UNC
SCHOOL OF SOCIAL WORK

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

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COURSE AND INSTRUCTOR INFORMATION

Course Number: SOWO 914
Course Title: Measurement in Intervention Research
Semester and Year: Fall 2020
Time and Location: Friday 9:00-11:50 via Zoom
Instructor: Michael Canute Lambert, PhD, MA, MSS, LP with HSP-P Certification
Email Address: mclamber@ad.unc.edu
Office Hours: Mondays 5:00 to 6:00 pm and by appointment via Zoom

COURSE DESCRIPTION

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

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 scales, starting from a theoretically and empirically justified item pool;
3. Conduct cognitive testing of potential scale items with representatives of an appropriate target audience and analyze the data;
4. Conduct exploratory factor analysis using one or more basic statistics programs to identify and evaluate the factor structure of scales;
5. Conduct confirmatory factor analysis to further support the validity of scales, and understand the implications of data characteristics on the choice of software and analysis strategies
6. Evaluate the reliability and validity of quantitative indices and scales;
7. 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.

EXPANDED COURSE DESCRIPTION

This course focuses on measurement (primarily quantitative) broadly and scale development and validation in particular. In social work and other social/behavioral sciences, researchers aim to measure mental, behavioral, and social phenomena, such as depression, delinquency, addiction, stigma, child maltreatment, attachment, family resilience, relationship quality, client/patient satisfaction, agency climate, and community empowerment. Such phenomena are complex and difficult to measure, but their measurement is essential for intervention research where the end

goal is effective interventions used to address health and social problems. In this course, students will learn about validity and reliability, which are foundational concepts in measurement, as well as a mixed-methods approach to scale development and validation.

TEACHING METHODS

In-class activities, homework tasks, assigned papers, and presentations are designed for students to (1) understand and remember key measurement concepts, methods, and best practices; (2) apply measurement concepts and methods; (3) examine and evaluate measures and approaches to measurement and scale development; (4) collect, analyze, and interpret measurement data; and (5) begin to develop a scale. In class, I use a variety of teaching and learning approaches, including PowerPoint presentations, generating and organizing ideas, discussion questions, hypothetical issues to problem-solve, running statistical analyses, and small group activities. Course activities will advance knowledge, experience, and skills.

STATISTICAL SOFTWARE

We will use SPSS for EFA and reliability analysis. You are welcome to use any software with which you are comfortable for CFA. Some people are already comfortable with M-Plus and other programs. If so, you are welcome to use it or other programs. Personally, I use AMOS because it is intuitive and its interface, matches the theoretical models tested. We might have a guest lecturer for CFA who uses M-Plus and will most likely use this program in his lecture. These and other software programs are available on the UNC Virtual Lab: https://virtuallab.unc.edu.

REQUIRED TEXTS AND READINGS

- DeVellis, R. F. (2017). *Scale development: Theory and applications* (4th ed.). Thousand Oaks, CA: Sage Publications.
- Bowen, N. K., & Guo, S. (2012). *Structural equation modeling*. New York, NY: Oxford University Press. [Available electronically through the UNC Libraries]
- Other required readings are on the course Sakai site.

Community Standards in Our Course and Mask Use. This fall semester, while we are in the midst of a global pandemic, all enrolled students are required to wear a mask covering your mouth and nose at all times in our classroom. This requirement is to protect our educational community -- your classmates and me – as we learn together. If you choose not to wear a mask, or wear it improperly, I will ask you to leave immediately, and I will submit a report to the Office of Student Conduct. At that point you will be disenrolled from this course for the protection of our educational community. Students who have an authorized accommodation from Accessibility Resources and Service have an exception. For additional information, see https://carolinatogether.unc.edu/university-guidelines-for-facemasks/.

CLASS ASSIGNMENTS AND EXPECTATIONS

Class Attendance, Preparation, Participation, and Homework (30%)

Attendance. Attendance at all class sessions is expected. It is important to be on time as to not disrupt class. If you will not be able to attend a class, let the instructor know as soon as possible, including the reason for your absence. Please obtain notes and other information about class content, and information about announcements from one of your classmates.

Preparation. Please complete the assigned readings prior to the class session and come to class prepared to discuss and apply concepts from them. Readings with an asterisk * beside them should be prioritized. There are also optional readings, which we will most likely **not** discuss in class, but provide supplementary information, advanced content, or are good reference sources.

Participation. Since the class is seminar-based, please actively participate in all class sessions.

Homework. Several class sessions have homework assignments. Please complete homework tasks after the class session in which they are noted and are due the next week. I do not require that you submit homework assignments, but you will use completed homework for in-class activities and for Paper 1.

Paper 1: Initial Scale Development Steps and Findings (30%)

The initial steps in scale development involve scale construction, content validation, and respondent-related validation. During in-class activities, homework assignments, and for this paper, each student began developing a scale in their substantive area of interest. The purpose of this paper is to explain and defend choices made in these initial scale development steps and to report results and findings from literature searches, expert review, and cognitive testing. Your paper should include a brief review of the literature about the construct ($\leq$ 2 pages) It should also include an overview of any existing scales measuring the construct and their limitations ($\leq$ 2 pages). The paper should also include a brief description about the purpose of the new scale (i.e., its intended use, the target population(s), situations or settings where the scale use might be appropriate. Furthermore your paper should include a description of scores to be provided) ($\leq$ 2 pages), methods used to construct the scale and findings from expert review with at least 5 experts (2-3 pages), and methods for and findings from cognitive testing with at least 5 participants (3-5 pages). A discussion or conclusion section is not necessary. However, be sure to describe how the draft scale changed during this process based on your findings during the steps, and include in an appendix the versions of your draft scale from the initial creation to the revised version after cognitive testing. Finally, outline what would be four next steps in your research with your measure in terms of collecting evidence related to content validity, criterion validity, practice-related validity, and reliability (i.e., 1 step for each evidence area). Briefly explain why you chose each methodological step as a next step in the development of your scale. This paper should be no more than 16 pages, excluding title page, reference list, and appendix. An abstract is not necessary. Please remember to use APA format.

Paper 2: Critique of a Scale Development Article (20%)

Locate a peer-reviewed journal article reporting the results of the initial development and validation of a scale in your substantive area. The article must focus on an EFA, not a CFA. Briefly introduce the scale and then outline the steps the authors took in the creation and initial validation of the scale. Note steps that were appropriate and rigorous (i.e., followed best practices). Then, analyze their approach, possibly drawing from these questions: What scale development steps did the authors take that were problematic and why? Was there insufficient rationale for certain decisions? In what ways did the authors of the scale fail to follow best

practices in scale construction including EFA? What did the authors neglect or fail to include in their write-up? What sources of evidence of validity and reliability were and were not investigated, and could any absence be justifiable or not? This paper should be no more than 8 pages, excluding title page and reference list. An abstract is not necessary. Please remember to use APA format. Attach the article critiqued.

Presentation on an Alternative Measurement Approach (20%)

This course focuses on the development and validation of scales; however, other approaches to measurement exist that you can incorporate into your research projects including scales that can add methodological rigor and innovation. Each seminar participant will choose 1 alternative measurement approach from a list provided below. On the last day of class, each student will give a short PowerPoint presentation to the class about their alternative. The presentation should include an introduction that explains the measurement approach the authors use, how they designed its administration, as well as examples of constructs or phenomena studied with the measurement approach, your assessment of the strengths/advantages and limitations of the measurement approach and a brief note about any evidence of validity or reliability for the measurement approach. Please send me your PowerPoint slides the evening before your presentation so that I can uploaded them to the course Sakai site. Your presentation should be 20 to 30 minutes. Please create a 1-page (one or two sided) for the instructor and other students that summarizes information and references presented in the presentation. References should be in APA format. The list of potential alternative measurement approaches along with two references to get you started is below. You may also request an alternative measurement approach not on the list from me.

- **Affect Misattribution Procedure**:
    - Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: Affect misattribution as implicit measurement. *Journal of Personality and Social Psychology*, *89*(3), 277.
    - Payne, K., & Lundberg, K. (2014). The affect misattribution procedure: Ten years of evidence on reliability, validity, and mechanisms. *Social and Personality Psychology Compass*, *8*(12), 672-686.
- **Computerized text analysis of narratives**:
    - Tausczik, Y. R., & Pennebaker, J. W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, *29*(1), 24-54.
    - Gildersleeve, S., Singer, J. A., Skerrett, K., & Wein, S. (2017). Coding "We-ness" in couple's relationship stories: A method for assessing mutuality in couple therapy. *Psychotherapy Research*, *27*(3), 313-325.
- **Cortisol**
    - Van Andel, H. W., Jansen, L. M., Grietens, H., Knorth, E. J., & van der Gaag, R. J. (2014). Salivary cortisol: a possible biomarker in evaluating stress and effects of interventions in young foster children?. *European Child & Adolescent Psychiatry*, *23*(1), 3-12.
    - Mustonen, P., Karlsson, L., Scheinin, N. M., Kortesluoma, S., Coimbra, B., Rodrigues, A. J., & Karlsson, H. (2018). Hair cortisol concentration (HCC) as a measure for prenatal psychological distress—A systematic review. *Psychoneuroendocrinology*, *92*, 21-28.

- **Diary method**:
  - Neupert, S. D., & Bellingtier, J. A. (2018). Daily diary designs in lifespan developmental psychology. In *Oxford research encyclopedia of psychology*. doi: 10.1093/acrefore/9780190236557.013.347
  - Laurenceau, J. P., & Bolger, N. (2005). Using diary methods to study marital and family processes. *Journal of Family Psychology, 19*(1), 86-97.
- **Implicit Association Test**:
  - Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2007). The Implicit Association Test at age 7: A methodological and conceptual review. In J. A. Bargh (Ed.), *Automatic processes in social thinking and behavior* (pp. 265-292). New York, NY: Psychology Press.
  - Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: the implicit association test. *Journal of Personality and Social Psychology, 74*(6), 1464-1480.
- **Life history calendars or Life event calendars**:
  - Yoshihama, M., Clum, K., Crampton, A., & Gillespie, B. (2002). Measuring the lifetime experience of domestic violence: Application of the life history calendar method. *Violence and Victims, 17*(3), 297.
  - Glasner, T., & Van der Vaart, W. (2009). Applications of calendar instruments in social surveys: A review. *Quality and Quantity, 43*(3), 333-349.
- **Life-line method**:
  - Schroots, J. J. (2003). Life-course dynamics: A research program in progress from The Netherlands. *European Psychologist, 8*(3), 192-199.
  - Gramling, L. F., & Carr, R. L. (2004). Lifelines: A life history methodology. *Nursing Research, 53*(3), 207-210.
- **Photography**:
  - Postma, J., Peterson, J., Ybarra Vega, M. J., Ramon, C., & Cortes, G. (2014). Latina youths' perceptions of children's environmental health risks in an agricultural community. *Public Health Nursing, 31*(6), 508-516.
  - Okamoto, T., Fujihara, T., Kato, J., Kosugi, K., Nakazato, N., Hayashi, Y., ... & Nonami, H. (2006). Measuring social stereotypes with the photo projective method. *Social Behavior and Personality: An International Journal, 34*(3), 319-332.
- **Scrambled Sentences Test**:
  - Viviani, R., Dommes, L., Bosch, J. E., Stingl, J. C., & Beschoner, P. (2018). A computerized version of the scrambled sentences test. *Frontiers in Psychology, 8*, 1-13.
  - Rude, S. S., Durham-Fowler, J. A., Baum, E. S., Rooney, S. B., & Maestas, K. L. (2010). Self-report and cognitive processing measures of depressive thinking predict subsequent major depressive disorder. *Cognitive Therapy and Research, 34*(2), 107-115.
- **Video-taped interactions**:
  - Wan, M. W., Brooks, A., Green, J., Abel, K., & Elmadih, A. (2017). Psychometrics and validation of a brief rating measure of parent-infant interaction: Manchester assessment of caregiver–infant interaction. *International Journal of Behavioral Development, 41*(4), 542-549.

- Asan, O., & Montague, E. (2014). Using video-based observation research methods in primary care health encounters to evaluate complex interactions. *Informatics in Primary Care, 21*(4), 161-170.

- **Vignettes**:
  - Peabody, J. W., Luck, J., Glassman, P., Jain, S., Hansen, J., Spell, M., & Lee, M. (2004). Measuring the quality of physician practice by using clinical vignettes: A prospective validation study. *Annals of Internal Medicine, 141*(10), 771-780.
  - Luty, J., Fekadu, D., Umoh, O., & Gallagher, J. (2006). Validation of a short instrument to measure stigmatised attitudes towards mental illness. *The Psychiatrist, 30*(7), 257-260.

GRADING SYSTEM

H	High Pass	94 - 100	Clearly Excellent
P	Pass	80 – 93	Entirely Satisfactory
L	Low Pass	79 – 70	Inadequate
F	Fail	69 or below	Unacceptable
IN	Incomplete		Work Incomplete

LATE ASSIGNMENTS AND EXTENSIONS

Please submit your assigned papers to the assignment section on Sakai by 11:55 pm the day that they are due. Please be sure to submit your assignments on time. To obtain permission to submit an assignment after the deadline, please note that you must request approval from the instructor at least 24 hours before the assignment is due via email or in-person communication. Extensions under certain circumstances (e.g., illness, loss, or multiple assignments due) is possible. If permission for late submission is not granted before breaking a deadline, the grade will automatically be reduced by 10%, and another 10% reduction will occur for every 24 hour period past the due date and time. In case of an emergency, I will consider accepting a late paper without penalty at my discretion if you provide adequate explanation of the emergency.

ASSIGNMENT GUIDELINES

Written assignments should be typed and follow APA format as specified in the APA Publication Manual (6th edition). Several writing resources are on the SSW website (http://ssw.unc.edu/students/writing). You can also refer to the *APA Publication Manual* (6th edition), and to a tutorial on APA style at: http://library.unc.edu/citationbuilder/.

Please submit all assignments electronically via Sakai assignment section. Also, write the following pledge on all written assignments: *"I have neither given nor received unauthorized aid in preparing this written work."*

POLICY ON ACADEMIC DISHONESTY

"Please refer to the *APA Style Guide,* The SSW *Manual,* and the SSW Writing Guide for information on attribution of quotes, plagiarism and appropriate use of assistance in preparing assignments. All written assignments should contain a signed pledge from you stating that, "I have not given or received unauthorized aid in preparing this written work".

In keeping with the UNC Honor Code, if reason exists to believe that academic dishonesty has occurred, a referral will be made to the Office of the Student Attorney General for investigation and further action.

ELECTRONIC DEVICES IN THE CLASSROOM

I require that you turn off all phones or silence them during class. No text messaging during class. The use of other electronic devices, such as laptops or tablet computers, in the classroom is **only** for viewing or taking notes or working on in-class activities. Students who are caught using electronic devices for non-class activities (e.g., checking email, instant messaging, shopping, or web browsing) can lose the right to use their device in class for the remainder of the semester. Each incident of inappropriate electronic device use will result in a 10-point deduction from the student's final grade.

ACCESSIBILITY RESOURCES AND SERVICES

The School of Social Work aims to create an educational environment that supports the learning needs of all students. The University of North Carolina – Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability, or pregnancy complications resulting in difficulties with accessing learning opportunities. The Accessibility Resources and Service (ARS) Office at UNC has been established to coordinate all accommodations. If you need accommodations at any point during the semester, please contact ARS prior to the beginning of the semester or as early in the semester as possible so that they can assist you; this process takes time. You can visit their website at http://accessibility.unc.edu, and contact ARS by email: accessibility@unc.edu or phone at 919-962-8300. The accommodations process starts with ARS and helps instruct Faculty at the School of Social Work on how best to proceed. As a School, we are committed to working with ARS and students to implement needed accommodations for all of our students. In addition to seeking ARS supports, please also reach out to your instructor to communicate how best your needs can be met once you have begun the ARS process.

Equal Opportunity and Compliance (EOC) Statement:

Acts of discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, stalking, and related retaliation are prohibited at UNC-Chapel Hill. If you have experienced these types of conduct, you are encouraged to report the incident and seek resources on campus or in the community. Please contact the Director of Title IX Compliance / Title IX Coordinator (Adrienne Allison, adrienne.allison@unc.edu), Report and Response Coordinators (Ew Quimbaya-Winship, eqw@unc.edu; Rebecca Gibson, rmgibson@unc.edu; Kathryn Winn kmwinn@unc.edu), Counseling and Psychological Services (CAPs) (confidential) in Campus Health Services at (919) 966-3658, or the Gender Violence Services Coordinators (confidential) (Cassidy Johnson, cassidyjohnson@unc.edu; Holly Lovern, holly.lovern@unc.edu) to discuss your specific needs. Additional resources are available at safe.unc.edu.

COURSE SCHEDULE AND OUTLINE

Class	Date	Topic Area	Assignment Due
1	Aug. 14	Introduction to Measurement and Scale Development	
2	Aug. 21	Measurement Validity and Validation	Homework 1
3	Aug 28	Developing an Item Pool, Choosing Response Options, and Reducing Response Bias	Homework 2
4	Sept. 4	Expert Review and Cognitive Testing/Interviewing	Homework 3
5	Sept. 11	Collecting and Analyzing Cognitive Interview Data	Homework 4
6	Sept. 18	Diversity Issues in Measurement and Methods of Measure Administration	
7	Sept. 25	Descriptive Analysis of Scale Data, Composite Scores, and Reliability	
8	Oct. 2	Introduction to Exploratory Factor Analysis (EFA)	Paper 1: Initial Scale Development Steps and Findings
9	Oct. 9	Conducting an EFA and Interpreting Results	
10	Oct. 16	Reporting EFA Results and Findings	
11	Oct. 23	Introduction to Confirmatory Factor Analysis (CFA)	Paper 2: Critique of a Scale Development Article
12	Oct. 30	Conducting a CFA, Interpreting Results, and Reporting Findings	
13	Nov. 6	Alternative Measurement Approaches to Scales and Classical Measurement Theory	Presentation on an Alternative Measurement Approach
14	Nov. 13	Item Response Theory and Wrap up	

Class 1: August 14

Introduction to Measurement and Scale Development

- Definition of measurement
- Importance of measurement
- Different types of measures (e.g., scale, test, inventory, index, checklist)
- Constructs, latent variables, and scales
- Determining if a scale needs to be created or adapted
- DeVellis and Bowen approaches to scale development

Readings:

- Perron, B., & Gillespie, D. F. (2015). *Key concepts in measurement* (pp. 1-4, 12-34). New York, NY: Oxford University Press.*
- Bradburn, N., Sudman, S., & Wansink, B. (2004). The social context of question asking. In *Asking questions* (pp. 3-31). San Francisco, CA: Jossey-Bass.

Optional Readings on Scale Development Steps:

- DeVellis, R. F. (2017). Guidelines in scale development. In *Scale development: Theory and applications* (4th ed., pp. 105-151). Thousand Oaks, CA: Sage Publications.
- Bowen, N. K., & Guo, S. (2012). Measurement models. In *Structural equation modeling* (pp. 78-81). New York, NY: Oxford University Press.

Homework 1: Identify a construct in your substantive area that needs a new scale or an adaptation of an existing scale to measure it with a population in which you are interested. Search the theoretical and empirical literature on the construct. How does the literature define the construct? Is it a behavioral, cognitive, emotional, social, organizational, and/or environmental phenomenon? Could the construct be multidimensional or unidimensional? Under what theories or conceptual frameworks does the construct fall? Are there any existing measures of the construct? Ideally, any existing measures would have construction flaws and/or limitations related to validity or reliability; or, any existing measures that researchers have not studied with the population group and/or setting in which you are interested.

Class 2: August 21

Measurement Validity and Validation

- Old view of validity and the new focus on validation
- Different sources of validity evidence
  - Content validity
  - Score performance validity or Criterion-related validity
  - Respondent-related validity
  - Practice-related validity

Readings:

- DeVellis, R. F. (2017). Validity. In *Scale development: Theory and applications* (4th ed., pp. 83-103). Thousand Oaks, CA: Sage Publications.

- Bowen, N. K. (2008). Validation. In W. A. Darity, Jr. (Ed.), *International Encyclopedia of Social Sciences* (2nd ed., Vol. 8, pp. 569-572). Detroit, MI: Macmillan Reference.*

Optional Reading

- Christensen, A. P., Golino, H., & Silvia, P. (2020). A psychometric perspective in Validity and validation of Personality Trait Questionnaires. *European Journal of Personality*, Published online by Wiley Library (no volume or page numbers available).

In-Class Activity and for Homework 2: Begin constructing a scale. Generate an initial item pool, draft instructions for your scale, and consider the type of response scale you are interested in (e.g., agreement/endorsement, importance, frequency, severity, quality, satisfaction, likelihood, awareness, appropriateness, positive/negative, priority, and truth).

Class 3: August 28

Developing an Item Pool, Choosing Response Options, and Reducing Response Bias

- Sources to use when drafting items
- Criteria to consider when evaluating item pools
- Choosing appropriate response options and format
- Crafting instructions, items, and responses to minimize response bias

Readings:

- Streiner, D. L., Norman, G. R., & Cairney, J. (2015). Devising the items. In *Health measurement scales: A practical guide to their development and use* (5th ed., pp. 1-9). New York, NY: Oxford University Press.
- Streiner, D. L., Norman, G. R., & Cairney, J. (2015). Selecting the items. In *Health measurement scales: A practical guide to their development and use* (5th ed., pp. 1-14). New York, NY: Oxford University Press.
- Streiner, D. L., Norman, G. R., & Cairney, J. (2015). Introduction to scaling responses. In *Health measurement scales: A practical guide to their development and use* (5th ed., pp. 1-20). New York, NY: Oxford University Press.
- Furr, R. M. (2018). Response biases. In *Psychometrics: An introduction* (3rd ed., pp. 311-346). Los Angeles, CA: Sage.

In-Class Activity: Students will review and provide feedback on the initial drafts of other students' scale instructions, items, and response options.

Homework 3: Collect additional expert feedback from available sources (e.g., research advisors or mentors, practitioners/administrators you know, other graduate students). Then, revise your scale based on this feedback and the feedback received in class from fellow students.

Class 4: September 4

Expert Review and Cognitive Testing/Interviewing

- Sources for expert feedback in scale construction

- Evaluation criteria for expert review
- Card-sorting with experts
- Introduction to and rationale for cognitive testing
- Think-aloud and verbal probing techniques in cognitive interviewing

Readings:

- Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). *The psychology of survey response* (pp. 1-16). New York, NY: Cambridge University Press.
- Drennan, J. (2003). Cognitive interviewing: Verbal data in the design and pretesting of questionnaires. *Journal of Advanced Nursing, 42*(1), 57-63.*
- Willis, G. B. (2005). *Cognitive interviewing: A tool for improving questionnaire design* (pp. 42-58). Thousand Oaks, CA: Sage Publications.*

Optional Readings on Card-Sorting:

- Christodoulou C., Junghaenel, D. U., DeWalt D. A., Rothrock N., & Stone, A. A. (2008). Cognitive interviewing in the evaluation of fatigue items: Results from the patient-reported outcomes measurement information system (PROMIS). *Quality of Life Research, 17,* 1239-1246.
- Hinkle, V. (2008). Card-sorting: What you need to know about analyzing and interpreting card sorting results. *Usability News, 10*(2), 1-6. [Think about how card-sorting could be used in scale development, particularly for content validation]
- Pickard, M. D., Wilson, D., & Roster, C. A. (2017). Development and application of a self-report measure for assessing sensitive information disclosures across multiple modes. *Behavior Research Methods*. https://doi.org/10.3758/s13428-017-0953-z. [Focus on the sections: Development of items for the SID scale & Item generation and card sort]

Homework 4: Develop a plan for cognitive testing/interviewing with your draft scale. Who will you interview? Where will you interview them? What questions will you ask them? How will you record or document their responses? How long will the interviews last?

Class 5: September 11

Collecting and Analyzing Cognitive Interview Data

- Preparing a measure for cognitive testing
- Developing a cognitive interview guide
- Identifying and recruiting participants for cognitive interviewing
- Formal and informal analysis of cognitive interview data

Readings:

- Willis, G. B. (2005). *Cognitive interviewing: A tool for improving questionnaire design* (pp. 136-174). Thousand Oaks, CA: Sage Publications.*
- Bowen, N. K. (2008). Cognitive testing and the validity of child-report data from the Elementary School Success Profile. *Social Work Research, 32,* 18-28.

Optional Readings on Cognitive Testing:

- 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*, 191-200.
- 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. Yeager (Eds.), *Evidence-based practice manual: Research and outcome measures in health and human services* (pp. 509-517). New York, NY: Oxford University Press.
- Boeije, H., & Willis, G. (2013). The cognitive interviewing reporting framework (CIRF). *Methodology, 9*, 87-95.

In-Class Activity: Discuss your cognitive testing data collection plan with other students. Provide feedback and consultation.

Homework 5: Begin collecting cognitive interview data on your scale. This will be used for Paper 1, which is due on Class 8.

Class 6: September 18

Diversity Issues in Measurement and Methods of Measure Administration

- Constructing scales and administering measures for diverse populations
- Reasons for modifying measures for different population groups
- Types of measure modifications (i.e., content, context, and format)
- Best practices for measuring demographics (e.g., age, race/ethnicity, sex, gender identity, sexual orientation, socioeconomic status, ability/disability status, national origin)
- Advantages and disadvantages of different methods of measure administration
  - Face-to-face interviews
  - Telephone questionnaires
  - Mailed paper questionnaires
  - Computer administered questionnaires
  - Web surveys

Readings:

- Cameron, J. J. & Stinson, D. A. (2019). Gender (mis)measurement: Guidelines for respecting gender diversity in psychological research. Social and *Personality Psychology Compass, 15*, 1-14.*
- Stewart, A. L., Thrasher, A. D., Goldberg, J., & Shea, J. A. (2012). A framework for understanding modifications to measures for diverse populations. *Journal of Aging and Health, 24*(6), 992-1017.*
- Streiner, D. L., Norman, G. R., & Cairney, J. (2015). Methods of administration. In *Health measurement scales: A practical guide to their development and use* (5th ed., pp. 1-37). New York, NY: Oxford University Press.*

- Victorson, D., Manly, J., Wallner-Allen, K., Fox, N., Purnell, C., Hendrie, H., & Gershon, R. (2013). Using the NIH Toolbox in special populations: Considerations for assessment of pediatric, geriatric, culturally diverse, non–English-speaking, and disabled individuals. *Neurology*, *80*, S13-S19.*
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Optional Readings on Translating and Adapting Measures:

- Kristjansson, E. A., Desrochers, A., & Zumbo, B. (2003). Translating and adapting measurement instruments for cross-linguistic and cross-cultural research: A guide for practitioners. *Canadian Journal of Nursing Research*, *35*(2), 127-142.
- Van Widenfelt, B. M., Treffers, P. D., De Beurs, E., Siebelink, B. M., & Koudijs, E. (2005). Translation and cross-cultural adaptation of assessment instruments used in psychological research with children and families. *Clinical Child and Family Psychology Review*, *8*(2), 135-147.
- Sousa, V. D., & Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice*, *17*(2), 268-274.
- Schoua-Glusberg, A., & Villar, A. (2014). Assessing translated questions via cognitive interviewing. In K. Miller, S. Wilson, V. Chepp, & J. L. Padilla (Eds.), *Cognitive interviewing methodology* (pp. 51-67). Hoboken, NJ: John Wiley & Sons.

In-Class Activities: Hypothetical issues with various populations and settings. Small groups debate about the different measure administration approaches.

Class 7: September 25

Descriptive Analysis of Scale Data, Composite Scores, and Reliability

- Descriptive analysis of measurement data
- Calculating composite scores
- The concept of reliability
- Ways of evaluating reliability
  - Test-retest reliability
  - Internal consistency reliability
  - Parallel forms reliability
- Running reliability analyses in SPSS

Readings:

- DeVellis, R. F. (2017). Reliability. In *Scale development: Theory and applications* (4th ed., pp. 39-70). Thousand Oaks, CA: Sage Publications.

Optional Reading on MTMM:

- Web Center for Social Research Methods. (2006). *The Multitrait-Multimethod Matrix*. Retrieved from http://www.socialresearchmethods.net/kb/mtmmmat.php

In-Class Activity: Practice running reliability analyses in SPSS and interpreting results

Class 8: October 2

Introduction to Exploratory Factor Analysis (EFA)

- Purposes of factor analysis
- When to use EFA vs. CFA
- Sample size guidelines for EFA

Readings:

- Thompson, B. (2004). Introduction to factor analysis. In *Exploratory and confirmatory factor analysis: Understanding concepts and applications* (pp. 3-7). Washington, DC: American Psychological Association.*
- Osborne, J. W. (2014). Sample size matters. In *Best practices in exploratory factor analysis* (pp. 44-49). North Charleston, SC: CreateSpace.

Optional Readings on EFA:

- Osborne, J. W. (2014). Data cleaning and EFA. In *Best practices in exploratory factor analysis* (pp. 78-89). North Charleston, SC: CreateSpace.
- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). Assessing the characteristics of matrices. In *Making sense of factor analysis: The use of factor analysis for instrument development in health care research* (pp. 51-84). Thousand Oaks, CA: Sage Publications.

Assignment Due: Paper 1

Class 9: October 9

Conducting an EFA and Interpreting Results

- Factor extraction
- Determining the number of factors
- Factor rotation
- Interpreting factor solutions
- Criteria for deleting variables
- Criteria for factor retention

Readings:

- Johnson, R. L., & Morgan, G. B. (2015). Factor analysis. In *Survey scales: A guide to development, analysis, and reporting* (pp. 143-168). New York, NY: Guilford Press.*

Optional 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*(7), 1-9.

In-Class Activity: Practice running EFA in SPSS and interpreting results

Class 10: October 16

Reporting EFA Results and Findings

- Best practices for reporting the results of an EFA
- Common problems in EFA articles to avoid

Readings:

- Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research: Common errors and some comment on improved practice. *Educational and Psychological Measurement*, *66*(3), 393-416.
- Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, *34*(6), 806-838.
- Cabrera-Nguyen, P. (2010). Author guidelines for reporting scale development and validation results in the Journal of the Society for Social Work and Research. *Journal of the Society for Social Work and Research*, *1*(2), 99-103.

Optional Readings on Reporting EFA Results:

- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). Reporting and replicating results. In *Making sense of factor analysis: The use of factor analysis for instrument development in health care research* (pp. 226-240). Thousand Oaks, CA: Sage Publications.
- Nicole, A. A. M., & Pexman, P. M. (2010). Factor analysis. In *Presenting your findings: A practical guide for creating tables* (pp. 103-115). Washington, DC: American Psychological Association.

Class 11: October 23

Introduction to Confirmatory Factor Analysis (CFA)

- Purposes of CFA
- When to use CFA vs. EFA
- Sample size guidelines for CFA
- CFA as a type of structural equation modeling (SEM) (i.e., a measurement model)
- CFA model identification and specification
- Selecting an estimation method
- Preparing to run CFA models

Readings:

- Bowen, N. K., & Guo, S. (2012). *Structural equation modeling* (pp. 1-11, 20-28, 73-81). New York, NY: Oxford University Press.*

Assignment Due: Paper 2

Class 12: October 30

Conducting a CFA, Interpreting Results, and Reporting Findings

- Running a CFA
- Evaluating CFA model results

- Model modification to improve fit
- Best practices for reporting the results of a CFA

Readings:

- Bowen, N. K., & Guo, S. (2012). *Structural equation modeling* (pp. 81-108, 141-149, 157-166). New York, NY: Oxford University Press.*
- Bandalos, D. L., & Finney, S. J. (2010). Factor analysis: Exploratory and confirmatory. In G. R. Hancock & R. O. Mueller (Eds.), *The reviewer's guide to quantitative methods in the social sciences* (pp. 93-114). New York, NY: Routledge.

Optional Readings on Multiple Group CFA and Measurement Invariance Testing:

- Harrington, D. (2009). Use of confirmatory factor analysis with multiple groups. In *Confirmatory factor analysis* (pp. 78-99). New York, NY: Oxford University Press.
- Bowen, N. K., & Masa, R. D. (2015). Conducting measurement invariance tests with ordinal data: A guide for social work researchers. *Journal of the Society for Social Work and Research, 6*(2), 229-249.

In-Class Activity: Practice running CFA and interpreting results

Class 13: November 6

Student Presentations on Alternative Measurement Approaches to Scales and Classical Measurement Theory

Examples of innovative measures that are not scales

Assignment Due: Individual student presentations on alternative measurement approaches

Class 14: November 13

Introduction to Item Response Theory

What is item response theory (IRT)?
Different models of IRT
Item discrimination, thresholds

Readings:

- DeVellis, R. F. (2017). An overview of item response theory. In *Scale development: Theory and applications* (4th ed., pp. 205-232). Thousand Oaks, CA: Sage Publications.*
- Lambert, M. C., Ferguson, G. M., & Rowan, G. T. (2016). Cross-Informant and Cross-National Equivalence using IRT Linking: A Case Study Using the Behavioral Assessment for Children of African Heritage in the United States and Jamaica. Psychological Assessment, 28(3), 331-344.