quasi-Experimentation in Applied Psychology, Autumn 2002, vol. 45. (Provides six empirical examples of use of quasi-experimental designs in our field.)

Topic 6: Correlation and Regression Methods

Bobko, Philip. (1990). Multivariate correlational analysis. In M.D. Dunnette & L. Hough (Eds.), Handbook of I/O psychology, Vol. 1. (Only pp. 639–650).

Nunnally & Bernstein (1994) book, Ch. 5 (Linear combinations, partial correlation, multiple correlation, and multiple regression)

Pedhazur & Schmelkin (1991) book, Ch. 18. (Multiple regression analysis)

Richards, J. M. (1982). Standardized versus unstandardized regression weights. Applied Psychological Measurement, 6, 201–212.

Other Materials:

Abraham, B., & Ledolter, J. (2006). Introduction to regression modeling. Brooks-Cole.

Berk, R.A. (2003). Regression analysis. Sage.

Bobko, P. (2001). Correlation and regression. (2nd Ed) Sage. (Available in the Pomerantz library)

Cohen, Jacob, & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences. (2nd Ed.) Hillsdale, NJ: Erlbaum. (This book is justly famous because of its demonstration than everything than can be

done with ANOVA can be done and done better with multiple regression. This is a classic book, suitable for a whole semester's course.)

Campbell, D.T., & Kenny, D.A. (1999). A primer on regression artifacts. NY: Guilford Press. (Regression toward the mean plays strange tricks on researchers; this is the only book that specifically discusses these tricks in all their forms.)

Topic 7: Path Analysis

Hunter, J.E., & Gerbing, D.W. (1982). Unidimensional measurement, second order factor analysis, and causal models. In Research in Organizational Behavior, Vol. 4, pp. 267 – 320. JAI Press. (We read only pp. 282 – 298 for this topic.)

Billings, R., & Wroten, S. (1978). Use of path analysis in industrial/organizational psychology: Criticism and suggestions. Journal of Applied Psychology, 63, 677–688.

Bobko, Philip. (1990). Multivariate correlational analysis. In M.D. Dunnette & L. Hough (Eds.), Handbook of I/O psychology, Vol. 1. (Only pp. 669–680.) [This chapter is physically with the Topic 6 materials.]

Other Materials

Asher, H.B. (1983). Causal Modeling. Sage QASS Series (96 pp.) [Note: this book is limited to path analysis and does not cover CFA or SEM.]

Loehlin, J. C. (2004). Latent variable analysis. (4th Ed). Erlbaum. (Chapters 1 and 2).

Topic 8: Exploratory Factor Analysis (EFA)

Hunter, J.E. (1980). Factor Analysis. Chapter 8 in P. Monge & J. Cappella (eds.), Multivariate Techniques in Human Communications Research. Academic Press. (Pp. 229 – 257)

Nunnally & Bernstein (1994) book, Ch. 11 (Introduction to EFA)
 Nunnally & Bernstein, Ch. 12, EFA II

Pedhazur & Schmilkin (1991) book, Ch. 12 (EFA)

Other Materials

Kerlinger (1986) book, Ch. 35 (EFA) [Not Required for Class]

Loehlin, J. C. (2004). Latent variable analysis. (4th Ed.) Erlbaum. (Ch. 9)

The following two books provide a more technical treatment. However, this treatment is still relatively simple compared with many textbooks and articles. These two books were written as a sequence and meant to be used together:

Kim, Jae-On, & Mueller, C.W. (1978). Introduction to factor analysis. Sage QASS Series, no. 13. (79 pp.)

Kim, Jae-On, & Mueller, C.W. (1978). Factor analysis: Statistical methods and practical issues. Sage QASS Series, no. 14. (82 pp.)

Topic 9: Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM).

Hunter, J.E., & Gerbing, D.W. (1982). Unidimensional measurement, second order factor analysis, and causal models. In Research in organizational behavior, Vol. 4. JAI Press. Pp. 267–320.

Nunnally & Bernstein (1994) book, Ch. 13: CFA

Pedhuzar & Schmelkin (1991) book, Ch. 23: CFA

Pedhuzar & Schmelkin (1991) book, Ch. 24: SEM

Coffman & MacCallum (2005) article

Other Material

Kerlinger (1986) book, Ch. 36. (Analysis of Covariance Structures) [Not Required for Class]

More Technical Material. The following two books are more technical but are still simple in comparison to most textbooks and journal articles on this subject. These books were written as a sequence and are meant to be read one after the other.

Long, J.S. (1983). Confirmatory factor analysis: A preface to LISREL. Sage QASS Series, no. 33. (88 pp.)

Long, J.S. (1983). Covariance structure models: An introduction to LISREL. Sage QASS Series, no. 34. (93 pp.)

Topic 10: Survey Research Methods

Fowler, F.J., Jr. (2002). Survey research methods. (3rd Ed.) Newbury Park: Sage. [Applied Social Research Methods Series, Vol. 1; 165 pp.]

Kalton, G. (1983). Introduction to survey sampling. Sage QASS Series, no. 35. (96 pp.)

Schwarz, N. (1999). Self-reports: How the questions shape the answers. American Psychologist, 54, 93 – 105.

Feldman, J.M., & Lynch, J.C. (1988). Self-generated validity and other effects of measurement on belief, attitude, intention, and behavior. Journal of Applied Psychology, 73, 421 – 435.

Kraut, A. (Ed.) (1996). Occupational Surveys: Tools for Assessment and Change. SIOP Professional Series. Josey Bass.

Topic 11: Hierarchical Linear Modeling (Multilevel Analysis)

Hofmann, D.A., Griffin, M.A., & Gavin, M.B. (2000). The application of hierarchical linear modeling to organizational research. In K.J. Klein & S.W.J. Kozlowski (Eds.), Multilevel theory, research, and methods in organizations. San Francisco: Josey-Bass. (Pp. 467–511)

Hox, J. (2002). Multilevel analysis. Erlbaum. (Ch. 10, pp. 173 – 177)
(Discusses required Ns for HLM. HLM requires substantial Ns.)

Hofmann, D.A., & Stetzer, A. (1996). A cross-level investigation of factors influencing unsafe behaviors and accidents. Personnel Psychology, 49, 307 – 339. (Example application of HLM)

Kidwell, R.E., Jr., Mossholder, K.W., & Bennett, N. (1997). Cohesiveness and organizational citizenship behavior: A multilevel analysis using work groups and individuals. Journal of Management, 23, 775 – 793. (Example application of HLM)

Other Material

Raudenbush, S.W., & Bryk, A.S. (2002). Hierarchical linear models (2nd Ed.) Sage.

Hox, J. (2002). Multilevel analysis. Erlbaum.

Topic 12: Secondary Research (Secondary Data Analysis)

Stewart, D.W., Kamis, M. A. (1993). Secondary research. (2nd Ed.) Beverly Hills: Sage. [Applied Social Research Methods Series, Vol. 4]

Kiecolt, K.J., & Nathan, L.E. (1985). Secondary analysis of survey data. Sage QASS Series, no. 53 (87 pp.)

Wilk, S.L., Desmarais, L.B., & Sackett, P.R. (1995). Gravitation to jobs commensurate with ability: longitudinal and cross-sectional tests. Journal of Applied Psychology, 80, 79–85. (An example of secondary research.)

Wilk, S.L., & Sackett, P.R. (1996). A longitudinal analysis of ability-job complexity fit and job change. Personnel Psychology, 47, 937–967. (An example of secondary research.)

Schmidt, F.L., & Hunter, J.E. (1978). Moderator research and the law of small numbers. Personnel Psychology, *31*, 215–231. (An example of secondary research.)

Schmidt, F.L., Hunter, J.E., Outerbridge, A.N., & Goff, S. (1988). Joint relation of experience and ability with job performance: Test of three hypotheses. Journal of Applied Psychology, *73*, 46 – 57. (Example of secondary research.)

Author. (Undated). The National Longitudinal Study of American Youth database. (Describes this database.)

Course Postscript: Overview of Methods Used in I/O Psychology

MacCallum, Robert (1998). Commentary on quantitative methods in I/O reseach. The Industrial/Organizational Psychologist, *35*, No. 4, pp. 18 – 31.

Research Methods Books

- Asher, H.B. (1983). Causal modeling. Sage QASS Series, no. 3. (96 pp.)
- Berry, W.D., & Feldman, S. (1985). Multiple regression in practice. Sage QASS Series, no. 50. (93 pp.)
- Campbell, D.T., & Stanley, J.C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally & Co. (76 pp.)
- Campbell, D.T., & Kenny, D.A. (1999). A primer on regression artifacts. NY: Guilford Press. (194 pp.)
- Campbell, J.P., Daft, R.L., & Hulin, C.L. (1982). What to study: Generating and developing research questions. Beverly Hills: Sage. (167 pp.)
- Cook, T.D., & Campbell, D.T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Boston: Houghton Mifflin. (396 pp.)
- Cohen, J., & Cohen, P. (1983). Applied multiple regression analysis for the social sciences. Hillsdale, NJ: Erlbaum.
- Dunnette, M.D., & Hough, L. (Eds.) (1990). Handbook of I/O psychology, vol. 1. Palo Alto, CA: Consulting Psychologists Press. [Note: Vol. 1 is the methods volume of the Handbook.]
- Fowler, F.J., Jr. (2002). Survey research methods. Newbury Park: Sage. (Applied Social Research Methods Series, Vol. 1, 165 pp.)
- Hox, J. (2002). Multilevel analysis: Techniques and applications. Mahwah, NJ: Erlbaum.
- Jaccard, J., Turrisi, R., & Wan, C.K. (1990). Interaction effects in multiple regression. Sage QASS Series, no. 72. (94 pp.)
- Kalton, G. (1983). Introduction to survey sampling. Sage QASS Series, no. 35. (96 pp.)
- Kerlinger, F.N. (1986). Foundations of behavioral research. NY: Holt.

- Kiecolt, K.J., & Nathan, L.E. (1985). Secondary analysis of survey data. Sage QASS Series, No. 53. (87 pp.)
- Kim, Jae-On, & Mueller, C.W. (1978). Introduction to factor analysis. Sage QASS Series, no. 13. (79 pp.)
- Kim, Jae-On, & Mueller, C.W. (1978). Factor analysis: Statistical methods and practical issues. Sage QASS Series, no. 14. (82 pp.)
- Loehlin, J. C. (2004). Latent variable models: An introduction to factor, path and structural equation analysis. (4th Ed.) Mahwah, NJ: Erlbaum.
- Long, J.S. (1983). Confirmatory factor analysis: A preface to LISREL. Sage QASS Series, no. 33. (88 pp.)
- Long, J.S. (1983). Covariance structure models: An introduction to LISREL. Sage QASS Series, no. 34. (93 pp.)
- Nunnally, J.C., & Bernstein, I.H. (1994). Psychometric theory. (3rd Edition). N.Y.: McGraw-Hill. (734 pp.)
- Pedhazur, E.J., & Schmelkin, L.P. (1991). Measurement, design, and analysis: An integrated approach. Hillsdale, NJ: Erlbaum. (788 pp.)
- Schwab, D.P. (1999). Research methods for organizational studies. Mahwah, NJ: Erlbaum. (414 pp.)
- Spector, P.E. (1981). Research designs. Sage QASS Series, no. 23. (80 pp.)
- Stewart, D.W., & Kamins, M. D. (1993). Secondary research. Beverly Hills: Sage. (Applied Social Research Methods Series, Vol. 4, 138 pp.)
- Tashakkori, A., & Teddlie, C. (1998). Mixed methodology: Combining qualitative and quantitative approaches. Sage Applied Social Research Methods Series, Vol. 46. (179 pp.)
- Toulmin, S. (1961). Foresight and understanding: An enquiry into the aims of science. NY: Harper Torchbooks (114 pp.)

Trochim, W. (2001). The research methods knowledge base. Cincinnati, OH: Atomic Dog Publishing.