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Methodological Issues of Longitudinal Surveys

The Example of the National
Educational Panel Study

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Hans-Peter Blossfeld • Jutta von Maurice
Michael Bayer • Jan Skopek (Eds.)

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Content

Hans-Peter Blossfeld, Jutta von Maurice, Michael Bayer and Jan Skopek
Foreword XI

I. Introduction

Jutta von Maurice, Hans-Peter Blossfeld and Hans-Günther Roßbach
The National Educational Panel Study:
Milestones of the Years 2006 to 2015 3

Frank J. Infurna, Denis Gerstorf, Nilam Ram and Jutta Heckhausen
Analytic Strategies for the Study of Adaptation to Major Life Events:
Making the Most of Large-Scale Longitudinal Surveys 19

II. Sampling, Recruiting, and Fieldwork Management

Hans Walter Steinhauer and Sabine Zinn and Christian Aßmann
Weighting Panel Cohorts in Institutional Contexts 39

Sabine Zinn
Variance Estimation with Balanced Repeated Replication:
An Application to the Fifth and Ninth Grader Cohort Samples
of the National Educational Panel Study 63

<i>André Müller-Kuller, Sonja Meixner and Michaela Sixt</i> Challenges in Gaining Access: The School Cohorts of the National Educational Panel Study	85
<i>Ina-Sophie Ristau and Stephanie Beyer</i> Cooperation and Communication Within Scientific Organizations: The Role of Survey Coordination	99
<i>Michaela Sixt, Martin Goy and Georg Besuch</i> The Concept of Individual Retracking in NEPS—Approach, Practice, and First Empirical Evidence From Starting Cohorts 3 and 4	111
<i>Götz Lechner, Julia Göpel and Anna Passmann</i> Challenges and Intentions of Target-Specific Public Relations Work	133
 III. Longitudinal Measurement of Educational Processes: Surveys and Constructs	
<i>Anja Sommer, Claudia Hachul and Hans-Günther Roßbach</i> Video-Based Assessment and Rating of Parent-Child Interaction Within the National Educational Panel Study	151
<i>Doreen Müller, Tobias Linberg, Michael Bayer, Thorsten Schneider and Florian Wohlkinger</i> Measuring Personality Traits of Young Children— Results From a NEPS Pilot Study	169
<i>Florian Wohlkinger, Michael Bayer and Hartmut Ditton</i> Measuring Self-Concept in the NEPS	181
<i>Cornelia Kristen, Melanie Olczyk and Gisela Will</i> Identifying Immigrants and Their Descendants in the National Educational Panel Study	195
<i>Johann Carstensen, Anja Gottburgsen and Monika Jungbauer-Gans</i> Measuring Health in a Longitudinal Education Study	213
<i>Christiane Gross and Katharina Seebaß</i> The Standard Stress Scale (SSS): Measuring Stress in the Life Course	233

<i>Lena Nusser, Jana Heydrich, Claus H. Carstensen, Cordula Artelt and Sabine Weinert</i>	
Validity of Survey Data of Students with Special Educational Needs— Results From the National Educational Panel Study	251
<i>Hildegard Schaeper and Thomas Weiß</i>	
The Conceptualization, Development, and Validation of an Instrument for Measuring the Formal Learning Environment in Higher Education . . .	267
<i>Kerstin Hoenig, Reinhard Pollak, Benjamin Schulz and Volker Stocké</i>	
Social Capital, Participation in Adult Education, and Labor Market Success: Constructing a New Instrument	291
<i>Gunther Dahm, Oliver Lauterbach and Sophie Hahn</i>	
Measuring Students' Social and Academic Integration—Assessment of the Operationalization in the National Educational Panel Study	313
<i>Katrin Drasch, Corinna Kleinert, Britta Matthes and Michael Ruland</i>	
Why Do We Collect Data on Educational Histories Over the Life Course the Way We Do? Core Questionnaire Design Decisions in Starting Cohort 6—Adults	331
<i>Annette Trahms, Britta Matthes and Michael Ruland</i>	
Collecting Life-Course Data in a Panel Design: Why and How We Use Proactive Dependent Interviewing	349
<i>Michael Ruland, Katrin Drasch, Ralf Künster, Britta Matthes and Angelika Steinwede</i>	
Data-Revision Module—A Beneficial Tool to Support Autobiographical Memory in Life-Course Studies	367
<i>Florian Janik, Oliver Wölfel and Merlind Trepesch</i>	
Measurement of Further Training Activities in Life-Course Studies	385

IV. Longitudinal Measurement of Skills: Competence Testing

<i>Karin Berendes and Sabine Weinert</i>	
Selecting Appropriate Phonological Awareness Indicators for the Kindergarten Cohort of the National Educational Panel Study: A Theoretical and Empirical Approach	401

<i>Stephan Jarsinski, Sarah Frahm, Inge Blatt, Wilfried Bos and Michael Kandera</i>	
Assessing Spelling Competence Development in the National Educational Panel Study	427
<i>Aileen Edele, Kristin Schotte and Petra Stanat</i>	
Assessment of Immigrant Students' Listening Comprehension in Their First Languages (L1) Russian and Turkish in Grade 9: Test Construction and Validation	441
<i>Kathrin Lockl, Marion Händel, Kerstin Haberkorn and Sabine Weinert</i>	
Metacognitive Knowledge in Young Children: Development of a New Test Procedure for First Graders	465
<i>Anna Südkamp, Steffi Pohl, Jana Heydrich and Sabine Weinert</i>	
Including Students With Special Educational Needs in the Competence Assessment of the NEPS— Results on the Comparability of Test Scores in Reading	485
<i>Christian Aßmann, Christoph Gaasch, Steffi Pohl and Claus Carstensen</i>	
Estimation of Plausible Values Considering Partially Missing Background Information: A Data Augmented MCMC Approach	503
<i>Kerstin Haberkorn, Steffi Pohl, Claus Carstensen and Elena Wiegand</i>	
Scoring of Complex Multiple Choice Items in NEPS Competence Tests	523
 V. Assessing Data Quality	
<i>Thomas Bäumer and Hans-Günther Roßbach</i>	
Measurement of Preschool Quality Within the National Educational Panel Study—Results of a Methodological Study	543
<i>Cornelia Gresch, Rolf Strietholt, Michael Kandera and Heike Solga</i>	
Reading-Aloud Versus Self-Administered Student Questionnaires: An Experiment on Data Quality	561
<i>Franziska Fellenberg, Heiko Sibbers, Birgit Jesske and Doris Hess</i>	
Quality Assurance in the Context of Data Collection	579

VI. Data management, Coding, Dissemination, and User Support

<i>Jan Skopek, Knut Wenzig, Daniel Bela, Tobias Koberg, Manuel Munz and Daniel Fuß</i>	
Data Dissemination, Documentation, and User Support	597
<i>Jan Skopek, Tobias Koberg and Hans-Peter Blossfeld</i>	
RemoteNEPS—An Innovative Research Environment	611
<i>Knut Wenzig, Christian Matyas, Daniel Bela, Ingo Barkow and Marc Rittberger</i>	
Management of Metadata: An Integrated Approach to Structured Documentation	627
<i>Daniel Bela</i>	
Applied Large-Scale Data Editing	649
<i>Jan Skopek and Manuel Munz</i>	
Life-Course Data and the Longitudinal Classification of Education	669
<i>Tobias Koberg</i>	
Disclosing the National Educational Panel Study	691
<i>Manuel Munz, Knut Wenzig and Daniel Bela</i>	
String Coding in a Generic Framework	709
<i>Ralf Künster</i>	
Visualizing Life Courses With the TrueTales View	727

Foreword

Hans-Peter Blossfeld, Jutta von Maurice, Michael Bayer and Jan Skopek

Introduction

This book is the second volume focusing on important methodological issues of longitudinal studies using the example of the National Educational Panel Study (NEPS) in Germany. Today, the NEPS is one of the biggest longitudinal data-collection endeavors in social sciences in Europe and even beyond. The first volume described the main research aims, the basic design, the organization, and the setup of the NEPS (Blossfeld, Roßbach, & von Maurice, 2011). In this second volume a rich compendium documenting important methodological challenges, solutions, and achievements that emerged in developing a major longitudinal study are extensively described and discussed.

The aim of the NEPS is to collect rich large-scale longitudinal data on life courses, in particular the educational careers and competence developments of individuals and their consequences in terms of health and political behavior, career pathways, job success, employment behaviors, and income trajectories from early childhood to late adulthood. The basic survey design of the NEPS—a multicohort sequence design—involves six large independent panel samples (the so-called starting cohorts that are then followed-up in regular data sweeps over long time spans. In 2009, the NEPS started to collect data on (1) 6-month-old babies (Early Childhood cohort), (2) children in Kindergarten 2 years before regular school enrolment, (3) fifth graders at the age of about 10, (4) ninth graders (the 15-year-olds that are also analyzed in the PISA study by the OECD), (5) first-year students in higher education, that is, at traditional universities and universities of applied sciences, and (6) adults at the age of 23 to 64. In addition, the NEPS conducted additional secondary school studies in two selected German Federal States. The NEPS has developed and implemented a comprehensive range of longitudinal survey instruments and competence tests, sampling strategies, fieldwork procedures as well as an infrastructure for data edition, data dis-

semination, and user support. More than 200 scientists from different disciplines such as sociology, psychology, education sciences, economics, demography, statistics, and experts in sociological research methods are working on the NEPS. In January 2014, the NEPS project was institutionalized as a Leibniz Institute for Educational Trajectories (Leibniz-Institut für Bildungsverläufe, LIfBi). This support of the government ensures a long-term data infrastructure for national and international educational research in Germany. The total number of target persons included in the NEPS longitudinal study is about 60,000. In addition, educators, teachers, school principals, and parents associated with these 60,000 target persons are interviewed in order to include their familial, regional, and school contexts. Since 2012, a remarkable number of Scientific Use File data sets have been released to the international scientific community. Today, the number of scholars around the world who are using NEPS data for longitudinal empirical research has increased to more than 1,000 users. Consequently, the NEPS has become the most important data source for sociological, educational, economical, and psychological longitudinal research in Germany and beyond.

By now, several years after the start of the NEPS, an abundance of methodological challenges have been mastered and valuable knowledge about new solutions and tools have been developed for the NEPS. The aim of this volume entitled “*Methodological Issues of Longitudinal Surveys—The Example of the National Educational Panel Study*” is to address important user-relevant issues of the NEPS. The central idea of this book is to report and discuss the specific methodological problems of longitudinal studies and the practical solutions that have been found in the various NEPS disciplines while building up an attractive, efficient, and powerful large-scale multicohort panel database. In particular, the book demonstrates new standards in the collection and distribution of large-scale longitudinal data. In a nutshell, the 40 short and to-the-point chapters in this book capture a broad variety of relevant methodological issues ranging from sampling and weighting, recruiting and fieldwork management, designing longitudinal surveys, constructs, and competence tests, improving data quality, editing and documenting data on a large-scale basis, disseminating data to researchers, as well as establishing an effective public relations and communications service for a large panel study. Addressing an impressive array of methodological challenges and solutions, 93 authors—all of them longitudinal experts from different fields and backgrounds—have contributed to this unique volume.

The Approach of the Book

A key goal of the book is the discussion of important methodological challenges in today’s longitudinal designs and suggestions for their practical solutions as they have been achieved by the NEPS. Hence, contrary to other books on the market, this book is not intended to be just another theoretical primer in survey research. Rather, this book presents a well-selected collection of applied methodological topics and prac-

tical issues that had to be solved in building up a large-scale survey project but are hardly ever discussed in any available textbooks on survey research today. For instance, the book will provide not only chapters on sampling, weighting, and measurement of concepts in the context of longitudinal designs, but also on topics such as how to practically access and follow up target populations in a school sampling context, how to coordinate and manage multiple surveys, how to build up target-specific public relations services, or how to establish the highest standards of quality management in the context of longitudinal data collection. Moreover, the book provides a variety of valuable contributions for users of longitudinal data in the field of data management, dissemination, and user support—all of which are undoubtedly crucial for modern longitudinal survey projects and for the NEPS users, but which are still virtually untouched in the current literature.

Beyond sampling and data-collection issues, a core focus of this book is the longitudinal measurement of educational processes and skills over the life course. Several chapters cover a series of innovative methodological approaches that have been implemented in the NEPS, such as dependent interviewing for seamlessly collecting life-course data, video-based assessments of early childhood behavior, or measuring migration background, personality traits, health, stress, or further training activities. A major mission of the NEPS is the longitudinal assessment of competencies and skills of age-graded populations on a representative basis, which is largely uncharted territory in psychometrics.

This volume mainly targets an audience of survey researchers, practitioners in survey methodology, and the broader scientific community using the NEPS and other longitudinal data for their analyses. In general, it will be interesting for applied life-course researchers, psychologists, demographers, sociologists, economists, and educational researchers who are interested in large-scale assessments and educational careers. Consistent with the strategy of tackling real-life methodological problems in large-scale surveys, the volume explicitly does not follow the approach of a conventional textbook. Rather, it serves as a reference book for applied longitudinal methodology. While connected chapters are grouped together under relevant themes, all chapters can be read independently depending on a particular reader's interest. Notwithstanding, we believe that the book may also be of great value for introducing undergraduate and postgraduate students to the longitudinal methodology of the social sciences.

Synopsis

The book is organized into six parts. A first part provides a brief introduction to the National Educational Panel Study while also reporting on important milestones that have been achieved during the establishment phase of NEPS between 2009 and 2014. Moreover, analytical strategies to advance our knowledge of how life events change

the life course and shape developmental trajectories across different educational stages are discussed. A second part of the book contains six chapters tackling crucial issues of multicohort and institutional sampling, recruiting of survey participants in a multiactor design, and management of complex multiagency fieldwork processes. A third part is dedicated to the longitudinal measurement of educational processes, one of the major challenges of the NEPS. A collection of 14 chapters touches upon innovative topics such as video-based assessment of infants, measurement of personality traits, self-concept, health, stress, social capital, multigenerational migration background, social and academic integration, as well as the collection of initial and further educational biographies using modern techniques and tools for collecting seamless life history data. Next to collecting data on educational trajectories, a second goal of the NEPS is to assess competencies and skills throughout the entire life span. Part four provides seven chapters focusing on several methodological issues in assessment and statistical scaling of competence data. Particularly, these chapters document significant new experiences in assessing competencies among more difficult target groups such as students with special educational needs or students with migration backgrounds. Part five is devoted to the assessment of data quality in the NEPS. Evidence on data quality from experimental studies is presented and the importance of quality assurance units in large-scale studies is demonstrated. The NEPS has successfully built up a robust infrastructure, not only for collecting data but also for disseminating and delivering longitudinal data to the wider scientific community. Hence, part six of the book deals with innovative methods, techniques, and tools of data management, data coding, and data dissemination in the context of a large-scale longitudinal survey project. Eight chapters deal with highly relevant questions such as how researchers need to manage and document large-scale survey data, how to disseminate data of different disclosure levels while maximizing research utility, or how to build up a powerful program for user support and training.

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I. Introduction

The National Educational Panel Study: Milestones of the Years 2006 to 2015

Jutta von Maurice, Hans-Peter Blossfeld and Hans-Günther Roßbach

Abstract

Funded by the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung—BMBF), the National Educational Panel Study (Nationales Bildungspanel—NEPS) started in August 2008 with the aim of collecting urgently required longitudinal data about educational processes and competence development from early childhood to late adulthood. As of January 2014, the NEPS is now situated at the newly founded Leibniz Institute for Educational Trajectories (Leibniz-Institut für Bildungsverläufe—LIfBi). The NEPS provides these data to the scientific community as quickly as possible after each data-collection sweep. During the years 2006 to 2015, several important milestones have been achieved by the NEPS team: First, an interdisciplinary network of excellence has been built up including the best educational researchers and research institutions in Germany—initially with the University of Bamberg as the home of the NEPS center. Second, a clear structure for the NEPS has been developed focusing on five substantively oriented pillars and eight life-course stages. Third, a multi-cohort sequence design was defined in order to be able to quickly collect and disseminate data on different educational stages and to enable an easy comparison of different cohorts. Fourth, six cohorts with more than 60,000 target persons (plus some 40,000 context persons) were sampled in educational institutions or based on register data. Fifth, innovative longitudinal instruments were designed by an interdisciplinary team of researchers bringing together relevant theories, concepts, and variables from various disciplines. Sixth, procedures in order to collect representative data based on different samples have been defined, following up individuals through their educational pathways. Seventh, an effective infrastructure for the dissemination of data to the scientific community in Germany and abroad, a program of introductory user courses, and a user support center have been set up. Data from all six NEPS cohorts have been released to date. More than