
The Concept of Individual Retracking in NEPS— Approach, Practice, and First Empirical Evidence From Starting Cohorts 3 and 4

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Abstract

For panel studies like the National Educational Panel Study (NEPS), it is of vital importance to keep the respondents on board and gather information over the life course in a consistent way. In the school cohorts of the NEPS, tests and questionnaires are administered in groups at school. As long as the respondents visit the schools where the NEPS is conducted, it is comparatively easy to reach these respondents and to keep them in the panel. However, if a respondent leaves an NEPS school due to changing schools, or if a school cancels its participation in the study, a different approach must be found to maintain contact with this special group of respondents and to continue collecting data from this group in a way that is comparable with the main field survey. For this reason, a concept of surveying these respondents in an individualized way was developed by the NEPS. In this article, we introduce the concept of individual retracking applied in and planned for the school cohorts of the NEPS, and we provide insight into the practice and challenges of this kind of data collection. We begin by introducing individual retracking as part of the aims and scope of the NEPS to survey not only mainstream but also nonstandard careers and individual pathways over the life course. Based on a review of the research literature on the designs and applications of individual retracking in longitudinal studies on educational processes, we introduce the approach taken by the NEPS in terms of its theoretical concept and its survey practice and present first empirical evidence on the basic sample structure and the response rates in the individually retracked survey as compared with the main field survey. We conclude the article with an outlook on the next steps to also introduce individual retracking in the NEPS in the contexts of elementary education and higher secondary education.

1 Introduction

The main aim of the National Educational Panel Study (NEPS) is to collect high-quality and comparable data on competence development and educational pathways in Germany over the whole life course and to make this data accessible to the scientific community. To do so, the NEPS develops theoretically and empirically based test and survey instruments built on two conceptual principles: (1) Educational biographies are divided into eight educational stages to allow for a stage-specific view of the particular situations and trajectories within a specific stage as well as the crucial transitions between them. (2) To assure a consistent measurement of theoretical constructs of high importance in educational research over the life course, the NEPS is based on five pillars, which focus on competence development, learning environments, educational decisions, migration, and returns to education. To be able to offer information on educational pathways over the life course as opposed to only at the end of the life course, the NEPS consists of six panel studies arranged in a multicohort sequence design (Blossfeld, von Maurice, & Schneider 2011, pp. 13 f.).

Two of these panels represent populations of students in schools: the starting cohort of fifth graders and the starting cohort of ninth graders. For both cohorts, the NEPS sampled randomly selected schools in all Federal States of Germany and requested the schools' participation and consecutively the participation of all students in two randomly selected classes in Grade 5 and Grade 9 (Aßmann et al., 2011). NEPS Stage 4 follows the students on their way through lower secondary education (Grades 5 to 10) up to and including their transition to upper secondary education, at which point NEPS Stage 5 takes over those students transferring into the academic track (Grade 11 to 12 or 13), and NEPS Stage 6 takes over those transferring into the vocational track.

In both cohorts, the main surveys started in fall 2010 with testing competencies and surveying the students with paper-and-pencil instruments in school. Furthermore, questionnaires were administered to class teachers to gain information on the class as well as on the quality of instruction for the German and mathematics teachers. In addition, the school principals were asked via a paper-and-pencil questionnaire to detail information about the school context (Frahm et al., 2011). To complement the survey with information on the home contexts of the students, the NEPS surveyed the students' parents (one parent per student) via telephone interviews about the context at home including, for instance, the social origin of the families.¹ Surveying context persons assures drawing a fuller picture of the social and learning environments of the students. Furthermore, regional information is available for the schools and the homes so that metadata on regional and local levels down to the fam-

1 The surveys in the institutional context were administered by IEA Data Processing and Research Center (DPC), Hamburg. The surveys in the individual field of the parents were administered by the Institute for Applied Social Sciences (infas), Bonn.

ilies' neighborhoods can be merged. Thus, not only a multicohort, but also a multi-informant and multilevel perspective can be realized with the design of the NEPS school cohorts.

In contrast to the younger NEPS cohorts, however, the participation of the students and their parents is decoupled in the school cohorts. As pilot studies reveal, coupling the participation leads to lower recruitment rates in these cohorts. As participation in the NEPS is voluntary, the parents and, in the case of the ninth graders, the students themselves have to agree to their continued participation in the panel. Of course, the schools are the first to agree to participate and stay in the panel.

For panel studies like the NEPS and its school cohorts with voluntary participation, incentive strategies and a proper concept of panel care are central to recruiting respondents and ensuring their continued participation in the study. In the NEPS, the students in school receive monetary incentives (€5 until Grade 8, €10 in higher grades). The teachers and principals who fill out a questionnaire and the teachers who coordinate the survey at school and cooperate with the data-collecting institute receive small presents show appreciation for their engagement. Furthermore, the NEPS puts a great deal of effort into writing motivation letters and providing information material, such as newsletters, informational brochures, and flyers for schools, parents, and students.

In both NEPS school cohorts, tests and questionnaires are administered in groups at school, and the contact to the target persons is organized via the school. As long as the respondents visit schools that participate in the NEPS, it is comparatively easy to reach the respondents and to keep them in the panel. However, if a respondent leaves the NEPS school because he or she has changed schools or if his or her school cancels its participation in the study, a different approach must be found to stay in contact with this special group of respondents and to collect data in a way that is comparable with the main field survey. Therefore, a concept for surveying these respondents in an individualized manner was developed by the NEPS: the field of individual retracking. With this individual field in the school cohorts, the NEPS is able to survey nonstandard careers and individual pathways over the life course in addition to the more mainstream or standard ways through schools surveyed in the main field of the panel study.

Based on a review of research literature and applications on designs and results of individual retracking in previous longitudinal studies on educational processes, in the following section, we introduce the approach taken by the NEPS in terms of its theoretical concept and its survey practice and present first empirical evidence on the basic structure and the response rates in the individually retracked survey in comparison with the main field survey. We conclude the article with an outlook on the next steps to also introduce individual retracking in the contexts of elementary education and higher secondary education.

2 Individual Retracking in Longitudinal Studies on Educational Processes

In the following section, we present a brief overview of a review of research conducted to identify designs and applications of individual retracking in longitudinal studies on educational processes. This review was conducted to investigate if and how other longitudinal studies apply individual retracking with regard to concepts, methods, and feasibility.

In line with the focus of this article on the school cohorts of the NEPS, we limited the scope of our investigation to longitudinal studies in elementary, lower secondary, and/or upper secondary school. We chose to include only studies conducted in Germany for reasons of comparability and access to the study documentation. Regarding the concept of individual retracking, we consider only those studies to apply this approach that survey respondents longitudinally in an individualized way *alongside* a longitudinal main field survey in school context.

To identify relevant longitudinal studies in Germany, we used the overview provided by Blossfeld and Schneider (2011) as a vantage point for this review of literature. In their synopsis of national and international longitudinal studies on education, Blossfeld and Schneider list 29 available longitudinal studies conducted in school contexts in Germany: four studies covering education from preschool age onward, 15 studies focusing on development and decisions in general schools, as well as 10 studies focusing on transitions from school to vocational training, to university, or to the labor market (Blossfeld & Schneider, 2011, pp. 38–43).

We complemented this list with a database search on research literature for the timespan from 2009 to 2014 to investigate if additional longitudinal studies in Germany that potentially apply individual retracking could be identified. Additionally, we contacted researchers involved in conducting current longitudinal studies in school contexts for which documentation might not yet be available.

Of the studies listed by Blossfeld and Schneider (2011), only one study could be identified that employs individual retracking according to our definition: the Study *Bildungsprozesse, Kompetenzentwicklung und Selektionsentscheidungen im Vorschul- und Schulalter* (BiKS, von Maurice, Artelt, Blossfeld, Faust, Roßbach, & Weinert, 2007; Mudiappa & Artelt, 2014) conducted in the Federal States of Bavaria and Hesse. In the first of the two longitudinal BiKS studies, which follows students from three years onward from Kindergarten into elementary school, those students who attend elementary schools in the initial sample, in which there were too few other study participants who attended the same schools or where the schools then cease their participation, are individually retracked and tested individually at home (Faust, Kratzmann, & Wehner, 2013, p. 36; Homuth, Mann, Schmitt, & Mudiappa, 2014, p. 21; Schmidt, Schmitt, & Smidt, 2009, p. 7). In the second BiKS study, which follows students from 8 years onwards in elementary school and in their transition from elementary to secondary school, individual retracking is also applied. If, after the transition from el-

elementary to secondary school in the course of the study, students of the second BiKS sample were not surveyed within the secondary schools for four reasons (that is, the target persons started attending schools in a region not covered by the study; there were less than three study participants in total in their schools; there was no information available on the schools they attended after transition from primary school; or if their school ceased participation in the study), students were then followed with individual retracking, and were surveyed with questionnaires sent to their homes, but they no longer participated in any competence tests (Homuth et al., p. 22; Lorenz, Schmitt, Lehl, Mudiappa, & Roßbach, 2013, p. 27; Schmidt et al., 2009, pp. 9–10).

In addition to BiKS, our review identified only one further study that applies individual retracking: the BERLIN study (Maaz, Baumert, Neumann, Becker, & Dumont, 2013). This study uses a research perspective to follow the transformation in school structure in the Federal State of Berlin, where the former four-tier school system of lower secondary education was switched to a two-tier system beginning in the school year 2010/2011. The study has two levels: Level I of the BERLIN study focuses on the impact that the change in system conditions has on the transition of students from elementary to lower secondary school and their pathways through lower secondary school (Module 1). Level II investigates the implications that the restructuring of secondary school has by comparing two student cohorts starting in Grade 9 in their transition to Grade 12: One cohort (Module 2) continues tracking the students of Module 1 as part of a larger, representative cohort that fully traverses the reformed secondary education; a second cohort (Module 3) serves as a control group—these students traverse through secondary education in the school system prior to restructuring. Individual retracking is used in Level II of the study. Those students who have been assessed at the first point of measurement in Grade 9 in either Module 2 or Module 3 and who left school after Grade 9 prior to the second point of measurement in Grade 10 are individually retracked and surveyed with a questionnaire sent to their homes. All students who left school prior to the third and final point of measurement in Grade 12 are also individually retracked and surveyed with a final questionnaire sent to their homes (Maaz, Baumert, Neumann, Becker, Kropf, & Dumont, 2013, p. 39–42).

3 NEPS Concept of Individual Retracking

As the overview in Section 2 shows, individual retracking is sparsely used in German longitudinal studies in school contexts. Consequently, there was not much empirical evidence from other studies available when the NEPS started to implement individual retracking. As mentioned above, the objective of individual retracking in the NEPS is to stay in contact with students who left NEPS schools or whose school quit participation in the NEPS. By this measure, the NEPS maintains the possibility of surveying and testing these persons in later surveys. Furthermore, keeping the individual

contact serves the purpose of collecting current data that are comparable with data from the main field. In this section, we outline the concept of individual retracking applied in the NEPS in the starting cohorts of the fifth and ninth graders, we present the materials implemented, and we detail the standard procedure of an individual survey and the experiences with this concept in the surveys for which data is already available.

The present design of individual retracking that has been developed in the last years satisfies the requirements of common mail surveys (Porst, 2001). In short, these are sincere and informative cover letters, which underline the importance and confidentiality of survey participation; preaddressed and freepost return envelopes; short survey instruments; multiple contacts; as well as incentives offered to show appreciation of participation.

To meet the requirements of a panel study, the concept of individual retracking in school cohorts comprises standardized procedures and several instruments applied in every individual survey. Essential for the NEPS, and especially for individual retracking, is the availability of unambiguous status information regarding the target person, that is, the information of whether a student still attends an NEPS school or if he or she has left this institution. The assignment of the group to which a student belongs is surveyed by so-called "school update lists" sent out in advance of each field start. According to these lists, each student is classified as a part of either the main field or the individual field. Besides the correct classification, continuous contact with the target person is of vital importance. Cohort-specific surveys in the field of individual retracking parallel to the main field are intended to gather comparable data. These surveys include the send-out of three different survey instruments. Two of these instruments are also applied in the main field: first, a short questionnaire to track the current address of the respondent, and second, a questionnaire for students that provides comparable data to that of the main field. The third instrument is a very short questionnaire developed especially for the requirements of individual retracking and is exclusively applied in this field because this information is available from the schools in the main field. This update questionnaire tracks the current status of the respondent, for example, whether the respondent still attends school or has already left school for some kind of vocational training, what kind of school or training he or she attends, the location of the school, and the class the student is visiting. The update questionnaires of the cohorts are very similar but have cohort-specific adjustments regarding the status range. Therefore, the update questionnaire pursues the same task as the school update list in the main field: classifying the status of the respondents.

In conclusion, the transition of a student from the main track to the individual track is not just a transition in administrative terms but also a transition of the survey context. These students need to know that they are still part of the NEPS sample even though their mode of participation has changed. They need information about their new status, especially in case of the students' first individual survey, and the im-

plications of this transition for future NEPS surveys. Moreover, the parents of these students need to receive this information as well. To address these aspects, each individual survey contains a cover letter for students and an additional cover letter for parents. Furthermore, a short informational brochure with general study information is included in analogy to the main field.

Before the field work of the individual field begins, the students in this field have to be identified. This information is provided by the above-mentioned school update lists.² Based on these, a list of student IDs in the individual field is processed. For these IDs, the corresponding student and parent addresses are provided. Students with valid addresses are contacted two weeks after the corresponding main field phase has begun. Every student gets a student questionnaire, a status update questionnaire, a short address questionnaire, and an information letter for parents and students. Cases with missing or invalid addresses get the status “temporary dropout.” Ideally, these students will be contacted in the next survey at their new address. If material could not be forwarded due to the relocation of the target persons, the questionnaires are resent if the postal service imprints the new address on the envelope. For target persons without an address memo, an address tracing procedure is installed.³ If new addresses can be investigated, the send-out process starts with a delay of several weeks for these cases. If this tracing is not successful, the students are allocated the status of temporary dropout and will be contacted again in the following survey.

We know from other studies that the application of a reminder increases the response rate substantially. Hence, we decided to send out a mail reminder if there is no response two weeks after the first contact. The reminder consists of a modified cover letter for students, a copy of the short address questionnaire, and the update questionnaire. We decided not to send the questionnaire a second time to lower the burden for the respondent (providing the same incentive). There are no multiple-reminder send-outs. Reminder nonrespondents are treated as temporary dropouts and are be contacted in the next survey.

Analogous to the main field, the respondents obtain a monetary incentive and a letter of thanks if they send back one of the requested instruments. Afterwards, the short address questionnaires are forwarded to the Institute for Applied Social Sciences (infas).⁴ The data of the returned student and update questionnaires are processed by the IEA Data Processing and Research Center (DPC) and transferred to the NEPS Data Center.

2 On these lists, each target person in the school has an identification number and a status code for the survey context.

3 The new addresses are acquired through telephone interviews with the parents or via address tracing.

4 Due to data protection obligations, nonanonymous data and survey administration are institutionally separated. Names and addresses of target persons are administrated and provided by the infas.

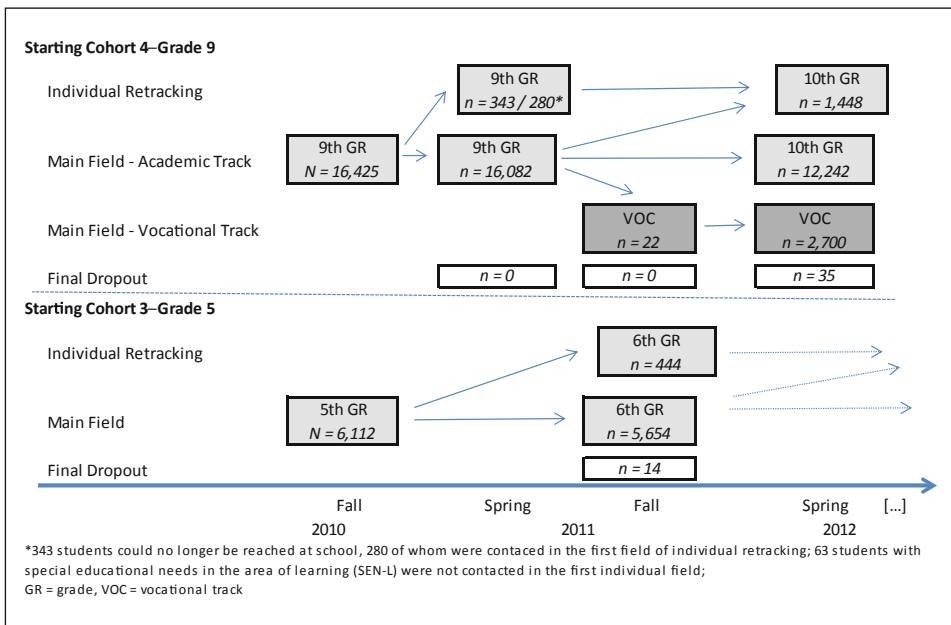
4 Empirical Evidence

In this section, we present first empirical evidence on the basic structure and the response rates in the individually retracked survey and the main field survey. First, we detail the design of the two school cohorts, their panel structure, and the different survey fields. Then, we shed a light on the reasons for the change to the field of individual retracking and present selected, basic information on the structural make-up of the subsamples. On this basis, we compare response rates in the field of individual retracking of both NEPS school cohorts with the respective main field.

4.1 Panel Structure and Survey Fields

The first field of individual retracking began in spring 2011 (cf. Figure 1). At that point, the starting cohort of the ninth graders was surveyed a second time. As Figure 1 shows, the sample of starting cohort Grade 9 consists of 16,425 students, 16,082 of which could still be contacted in the main field in school in spring 2010. 343 students (2 %) dropped out of the main field and thus switched to the field of individual retracking. As expected, this is a rather small group because only six months passed

Figure 1 Survey fields in Starting Cohort 4—Grade 9 and Starting Cohort 3—Grade 5



by and the survey began in the same school year so that only minor changes in school career were to be expected.

The second wave of individual retracking in the cohort of the ninth graders (by then, the target persons were attending Grade 10) started in spring 2012. Unfortunately, we cannot use data from the second field of individual retracking in spring 2012 because the edition of this data has not been finished at time of writing this article. Preliminary data show that there were 1,448 students in the field of individual retracking in spring 2012.⁵

For the starting cohort of fifth graders, the first wave with individual retracking was in fall 2011. Out of the 6,112 students in this cohort, 444 students (7%) attending the sixth grade then could not be reached in an NEPS school.

4.2 Reasons for Individual Retracking

As described in the beginning of this chapter, there could be individual and school-based reasons why we could no longer reach the participants at school. Individual reasons could be a removal or a planned change of school if the tracks offered by the school do not fit with individual interests.⁶ School-based reasons appear if the school withdraws its willingness to participate in the NEPS, if a school ceases offering the respective grade level, or if a school is closed. Furthermore, it could be that there are too few participants for continued participation of the school in the panel study.

As Table 1 shows, in spring 2011 for Starting Cohort 4, we find that 47% of the participants belonging to the field of individual retracking had changed schools. More than half of the students in this group changed schools because of school-based reasons: 53% of the individually contacted students left the main field because their schools quit their participation in the NEPS.

In Starting Cohort 3, the reasons for a change into the field of individual retracking are comparably distributed for the ninth graders: 48% of the individually contacted respondents had changed schools, and for 46% of them, the school cancelled its participation. In another 1% of cases, the school closed down, and in the case of 5%, there were too few participants at the school level, which meant that the NEPS was no longer testing at this school.

5 As described in Figure 1 and already mentioned in Section 1, it is possible in some Federal States to leave school and change to a vocational track after Grade 9. In this case, the NEPS starts a complete individual field in which the participants are contacted by telephone interviews and tested every two years at home (Ludwig-Mayerhofer et al., 2011).

6 In single cases, it is also possible that a child has to leave school because of insufficient grades or inadmissible behavior.

Table 1 Reasons for Changing Into the Field of Individual Retracking

Starting Cohort	4—Grade 9		3—Grade 5	
	Spring 2011		Fall 2011	
Change of school	160	47 %	213	48 %
School withdraws willingness to participate	183	53 %	204	46 %
School was closed	–	–	5	1 %
School ceases participation (number of participants at school level too low)	–	–	22	5 %
Total	343	100 %	444	100 %

4.3 Basic Structure of the Subsamples in Starting Cohort 4—Grade 9

To describe the basic structure of the subsample in Starting Cohort 4—Grade 9, this paper uses data from the National Educational Panel Study (NEPS): Starting Cohort 4—9th Grade, doi:10.5157/NEPS:SC4:1.0.0. Regarding basic socio-demographic information (cf. Table 2), such as sex and age, we have nearly an equal distribution and find no significant differences between the main (51 % male; 49 % female, average year of birth: 1995 [standard deviation = 0.7]) and the individual field (53 % male; 47 % female, average year of birth: 1995 [standard deviation = 0.8]).

Regarding migration background, we find significant ($p < 0.001$) differences between students in the main field and those in the individual field: In addition to the fact that we have less information available in the individual field, the proportion of participants who have migrated themselves (9 %) or who have at least one parent who migrated (36 %) is higher than in the main field (6 % and 26 %, respectively). We also find interesting differences between the two groups in the field of the individual retracking: While the group with individual reasons seems to be very similar to the group in the main field (6 % and 26 %, respectively), in the group with school-based reasons, the proportion of participants with a migration background is nearly twice as high (11 % and 44 %, respectively; $p < 0.001$).

Looking at the educational background, we first find significant ($p < 0.01$) differences in the proportion of parental information between the main and the individual field. First, in the main field, we have parent interviews for 56 % of the participants, and in the individual field, we only have parent interviews for 46 % of the participants. The two fields in individual retracking do not differ in this respect (46 % and 45 % with parent interviews). Second, we find that the educational background of target persons in the main field differs from those in the individual field ($p < 0.05$): In the field of individual retracking, less information is available (6 % compared with 4 % in the main field), and with 10 % of higher-educated parents, this share is lower than in the main field (18 %). We also find that those in the individual field are more similar

Table 2 Starting Cohort 4—Grade 9: Basic Structure of the Samples (Spring 2011)

Variables	Main field	Individual retracking		
	Total (<i>n</i> = 16,060)	Individual reasons (<i>n</i> = 160)	School-based reasons (<i>n</i> = 183)	Total (<i>n</i> = 343)
Sex				
Male	51 %	48 %	57 %	53 %
Female	49 %	52 %	43 %	47 %
Year of birth				
No information	0 %	1 %	1 %	1 %
Valid information	100 %	99 %	99 %	99 %
Mean (std. dev.)	1995 (0.7)	1995 (0.7)	1995 (0.8)	1995 (0.8)
Median	1995	1995	1995	1995
Min	1990	1993	1993	1993
Max	1999	1997	1996	1996
Migration background (first generation)				
No information	2 %	6 %	7 %	6 %
No	92 %	88 %	82 %	85 %
Yes	6 %	6 %	11 %	9 %
Migration background (second generation)				
No information	2 %	7 %	6 %	6 %
No	72 %	67 %	50 %	58 %
Yes	26 %	26 %	44 %	36 %
Parent interview				
No parent interview	44 %	54 %	55 %	54 %
Parent interview	56 %	46 %	45 %	46 %
Education of the parents				
No information	4 %	8 %	3 %	6 %
No higher education	78 %	74 %	93 %	84 %
Higher education	18 %	18 %	4 %	10 %
School track (first wave fall 2010)				
Hauptschule	23 %	18 %	23 %	21 %
Realschule/Gesamtschule	38 %	33 %	30 %	31 %
Gymnasium	32 %	40 %	20 %	29 %
Förderschule	7 %	9 %	27 %	19 %

Note. The difference to the total sample of *N* = 16,425 can be explained by *n* = 22 students who changed to the vocational educational system.

to the main field because of individual reasons (8% no information; 18% higher education; no significant difference to the main field) than are those with school-based reasons (3% no information, 4% higher education; $p < 0.001$ in comparison to the main field).

With regard to the visited school track in fall 2010, Table 2 reveals that most of the participants in the main field (38%) visited a type of middle school (e.g., Realschule, Gesamtschule, Schulen mit mehreren Bildungsgängen), about one third (32%) visited a Gymnasium, and about one fourth visited a Hauptschule (23%). An additional 7% visited a Förderschule, which is a school for students with special educational needs in the area of learning (SEN-L).⁷ For the individual field, this distribution differs significantly ($p < 0.001$), especially when regarding the 19% proportion of participants in Förderschule. Furthermore, the proportion of students in middle schools, Hauptschule, and Gymnasium is 7 (31%), 2 (21%), and 3 percentage points (29%) lower than in the main field, respectively.

Taking a closer look, we find that the proportion of students who attend a Förderschule is, with a share of 27%, considerably higher than in the group with individual reasons (9%) and in the main field (7%), especially in the group with school-based reasons for switching to the individual field. Furthermore, this differentiated picture shows that the proportion of students who attend a Gymnasium is higher in the field of individual retracking with individual reasons (40%) than with school-based reasons (20%) or in the main field (32%).

4.4 Basic Structure of the Subsamples in Starting Cohort 3—Grade 5

As the data edition for the Second Wave in fall 2011 was not finished at the time of composing this article, we can unfortunately not use data from an SUF for Starting Cohort 3—Grade 5.⁸ However, as these methodological analyses are important to assure a high quality of the data, we could take a look at the respective data the NEPS received from the data-collecting institutes. It is important to notice, though, that the following findings are preliminary and need to be confirmed by future analyses with the respective SUF.

As Table 3 shows, we find no relevant differences with regard to sex and year of birth between the main field and the individual field. In both fields, sex is nearly equally distributed (52% male students in the main field, 54% male students in the individual field), and the average year of birth is 1999 (std. dev. 0.6 resp. 0.8).

7 The NEPS is conducting a feasible study to investigate whether students with special educational needs in the area of learning can be tested and surveyed in the same way as students who attend regular schools (Heydrich, Weinert, Nusser, Artelt, & Carstensen, 2013). Therefore, these students are integrated in the samples of both school cohorts.

8 The first SUF for NEPS Starting Cohort 3—Grade 5 was released in September 2010 with data from the first surveys in fall 2010 (doi:10.5157/NEPS:SC3:1.0.0).

Table 3 Starting Cohort 3—Grade 5: Basic Structure of the Samples

Variables	Main field	Individual retracking		
	Total (<i>n</i> = 5,654)	Individual reasons (<i>n</i> = 213)	School-based reasons (<i>n</i> = 231)	Total (<i>n</i> = 444)
Sex				
No information	0%	0%	1%	1%
Male	52%	54%	55%	54%
Female	48%	46%	44%	45%
Year of birth				
No information	0%	0%	1%	1%
Valid information	100%	100%	99%	99%
Mean (std. dev.)	1999 (0.6)	1999 (0.8)	1999 (0.7)	1999 (0.8)
Median	2000	1999	1999	1999
Min	1995	1994	1997	1994
Max	2002	2001	2000	2001
Migration background (first generation)				
No information	5%	6%	5%	5%
No	91%	89%	85%	87%
Yes	4%	5%	10%	8%
Migration background (second generation)				
No information	4%	5%	4%	5%
No	72%	62%	64%	63%
Yes	24%	33%	32%	32%
Parent interview				
No parent interview	31%	39%	45%	42%
Parent interview	69%	61%	55%	58%
Education of the parents				
No information	0%	0%	0%	0%
No higher education	79%	85%	89%	87%
Higher education	21%	15%	11%	13%
School track (first wave fall 2010)				
Elementary school	5%	4%	16%	11%
Hauptschule	10%	24%	44%	34%
Realschule/Gesamtschule	34%	32%	20%	25%
Gymnasium	42%	20%	0%	10%
Förderschule	9%	20%	20%	20%

Note. The difference to the total sample of $N = 6,112$ can be explained by $n = 14$ students who withdrew their willingness to participate in the study.

Regarding migration background, we find significant differences ($p < 0.01$ for the first generation, as compared with $p < 0.001$ for the second generation) between students in the main field and those in the individual field: In the latter, the proportion of participants who have migrated themselves (8 %) or who have at least one parent who migrated (32 %) is higher than in the main field (4 % and 24 %, respectively). In contrast to the evidence from Starting Cohort 4, we find no clear hint that those with individual reasons (5 % and 33 %, respectively) are more similar to the main field than those with school-based reasons (10 % and 32 %, respectively).

In the main field, we find a slightly higher proportion of participants with a parent interview (69 %; $p < 0.05$) than in the field of individual retracking (58 %). Regarding the two groups in the field of individual retracking, we also find only slight and no significant differences: We have a parent interview for 61 % of those with individual reasons and for 55 % of those with school-based reasons. Similar to Starting Cohort 4, we find a clear difference between the educational backgrounds of those in the individual field compared with the main field: While the proportion with highly educated parents reaches 21 % in the main field, it is 13 % in the individual field ($p < 0.01$). Again similar to Starting Cohort 4, the group with individual reasons in the field of individual retracking (15 % with parents with higher education) is slightly more similar to the main field than those with school-based reasons (11 % with parents with higher education).

Looking at the school track, it is important to add that in Starting Cohort 3, students might also still be in elementary schools because in two of the Federal States in Germany, elementary school ends after Grade 6. As NEPS Starting Cohort 3 starts with Grade 5, we find a small proportion of 5 % of our participants in the main field in elementary school. Furthermore, 10 % of the participants are in Hauptschule, 34 % are in a kind of middle school, 42 % are in Gymnasium, and 9 % are in Förderschule. The field of individual retracking differs again significantly ($p < 0.001$) from the main field. Comparable with the ninth graders, we find a higher proportion of students in Förderschule (20 %) and Hauptschule (34 %) in the individual field and a clearly lower proportion of students in Gymnasium (10 %).

Looking at the different reasons for the change to the field of individual retracking, we find the same tendencies as in Starting Cohort 4: Those with individual reasons originate more often from a Gymnasium (20 % vs. 0 %), and those with school-based reasons more often from a Hauptschule (24 % vs. 44 %), although the proportion originating from a Förderschule is the same (both 20 %). In addition, the proportion coming from elementary school is 11 percentage points higher in the group with school-based (16 %) compared with individual reasons (4 %; main field: 5 %).

4.5 Response Rates

As we did not send out the materials for students with special educational needs in the field of learning in special schools for this first field of individual retracking in Starting Cohort 9, we only contacted 280 students individually. At that time, the participants were sent a motivation letter (as were their parents to inform them), the paper-and-pencil questionnaire of the main field, and the short update questionnaire for the address to their homes. The short questionnaire to update the status of the student mentioned in Section 3 had not been developed at that time. Furthermore, there was—also differing from the current concept—no reminder for this group. These two instruments were introduced for the first time for the field of individual retracking in the starting cohort of the fifth graders after empirical evidence from the starting cohort of the ninth graders (see below).

As shown in Table 4, after the survey material was sent out, 9% of the addresses of the students turned out to be incorrect so that the materials were returned. Regarding only those with valid addresses ($n = 249$), we received information from 51%; unfortunately, 49% ($n = 123$) did not send back any information. In the main field, 94% of all students participated in the survey in spring 2011. When comparing those proportions, we have to consider that the setting in the main field is completely different from the setting of the individual retracking. In the former, the students are in school and spend nearly one complete school day on NEPS testing and surveying. In the individual field, they have to fill out a paper-and-pencil questionnaire on their own in their leisure time. We also have to keep in mind that the field of individual retracking was started to avoid losing participants completely. In this respect, the fact that we could maintain the contact and collect information from half of the participants we otherwise would have lost for good represents a success.

Regarding the response rates in the two groups in the field of individual retracking, those with individual reasons, and those with school-based reasons, we can see a slight difference: While only 48% of those with individual reasons answered our questions, this proportion is 6 percentage points higher for the participants in the field with school-based reasons (54%, n. s.).

In the survey in fall 2011 for Starting Cohort 3, the concept of individual retracking was adjusted for the first time by adding a status questionnaire to the survey material. Furthermore, a reminder was sent out if there was no response to the first posting.

Finally, as shown in Table 5, 58% of the target persons in the individual retracking field with valid addresses returned their survey material. We received no answer at all from 42%. Comparable with Starting Cohort 4, we also have a problem with invalid addresses: The materials could not be sent out to 18% of the participants. In comparison, in the group with individual reasons, we have a response rate of 52%, and in the group with school-based reasons, we have a response rate of 63% ($p < 0.05$).

Table 4 Starting Cohort 4—Grade 9: Response in the Main Field and the Field of Individual Retracking (Spring 2011)

	Main field		Individual retracking					
	Total	Individual reasons	School-based reasons	Total	Individual reasons	School-based reasons		
Total	16,060	100%	343	100%	160	100%	183	100%
Not contacted at all	–		63	18%	14	9%	49	27%
No valid address	–		31	9%	22	14%	9	5%
Contacted (total)	16,060	100%	249	73%	124	78%	125	68%
No response			971	6%	123	49%	65	52%
Response			15,089	94%	126	51%	59	48%
							58	46%
							67	54%

Note: The difference to the total sample of $N = 16,425$ can be explained by $n = 22$ students who switched to the vocational educational system.

Table 5 Starting Cohort 3—Grade 5: Response in the Main Field and the Field of Individual Retracking (Fall 2011)

	Main field		Individual retracking					
	Total	Individual reasons	School-based reasons	Total	Individual reasons	School-based reasons		
Total	5,654	100%	444	100%	213	100%	231	100%
No valid address	–		78	18%	47	22%	31	13%
Contacted (total)	5,654	100%	366	82%	166	78%	200	87%
No response			327	6%	154	42%	80	48%
Response			5,327	94%	212	58%	86	52%
							74	37%
							126	63%

Note: The difference to the total sample of $N = 6,112$ can be explained by $n = 14$ students who withdrew their willingness to participate in the study.

5 Summary and Outlook

Panel studies based on surveys in institutional contexts run the risk of losing their participants if they leave these institutions or if the institution withdraws its willingness to participate in the study. To be able to follow the participants over their life course independent of the institutional context, the NEPS established a field of individual retracking. In this field, nonstandard educational careers are surveyed by a postal paper-and-pencil questionnaire, an address update analogous to the main field in school, and an additional short paper-and-pencil questionnaire on the current status of the students. Individual testing at home is planned before crucial transitions in the educational biography take place.

Summarizing the results from the analysis, the comparison of the basic sample structure of the main field and the individual field of both starting cohorts leads to some tentative conclusions: First, the proportion of participants with a migration background is nominally higher than in the main field, and the educational background in the individual field is nominally lower. Regarding the reasons for participants changing to the field of individual retracking, we find a more differentiated picture: While the group with school-based reasons is more likely to switch to individual retracking from lower school tracks, those students with individual reasons more likely originate from a Gymnasium. In other words, it seems that lower school tracks are more likely to cancel their participation than higher school tracks and that individual changes to other schools appear more likely in higher school tracks. Taking into account that students without migration and higher educational background (or rather, a socioeconomic background that is highly correlated with education) are more likely to attend the Gymnasium track and that students with migration and lower educational background are more likely to attend lower school tracks (cf., e.g., *Autorengruppe Bildungsberichterstattung*, 2010, p. 65), the aforementioned tendency could be explained by social disparities in school choice or selection.

Comparing the response rates between the two groups in the field of individual retracking, we find a lower participation rate in the group with individual reasons than in the group with school-based reasons in both cohorts. Against the background of the basic structure of the subsamples, we would have initially expected the opposite. Based on the thesis of “education bias” known from survey research (Hartmann & Schimpl-Neimanns, 1992) and the assumption that migration background coincides with a lower participation rate in education (Blohm & Diehl, 2001), a possible expectation could be that the response rate in the group with school-based reasons is lower than in the group with individual reasons. This is a question that should be investigated in detail in further research.

The challenge of keeping the participants in the panel, tracking their current status correctly, and collecting data that are comparable with the main frame increases with the number of alternatives for leaving the institutional context of the NEPS schools. This is especially the case at the transition from lower to upper secondary

school, which is also the point in time when the starting cohort splits up by default: In most Federal States, the educational pathways after Grade 10 split into a vocational track (leading to an occupation) and an academic track (leading to higher education) (cf. Figure 1).

Those students who leave school and transfer to the vocational track are followed by NEPS Stage 6 by way of telephone interviews twice a year (in fall and spring). They are tested every two years at home (Ludwig-Mayerhofer et al., 2011). The switch in survey mode is necessary for this group because the target persons become distributed over realms of possibilities in the vocational track so that an institutional perspective can no longer be upheld for the sample.

For the second group in this cohort, that is, students who continue their school education in the academic track, NEPS Stage 4 hands over the responsibility to NEPS Stage 5, which focuses on the pathway through the academic track to higher education (Wagner et al., 2011). Analogous to the surveys in Stage 4, the students in Grades 11 to 13 at NEPS schools are further tested and surveyed in the institutional context (including gathering information from the context persons). Also analogous to the former waves, there are students who cannot be reached at the NEPS schools anymore. At that stage, this group is especially large because two kinds of school tracks of the lower secondary school system, namely the Realschule and Gesamtschule, end after Grade 10, and many of the students from these tracks change to Gymnasium to attend higher education. We also know from pilot studies that it is very difficult for schools to differentiate whether the students change to vocational or academic tracks if they leave NEPS schools after Grade 10. Therefore, we decided to change the mode for the field of individual retracking after Grade 10, integrating it into the fall surveys of Stage 6.

This survey starts with a screening module to identify whether the respondent belongs to Stage 5 (academic track) or Stage 6 (vocational track). Afterwards, all stage-comprehensive questions are asked, and then the interview splits up: If the participant belongs to Stage 6, the survey program of Stage 6 is conducted; if he or she belongs to Stage 5, the telephone interview ends with an address update and the acquisition of at least one email address. For this group, the second part of the survey with the stage-specific program of Stage 5 is administered as an online questionnaire. Immediately after the end of the telephone interview, the target person is sent a link and a password to take part. It was explicitly decided that the target person has to participate in both surveys to receive the incentive.⁹ The online questionnaire is equiva-

9 The incentive is adjusted to the incentive in Stage 6, in which a higher incentive of €30 is administered to participants at risk of dropping out (those originating from lower secondary education), and a lower incentive of €15 is administered to those participants with a high probability of participation (those originating from middle or higher secondary education). Therefore, our special group receives an incentive of €15 as it is a low-risk group. This is also the reason why the decision was made to provide the incentive only after both the telephone and the online questionnaire have been completed.

lent to the paper-and-pencil questionnaire that the main frame answered in school (excluding the stage-comprehensive questions asked in the telephone interview at the beginning). For this group, we also set up the parent interview to receive comparable information on the context at home. At time of writing this article, we are waiting for first data to check whether this strategy is working.

In the NEPS, there is also a third starting cohort with a field of individual retracking: the Kindergarten cohort. In this cohort, administered in Stage 2, children are individually tested in Kindergarten two years prior to school enrollment. The children's educators are requested to provide some information on the children and the group the children attend. The principals of the Kindergartens are asked about context information of the Kindergarten. In this cohort, we have a coupling of the participation of parents and their children because the children cannot give us enough context information. Analogous to the school cohorts, the children can leave an NEPS Kindergarten, or an NEPS Kindergarten can withdraw its participation from the study. In these cases, individual retracking is organized via a parent interview (the current status of the child and address update; in Kindergarten, there is no questionnaire for the children). At the transition to elementary school in the year 2012, Stage 2 handed over the responsibility for this cohort to Stage 3. At this point, the sample in this starting cohort was refreshed by surveying the entire first grade (Aßmann et al., 2011). In order to keep these children and their parents in the panel, which we cannot track at the NEPS elementary schools, we are currently building a field of individual retracking analogous to the school cohorts with a status update, an address update, and a parent interview.

Up to now, the strategies applied in the NEPS to keep the panel participants in the school cohorts seem to have been working quite efficiently. In general, the panel participation rates are even higher than expected. It remains to be seen whether the strategies currently implemented in elementary school and upper secondary school are effective or whether new strategies need to be developed.

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