

ADVANCES IN SURVEY AND DATA ANALYSIS METHODS FOR RURAL SOCIAL SCIENTISTS: AN INTRODUCTION

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Rural sociologists and other rural social scientists have been and continue to be in the forefront of advances in methods for collecting and analyzing high quality social science data. While much of this work is embedded within substantive studies, the focus of this issue is on highlighting lessons learned so that other researchers can incorporate these ideas into the design and conduct of their studies.

A BRIEF HISTORY OF METHODOLOGICAL AND SURVEY RESEARCH BY RURAL SCIENTISTS

The stage was set for rural social scientists to affect survey and data analysis methods with the emergence of the discipline of rural sociology in the 1930s and, subsequently, through innovative studies such as the USDA's Rural Life Studies published in 1942–43. Perhaps the most influential work on social science methods is Don Dillman's (1978) book, *Mail and Telephone Surveys: The Total Design Method*, and subsequent editions with the latest being *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method* (Dillman, Smyth, and Christian 2014). Although the 1978 volume brought prominence to the innovative research by rural social scientists, considerable research was conducted before and following its publication (e.g., Dillman et al. 1974).

In the early 1980s, several rural sociologists convened a meeting in Tucson, Arizona, to share ideas about critical issues concerning survey methodology. One outcome was the establishment of a western region research project, W-183, supported by the USDA's Cooperative State Research Service. Although this was a regional project, rural sociologists and other social scientists from across the country participated. Every five years, the project was renewed until 2002 when it transitioned to the western region coordinating committee, WERA-1001, and later to the current committee, WERA-1010. Throughout the period the focus of the research has been on reducing error in rural and agricultural surveys.

Research by the regional research project team and later by the coordinating committee members has addressed a myriad of issues, including question order in

questionnaires (Carlson et al. 1995; Dillman et al. 1995; Lorenz, Saltiel, and Hoyt 1995; Willits and Saltiel 1995), comparison of survey modes and administration methods (Israel 2013; Lesser, Yang, and Newton 2011; Messer and Dillman 2011; Millar and Dillman 2011; Smyth et al. 2010), effectiveness of incentives and personalization on response rates (Dillman et al. 2007; Lesser et al. 2001), the influence of visual design on response behavior (Christian and Dillman 2004; Israel 2010), effects of check-all versus forced choice on response options (Smyth et al. 2006), and many more (e.g., Hildreth et al. 2013). Earlier this decade, WERA members collaborated on a series of papers addressing item nonresponse in an issue of *Survey Practice* (Dillman 2012; Israel and Lamm 2012; Lesser, Newton, and Yang 2012; Messer, Edwards, and Dillman 2012; Millar and Dillman 2012). The tradition of sharing research ideas and collaborating on studies continues with this special issue.

OVERVIEW OF THE PAPERS IN THE SPECIAL ISSUE

A diverse set of papers comprise this special issue with the majority focused on different approaches to gaining cooperation from the survey population. Given the challenge of decreasing response rates, Lesser, Newton, Yang and Sifneos report on several experiments testing ways to increase response rate for the general population with mixed-mode (web+mail) surveys in comparison to telephone and mail modes. The authors tested several ideas, including the number of contacts with potential respondents (4 versus 5), sponsorship of the survey on correspondence letterhead, color of the survey cover, motivating messages about saving money, and information about how to respond via the web. Their findings will be helpful for researchers who are looking for ways to tailor web+mail mixed-mode and mail surveys to maximize the response rate.

The paper by Jackson-Smith and colleagues demonstrates the feasibility of large-scale implementation of the drop-off/pick-up method for collecting survey data. Although most previous applications of the method had been used in a few locations for a given study, their study was deployed in 23 neighborhoods across the rural-urban continuum. The neighborhood-level response rate ranging from 33 to 79 percent with the most urban locations having lower levels of participation. Furthermore, the authors identified neighborhood and housing attributes that influenced contact and subsequent response rates. This study shows that the drop-off/pick-up method can be used across large geographies and, despite the high labor costs, response rates that are equal to or higher than other methods can be obtained.

While the paper by Jackson-Smith et al. shows the effectiveness of the drop-off/pick-up method, detailed information for implementing this method is provided by Trentelman and colleagues. The authors reviewed the use of social exchange theory (see Dillman et al. 2014) as the foundation for the method and then elaborated how the theory's principles are incorporated into carefully crafted scripts, instrument design, selection and training of project staff, and data collection procedures. In addition, Trentelman et al. share examples of innovations that emerged (use of sticky notes and commitment language) during the data collection process. The paper includes a table of recommended practices for conducting a drop-off/pick-up survey and appendices containing sample scripts and a training outline for data collectors. This study is a "must read" for researchers who want to learn about the nuts and bolts of using the drop-off/pick-up method.

Another alternative to mail, phone, web and mixed-mode surveys is the intercept survey, which is used more frequently in human dimension research in wildlife but less so in rural- or community-focused research. Flint and colleagues apply an intercept methodology to gather place-based perceptions by college students. The authors introduce several innovations to the data collection process, including using tablet devices to collect some data and to administer the informed consent protocol. Some tablet-collected data was then compared with American Communities Survey data to assess representativeness while informed consent responses segmented respondents into groups with different levels of information disclosure to the public. The authors provide detailed descriptions of site selection and sampling, interview procedures and data analysis. The strengths and weaknesses of involving students with limited training and experience are discussed, thereby providing full information for potential users to consider when deciding to use this approach.

The focus of the last two papers shifts from data collection methodologies to questionnaire construction issues. Willits, Theodori and Luloff provide an in-depth review of the literature on Likert Scales to address three common issues of concern among researchers: the number of items needed to construct an attitude scale, the number and meaning of response categories, and the appropriateness of various statistical methods for analyzing the collected data. The authors assert that Likert items and scales are robust measures. Furthermore, they conclude that decisions related to these issues are not black and white, right or wrong but, should be "fit for purpose," based on the research questions and context. This paper can help researchers to more fully address design issues during instrument development and data analysis.

Kumar Chaudhary and Israel extend previous research by examining mode effects across factors that affect responses in open-ended questions. They conducted an experiment to compare the effect of the presence of a motivating statement and the size of the answer space between respondents who choose to answer the survey using the web and those responding by mail. The study confirmed that a motivating statement about the item's importance increases the likelihood of the question being answered and both a larger answer space and motivating statement resulted in longer answers for both mail and web respondents. The authors conclude that judicious use of motivating statements and using appropriate-sized answer spaces can improve data quantity and quality in open-ended questions.

Finally, Don Dillman's commentary provides an important overview of challenges facing rural social scientists in conducting sample surveys. He describes trends that reflect responses to addressed survey errors, including the shift from interviews to self-administered data collection, increased use of mixed-mode survey systems, and survey designs tailored to the study context. His commentary then links contributions of the present studies to them. He concludes by noting that diverse approaches are needed to provide insights for today's challenges while building on the foundation of past research.

CONCLUDING OBSERVATIONS

In my view, the collection of papers in this special issue offers a little something for everyone who is involved in rural-oriented survey research. I gained new insights into alternative data collection methodologies and expanded my understanding of the literature on instrument construction. I anticipate that other readers will too.

REFERENCES

- Carlson, John F., Robert Mason, John Saltiel, and Danny R. Hoyt. 1995. "Assimilation and Contrast Effects in General/Specific Questions." *Rural Sociology* 60(4):666-73.
- Christian, Leah M. and Don A. Dillman. 2004. "The Influence of Symbolic and Graphical Language Manipulations on Answers to Paper Self-Administered Questionnaires." *Public Opinion Quarterly* 68(1):57-80.
- Dillman, Don A. 1978. *Mail and Telephone Surveys: The Total Design Method*. New York, NY: John Wiley and Sons.
- _____. 2012. "Introduction to Special Issue of Survey Practice on Item

- Nonresponse.” *Survey Practice* 5(2). Retrieved January 8, 2017 (<http://www.surveypractice.org/index.php/SurveyPractice/article/view/44/html>).
- Dillman, Don A., Tommy L. Brown, John E. Carlson, Edwin H. Carpenter, Frederick O. Lorenz, Robert Mason, John Saltiel, and Roberta L. Sangster. 1995. “Effects of Category Order on Answers to Mail and Telephone Surveys.” *Rural Sociology* 60(4):674–87.
- Dillman, Don A., James A. Christenson, Edwin H. Carpenter, and Ralph M. Brooks. 1974. “Increasing Mail Questionnaire Response: A Four-State Comparison.” *American Sociological Review* 39(5):744–56.
- Dillman, Don A., Virginia Lesser, Robert Mason, John Carlson, Fern Willits, Rob Robertson and B. Burke. 2007. “Personalization of Mail Surveys for General Public and Populations with a Group Identity: Results from Nine Studies.” *Rural Sociology* 72(4):632–46.
- Dillman, Don A., Jolene D. Smyth, and Leah M. Christian. 2014. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, New Jersey: John Wiley & Sons.
- Hildreth, L. A., U. Genschel, F. O. Lorenz, and V. Lesser. 2013. “A Permutation Test for a First Order Response Structure in Surveys.” *Structural Equation Modeling* 20:226–40.
- Israel, Glenn D. 2010. “Effects of Answer Space Size on Responses to Open-Ended Questions in Mail Surveys.” *Journal of Official Statistics* 26(2):271–85.
- _____. 2013. Combining Mail and E-mail Contacts to Facilitate Participation in Mixed-Mode Surveys. *Social Science Computer Review* 31(3):346–58. doi: 10.1177/0894439312464942. Retrieved January 8, 2017 (<http://ssc.sagepub.com/content/early/2012/11/26/0894439312464942>).
- Israel, Glenn D. and Alexa J. Lamm. 2012. “Item Nonresponse in a Client Survey of the General Public.” *Survey Practice* 5(2). Retrieved January 8, 2017 (<http://www.surveypractice.org/index.php/SurveyPractice/article/view/47/html>).
- Lesser, Virginia M., Don A. Dillman, John Carlson, Frederick Lorenz, Robert Mason, and Fern Willits. 2001. “Quantifying the Influences of Incentives on Mail Survey Response Rates and Their Effect on Nonresponse Error,” *Proceedings of the Annual Meeting of the American Statistical Association*, Atlanta, GA, August 5–9.
- Lesser, Virginia, Lydia Newton, and Daniel Yang. 2012. “Comparing Item Nonresponse across Different Delivery Modes in General Population Surveys.”

- Survey Practice* 5(2). Retrieved January 8, 2017 (<http://www.surveypractice.org/index.php/SurveyPractice/article/view/46/html>).
- Lesser, Virginia M., Daniel K. Yang, and Lydia Newton. 2011. "Assessing Hunters' Opinions Based on a Mail and a Mixed-Mode Survey." *Human Dimensions of Wildlife* 16(3):164–73.
- Lorenz, Frederick O., John Saltiel, and Danny R. Hoyt. 1995. "Question Order and Fair Play: Evidence of Even-Handedness in Rural Surveys." *Rural Sociology* 60(4):641–53.
- Messer, Benjamin L. and Don A. Dillman. 2011. "Surveying the General Public Over the Internet Using Address-Based Sampling and Mail Contact Procedures." *Public Opinion Quarterly*, 75(3):429–57.
- Messer, Benjamin, Michelle Edwards, and Don Dillman. 2012. "Determinants of Item Nonresponse to Web and Mail Respondents in Three Address-Based Mixed-Mode Surveys of the General Public." *Survey Practice*, 5(2). Retrieved January 8, 2017 (<http://www.surveypractice.org/index.php/SurveyPractice/article/view/45/html>).
- Millar, Morgan M. and Don A. Dillman. 2011. "Improving Response to Web and Mixed-Mode Surveys." *Public Opinion Quarterly* 75(2):249–69.
- _____. 2012. "Do Mail and Internet Surveys Produce Different Item Nonresponse Rates? An Experiment Using Random Mode Assignment." *Survey Practice* 5(2). Retrieved January 8, 2017 (<http://www.surveypractice.org/index.php/SurveyPractice/article/view/48/html>).
- Smyth, Jolene D., Don A. Dillman, Leah M. Christian and A.C. O'Neill. 2010. "Using the Internet to Survey Small Towns and Communities: Limitations and Possibilities in the Early 21st Century." *American Behavioral Scientist* 53(9):325–37.
- Smyth, Jolene D., Don A. Dillman, Leah M. Christian, and Michael J. Stern. 2006. "Comparing Check-All and Forced-Choice Question Formats in Web Surveys." *Public Opinion Quarterly* 70(1):66–77.
- Willits, Fern K. and John Saltiel. 1995. "Question Order Effects on Subjective Measures of Quality of Life." *Rural Sociology* 60(4):654–65.