



The National Educational Panel Study: Need, Main Features, and Research Potential

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Abstract

The German National Educational Panel Study (NEPS) was set up to study the acquisition of education, to assess the consequences of education for life courses, and to describe central education processes and trajectories across the entire life span. It is organized as a network of excellence linking together researchers from different disciplines with the life-course perspective serving as its preeminent theoretical characteristic. Although focusing on eight stages ranging over the entire life span, it ensures longitudinal integration through its theoretical orientation toward six major dimensions (“pillars”): competence development, learning environments, social inequalities and educational decisions, educational processes of migrants, returns to education, as well as motivation and personality. Methodologically, NEPS follows a multicohort sequence design starting with a total number of more than 60,000 target persons from six cohorts (early childhood, Kindergarten children, 5th graders, 9th graders,

This is an updated and shortened version of Blossfeld et al. (2011) as well as Blossfeld and Schneider (2011).

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first-year college students, and adults who, in most cases, had already left the educational system). Different instruments including questionnaires and competence tests are being administered in all six cohorts. Each new wave of the panel study is being made available to the scientific community as quickly as possible.

Keywords

Education · Panel study · Interdisciplinary research · Life-course perspective
Multicohort sequence design

1.1 Project Overview

In modern knowledge societies, education has not just become the key factor for economic growth and prosperity. It has also become decisive for coping with the challenges of a rapidly changing globalized world. Moreover, education is an important precondition for active participation as responsible citizens in a democratic society. However, the Programme for International Student Assessment (PISA), initiated by the Organization for Economic Co-operation and Development (OECD), has shown that major proportions of Germany's students are insufficiently prepared to meet these challenges at the end of their compulsory school attendance. Furthermore, analyses of PISA data have also repeatedly confirmed a strong correlation between social origins and competencies in Germany (most recently in the sixth round of the PISA assessments 2015 with a focus on science, OECD 2016). Despite all educational reforms, equal opportunity still seems to be a distant goal, even though the importance of education has tended to increase rather than to decline in recent decades—not only for positioning on the labor market but also for chances in individual and social life such as obtaining a partner on the marriage market.

Educational institutions deal with young people's acquisition of knowledge, skills, and competencies. Other important issues are attitudes, values, and norms. However, the educational system also assesses student performance, documenting it in grades, certificates, and degrees. These assessments may well determine potential access to specific education tracks such as the transition to a Gymnasium (upper secondary school offering university entrance qualification) or admission to a university, and they are also very important for job placement in many sectors of the labor market. In this way, schools and training institutes contribute to increasing or decreasing an individual's chances in later life.

Research and policy have stressed the need to broaden the view beyond school, vocational education and training, and university. First, we need to take a closer look at the time before compulsory education, at the first years of life. Several findings indicate that promoting children from less privileged families in preschool institutions has long lasting positive consequences that can still be found even at the age of 40 (Heckman and Masterov 2007). The other issue concerns lifelong learning. For members of modern information and service economies, learning does not end by obtaining a final qualifi-

education in the general or vocational education system. They are obliged to acquire new knowledge and new competencies continuously throughout their lives. This is why the Programme for the International Assessment of Adult Competencies (PIAAC) focuses on the qualifications of the working-age population (OECD 2004).

The technological and organizational transformation of the economy is not just increasingly reducing the need for routine work. It is also leading to a rapid growth in jobs in the service sector and in highly qualified positions requiring complex social and communicative competencies. This upgrading of the job structure raises the demand for highly qualified people and enhances the value of education and training both on the labor market and in society. In addition, globalization is leading to a strong acceleration of social and economic change in modern societies, and this increasingly requires more flexibility and adaptability both at work and in society. The ability to acquire new knowledge and to take on new tasks has become an important precondition for both finding new jobs and acting as responsible citizens. This makes it necessary to ask how education and training processes in childhood and adolescence relate to such an ability and willingness to acquire new competencies over the life course. How do learning processes need to be designed so that they will encourage and enable children, adolescents, and adults to carry on educating themselves throughout their lives?

Germany is also going through fundamental demographic changes. These changes include a declining birth rate, a drop in the number of students, an aging population due to higher life expectancy, and a growing proportion of people with a migration background. Such demographic changes create new challenges for the educational system and the organization of education across the life span.

To gain new insights into the process of educational acquisition and its returns, we need high-quality data collected with theory-driven test and survey instruments. Cross-national achievement assessments such as PISA, the Third International Mathematics and Science Study (TIMSS), or the international Progress in Reading Literacy Study (PIRLS) have delivered very important findings on the distribution of competencies among students in elementary and secondary schools. However, one single survey—just like one single snapshot with a camera—delivers only a detailed picture of the situation at one specific point in time. Even though successive snapshots obtained from a series of cross-sectional surveys highlight changes in the structure as a whole, they do not show the changing (and sometimes) unchanging experiences of individual students as their educational careers progress.

There is widespread consensus that panel data and the methodological advantages it provides are essential for a rigorous approach to the types of questions that drive and are central to life-course-oriented educational research (Halaby 2004). In particular, panel data improves the possibilities of describing trajectories of growth and development over the life course and of studying the patterns of causal relationships over longer time spans. The strengths of panel data become particularly evident when compared with the commonly collected cross-sectional data (see Chap. 2, this volume). In contrast to cross-national student assessments, we stick to a longitudinal view, tracing individuals over longer spans of time.

1.2 Review of Existing Longitudinal Studies on Education

Before starting a new large panel study, we needed to intensively review the available longitudinal studies conducted in Germany and abroad (for details see Blossfeld and Schneider 2011). In Germany, there are two genuine nationwide panel studies with education-relevant data: the Socio-economic Panel Study (SOEP) and the Panel Analysis of Intimate Relationships and Family Dynamics (pairfam). These studies do not include detailed data on educational contexts outside the family or on the development of domain-specific competencies, even though some measures of cognitive competencies and personality traits have been included in the SOEP in recent years, and pairfam will focus on parenting and child achievement.

Some German longitudinal studies address educational issues, including repeated measurements of competencies. But only limited conclusions can be drawn from these. They either confine themselves to a certain region or concentrate primarily on either one stage of education or a specific transition within the educational career (for details see Blossfeld and Schneider 2011). With short-term studies, it is impossible to understand how the competencies of individuals develop over the life course; how these competencies interact with educational decisions at various critical transitions in the individuals' careers; and how these competencies are influenced by the family and by the way teaching and learning processes are arranged in Kindergarten, school, professional education, and university. Furthermore, these studies do not cast light on how competencies relate to the achievement of educational qualifications, and which competencies are responsible for being successful on the labor market and in private and social life. Thus, there is a strong demand for high-quality longitudinal educational research in Germany. In particular, there is a great need for both analytical and methodological progress that will enable us to understand educational pathways throughout the life course and how they lead to different outcomes. In sum, a large National Educational Panel Study covering the whole life course is what was needed.

1.3 Organization and Funding

NEPS was set up 2009 in order to study the acquisition of education in Germany, to assess the consequences of education for life courses, and to describe central educational processes and trajectories across the entire life span. The guiding principles of NEPS are to ask how competencies unfold over the life course; if and how they influence—together with so-called noncognitive variables such as motivation and personality—educational careers at various critical transitions; and how and to what extent competencies are influenced in turn by learning opportunities—not only those within the family and the peer group but also those resulting from the way teaching and learning processes are shaped in Kindergarten, school, higher education, vocational education and training, and

adult education. NEPS should also help to understand which competencies are decisive for gaining educational qualifications, for lifelong learning, and for a successful personal and social life.

To achieve this aim, NEPS was established and organized as an interdisciplinary endeavor. It integrates theories and findings from disciplines such as educational science, educational psychology, developmental psychology, the sociology of education, the economics of education, labor market and vocational research, poverty research, research on childhood and adolescence, family studies, gender studies, migration studies, demography, cultural studies, survey research, and research on diagnostics and test theory. To implement this integration, an interdisciplinary consortium of research institutes, groups of researchers, and renowned researchers was set up that links the available experiences and competencies in longitudinal research to be found at various locations in Germany and forms an effective network of excellence.

Although the NEPS network has been quite stable over the intervening years, some changes have occurred. Currently, in January 2018, the following institutes are involved particularly strongly because of their highly relevant expertise: the Federal Institute for Vocational Education and Training (*Bundesinstitut für Berufsbildung*, BIBB) in Bonn; the German Institute for International Educational Research (*Deutsches Institut für Internationale Pädagogische Forschung*, DIPF) in Frankfurt; the German Youth Institute (*Deutsches Jugendinstitut*, DJI) in Munich; the German Centre for Higher Education Research and Science Studies (*Deutsches Zentrum für Hochschul- und Wissenschaftsforschung*, DZHW) in Hanover; the European Forum for Migration Studies (*Europäisches Forum für Migrationsstudien*, efms) in Bamberg; the Institute for Employment Research (*Institut für Arbeitsmarkt- und Berufsforschung*, IAB) in Nuremberg; the State Institute for Family Research (*Staatsinstitut für Familienforschung*, ifb) in Bamberg; the Institute for Economic Research (*Institut für Wirtschaftsforschung*, ifo) in Munich; the State Institute of Early Childhood Research (*Staatsinstitut für Frühpädagogik*, IFP) in Munich; the Institute for School Development Research (*Institut für Schulentwicklungsforschung*, IFS) at the TU Dortmund; the Leibniz Institute for Science and Mathematics Education (*Leibniz-Institut für die Pädagogik der Naturwissenschaften und Mathematik*, IPN) in Kiel; the Institute for Educational Quality Improvement (*Institut zur Qualitätsentwicklung im Bildungswesen*, IQB) in Berlin; the Max Planck Institute for Human Development (*Max-Planck-Institut für Bildungsforschung*, MPIB) in Berlin; the Social Science Research Center Berlin (*Wissenschaftszentrum Berlin für Sozialforschung*, WZB) in Berlin; and the Center for European Economic Research (*Zentrum für Europäische Wirtschaftsforschung*, ZEW) in Mannheim. In addition, the consortium also includes renowned colleagues holding chairs at universities in Bamberg, Berlin (Freie Universität and Humboldt Universität), Bochum (Ruhr-Universität), Erlangen-Nuremberg, Gießen, Leipzig, Mannheim, Munich (Ludwig-Maximilians-Universität and Technische Universität), Siegen, and Tübingen. Figure 1.1 presents the geographical distribution of the participating institutes and universities in Germany.

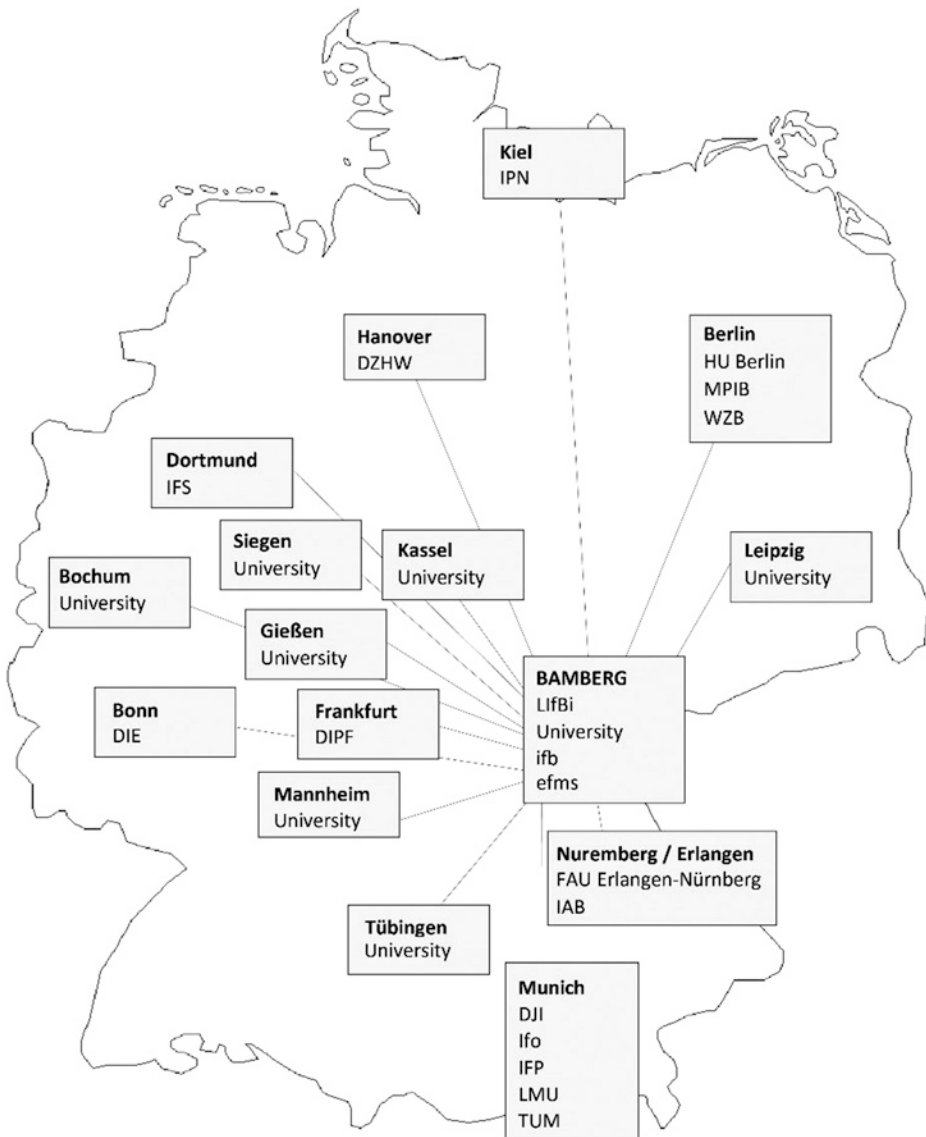


Fig. 1.1 Geographical distribution of institutes and universities participating in NEPS (November 2018). *Source* Own image

The history of NEPS is marked by several organizational milestones. After preparatory work, the NEPS consortium applied for funding through the Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*, BMBF). The BMBF commissioned the German Research Foundation (DFG) in 2007 and 2008 to

organize review processes for the proposal to establish NEPS. The international experts strongly recommended financing this project. The first funding period lasted from 2009 till 2013 with NEPS being housed in the Institute for Longitudinal Educational Research (*Institut für bildungswissenschaftliche Längsschnittforschung Bamberg*, INBIL) at the University of Bamberg. Because education and science are considered to be the most important resources in today's society, NEPS was integrated into the Framework Programme for the Promotion of Empirical Education Research (BMBF 2008).

In 2012, the DFG started an 8-year Priority Program "Education as a Lifelong Process" focusing on substantive analyses utilizing the NEPS database, on research linking and analyzing NEPS data together with other national and/or international datasets in order to conduct theory-driven (comparative) analyses, and on projects addressing methodological issues relevant to NEPS.

After successful work during the first years, both state and federal government supported the process of changing organizational structures: Instead of a third-party project within the University of Bamberg, NEPS was integrated into the Leibniz Institute for Educational Trajectories (LifBi)—an independent research-based infrastructure facility under the umbrella of the Leibniz Association. Within this structure, NEPS will receive sustained BMBF and federal government funding as long as regular scientific evaluations confirm its value to science and society.

1.4 Dimensions and Stages: The Framing Concept

An instrument designed to capture educational processes must be not only methodologically sound but also based on a strong theoretical paradigm focusing on the following six dimensions: competence development in different domains, the importance of various learning environments in a diachronic and synchronic perspective, social inequality and educational decisions over the life course, the specific situation of migrants and their descendants, returns to education across different life domains, and the role of motivational aspects and personality variables.

The life-course perspective is crucial within NEPS. This orientation has prompted a decisive shift in how educational researchers approach issues of schooling, skills, competence, and attainment. In particular, it redirects attention toward the process of educational and competence development, and it links changing social structure to the unfolding of human lives. It also serves as a bridge between psychological and sociological perspectives and between individual development and social structure. Thus, the life course provides an excellent framework for studying education at the nexus of social pathways, developmental trajectories, and social change (Baltes et al. 1999; Diewald and Mayer 2009; Elder and Giele 2009; Elder et al. 2003; see also Chap. 2, this volume).

At the same time, the longitudinal integration of the educational stages of NEPS is ensured by the six following theoretical dimensions called "pillars":

- **Competence Development Across the Life Course**
The role of the competence dimension is to formulate developmental models to trace competencies across the different educational stages and over the entire life course. The following competencies are being assessed within NEPS: (a) domain-general cognitive functions; (b) domain-specific cognitive competencies with a special focus on German-language competencies, mathematical literacy, and scientific literacy; (c) metacompetencies and social competencies, including information and communication technologies literacy (ICT), metacognition, self-regulation, and social competencies; and finally, (d) stage-specific (curriculum- or job related) competencies and outcome measures. One central task has been to develop test instruments for the longitudinal measurement of these competencies (see Chap. 4, this volume).
- **Education Processes in Life-Course-Specific Learning Environments**
The emphasis on educational processes and competence development over the life course requires a perspective that does not just take the processes occurring within a learning environment into account but also examines the transitions between successive and temporally parallel learning environments in the educational biography. This requires the analysis of different conditions within the relevant learning environments along with how these conditions impact on competence development and educational processes. Learning environments can be formal (e.g., school, apprenticeship, university) or nonformal/informal (e.g., training on the job, courses offered by sport associations, music schools, and the child and youth services, as well as learning from peers and the media). There is also a particularly strong focus on the family as an important learning environment (see Chap. 5, this volume).
- **Social Inequality and Educational Decisions in the Life Course**
This dimension is examining how far and why educational decisions such as school enrollment, the choice of a secondary school track, choice of a profession, choice of a study course, continuing education, or participation in further training vary across socioeconomic groups and gender. These differences in educational decisions can even be found when levels of competence are comparable. This makes it necessary to explain the importance of class-specific educational aspirations, motivations, expectations of success, and assessments of costs (vocational training, choice of study course; see Chap. 6, this volume).
- **Educational Acquisition With Migration Background in the Life Course**
Ethnic or national origins, migration biographies, and their contextualization (relations to the country of origin, integration in ethnic communities and networks) have an impact on competence development and educational decisions that goes beyond the mechanisms of social inequality. As a result, they are being assessed separately. There is a particular focus on two groups: migrants with a Turkish background and ethnic German immigrants from the former Soviet Union. The migration dimension is also addressing the methodological issue of designing appropriate survey instruments to study migrants who are unable to participate in German-language surveys (see Chap. 7, this volume).

- **Returns to Education in the Life Course**
In a narrow sense, the concept of (economic) returns to education addresses income, employment, as well as labor market and career opportunities. However, NEPS also includes returns to education in a broader sense covering such topics as political participation, social commitment, physical and mental health, opportunities for seeking a partner, fertility behavior, and subjective well-being (see Chap. 8, this volume).
- **Motivational Concepts and Personality Aspects Across the Life Course**
This dimension focuses on so-called noncognitive variables and their effect on competence development and educational trajectories across the life course. Variables include, for example, achievement motivation, general and topic-related interests, the self-concept, the Big Five, and social behavior (see Chap. 9, this volume).

In line with the structure of the German education system, NEPS divides educational careers into the following eight stages:

- Stage 1: From Birth to Early Child Care (see Chap. 11, this volume)
- Stage 2: From Kindergarten to Elementary School (see Chap. 12, this volume)
- Stage 3: From Elementary School to Lower Secondary School (see Chap. 12, this volume)
- Stage 4: From Lower to Upper Secondary School (see Chap. 13, this volume)
- Stage 5: From Upper Secondary School to Higher Education, Vocational Training, and the Labor Market (see Chaps. 14 and 15, this volume)
- Stage 6: From Vocational Training to the Labor Market (see Chap. 15, this volume)
- Stage 7: From Higher Education to the Labor Market (see Chap. 16, this volume)
- Stage 8: Adult Education and Lifelong Learning (see Chap. 17, this volume)

The six theoretical dimensions (“pillars”) can be combined with these stages and transitions in the educational system to form a two-dimensional matrix.

As mentioned above, the dimensions ensure the theoretical and methodological integration of the various stages in the life course. The advantage of this model is that it enables all studies of single stages and transitions in the educational system such as school entry or the transition to the labor market to be carried out within a unified mold. The general framing concept of the six central dimensions (“pillars”) links all stages together longitudinally.

1.5 Main Research Questions

Based on the theoretical priorities set by the six central dimensions (“pillars”), NEPS is designed to contribute to finding mid- and long-term answers to numerous questions. These include, for example:

- What are the decisive determinants for the acquisition of competencies and educational decisions in the single educational stages?
- What role do educational institutions as well as nonformal/informal learning environments (e.g., family, peers, youth services, cultural provisions, or new media) play in the acquisition of competencies and in educational decisions?
- How does competence acquisition relate to social and economic conditions (e.g., socioeconomic living conditions, regional contexts, migration background, gender-specific characteristics, and cultural traditions)? What is the role of primary and secondary effects within different educational decisions?
- Are there “metacompetencies” such as learning strategies and self-regulation that are particularly important for a successful career in the educational system and on the labor market? Which role do so-called noncognitive variables such as motivation and personality play in competence development and educational processes?
- How can ethnic inequalities in education be explained? Which resources can foster educational advancement within different groups of migrants?
- Which competencies are particularly crucial for success in vocational education and training, in higher education, and on the labor market? Are the reading, mathematical, and problem-solving competencies assessed in international academic achievement studies really those competencies that determine success in vocational education and training, higher education, and work careers? Once competencies have been acquired, how far and how quickly do they become lost again after general school education has been left behind?
- How do acquired knowledge, trained skills, and competencies relate to the educational certificates acquired?
- What are the economic, social, and health-related returns to acquired competencies and to certificates?
- How far do adults take part in education? What are the opportunities and barriers to adult education and learning processes in later life?

1.6 Multicohort Sequence Design

The previously mentioned overview of longitudinal studies based on different designs, especially the overview on designs used for educational studies outside of Germany, made several things clear. Birth cohort studies take too much time to acquire a “complete” picture of the educational career. Indeed, it would take nearly 20 years to study children’s development and transitions until the end of secondary school level. Another important point is that any generalization of findings based on a single cohort can be limited. A lot of research based on the German Life History Study has shown how the educational, professional, and family careers of different birth cohorts can differ according to historical and economic circumstances. Also in the case of the school-to-work transition, which is a sensitive phase in educational careers, it can be observed that

panels in England and Wales, the United States, and Australia repeatedly draw new starting cohorts (for details, see Blossfeld and Schneider 2011).

It is more efficient to concentrate on important sequences in the educational career. Samples must be drawn for every relevant sequence. Such a multicohort sequence design quickly provides relevant information. However, this has to be followed by drawing new starting cohorts and carrying out refreshments. This enables us to observe historical changes and evaluate not only major educational reforms at different transition points such as school, university, or the labor market, but also differences within competence development at comparable education stages. Such a design is comparable to that of the US National Center for Education Statistics. In contrast, however, we have to pay additional attention to lower secondary school and adults and ensure that we follow up persons for as long as possible.

Because of this, NEPS followed a multicohort sequence design right from the beginning (see Fig. 1.2). To obtain relevant data as quickly as possible, we started off with six

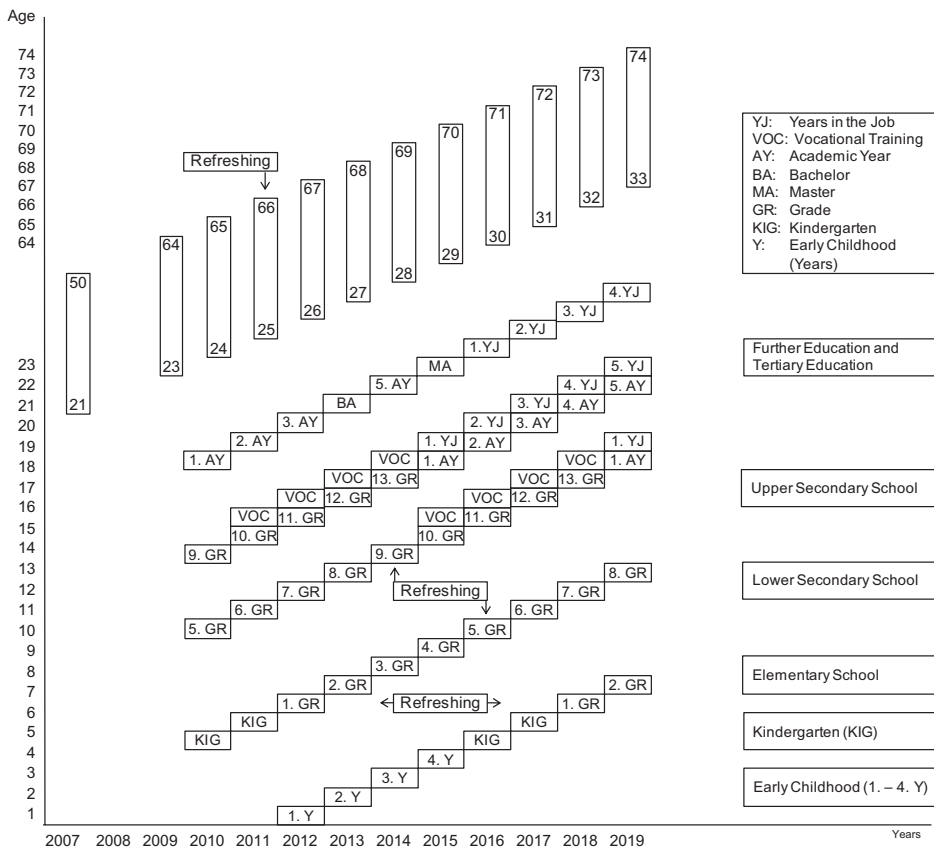


Fig. 1.2 The NEPS multicohort sequence design. *Source* Own image

separate cohorts. The first kind of cohort is defined by a specific point in the educational system. This reflects the major transitions into, within, and out of the general education and vocational training system. The second kind of cohort is age-based; members range from newborns to adults. Whereas all newborns enter formal care settings and educational institutions, some adults might take part sooner or later in some type of (further) education, whereas others might not. Members of all starting cohorts are being surveyed and tested over longer spans of time.

Four cohorts were recruited in fall/winter 2010. The first one started with 4-year-old children attending Kindergarten almost 2 years before entering elementary school. The Kindergarten sample was expanded 2 years later in Grade 1 of elementary school to include the cohort children's classmates as well as further schools and students. The second cohort targeted 5th graders immediately after entering the tracked secondary school system in most German federal states; this cohort was expanded in Grade 7. The third cohort included 9th graders who were almost at the end of compulsory education when being sampled. They split into one group heading toward vocational education and training, which is often offered in a firm-based way in Germany, and another group continuing general education in upper secondary schools. A fourth group consisted of new entrants to higher education. Finally, there were two other cohorts that were recruited at different starting points. The fifth cohort was a representative sample of 23- to 64-year-olds, irrespective of their current participation in education or the labor market. Because NEPS was able to integrate the large-scale ALWA study (*Arbeiten und Lernen im Wandel*) conducted by the Institute for Employment Research (IAB) of the German Federal Employment Agency in 2007 (Kleinert et al. 2008), data collection for the adult cohort already started in 2009. Both data from 2007 and the members of the ALWA sample were integrated into NEPS. A refreshment of the sample was implemented in Wave 3 in 2011. The sixth cohort is documenting and analyzing early childhood development and the entry to institutions for early childhood care (day nursery, Kindergarten, etc.) and started in 2012.

The NEPS design enabled us to quickly obtain findings on all central transitions in the education trajectory. At the same time, NEPS is also able to assess competence trajectories and educational careers across longer phases in people's lives. Therefore, the six subsamples are also being followed up beyond the first critical transitions.

To document and analyze historical changes in the way people pass through these stages (e.g., enlargement of early education and care, reforms in the school system, changes in further education), new starting cohorts are also being recruited in later years (creating a succession of cohorts).

1.7 Sampling and Data Collection

Sampling procedures frequently distinguish between individual and cluster sampling. In an individual sample, each individual has the same probability of being recruited. In cluster sampling, a unit on a higher lever (e.g., school class, firm) is drawn, and then

either all or some members of the selected units are tested or surveyed. This sampling strategy not only permits the assessment of institutional and compositional context features but also reduces the costs of carrying out competence tests and surveys. We drew cluster samples in Kindergartens, schools, and (applied or theoretically oriented) institutes of higher education. This means, for example, that as many students of one class as possible were recruited for NEPS (for more detailed information, see Chap. 3, this volume).

In subsequent years, all participants have been followed up even if they are no longer in the same group or class, studying the same subject, or attending different universities. This makes it possible to extend documentation to cover the educational pathways of students who have to repeat a school year, change the type of school they attend or their study course, or even drop out of school or higher education. It permits, for example, analyses of the educational careers of at-risk students. In addition, all students heading toward vocational education and training are being followed up individually after leaving general education. Because they disperse across so many alternative institutions, assessments in institutions would simply require too much time and effort.

It is not possible to start with institution-based samples in the newborn and adult cohorts. In these subsamples, there is either no common context or, regarding the adults, the situation is at least as complex as that for students in the vocational education and training systems. As a result, individual samples were recruited. When possible, context features have been added to the individual data from secondary data sources.

The six starting cohorts contained a total number of more than 60,000 participants. All participants are being surveyed regularly over an extended period of time. Their competencies are also being assessed at set intervals.

Table 1.1 shows the sample sizes of the starting cohorts at the first measurement wave (see also Chap. 3, this volume). Extensions of the sample by design were made at several points (e.g., in the year of elementary school admission, to include the classmates of children who had been observed longitudinally plus an additional sample of 1st graders). Surveys in the field of early childhood, Kindergarten, and school also assess persons from the children's and students' immediate surroundings. To obtain detailed reports on, for example, the family environment, one parent is interviewed regularly. Furthermore, Kindergarten staff and principals as well as class teachers, selected subject teachers, and school directors are asked to complete written surveys at regular intervals.

Since 2009, data collection has been organized by the Data Processing and Research Center of the International Association for the Evaluation of Educational Achievement (IEA-DPC) and by the Institute for Applied Social Sciences (infas). Close cooperation between these institutes and the NEPS consortium ensures the implementation of high-quality data collection procedures.

Table 1.1 NEPS sample sizes

Starting cohorts	Sampling	Sample size	Participants
Early childhood	Individual sample	3,431	Child, mother, educator, childminder
Kindergarten	Institutional sample	3,007 +refreshment 6,342 in 1st grade	Child, parents, educator, principal
5th Grade	Institutional sample	6,112 +refreshment 2,205 in 7th grade	Students, parents, teacher, principal
9th Grade	Institutional sample	16,425	Students, parents, teacher, principal
College	Institutional sample	17,910	College students
Adult education and lifelong learning	Individual sample	13,576 +refreshment 5,208 in 2011	Adults

1.8 Data Access and Expectations

The NEPS database is an infrastructural facility for science, and all data are made available to the scientific community as promptly as possible after data collection sweeps. The data collected for NEPS are subjected to immediate and strict quality controls before being processed and documented in a user-friendly way (for data dissemination, see Chap. 19, this volume). While complying strictly with personal data privacy requirements (see Chap. 18, this volume), this grants researchers in Germany and other countries the opportunity to analyze the data as exhaustively as possible and thereby contributes to the greatest possible progress in education research. NEPS also offers trainings on the use of the database. The aim is to prepare data from all starting cohorts so quickly that they become available in an anonymous form for both national and international scientists 18 months after the end of fieldwork.

NEPS delivers the first nationally representative database with a multilevel structure that provides longitudinal information on individual education careers and competence development while simultaneously documenting information on the family, peers, the education institutes attended, the training centers and workplaces, and general living conditions. With its rich potential for analyses in various disciplines (demography, economics, education science, psychology, sociology, etc.), the data makes it possible not only to test discipline-specific theories more effectively but also to formulate integrative approaches toward interdisciplinary theories in educational science. In particular, the

data generate new knowledge about competence development in the life course; the role of education institutions, families, and peers in the acquisition of education; the causes of socially unequal education decisions; the acquisition of education in migrants; as well as the consequences of competencies, certificates, and educational paths for (later) private and occupational paths through life.

NEPS not only delivers innovative impulses for basic research but also provides a major information source for policymakers. In particular, it is an important additional source of data for national education reporting, and it strengthens our knowledge of education over the life course and in developmental processes and trajectories. Especially by implementing cohort successions, it also becomes possible to study political reforms and their effects on, for example, the acquisition of competencies or equal opportunity in the educational system. In sum, we expect that NEPS will constantly improve analysis conditions for empirical education research in Germany, make a major contribution to promoting the careers of young scientists, and lead to a notable improvement in the international standing of German education research.

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