

GESIS Summer School in Survey Methodology 2022

Syllabus for course: “Mixed-Mode Surveys”

Lecturers:	Dr. Sven Stadtmüller	Dr. Henning Silber	Prof. em. Dr. Schmidt
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Date: 24–26 August 2022

Time: 10:00-12:00 | 13:00-15:00

Venue: Online via Zoom

About the Lecturers:

Sven Stadtmüller is a senior researcher at GESIS – Leibniz Institute for the Social Sciences and at the Frankfurt University of Applied Sciences (FRA-UAS). At GESIS, he is working for the probability-based mixed-mode GESIS Panel. At the FRA-UAS, he is principal investigator of a large-scale panel study on child health and well-being. Sven studied Political Science, Sociology and Economics and received his doctorate in Political Sciences from the University of Mainz. His research interests include survey methodology (especially self-administered mixed-mode surveys), political attitudes and social and health inequalities in youth.

Henning Silber studied Sociology and German Philology at The University of Göttingen and Abo Akademi University. In 2015, he received his doctorate in social sciences from The University of Göttingen. His PhD studies were funded by the German Academic Scholarship Foundation and the FAZIT Foundation. Henning was a Visiting Scholar at Stanford University, The University of Texas at Austin, Utrecht University, and The University of Chicago. From 2019 to 2020, he was a Fulbright Research Fellow at The University of Illinois at Chicago. He is Scientific Team Leader of the Survey Operations Team at the Department of Survey Design and Methodology at GESIS – Leibniz Institute for the Social Sciences. Since 2018, he has been an elected Council Member of The World Association of Public Opinion Research (WAPOR) and currently serves as the Publications Chair. His research interests include survey methodology, political sociology, and the experimental social sciences.

Peter Schmidt studied Sociology, Statistics and Philosophy of Science at the Universities in Cologne and Mannheim and received his doctorate at the University of Mannheim. He has been project director and program director at ZUMA Mannheim (predecessor of GESIS) and Professor of social science methodology at the department of political science at the University of Giessen. Presently he is a member of the centre for international development and environment (ZEU) at the University of Giessen and Principal Investigator and Research Supervisor at the department of Psychosomatics at the University of Mainz. He has been principal investigator in 12 DFG projects and was part of teams for the migration module of the ESS, the refugee module and the privacy module of the GESIS panel study. His research interests include survey methodology especially measurement invariance, structural equation modelling and theories of reasoned action.

Selected Publications:

- Filser, A., Stadtmüller, S., Lipp, R., & Preetz, R. (2022). Adolescent school injuries and classroom sex compositions in German secondary schools. *BMC Public Health*, 22 (62). <https://doi.org/10.1186/s12889-021-12370-8>.
- Stadtmüller, S., Klocke, A., Giersiefen, A., Lipp, R., & Wacker, C. (2022). Approaching the causes of unintentional injuries in the school environment: A panel analysis of survey data from Germany. *Journal of School Health*, 92(2), 148-156. <https://doi.org/10.1111/josh.13112>.
- Stadtmüller, S., Silber, H., Gummer, T., Sand, M., Zins, S., Beuthner, C., & Christmann, P. (2022). Evaluating an Alternative Frame for Address-Based Sampling in Germany: The Address Database From Deutsche Post Direkt. *methods, data, analyses, online first*. <https://doi.org/10.12758/mda.2022.06>.
- Silber, H., Roßmann, J., Gummer, T., Zins, S., & Weyandt, K. W. (2021). The effects of question, respondent and interviewer characteristics on two types of item nonresponse. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 184(3), 1052-1069.
- Daikeler, J., Bach, R. L., Silber, H., & Eckman, S. (2022). Motivated misreporting in smartphone surveys. *Social Science Computer Review*, 40(1), 95-107.
- Beuthner, C., Silber, H., & Stark, T. H. (2022). Effects of smartphone use and recall aids on network name generator questions. *Social Networks*, 69, 45-54.
- Gordoni, G., Schmidt, P., & Gordoni, Y. (2012). Measurement invariance across face-to-face and telephone modes: the case of minority-status collectivistic-oriented groups. *International Journal of Public Opinion Research*, 24(2), 185-207.
- Pokropek, A., Davidov, E., & Schmidt, P. (2019). A monte carlo simulation study to assess the appropriateness of traditional and newer approaches to test for measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 26(5), 724-744.
- Bosnjak, M., Ajzen, I., & Schmidt, P. (2020). The Theory of Planned Behavior: Selected Recent Advances and Applications. *Europe's Journal of Psychology*, 16(3), 352-356.

Course Description:

Due to decreasing response rates around the world, survey designers must explore new ways of recruiting respondents for their surveys. One popular option is to offer different modes for survey participation, thus allowing target persons to participate in the survey mode that suits them best. While mixing survey modes for data collection can have positive effects on response rates, sample balance, and survey costs, the question arises of whether the data from different survey modes can be easily pooled and compared. This question also applies to data from long-standing survey programs that, in the course of the pandemic, had to refrain from face-to-face surveys and to collect data in other (mostly self-administered) survey modes.

In this short course, we provide an overview of empirical evidence related to the benefits and drawbacks of using multiple modes for data collection and outline some recommendations for the implementation of mixed-mode surveys. Specifically, we will cover topics such as mixed-mode-specific questionnaire design considerations, experimental evidence on comparing mixed-mode surveys with single-mode surveys, and optimal strategies of how to implement them. The practical part of the course provides an introduction on statistical methods for testing measurement equivalence of multi-item scales for mixed-mode and mixed-device survey data employing confirmatory factor analysis with multiple groups representing different modes. Furthermore, we demonstrate its use with prepared examples using the programs R-lavaan, Mplus Automation, and Mplus.

Keywords:

survey mode, survey design, survey implementation, questionnaire design, measurement equivalence, confirmatory factor analysis with multiple groups, R-Lavaan, Mplus.

Course Prerequisites:

- Basic knowledge in quantitative social sciences; practical experience in conducting surveys will be beneficial
- Basic knowledge of multivariate statistics, esp. factor analysis
- Experiences with R/R Studio and/or MPlus

Target Group:

Participants will find the course useful if:

- They plan or conduct their own mixed-mode survey
- They plan or use data from mixed-mode surveys
- They aim for a better understanding of the peculiarities of mixed-mode surveys

Course and Learning Objectives:

By the end of the course participants will:

- Have a general understanding of advantages and disadvantages of survey modes and of mixing them within a data collection
- Have a general understanding of the peculiarities of mixed-mode surveys regarding nonresponse and measurement error as well as questionnaire design
- Have a general understanding of procedures for testing measurement equivalence of survey data collected via different survey modes/devices and its implementation in R-lavaan and Mplus

Organizational Structure of the Course:

This is a three-day short course with a total amount of 12 hours of class time. The course structure includes a mix of teaching and exercises. Exercises will be divided in group and individual exercises. During the exercises, lecturers will be available to support the learning process.

Software and Hardware Requirements:

You should have access to R or Mplus to perform individual exercises. Specifically, for the structural equation models used to test for measurement equivalence, you will need R-lavaan or Mplus version 8.7 and Mplus Automation. Please note that the free version of Mplus meets the requirements of our course in terms of the number of observed variables used.

Day-to-day Schedule and Literature:

Day	Topic(s)
1	<p><u>10:00 - 10:30</u> Introduction and course outline</p> <p><u>10:30 - 12:00</u> Mixing survey modes: An Introduction</p> <p><u>12:00 - 13:00</u> Lunch break</p> <p><u>13:00 - 14:00</u> Questionnaire design in mixed-mode and mixed-device surveys</p> <p><u>14:00 - 15:00</u> Exercises 1</p> <p><u>Compulsory reading (have to be read before class):</u> n/a</p> <p><u>Suggested reading (suggested, yet do not have to be read before class):</u></p> <ul style="list-style-type: none"> ▪ Messer, B. L., & Dillman, D. A. (2011). Surveying the General Public over the Internet Using Address-Based Sampling and Mail Contact Procedures. <i>Public Opinion Quarterly</i>, 75(3), 429-457. https://doi.org/10.1093/poq/nfr021. ▪ Medway, R. L., & Fulton, J. (2012). When More Gets You Less: A Meta-Analysis of the Effect of Concurrent Web Options on Mail Survey Response Rates. <i>Public Opinion Quarterly</i>, 76(4), 733-746. https://doi.org/10.1093/poq/nfs047.

	<ul style="list-style-type: none"> ▪ Dillman, D. A., & Edwards, M. L. (2016). Designing a Mixed-Mode Survey. In C. Wolf, D. Joye, T. W. Smith, & Y. Fu (ed.). <i>The SAGE Handbook of Survey Methodology</i> (pp. 255-268). Thousand Oaks: SAGE.
2	<p><u>10:00 - 12:00</u> Self-administered mixed-mode surveys: The future of survey data collection?</p> <p><u>12:00 - 13:00</u> Lunch break</p> <p><u>13:00 - 14:00</u> Mode and mode selection effects: Conceptualization and empirical evidence</p> <p><u>14:00 - 15:00</u> Exercises 2</p> <p><u>Compulsory reading:</u> n/a</p> <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Wolf, C., Christmann, P., Gummer, T., Schnaudt, C., & Verhoeven, S. (2021). Conducting General Social Surveys as Self-Administered Mixed-Mode Surveys. <i>Public Opinion Quarterly</i>, 85(2), 623-648. https://doi.org/10.1093/poq/nfab039. ▪ Dillman, D. A. (2017). The Promise and Challenge of Pushing Respondents to the Web in Mixed-Mode Surveys. <i>Survey Methodology</i>, 43 (1). Paper available at http://www.statcan.gc.ca/pub/12-001-x/2017001/article/14836-eng.htm. ▪ Vannieuwenhuyze, J. T. A., & Loosveldt, G. (2012). Evaluating Relative Mode Effects in Mixed-Mode Surveys: Three Methods to Disentangle Selection and Measurement Effects. <i>Sociological Methods & Research</i>, 42(1), 82-104. https://doi.org/10.1177/0049124112464868.
3	<p><u>10:00 - 11:30</u> Traditional and approximate methods for testing measurement invariance for mixed mode survey data using multiple group CFA</p> <p><u>11:30 - 12:00</u> Exercises 3 – Code Writing for R/MPlus (Example 1: Classic Measurement Invariance)</p> <p><u>12:00 - 13:00</u> Lunch break</p> <p><u>13:00 - 14:</u> Exercises 3 – Data Analysis with R/MPlus and Discussion</p> <p><u>14:00 - 15:00</u> Exercises 4 – Code Writing, Data Analysis, and Discussion (Example 2: Approximate Alignment)</p> <p><u>Compulsory reading:</u> n/a</p> <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Hox, J., de Leeuw, E. D., & Zijlmans, E. A. O. (2015). Measurement Equivalence in mixed mode surveys. <i>Frontiers in Psychology</i>, 6(87). https://doi.org/10.3389/fpsyg.2015.00087. ▪ Cernat, A., & Revilla, M. (2020). Moving from Face-to-Face to a Web Panel: Impacts on Measurement Quality. <i>Journal of Survey Statistics and Methodology</i>, 9(4), 745-763. https://doi.org/10.1093/jssam/smaa007. ▪ Cernat, A., & Sakshaug, J. (2020). The Impact of Mixed Modes on Multiple Type of Measurement Error. <i>Survey Research Methods</i>, 14(1), 79-91. https://doi.org/10.18148/srm/2020.v14i1.7450.

Preparatory Reading:

- Dillman, D. A. (2017). The Promise and Challenge of Pushing Respondents to the Web in Mixed-Mode Surveys. *Survey Methodology*, 43 (1). Paper available at <http://www.statcan.gc.ca/pub/12-001-x/2017001/article/14836-eng.htm>.
- Stadtmüller, S., Beuthner, C., & Silber, H. (2021). Mixed-Mode Surveys. *GESIS Survey Guidelines*. Mannheim: GESIS – Leibniz Institute for the Social Sciences. https://doi.org/10.15465/gesis-sg_en_038.
- Gordoni, G., Schmidt, P., & Gordoni Y. (2012). Measurement invariance across face-to-face and telephone modes: The case of minority-status collectivistic-oriented groups. *International Journal of Public Opinion Research*, 24(2), 185-207.
- Hox, J., de Leeuw, E. D., & Zijlmans, E. A. O. (2015). Measurement Equivalence in mixed mode surveys. *Frontiers in Psychology*, 6(87). <https://doi.org/10.3389/fpsyg.2015.00087>.

Additional Recommended Literature:

- Beuthner, C., Daikeler, J., & Silber, H. (2019). Mixed-Device and Mobile Web Surveys. Mannheim, GESIS - Leibniz-Institute for the Social Sciences (GESIS - Survey Guidelines). https://doi.org/10.15465/gesis-sg_en_028.
- Bosnjak, M., Dannwolf, T., Enderle, T., Schaurer, I., Struminskaya, B., Tanner, A., & Weyandt K. W. (2018). Establishing an Open Probability-Based Mixed Mode Panel of the General Population in Germany: The GESIS Panel. *Social Science Computer Review*, 36(1), 103-115. <https://doi.org/10.1177/0894439317697949>.
- Cernat, A., & Sakshaugh, J. (2021). Estimating the Measurement Effects of Mixed Modes in Longitudinal Studies. *Current Practice and Issues*. In: P. Lynn (ed.). *Advances in Longitudinal Survey Methodology* (pp. 227-249). Hoboken: Wiley.
- Ciecuch, J., Davidov, E., Schmidt, P., & Algesheimer, R. (2016). Assessment of Cross-Cultural Comparability. In C. Wolf, D. Joye, T. W. Smith & Y. Fu (ed.). *The SAGE Handbook of Survey Methodology* (pp. 630-648). Thousand Oaks: SAGE.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys. The Tailored Design Method*. 4th edition. Hoboken: Wiley.
- Lavrakas, P. J., Traugott, M. W., Kennedy, C., Holbrook, A. L., de Leeuw, E., & West, B. (ed.) (2019). *Experimental Methods in Survey Research. Techniques that Combine Random Sampling with Random Assignment*. Hoboken: Wiley.
- Schuman, H., & Presser, S. (1981). *Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording, and Context*. New York: Academic Press.
- Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, 133(5), 859-883. <https://doi.org/10.1037/0033-2909.133.5.859>.