8th GESIS Summer School in Survey Methodology
Cologne, August 2019

Syllabus for Course 06: “Mixed Mode and Mixed Device Surveys”

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Date: 12-16. August 2019
Time: 09:00-13:00, 14:00-16:00
Course starts Monday morning at 09:00

About the Instructors:

Dr. Vera Toepoel is Assistant Professor at the Department of Methodology & Statistics at Utrecht University in the Netherlands. She teaches courses in survey methodology and her research focuses on: web surveys, panel surveys, mobile and mixed-device surveys etc. Vera previously worked at CentERdata and Tilburg University where she built and maintained several research panels. She is the chair of the Dutch and Belgian Platform for Survey Research and author of the book “Doing Surveys Online” published by Sage.

Prof. Dr. Edith de Leeuw is professor emerita in survey methodology and statistics at the University of Utrecht. In 2017 she received WAPOR’s Helen Dinerman prize for lifetime contributions to the field of public opinion and the ESRA award for outstanding services to survey research. She is associate editor for the Journal of Official Statistics, editor of Methods, Data, Analysis, and is on the editorial boards of leading journals in the field of survey methods. She is editor of four internationally renowned books on survey methodology. At present her research focuses on total survey error, nonresponse, and mixed-mode data collection.

Dr. Thomas Klausch is a post-doctoral researcher at the Department of Epidemiology and Biostatistics of VU University Medical Center Amsterdam. Before joining VUMc, Thomas was a post-doc at the Department of Methodology and Statistics of Utrecht University and a fellow at the methodology section of Statistics Netherlands. Thomas interest focuses on causal inference theory and predictive modelling with applications in survey and medical statistics. He has worked extensively on the estimation of statistical errors in mixed-mode surveys and he currently develops methodology for optimizing medical treatment assignment strategies using clinical register data.

Selected Publications:

  https://ojs.ub.uni-konstanz.de/srm/article/view/7402/6582

Short Course Description:

Mixed-mode surveys are almost inevitable today, especially for academic research and official statistics. Mixing modes has many advantages, but there are also some potential drawbacks. In this course we give an overview of issues in design and analysis and provide tools for designing, implementing and evaluating mixed-mode and mixed-device studies. We will discuss the most common designs for mixing modes in longitudinal, cross-national and single mode surveys. As online surveys are often part of the mix, we will pay special attention to online data collection, and to the device respondents use to respond (e.g. smartphone, tablet, laptop).

In analyzing mixed-mode data it is important to distinguish between selection effects (who responds to which mode) and measurement effects (effect of mode on answer). We will review and practice analysis models for this. Our objective is to provide the participants with a sound background on mixed-mode and mixed-device methodology, as well as on the implications of mixing modes for questionnaire design, total survey error, logistics and data analysis. In addition to in-class hours, participants will work on assignments in small groups. Participants can bring in their own projects or issues associated with mixed-mode surveys to work with. If you want to use this opportunity, please submit a summary (max. 2 pages) of your project to the instructors by July 14.

Keywords:
Mixed-mode survey, mixed-device, design, selection error, measurement error

Course Prerequisites:

- participants should have basic knowledge about survey methodology and statistics;
- basic knowledge of survey methodology could be gained in the course 01 "Introduction to Survey Design";
- basic knowledge of statistics includes analysis of variance, regression analysis, and logistic regression.

Target Group:

Participants will find the course useful if they:
- are considering doing mixed-mode surveys in the future and would like to find out whether this would be a suitable approach;
- think about adding another mode to their (online) survey to improve data quality, e.g. representativeness;
- are planning to use mixed-mode in their research and would like input on design and data collection;
- have used mixed-mode in their research and would like feedback;
- have collected mixed-mode data and want to learn about proper analysis methods;
- want to know more about the design and consequences of mixed-device surveys, e.g. the fact that respondents to web surveys can complete their surveys on different devices (desktop, tablet, mobile phone);
- are interested in mobile surveys (surveys conducted via mobile phones).
Course and Learning Objectives:

By the end of the course participants will:
- be familiar with the current scientific discussion on mixed-mode and mixed-device surveys;
- have gained an overview of different mixed-mode designs and strategies for mixing;
- know the advantages and disadvantages of different modes and mixes;
- be able to make an informed judgment about mixed-mode or mixed-device surveys;
- be able to design mixed-mode surveys for their own research;
- be able to properly analyse mixed-mode surveys.

Organizational Structure of the Course:

The course is structured around 4 hours of classroom instruction (9:00-13:00) and 2 hours of hands-on (group) work in the afternoon. In the three days of the course, the 2 hours of hands-on exercises will be on designing and implementing mixed-mode and mixed-design surveys. We expect the participants to apply the learned material on provided assignments (practical exercises) or to their own projects. Participants should prepare a brief presentation on that day's assignment and present the results the following day. Participants who wish to profit of the practical afternoon work and apply it to their own mixed-mode studies are asked to submit a 2-page summary of their research to the instructors by July 14. During the second part of this course, the exercises will be on analysis of mixed-mode surveys.

The group work on these projects is an important part of the course, we therefore expect all participants to take part in the 2 hour hand-on meetings. If for some reason a participant cannot take part, he/she is required to inform the instructors before the beginning of the course.

All the participants will have an opportunity to consult the instructors individually within the mentioned 2 hours or by appointment, either for help with the assignments or for advice on their research projects. The room and times for individual consultations will be announced in class.

Software and Hardware Requirements:

Course participants will need to bring a laptop with an installed statistical software for performing the practical exercises for this course. The exercises will be performed in SPSS.

Long Course Description:

When planning a survey, many decisions have to be made and one of the most important decisions concerns the choice of data collection mode. At present, a large variety of data collection methods are available for social surveys and official statistics, which leads to methodological questions, such as, which data collection mode is best? Each mode has its advantages and disadvantages; each mode also makes different logistical demands. Sometimes the choice for a particular data collection is easy and straightforward. But often the situation is more complex and one single mode will not suffice. Therefore, multiple modes of data collection or mixed-modes have become a major approach in survey practice. We will discuss the most common designs for mixing modes in longitudinal (including panel), cross-national and single mode surveys. Online surveys have become one of the dominant survey modes. In recent years, online surveys are completed on a range of different devices. Respondents may use their laptop, desktop PC, tablet, or mobile phone for survey completion. This device usage is not under the control of the researcher. In this course we also discuss the implications of these mixed-device surveys.

The topic of this course is the methodology and statistics for mixed-mode surveys. We will give an introduction and overview of methodological issues involved in the designing, implementation and evaluation of mixed mode and mixed-device surveys. We will discuss advantages and disadvantages of mixed-mode survey design and review common forms of mixed-mode design and the consequences of mixed-mode. Special attention will be paid to principles of questionnaire construction for mixed-mode and mixed-device surveys, involving unified mode design, interactive aspects of the web and graphical tools. Special attention will be given to mixes, where online surveys are part of the mix, since this is the most commonly used approach today (mainly from cost-benefit point of view).
In the second half of the course, we will discuss the analysis of mixed-mode surveys, going from an introduction to more advanced statistical techniques. Researchers have applied increasing sophisticated models to tease apart the effects of selection on mode differences (that is, the effect of mode on who responds) from the effects of measurement differences (the effect of the mode on the answers respondents give). Students will be introduced to the conceptual background of these effects and will be able to interpret their practical implications. We discuss the estimation of the effects in practice as well as the assumptions that the various estimation techniques make. We will not focus on the ICF aspects of mixed-mode design (software, programming).

The objective is to provide the participants with a thorough background on mixed-mode/mixed-device methodology and with an empirical knowledge base on the implications of mixed-mode/device for questionnaire design, total survey error, logistics and analysis.

The format of the course is interactive, which means that your active participation and interest in the topic will significantly contribute to the class atmosphere. The course will combine short lectures with activities (in and outside of the class) as well as applications to participants’ own research examples and projects. Participants will have to read some methodological texts exemplifying the application of mixed-mode surveys. In addition to class hours, participants will work on selected projects in small groups, and each day of the course will start with a discussion of these examples. Examples from other projects will be used throughout the course, exemplifying the possible application of the learned material. Participants who wish to profit from work on their examples during the course are asked to submit a 2-page summary of their research to the instructors by July 14.

### Day-to-day Schedule and Literature:

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<thead>
<tr>
<th>Day</th>
<th>Topic(s)</th>
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| 1   | Issues in mixed-mode surveys:  
     | ▪ Introduction to the course/Get to know each other  
     | ▪ Why mixed-mode?  
     | ▪ Types of mixed-mode / Concurrent design versus sequential design  
     | ▪ Errors associated with mixed-mode surveys  
     | ▪ Minimizing Total Survey Error and design  
|     | **Compulsory reading:**  
     | ▪ de Leeuw, Edith D. & Hox, Joop J. (2011). Internet surveys as part of a mixed-mode design. In M. Das, P. Ester, & L. Kaczmirek (Eds), Social and behavioral research and the Internet (pp 45-76) New York: Taylor & Francis Group. see for manuscript version [http://joophox.net/publish/pubenjh.htm](http://joophox.net/publish/pubenjh.htm)  
| 2   | Online and Mixed-device surveys  
     | ▪ Issues associated with online surveys  
     | ▪ Visual design theory  
     | ▪ Mixed-device surveys as a form of concurrent design  
     | ▪ Issues associated with mobile surveys  
|     | **Compulsory reading:**  
     | ▪ Toepoel, V., & Dillman, D.A. (2011). How visual design affects the interpretability of survey questions. In M. Das, P. Ester, & L. Kaczmirek (Eds), Social and behavioral research and the
3 Guidelines for designing mixed-mode surveys and introduction to the analysis of mixed-mode data: measurement and selection effects

- Assessing quality
- Optimizing versus equivalency
- Guidelines: How to
- Planning for adjustment: mixed mode designs and the need of auxiliary data

Compulsory reading:

Suggested reading:

4 Estimation of measurement and selection effects using covariate-based adjustment methods

- Mixed-mode surveys considered from the potential outcomes framework
- Using the potential outcomes framework to estimate measurement and selection effects
- Applications with SPSS

Compulsory reading:

Suggested reading:


<table>
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<tr>
<th>5</th>
<th>Advanced statistical techniques and course synthesis</th>
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<tbody>
<tr>
<td></td>
<td>• Adjusting measurement effects in mixed-mode surveys</td>
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<td>• The mixed-mode re-interview design</td>
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<td>• The front-door and instrumental variable methods</td>
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<td>• Measurement error calibration in mixed-mode surveys</td>
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<td>• Using measurement models for evaluating mode effects and random and systematic measurement error</td>
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<td>• Course synthesis</td>
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<td>• Questions and answer session</td>
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**Compulsory reading:**


**Suggested reading:**


Preparatory Reading:

A general basic knowledge of survey methodology and analysis is expected.

- For methodology as covered in a basic handbook of survey methodology. For example, de Leeuw, Hox, & Dillman. International Handbook of Survey Methodology (parts 1. Foundation and 2. Design), Cjaza & Blair, Designing surveys. Groves et al. Survey methodology.
- For analysis, basic multivariate analysis (ANOVA, regression, factor analysis, logistic regression) book. For example, Field, Discovering Statistics

Additional Recommended Literature: