

January 2008

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
School of Social Work

Course Number: SOWO 914

Course Title: Measurement in Intervention Research

Instructor: Natasha K. Bowen, Ph.D.
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Office Hours:

◆ Wednesday 12:00-1:00
or by appointment

Location and Time: TTK Building, Rm. 107
1:00-3:50 pm, Wednesday

Semester: Spring, 2008

Course Description:

This course focuses on the development of knowledge and skill in measuring social, psychological, environmental, and other factors related to intervention with individuals, families, groups, and organizations.

Course Goal:

Students will develop an understanding of qualitative and quantitative measurement strategies and issues.

Course Objectives:

Upon completion of the course, students should be able to:

1. Describe the theoretical, conceptual, and methodological foundations of qualitative and quantitative measurement;
2. Develop and test theory-based indices;
3. Estimate the reliability and validity of quantitative indices and scales;
4. Conduct an elementary qualitative data collection, including the use of semi-structured interviewing and qualitative data analysis; and
5. Apply qualitative and quantitative measurement principles to various kinds of research questions across a variety of populations, including peoples of color, persons with disabilities, and people affected by poverty and oppression. In addition, students should be able to apply principles of measurement to research that involves issues of difference arising from culture, ethnicity, language, race, religion, sexual orientation, and other aspects of human diversity.

Course Rationale

Research is possible only to the extent that concepts can be measured. If we cannot measure something, we cannot draw conclusions about how often it occurs, what conditions are antecedent to it, what factors covary with it, and so on. In that regard, some concepts are easy to measure. Age and education are often measured in years. Income is measured in dollars and school performance is measured by GPA. Some concepts, however, are harder to measure. “practice wisdom,” for example, is widely acknowledged as a concept that discriminates more successful social workers from less successful social workers. What is practice wisdom? How do we conceptualize and measure it?

For this course, measurement will be defined broadly. It is *the craft of systematically describing something that exists*. The course will focus on both qualitative and quantitative measurement strategies and how they can be used together to develop high quality measures. Course activities are designed to build both knowledge and skill. Consequently, students will be expected to engage in a variety of applied learning experiences.

The issues that we will address are at the heart of intervention research. How, for example, do we measure child abuse, delinquency, client-worker relationships, skills, feelings, attachment, and other important concepts in the profession? Most people would agree that these exist, but they are constructs that are not easily operationalized.

The goal of the course is to strengthen your skills in developing qualitative and quantitative measures of concepts commonly used in social work research. The course is designed as a seminar. Readings and discussion will focus on the theoretical and conceptual foundations of qualitative and quantitative measurement. Students will be expected to take a leadership role in the course—bringing to class meetings knowledge from outside readings and experiences, and asking and helping to answer questions related to course topics that further the growth of all class participants.

Required Texts

DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Padgett, D. K. (1998). *Qualitative methods in social work research: Challenges and rewards*. Thousand Oaks, CA: Sage Publications.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications*. Washington, D.C.: American Psychological Association.

Additional assigned readings are available through the course Blackboard site or electronic journals.

Resources

Students should consult additional sources for their papers and presentations. For readings on qualitative methods, see journals such as: *Field Methods* (formerly *Cultural Anthropology Methods*), *Holistic Nursing Practice*, *International Journal of Qualitative Studies in Education*, *Journal of Contemporary Ethnography*, *Journal of Creative Inquiry*, *Journal of Phenomenological Psychology*, *Qualitative Health Research*, *Qualitative Inquiry*, *Qualitative Sociology*, and *The Qualitative Report*. For readings on quantitative measurement, see *Journal of Social Service Research*, *Psychological Bulletin*, *Psychological Methods*, *Social Work Research*, Buros CD-ROM (for recent reviews of published instruments – in Davis Library), and other journals on assessment and psychometrics. In addition, see the following Web sites:

Aggression Assessment Instruments for children and adolescents --

<http://vinst.umdj.edu/VAID/browse.asp>

Buros Mental Measurements -- <http://www.unl.edu/buros/>

ERIC Test Locator (<http://ericae.net/testcol.htm>)--<http://ericae.net/testcol.htm#ETSTF>

Educational Testing Service -- <http://www.ets.org>

SF-36 -- <http://www.mcw.edu/midas/health/>

Web Resources for Atlas/ti and Qualitative Analysis:

<http://www.valt.helsinki.fi/atk/atlas/atlastu.htm>

This site has a full tutorial on Atlas/ti.

http://dmoz.org/Science/Social_Sciences/Methodology/Qualitative/

This site has an extensive list of links to qualitative research resources.

<http://www.nova.edu/ssss/QR/web.html>

This site also as an extensive list of links to qualitative research resources.

Assignments

Attendance, Preparation, and Participation. Students are expected to attend all class meetings, complete assigned and independent readings, and contribute to the development of a positive learning environment in the seminar. Students who miss 3 class meetings (excused and/or unexcused, and including cumulative partial missed classes) will be required to take an Incomplete in the course and to retake either the missed sessions or the entire course the following year before receiving a grade. Course discussions and activities will be responsive to student interests. It is hoped that students will share relevant knowledge and experience they already have related to course topics to enrich the learning of other seminar participants. In addition, contributions based on independent exploration of measurement topics beyond the stated course content are welcome. Attendance and participation will be assessed weekly. **Students who miss a class are fully responsible for obtaining all missed information and materials from their classmates.**

Qualitative Study Paper. (Final paper due March 5 at the beginning of class. Drafts of sections due as indicated below.) This 12-15 paper (including references) will describe the qualitative research steps you take in developing scale items for assessing your construct. Use existing qualitative research articles as models for your paper. The paper should include the following sections:

- Introduction--Introduction to the construct you are studying--its importance to the profession, theoretical background for the construct, and existing measures of the construct and their shortcomings.
- Methods-- Description of the qualitative methods used in developing your scale items--including a description of the sample, sampling strategy, development of your interview schedule, data collection procedures, data management, and data analysis procedures for interview data, and the same information on your cognitive testing component.
- Results-- Presentation of the findings--results of your analysis of interview data and results of your cognitive testing of preliminary scale items. What problems were revealed? What worked and didn't work?
- Discussion-- Discussion of the findings and significance of findings, contribution, limitations of the methods and design; and implications for theory, social work intervention, and future research. The discussion should be closely tied to points you made in your introduction and to the results of your research.
- Appendix-- Attach your completed NIH Certificate of Training for Human Subjects (<http://cme.cancer.gov/c01/>), one coded interview transcript, and coding scheme. (These attachments are not included in page limit). Label these appendices and put your name on them.

Presentation on Reading Questions. Three times during the semester, each student will be called on to discuss answers to one or two of the reading questions for a class session. The session students will be called on and the specific questions to be answered will not be assigned ahead of time. All reading questions for each week are listed in the syllabus.

Factor Analysis Paper. (Final paper due May 5 at noon. Drafts of sections due as indicated below.) Conduct exploratory factor and reliability analyses in Stata, and then a confirmatory factor analysis in Amos to assess the psychometrics of two scales in one domain of the ESSP. (If students have access to other data sets with latent variables, they can be used if approved by the instructor.) Use existing articles that report on factor analysis results as models for your paper. Write a 12-17 page paper that includes the following sections:

- Sample--- Description of the cases included in your analysis (gender, race/ethnicity, grade level, lunch program participation, and other characteristics if appropriate).
- Methods— Description of the analysis procedures used and program/version used for each analysis. Indication of test criteria used to evaluate results (e.g., cutoffs

- for acceptable factor loadings, internal consistency reliability, fit statistics, etc.), and citations for the criteria.
- Results— Description of the results of the exploratory factor analysis, the confirmatory analysis, and reliability test. Present only the final models. Use tables to present the results concisely. Tables count in the page limit. (Tables must also follow APA manuscript submission guidelines.)
- Discussion— Discussion of the quality of the scales you have tested and the implications of your findings for practice.
- Appendix— Include a copy of the items and response options on the scale you are testing, and your final EFA, CFA, and reliability results (not included in page limit). Label these appendices and put your name on them.

Paper Quality and Timeliness

Written assignments must be submitted when due and should be formal manuscripts prepared in accordance with APA guidelines (including but not limited to: cover sheet, double spacing, citation and reference list formatting, presentation of numbers and statistics). APA style writing will be considered in evaluating papers. Among them, the two papers should include citations for at least 10 sources beyond the assigned course readings. The papers should strongly reflect your understanding and application of the content of assigned and outside readings. An automatic 10% reduction in score will be made for late papers (papers turned in after the date and time given as deadlines). No credit will be given for late drafts.

Honor Code and Citing References

Original work is absolutely expected. Submitted work must conform to the Honor Code of the University of North Carolina. For information on the UNC-CH Honor Code, including guidance on representing the words, thoughts, and ideas of others, see: <http://honor.unc.edu/> Please note that plagiarism is defined in the *Instrument of Student Judicial Governance*, Section II.B.1 as, "...the deliberate or reckless representation of another's words, thoughts, or ideas as one's own without attribution in connection with submission of academic work, whether graded or otherwise." Violations of the Honor Code result in an "F" grade and referral to the Honor Court. See the School of Social Work Writing Style Guide (on the School's Website at the "for current students" link) for information about plagiarism.

Code of Honor Affirmation. All written products in the course must have a signed Honor Code statement. Papers without this affirmation will not be accepted. The statement should read as follows: *I have neither given nor received any unauthorized assistance on this assignment.*

(Your Signature)

Policy on Accommodations for Students with Disabilities

Students with disabilities that affect their participation in the course may notify the instructor if they wish to have special accommodations in instructional or evaluation format considered. Accommodations and services, which may include – but are not limited to – note-takers, alternative testing, accessible class materials, and interpreters, are provided by Disability

Services (Voice/TDD 962-8300; 966-4041). Learning Disability Services (962-7227) provides supportive services for students with learning disabilities and attention-deficit/hyperactivity disorders. Students will be asked to provide documentation of disability or medical conditions from an appropriate primary care provider. Working with Disability Services and Learning Disability Services and without lowering academic standards, the instructor will make reasonable accommodations to reduce barriers caused by a student's disability.

Evaluation of Seminar Performance

The final grade will be based on evaluation of seminar participation and written assignments. One hundred points will be distributed as follows:

- 20 Attendance, Preparation for Class and Contributions to Seminar (weekly)
- 30 Qualitative Paper (due March 5 at 1:00 pm)
20 points for final paper, 10 for drafts (2.5 each)
- 20 Presentation on Reading Questions
- 30 Factor Analysis Paper (due May 5 at noon)
20 points for final paper, 10 for drafts (2.5 each)
- 100

Grading Criteria:

- ◆ H — 100 – 94 points
- ◆ P — 93 – 80
- ◆ L — 79 – 70
- ◆ F — 69 – 0

PROPOSED SCHEDULE

Date Topics, Readings, and Assignments

Jan 9 Introduction to the Course and Measurement
(1)

Discussion:

Course introduction and review of syllabus

Themes for the course

Approaches to scientific investigation and knowledge

Where do students currently stand in the qualitative/quantitative debate?

Implications for measurement

Review of measurement basics

Class Activity: Role of culture in measurement and research decisions

Jan 16 Mixed Methods in Research and Measurement
(2)

Readings:

Ercikan, K., & Roth, W.-M. (2006). What good is polarizing research into qualitative and quantitative? *Educational Researcher*, 35, 14-23.

Hill, F., Le Grange, L., & Newmark, R. (2003). The use of qualitative and quantitative methodologies in a special educational needs study. *International Journal of Special Education*, 18, 62-72.

Johnson, R. B., Onwuegbuzie, J. A. (2005). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33, 14-26.

Shepard, M. P., Orsi, A. J., Mahon, M. M., & Carroll, R. M. (2002). Mixed-methods research with vulnerable families. *Journal of Family Nursing*, 8, 334-352.

Padgett, D. K. (1998). Chapters 1, 2, and 10, pp. 1-24, 126-140.

Use the readings to answer the following questions:

What are the major philosophical differences in qualitative and quantitative approaches?

What are the major methodological differences in qualitative and quantitative approaches?

What features do qualitative and quantitative research have in common?

How could you use the readings to justify the use of mixed methods in a study?

Assignment due: Choose a construct of interest that you will use for your qualitative and quantitative project papers.

Class activity: Get peer feedback on your chosen construct. Is the construct operationalizable? Is it relevant to social work practice? Is it appropriate for qualitative and then quantitative study? Is it complex enough to require multiple items, but not too big?

Jan 23 Qualitative Research—Use of Context, Data Collection, Interviewing
(3)

Reading:

- Anderson, E. (1996). Introduction to the 1996 Edition of *The Philadelphia Negro*. In W. E. B. DuBois (author), *The Philadelphia Negro* (pp. ix-xxxv). Philadelphia: University of Pennsylvania Press. [In DuBois reading on BB]
- Dana, N. F. et al. (n.d). *Qualitative Interviewing and the Art of Questioning: Promises, Possibilities, Problems, and Pitfalls*. Retrieved December 13, 2005 from, http://www.coe.uga.edu/quig/proceedings/Quig92_Proceedings/dana.92.html [at BB site or above link]
- DuBois, W. E. B. (1995). *The Philadelphia Negro*. Philadelphia: University of Pennsylvania Press. pp. 1-9.
- Kusserow, A. (2004). *American Individualisms: Child rearing and social class in three neighborhoods*. New York: Palgrave Macmillan. Pp. 1-18.
- Marsiglio, W. (n.d.). Conducting qualitative in-depth interviews. Retrieved December 13, 2005 from, <http://web.clas.ufl.edu/users/marsig/conducting.qual.interviews.pdf>
- Padgett, D. K. (1998). Chapters 3, 4, 5, and 6, pp. 25-71.

Use the readings to answer the following questions:

- What useful guidelines for preparing for interviewing did you gain from the readings?
- What useful guidelines for composing interview questions did you gain from the readings?
- What useful guidelines for conducting an interview did you gain from the readings?
- How could you use the readings to justify your choice of interview methods?
- What major aspects of study context are presented in the Anderson, DuBois, and Kusserow readings? Is qualitative research value-free? Should it be?

Assignment due: (a) **Draft of introduction section** based on 3 or more scholarly sources related to your construct (see Introduction description on p. 4), (b) Draft of about 10 interview questions (structured or semi-structured) to use to collect data on the construct.

Class activity: Small group feedback on constructs and questions. Will the proposed questions elicit adequate information about the construct? Do your questions meet criteria presented in the readings? Refine your construct and/or questions based on peer feedback. Take notes so this process can be documented in your paper.

Jan 30 Qualitative Research Methods: Data Analysis I: Coding and Analysis
(4)

Reading:

- Coffey, A. & Atkins, P. (1996). *Making sense of qualitative data*. Thousand Oaks: Sage Publications. Chapter 2, Coding and Concepts. pp. 26-53.
- Harry, B., Sturges, K.M. & Klingner, J. K. (2005). Mapping the process: An exemplar of process and challenge in grounded theory analysis. *Educational Researcher*, 34, 2-13.
- Lofland, J., & Lofland, L. H. (1995). *Analyzing social settings: A guide to qualitative observation and analysis* (3rd ed.). Belmont, CA: Wadsworth Publishing. Pp. 186-203.

National Science Foundation. (1997). Analyzing qualitative data. *User-Friendly Handbook for Mixed Method Evaluations, Chapter 4*. Retrieved December 14, 2005 from, <http://www.ehr.nsf.gov/EHR/REC/pubs/NSF97-153/START.HTM> [Chapter 4 is on BB site; the website has other useful chapters and appendices]
Padgett, D. K. (1998). Chapter 7, pp. 72-87.

Use the readings to answer the following questions:

Which typology of coding activities makes the most sense to you?

Which typology of analysis activities makes the most sense to you?

Describe a sequence of coding and analysis steps that you might use and could justify with the readings.

What is the difference between coding and analysis?

Assignments due: After obtaining participant consent, conduct and audiotape two interviews using your interview protocol. (See information about consent under "assignments" at BB site.) Each interview should last approximately 1/2 hour. **Write up interview sample description, sampling methods, expert feedback procedures (from class), and other interview procedures used so far.**

Class Activity: Share interviewing experiences, lessons learned. Code sample data as a group.

Feb 6 Qualitative Research Methods: Data Analysis II: Atlas/ti; Role of Theory
 Instructor out of town at NASP conference. Students will meet and work together on reading question. Paul Mihos will introduce students to Atlas/ti.

(5)

Readings:

Anastas, J. W. (2004). Quality in qualitative evaluation: Issues and possible answers. *Research on Social Work Practice, 14*, 57-65.

Jarrett, R. L., Sullivan, P. J., and Watkins, N. D., (2005). Developing social capital through participation in organized youth programs: Qualitative insights from three programs, *Journal of Community Psychology, 33*, 41-55.

Padgett, D. K. (1998). Chapter 8, 88-102.

Smokowski, P. R., Reynolds, A. J., & Bezruczko, N. (1999). Resilience and protective factors in adolescence: An autobiographical perspective from disadvantaged youth. *Journal of School Psychology, 37*, 425-446.

Weiss, R. S. (1994). *Learning from strangers: The art and method of qualitative interview studies*. New York: Free Press. pp. 151-182.

Use the readings to answer the following questions:

How can you distinguish between high-quality and poor-quality qualitative research?

How do Jarrett, and Smokowski use theory in their studies? How does their use of theory affect how deductive or inductive their studies are?

How do Jarrett and Smokowski integrate narrative examples into their presentation of analysis results?

How do the Jarrett and Smokowski articles rate according to Anastas' evaluation criteria?

Does the Weiss article add to your repertoire of analysis strategies?

Assignment due: Transcribe your interview data for at least one case and bring to class.

Demonstration 1:00 to 2:30: Introduction to ATLAS/ti Version 5.0 for Windows
Paul Mihas, Ph.D. from IRSS (pmihas@irss.unc.edu) will provide an introductory, demonstration of ATLAS/ti

Atlas Practice 2:30 to 4:00: Practice coding in Atlas/ti with your own data. A good resource when you're on your own is the ATLAS /ti tutorial at <http://www.valt.helsinki.fi/atk/atlas/atlastu.htm>

Feb 13 Qualitative Data Analysis III: Atlas/ti
(6)

Reading:

Brodsky, A. E. (1996). Resilient single mothers in risky neighborhoods: Negative psychological sense of community. *Journal of Community Psychology*, 24, 347-363. [available through e-journals]

DeVellis, R. F. (2003). Chapters 1 and 5, pp. 1-13, 60-101.

Hughes, M. (1998). Turning points in the lives of young inner-city men forgoing destructive criminal behaviors: A qualitative study. *Social Work Research*, 22, 143-151. [available through e-journals]

Padgett, D. K. (1998). Chapter 9, pp. 104-125.

Rager, K. B. (2006). Self-care and the qualitative researcher: When collecting data can break your heart. *Educational Researcher*, 34, 23-27.

Use the readings to answer the following questions:

How do Brodsky and Hughes use theory in their studies?

How do Brodsky and Hughes integrate narrative examples into their presentation of analysis results?

How do the Brodsky and Hughes articles rate according to Anastas' evaluation criteria?

How could you integrate Anastas' evaluation criteria into your qualitative study write-up?

Assignment due: Finish all transcription of your interview data and continue coding. Start writing data analysis and results sections.

Class Activities: As a group, class members will answer the following question (from last week) during class time: How do the Jarrett and Smokowski articles rate according to Anastas' evaluation criteria? Justify your evaluation of each article in terms of each of the author's criteria. Critiquing questionnaire items, checklist of non-content related criteria

Feb 20 Cognitive Testing of Scale Items
(7)

Reading:

Bowen, N. K. (in press). Cognitive Testing and the Validity of Child-Report Data from the Elementary School Success Profile. *Social Work Research*.

de Leeuw, E., N. Borgers, et al. (2004). Pretesting questionnaires for children and adolescents. In S. Presser, J. M. Rothgeb, M. P. Couper, et al. (Eds.). *Methods for testing and evaluating survey questionnaires*. Hoboken, N.J., John Wiley & Sons: 409-429.

Willis, G. B. (2005). *Cognitive interviewing: A tool for improving questionnaire design*. Thousand Oaks, CA: Sage Publications. Chapters 4 and 11, pp. 42-63, 151-174.

Woolley, M. E., Bowen, G. L., & Bowen, N. K. (2004). Cognitive pretesting and the developmental validity of child self-report instruments: Theory and applications. *Research on Social Work Practice, 14*(3), 191-200.

Use the readings to answer the following questions:

When is it appropriate to use cognitive testing? When is it unnecessary or inappropriate to use cognitive testing?

What are the major features of cognitive testing?

How might cognitive testing with children differ from testing with adults?

What cognitive testing steps would be appropriate for your study, and how could you justify them with the readings?

Assignment due: Develop scale items based on your qualitative findings and bring them to class. **Finish writing up your data analysis procedures and findings from interviews.**

Class Activity: Cognitive testing of items with peers. Practice examples of analysis of cognitive data.

Feb 27 (8) From Qualitative to Quantitative Scale Development Steps

Readings:

Bowen, N. K., Bowen, G. L., & Woolley, M. E. (2004). Constructing and validating assessment tools for school-based practitioners: The Elementary School Success Profile. In A. R. Roberts & K. R. Yeager (Eds.), *Evidence-based practice manual: Research and outcome measures in health and human services* (pp. 509-517). New York: Oxford University Press.

(Review) DeVellis, R. F. (2003). Chapters 1 and 5, pp. 1-13, 60-101.

Ladson-Billings. (2006). From the achievement gap to the education debt:

Understanding achievement in U.S. schools. *Educational Researcher, 35*, 3-12.

Use the readings to answer the following questions:

What are the most common steps in scale development?

What additional development steps might improve the quality of an instrument?

What sequence of steps makes the most sense to you? (The sequence you describe may not be the one we use in this course.)

Ladson-Billings brings up issues related to the measurement and research topic choices made by researchers and their implications for public views of social “problems.” The article illustrates how values influence quantitative research at every level. What parts of the article resonated or didn’t resonate with you? What part got you thinking differently that you have in the past about the responsibilities of social science researchers?

Assignment due: Cognitive testing of scale items with members of intended population. Develop and use recording sheets during testing. Aim for 5 subjects. **Write up your cognitive testing procedures and findings from your first round of cognitive testing (with peers during class last week).**

Class activity: Work in pairs to analyze your cognitive testing findings from 5 subjects and make revision suggestions.

Mar 5 Scale Development I: Introduction to Latent Variables and Scale Development;
Validity and Reliability

(9)

Reading:

DuBois, pp. 1-4.

Use the class discussion to answer the following questions:

What is a latent variable?

Why is the concept of latent variables important in measurement?

What major lessons can you draw from DuBois' discussion of the "credibility" of the data?

Assignment due: Final, full **Qualitative Paper** with introduction, methods (including samples), and results for interview and cognitive testing; discussion. Follow instructions on p. 4 carefully. Present "final" scale to class. Describe how the scale changed from your first pre-interview draft, and how or if the qualitative methods improved it.

Mar 12 SPRING BREAK—You deserve it!

Mar 19 Scale Development II: Statistical and Non-Statistical Validity

(10)

Readings:

Adcock, R., & Collier, D. (2001). Measurement validity: A shared standard for qualitative and quantitative research. *American Political Science Review*, 95, 529-546.

DeVellis, R. F. (2003). Chapter 2, pp. 14-26.

Bowen, N. K. (in press). Validation. *International Encyclopedia of the Social Sciences*.

Bowen, N. K., & Powers, J. D. (2005). Knowledge gaps among school staff and the role of high quality ecological assessments in schools. *Research on Social Work Practice*, 15, 491-500.

Bowen, N. K. (2006). Psychometric properties of the Elementary School Success Profile for Children. *Social Work Research*, 30, 51-63. [Instructor has copies]

Use the readings to answer the following questions:

What major "types" of validity are presented in each of the readings?

Which view of validity makes the most sense to you?

What aspects of validity do qualitative and quantitative research have in common?

What statistical procedures can be used to demonstrate validity?

Class activity: Bring the final scale from your qualitative paper to class. Peer feedback on content validity, face validity, practice validity, cultural, and developmental validity.

Calculate readability.

Mar 26 Quantitative Assessment of Scales I: Exploratory Factor Analysis
(11)

Readings:

- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation, 10*, 1-9.
- DeVellis, chapter 6, pp. 102-137.
- Ford, K. J., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology, 39*, 291-314.
- Thompson, chapters 1-3, pp. 3-47.

Use the readings to answer the following questions:

- What is the purpose of exploratory factor analysis? (EFA)
- What are the primary methodological choices to be made when conducting an EFA?
- What methods can you use to assess the factorability of your data?
- What are the evaluation criteria for each of those methods?
- What are the primary EFA output components?
- How do you evaluate each of the primary EFA output components?
- How could you use the readings to support your choice of EFA methods and the evaluation of your EFA results?

Class Activity: Conceptual exercise, Introduction to dataset, Demonstration of exploratory factor analysis with Stata

Apr 2 Quantitative Assessment of Scales II: Exploratory Factor Analysis *Continued*
(12)

Readings:

- de Vet, H. C. W., Ader, H. J., Terwee, C. B., & Pouwer, F. (2005). Are factor analytical techniques used appropriately in the validation of health status questionnaires? A systematic review of the quality of factor analysis of the the SF-36. *Quality of Life Research, 14*, 1203-1218.
- Emlert, C. A. (2005). Measuring stigma in older and younger adults with HIV/AIDS: An analysis of an HIV stigma scale and initial exploration of subscales. *Research on Social Work Practice, 15*, 291-300. [available on e-journals]
- Fabrigar, L. R., Wegner, D. T., MacCallum, R. C. & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272-299. [at BB site, ask for guidance]
- Gorsuch, R. L., & Hao, J. Y. (1993). Forgiveness: An exploratory factor analysis and its relationships to religious variables. *Review of Religious Research, 34*, 333-347.
- Thompson, chapters 4-6, pp. 49-81, and pp. 96-98 (Factor Interpretation Issues).
- Smyth, K., & Yarandi, H. N. (1996). Factor analysis of the ways of coping questionnaire for African American women. *Nursing Research, 45*, 25-29.

Use the readings to answer the following questions:

- What EFA methods and evaluation criteria would you use, and how would you justify their use from the readings?

Assess the EFA methods and results presented in Gorsuch et al, and Smyth and Yarandi? In addition, based on the purpose of EFA presented in other readings, is the use of EFA in each of these studies appropriate?

Assignment due: Work with the dataset in Stata. Determine the number of cases with missing values on the variables in the questions you will be analyzing for your factor analysis paper. Delete those cases. Run descriptives on the cases remaining for analysis. This will be your sample for your exploratory and confirmatory factor analyses. **Create an APA-format table with descriptives on your sample and write a paragraph to accompany the table.**

Lab

Exploratory factor analysis with Stata

April 9 (13) Quantitative Assessment of Scales III: Confirmatory Factor Analysis

Readings:

Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 1-15). Thousand Oaks, CA: Sage Publications.

Chou, C.-P., & Bentler, P. M. (1995). Estimates and tests in structural equation modeling. In R. H. Hoyle (Ed.), *Structural Equation Modeling: Concepts, Issues, and Applications* (pp. 37-55). Thousand Oaks, CA: Sage Publications.
Thompson, chapter 10, pp. 109-131.

Use the readings to answer the following questions:

How does confirmatory factor analysis (CFA) differ from EFA in terms of purpose, methods, and evaluation criteria? Which evaluation criteria apply to both methods?

What is the purpose of CFA?

What is model identification (just conceptually)?

What are the primary methodological choices to be made when conducting a CFA?

What are the primary CFA output components?

How do you evaluate each of the primary CFA output components?

How could you use the readings to support your choice of CFA methods and the evaluation of your CFA results?

Assignment Due: **Write up of methods and results of your exploratory factor analysis with Stata.**

Class Activity: Demonstration of confirmatory factor analysis with AMOS.

Apr 16 (14) Quantitative Assessment of Scales IV: Confirmatory Factor Analysis *Continued*

Readings:

Bowen, N. K., Bowen, G. L., & Ware, W. B. (2002). Neighborhood disorganization, families, and the educational behavior of adolescents. *Journal of Adolescent Research, 17*, 468-490.

- Lewin-Epstein, N., Sagiv-Schifter, T, Shabtal, E. L., Shmueli, A. (1998). Validation of the 36-Item Short-Form Health Survey (Hebrew Version) in the adult population of Israel. *Medical Care*, 36, 1361-1370. [Available via e-journals]
- Mobley, M., Slaney, R. B., & Rice, K. G. (2005). Cultural validity of the Almost Perfect Scale--Revised for African American College Students. *Journal of Counseling Psychology*, 52, 629-639.
- Thompson, chapter 11, 133-151.
- Williams, T. O., Eaves, R. C., Cox, C. (2002). Confirmatory factor analysis of an instrument designed to measure affective and cognitive arousal. *Educational and Psychological Measurement*, 62, 264-283. [Available via e-journals]

Use the readings to answer the following questions:

Evaluate each of the substantive articles in terms of the appropriateness of the use of CFA (purpose), the choice of methods, the evaluation criteria chosen, and the results in relation to those evaluation criteria.

What is multiple-group CFA? What is its purpose? Where does the goal of multiple group CFA fit into Bowen's framework of types of validation? Where does it fit in DeVellis' typology of validity?

Lab Activity: Practice Confirmatory factor analysis with AMOS

Assignment due: **Write up (in 1 page) your evaluation of the CFA in Bowen, Lewin-Epstein, or Williams in terms of the major criteria for evaluating CFA.**

April 23: Quantitative Assessment of Scales III: Reliability
(15)

Readings:

- Baugh, F. (2003). Correcting effect sizes for score reliability. In B. Thompson (Ed.), *Score reliability: Contemporary thinking on reliability issues* (pp. 31-41). Thousand Oaks: Sage Publications.
- DeVellis, chapters 3, 4, pp. 27-59.
- Thompson, B. (2003). A brief introduction to generalizability theory. In B. Thompson (Ed.), *Score reliability: Contemporary thinking on reliability issues* (pp. 43-58). Thousand Oaks: Sage Publications.

Use the readings to answer the following questions:

What is measurement reliability? How does it differ from measurement validity?

What different kinds of reliability exist?

What type of reliability is most commonly reported? Why?

What internal consistency reliability cutoff would you use and how would you justify it?

Assignment Due: **Write up of methods and results of your confirmatory factor analysis.**

Class Activity: Estimating reliability using Stata

MAY 5 by noon:

Assignment due: Final, full **Factor Analysis Paper** with sample, methods and results of both EFA and CFA, discussion, and appendices. Follow instructions on pp. 4-5 carefully.