Minutes

***WERA1010: Error Reduction in Rural and Agricultural Experiments***

February 19 - 20, 2015

Present were:

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Members who could not attend:

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The annual meetings of WERA1010 began at 8:15 on Thursday, February 19. 2015. Glenn Israel and Don Dillman reviewed the history of WERA, which began in the late 1980s and has been meeting annually in Tucson ever since. Lou Swanson reminded us that this is a western regional committee, so everything has to be approved by the western director and council, and they look for impact statements. Accordingly, Fred Lorenz asked that complete citations of refereed publications, experiment station and extension reports, and other outputs released during calendar year 2014 be submitted to him by February 27. They will be included as an appendix to the minutes and submitted as part of the annual report. The meetings continued with state reports.

**Don (Washington State)** began a discussion of “some puzzling questions” about why response rates vary depending on sponsorship. Their design was to send questionnaires to three states (Nebraska, Pennsylvania and Washington) from the 3 states. The basic question: How do respondents respond to out-of-state sponsorship? The basic finding: Responses vary by state sponsorship, but not by mode or combination of modes. They added demographic components to the analysis and found that they were not getting younger people, people with lower income and lower education based on a comparison to the American Community Study. They are not getting enough Republicans compared to Gallup Polls in Washington and enough Democrats in Nebraska. This leaves us with a question: can universities do national sampling, especially on political issues. Discussion ensued regarding the relationship between political ideology and survey response. The discussion continued on the future of survey sampling. Lorenz forwarded an article in *Significance*, a publication of the Royal Statistical/American Statistical Associations asking many of the same questions about the future of randomized clinical trials.

Don reported on the 4th edition of TDM book. He noted that previous editions of this book “have been cited more than 25,000 times in scientific publications, making it the most cited survey methods book ever published.” A web site has been created for the new addition which provides detailed questionnaires, correspondence and other specific elements of effective design. Despite its success, Don asked, what went wrong? This edition is re-organized but still focuses on exchange theory which depends on trust. Don argues now that it is not the mode that is important, but the context, perhaps mode by contact interaction. Discussion ensued regarding the relationship between mode of contact and generations. Can an experiment demonstrate that different methods or combination of methods work better among different generations? This calls into question the idea that there can be “best practices” for collecting data.

**Todd Rockwood (Minnesota)** concluded the Thursday morning session with a power point discussion of the general idea of “wellbeing” in the context of alternative medicine. He asks whether the notion of well-being is. Nature does not select on well-being, so is it rooted in our nature? The standard measures of well-being have limits because they are grounded in “ought.” Current literature focuses on “mindfulness.” This is related to “human exceptualism,” the idea that we transcend nature. But the question remains: what is the root for well-being? What is the purpose of life biologically? Is it to reproduce and survive (the selfish gene)? Should it be a population idea? In pursuing these ideas further, Todd drew on Marx, Durkheim and Weber, but mostly Tonnies and the concepts of Gemeinschaft and Gessellschaft, in an attempt to locate well-being in the sense of community where both individual expression and collective care thrive. Discussion ensued. Todd agreed to make his presentation available upon request.

**Glenn Israel** **(Florida)** reported on his surveys in which he used combinations of mail/email surveys. His most recent data (2012 2013 2014) yielded consistent response rates. There were some variations but not enough to spot a trend. Both Glenn and Ginny Lesser (in past meetings) report more responses by email compared to previous years. Glenn reviewed the sample sizes for 2012 and 2013 for his analysis this year. Most notable are the lower response rates if you rely only on email (37%) vs. as high 57% for mail only after sending an initial email. He also examined nonresponse rates and calculated odds ratios. Findings: non-response bias was found among blacks and Hispanics (lower response rate). Result: very similar responses across treatment groups. Mixed mode surveys did not offer much advantage by groups. Item response rates were similar across treatment groups; no evidence of mode X treatment interaction. The distribution of responses varies by age: older are less likely to have or use email. Open ended items showed no significant differences in words written by treatment and mode. Glen summarized these results by noting that there were not dramatic, but some small differences in response rates depending on the treatment and mode. The results of the mixed modes may not be too clear, but mixed mode may offer savings in mailing costs. Glenn also examined response rates by race, which ranged from 30% for Hispanic to 58% for whites. There were no significant interaction effects (race X mode).

**Milton Newberry** (Florida) presented questionnaire design material related to the consistency of questionnaire items and their response formats. The basic design consisted of a series of questionnaire items that asked whether you “agree or disagree” followed by response which either went from strongly agree to strongly disagree of from strongly disagree to strongly agree. Much discussion followed, with several participants agreeing to include this theme in new experiments.

**Ashley Steward and Jackie Hill** (Texas) concluded the Thursday session by discussing Texas A & M’s undergraduate research courses and by presenting data on dropoff/pickup procedures used in their practicum. They collected data at various places in the especially during the summer. They developed the “6 C’s” of research: choose, contact, connect, commit, completer and collect. They used maps to demonstrate sampling strategies for the drop off system where they first retrieved the questionnaires after 48 hours. This resulted in low response rates; it may have been too long so they moved from 48 hours to 3 hours and realized remarkable improvements in returns. Overall, they had 6000 questionnaires across states. Problems: locked gates and inside patios made connecting difficult. They tried drop-off & mail back. They kept track of rates of steps along the way: contacts to connection to commitment to completion. They added an experiment with a mail back option. Mail did not get dropped off. Drop-off/pick-up (DOPU (48 hr) didn’t work as well as DOPU (3 hr), and drop-off/mail back (DOMB) was 180/2015 (poor). Also note on community characteristics: language, etc. They also did a mail in/ mail out and got 99/900; not so good. Costs were also calculated. Discussion followed relating to the calculation of response rates.

**Mallory Mobly and Danialle Bishop** (Texas A & M) discussed use of surveys at the gates of rodeos. They discussed the exchange relationship between students and survey participants as they ask participants to complete the questionnaires near the gates of the rodeo. They used Qualtrix to design the survey. They had 28 – 40 questions. Their concerns include the use of tokens, the effort it takes to redeem the tokens, the different values of tokens, and the use of iPads. They had a $10,000 budget for incentives ($0 for the control). This will be conducted this spring. Questions were asked about the data collection strategy. They handed out their sampling strategy, where different incentives were used each day. Completion of questionnaire earned tokens. Questions were asked about the selection of participants near the entrance.

**Steve Swinford (Montana)** talked about his work. One study, recently completed for the Idaho Transportation Department, was a random statewide survey that focused on drunk driving and had a media component. They are currently in the evaluation phase. A second study was on seat belt usage, where the purpose is to increase usage in 3 rural communities. It’s a 5 year study that is just starting. They have been designing the questionnaire in cooperation with the Federal Transportation Research Center. Another study is an NSF study of rural internet access. Two other studies include traffic safety council culture (2 year study), and a study of underage drinking for the Oregon Health Authority. The new VP – Research contracted with his group to conduct a survey of the research culture of the university. Two other studies looked at academic advising and local government surveys, a study commission and a one-shot mail out. He briefly reviewed each.

Steve discussed the idea of “crash risk.” They relate physical environment conditions to social environment, to local culture to behavioral hazards, which joins with systems hazards to assess traffic crash risk. He related these issues to the theory of behavioral intentions. He has some data on response rates by age; the highest response rates were among 55 – 65 (26%) compared to 0.40 among under 24. The also asked about perceptions of other peoples’ speeding compared to self-reports.

**Melissa Constantine (Minnesota)** concluded the Friday morning session by discussing her consulting work with IRB boards. An IRB – related agency asked her to examine the data they generated from 1500 responses to questionnaire that contained combinations of multiple (22) specific items and some summary questions. Unfortunately, the questions appeared to be “designed by a committee,” leaving it difficult for her to decide on an appropriate analysis strategy in which to either make inferences back to the population or make policy recommendations. Considerable discussion ensued about the design of questionnaires for optimal analysis and about strategies for dealing with agencies whose histories are not oriented toward systematic evaluation based on well-established procedures. Her power point is available on request.

**Billy McKim (Texas A & M)** discussed his “powerful partners” program in which his classes interact with undergrads at other universities. The problem: how do you reach difficult populations, the ones that “don’t look like me?” They want to draw on the wider array of land grants to create high-impact research program. They want to develop and implement a research program that incorporates multiple programs. One goal is to increase number of undergraduates who participate in research. The USDA would be helpful in establishing seed grants, but not much more. The idea is to get students involved in projects, especially off-campus (everyone to another campus). **Manuel Pina** suggests this is a good way to improve the research capacity of minority undergraduates. Idea: expose others to other campuses. Students with undergraduate experience are much better able to write grants. What kinds of research could be interesting to USDA (Challenge grants) and others? A wide array of observations followed.

**Zhengyuan Zhu (Iowa)** introduced us to the ISU *Center for Survey Statistics and Methodology* (CSSM). He notes that the Center goes back to Fisher and Wallace and the formation of the 1st Statistical Lab in the United States. The master sample of agriculture was established in 1938. In 2002 the name changed to CSSM. The mission includes development of sampling survey statistics and applying them to problems. Zhengyuan noted that ISU has a whole range of sampling courses. Missing data is currently important. CSSM does contract work with others on campus and beyond. He took us through a survey on Nutrient Reduction Strategy. Zhengyuan then walked us through a draft of a new questionnaire in which discussion ensued about the best format for presenting items.

**Fred Lorenz (Iowa)** closed out the meeting by discussing his longitudinal panel study of 550 rural Iowa families which began over 25 years ago. The study includes questionnaire and observational data of both parents and children. Over the years, research has concentrated on the development of the children into adulthood, but in late 2014 the National Institutes of Aging (NIA) awarded Fred and his associates, especially K. A. S. Wickrama (U Georgia) and Tricia Neppl (Iowa State) with a grant to continue studying the parents as they negotiate their retirement years. Lorenz discussed a simple structural equation model that shed light on concerns expressed by skeptics: can brief observations of family members interacting reflect behaviors in general (the street skeptic), and can individuals be trusted to accurately report their own behaviors (the scientific skeptic). Fred also discussed his work on correlated residuals in questionnaire data, and asked for more examples of questionnaire items in which multiple questionnaire items having the same format are preceded by a simple preamble. He said he would send an example of their questions to WERA members as examples.

The meetings adjourned about 5pm Friday afternoon. The next meeting of WERA1010 is scheduled for February 18 – 20, 2016.

**Appendix: State publications and related documents, 2014**

Don Dillman:

Dillman, Don A. Jolene D. Smith and Leah Christian. 2014. *Internet, Phone, Mail and Mixed-Mode Surveys: The Tailored Design Method.* The 4th edition. John Wiley” Hoboken, NJ.   
  
Stern, Michael J., Ipek Bilgen and Don A. Dillman. 2014. The State Of Survey Methodology: Challenges, Dilemmas ,and new Frontiers in the Era of the Tailored Design. *Field Methods* (August) 26: 284-301

Edwards, Michelle L., Don A. Dillman and Jolene D. Smyth. 2014. An Experimental Test of the Effects of Survey Sponsorship on Internet and Mail Survey Response. *Public Opinion Quarterly*. 78 (3): 734-750.

Courtney Flint:

H. Qin, C.G. Flint and A.E. Luloff. 2015. Tracing temporal changes in the human dimensions of forest insect disturbance on the Kenai Peninsula, Alaska. *Human Ecology.* doi:10.1007/s10745-01409717-x.

David, M.B., C.G. Flint, L.E. Gentry, M.K. Dolan, G.F. Czapar, R.A. Cooke, and T. Lavaire. 2014. Navigating the socio-bio-geo-chemistry and engineering of nitrogen management in two Illinois tile-drained watersheds. *Journal of Environmental Quality.* doi:10.2134/jeq2014.01.0036.

DeDecker, J., J. Masiunas, A.S. Davis, and C.G. Flint. 2014. Weed management practice selection among Midwest U.S. Organic Growers. *Weed Science* 62: 520-531.

Celio, E., C.G. Flint, P. Schoch, and A. Grêt-Regamey. 2014. Farmers' perception of their decision-making in relation to policy schemes: A comparison of case studies from Switzerland and the United States. *Land Use Policy* 41: 163-171.

Hendee, J. and C.G. Flint. 2014. Incorporating cultural ecosystem services into forest management strategies for private landowners: An Illinois Case Study. *Forest Science*. <http://dx.doi.org/10.5849/forsci.13-710>.

Glenn Israel:

Gouldthorpe, J. L., & Israel, G. D. 2014. The Savvy Survey #6a: General Guidelines for Writing Questionnaire Items. AEC396, 6 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd066>.

Gouldthorpe, J. L., & Israel, G. D. 2014. The Savvy Survey #6b: Constructing Open-Ended Items for a Questionnaire. AEC397, 4 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd067>.

Gouldthorpe, J. L., & Israel, G. D. 2014. The Savvy Survey #6c: Constructing Closed-Ended Items for a Questionnaire. AEC398, 5 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd068\>

Israel, G. D., & Gouldthorpe, J. L. 2014. The Savvy Survey #14: Mixed-Mode Surveys. AEC408, 11 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd078>.

Newberry, III, M. G., Gouldthorpe, J. L., & Israel, G. D. 2014. The Savvy Survey #15: Survey Responses and Data Entry. AEC410, 5 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd079>.

Newberry, III, M. G., Gouldthorpe, J. L., & Israel, G. D. 2014. The Savvy Survey #16: Data Analysis and Survey Results. AEC409, 7 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd080>.

Newberry, III, M. G., Gouldthorpe, J. L., & Israel, G. D. 2014. The Savvy Survey #17: Reporting Survey Findings. AEC411, 5 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd081>.

Israel, G. D., & Gouldthorpe, J. L. 2014. The Savvy Survey #12: Telephone Surveys. AEC406, 7 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd076>.

Kumar Chaudhary, A., & Israel, G. D. 2014. The Savvy Survey #8: Pilot Testing and Pretesting Questionnaires. AEC402, 6 pp. Gainesville: University of Florida Institute of Food and Agricultural Sciences. Available at: <http://edis.ifas.ufl.edu/pd072>.

Israel, G. D. Using motivating prompts to increases responses to open-ended questions in mixed-mode surveys: Further evidence on where the prompt should be placed. Paper presented at the annual meeting of the American Association for Public Opinion Research, Anaheim, CA, May, 2014.

Israel, G. D. Can visual design and a verbal importance prompt reduce item nonresponse for demographic items? Poster presented at the annual meeting of the American Association for Public Opinion Research, Anaheim, CA, May, 2014.

Israel, G. D., & Newberry, III, M. G. Assessing Bias in Uni-mode and Mixed-mode Surveys: Are Mixed-Mode Surveys Better? Paper presented at the VI European Congress of Methodology, Utrecht, Netherlands, July, 2014.

Newberry, III, M. G., & Israel, G. D. Evaluating the Effectiveness of Mixed-mode Versus Uni-mode Methods for Conducting Extension Surveys. Paper presented at the annual meeting of the Rural Sociological Society, New Orleans, LA, August, 2014.

Ginny Lesser:

Lesser, V.M., L. Newton, K. Nason, and J. Sifneos. 2014. 2013 Department of Transportation Tripcheck Survey. Conducted for the Oregon Department of Transportation, 282 pages.

 Lesser, V.M., L. Newton, and J. Sifneos. 2014. Procedures of Data Collected for the 2014 Oregon Department of Transportation Needs and Issues Survey. Conducted for the Oregon Department of Transportation. 600 pp.

 Lesser, V.M., L. Newton, and A.James. 2014. Procedures of Data Collected for the Spring 2014 Oregon Department of Transportation State Highway Quality Survey. Conducted for Oregon Department of Transportation. 700 pp.

 Lesser, V.M., L. Newton, and A.James. 2014. Procedures and Results of Data Collected for the 2013-2014 Oregon Motorboat Fuel Use Survey. Conducted for the Oregon Marine Board. 155 pp.

 Lesser, V.M., L. Newton, and A.James. 2014. Boating in Oregon: Results of the 2014 Triennial Boating Survey. Conducted for the Oregon Marine Board. 800 pp.

Fred Lorenz:

Maurer, K. M., Stewart, T. W., and Lorenz, F. O. 2014. Direct and indirect effects of fish on invertebrates and tiger salamanders in prairie pothole wetlands. *Wetlands*, 34 (4), 735 – 745.

Han Qin:

**Qin, H.\***, L. Davis\*, M. Mayernik, P. Romero Lankao, J. D’lgnazio, and P. Alston. 2014. Variables as currency: Linking meta-analysis research and data paths in sciences. *Data Science Journal* 13: 158-171 (\*contributed equally as first authors).

Romero-Lankao, P., S. Hughes, **H. Qin**, J. Hardoy, A. Rosas-Huerta, R. Borquez, and A. Lampis. 2014. Scale, urban risk and adaptation capacity in neighborhoods of Latin American cities. *Habitat International* 42: 224-235.

Zhengyuan Zhu:

*A cross-sampling method for estimating abundance and detectability for aggregated population with varying local abundance,” S. Zhou, N. Klaer, R. Daley, Z. Zhu, M. Fuller, and A. Smith, ICES Journal of Marine Science, 2014,* 71(9): 2436-2447.  
  
Publications by Iowa State Center for Survey Statistics and Methodology (CSSM) faculty:  
  
Berg, E. and Fuller, W.A. (2014). Small Area Prediction for the Canadian Labour Force Survey. Journal of Survey Statistics and Methodology, 2, 227—256.  
  
Berg, E. and Chandra, H. (2014). Small Area Prediction for a Unit-Level Lognormal Model. Computational Statistics and Data Analysis, 78, 159—175.  
  
Berg, E., Cecere, W., and Ghosh, M. (2014). Estimation for County-level Cropland Cash Rental Rates. Journal of Survey Statistics and Methodology, 2, 1—37.  
  
S. Park and J.K. Kim (2014). “Instrumental-variable calibration estimation in survey sampling,” Statistica Sinica 24, p 1001-1015.

J.K. Kim and J. Im (2014). “Propensity score adjustment with several follow-ups”, Biometrika, volume 101, p. 439-448.

S. Chen and J.K. Kim (2014). “Two-phase sampling experiment for propensity score estimation in self-selected samples”, Annals of Applied Statistics, volume 7, p. 1492-1515.   
  
Kim, J.K. and Yang, S. (2014). “Fractional hot deck imputation for robust inference under item nonresponse in survey sampling,'' *Survey Methodology*40, 211-230.