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14 Transition and development from lower secondary to upper secondary school

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Abstract: This chapter introduces the scope and the research program of stage 4 of the German National Educational Panel Study. Stage 4 follows the target persons through secondary education up to their transitions to higher secondary education, vocational education and training, or direct entry into the labor market. From a life-course perspective, this stage allows us to monitor individuals' educational trajectories in lower secondary education as results of a dynamic interdependence of educational decision-making, different learning environments, and competence development while also paying attention to the educational careers of migrants and returns to education. Following a general introduction, this chapter gives an overview of the general survey program of stage 4 regarding the tests and questionnaires administered to students as well as the questionnaires and interviews administered to their teachers, principals, and parents. Thereafter, the specific research focus of stage 4 on the interrelated development of reading and orthography as well as on the cognitions, attitudes, and behaviors related to these two competencies is outlined. With regard to orthography, stage-specific tests are applied to assess the students'

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competency trajectories in this crucial domain. With regard to reading, stage 4 focuses on the development of the students' reading engagement. A third key aspect of the stage-specific research introduced in this chapter is the quality of instruction.

Keywords: Panel study · Orthography · Quality of instruction · Reading engagement · Secondary education

Wege durch die Sekundarstufe I und Übergänge in die Sekundarstufe II

Zusammenfassung: In diesem Kapitel werden die Themenbereiche und das Forschungsprogramm der Etappe 4 des Nationalen Bildungspanels vorgestellt. Die Etappe 4 begleitet die Schülerinnen und Schüler auf dem Weg durch die Sekundarstufe I bis zu den Übergängen in den allgemeinbildenden und beruflichen Sekundarschulbereich II bzw. bis zum direkten Einstieg in den Arbeitsmarkt. Aus einer Lebensverlaufsperspektive erlaubt diese Etappe, die individuellen Bildungsverläufe innerhalb der Sekundarstufe I als Resultat der wechselseitigen Abhängigkeit von Bildungsentscheidungen, unterschiedlichen Lernumwelten und Kompetenzentwicklung zu beobachten, wobei auch die Bildungskarrieren von Migranten und die Erträge von Bildung berücksichtigt werden. Einer generellen Einführung folgt in diesem Kapitel ein Überblick über das allgemeine Erhebungsdesign der Etappe 4 im Hinblick auf die Tests und Fragebögen für die Schülerinnen und Schüler sowie die Fragebögen und Interviews, die an Lehrkräfte, Schulleitungen und Eltern adressiert sind. Anschließend wird der etappenspezifische Forschungsschwerpunkt skizziert, der die aufeinander bezogene Entwicklung des Lesens und Rechtschreibens sowie die auf diese beiden Kompetenzen bezogenen Kognitionen, Einstellungen und Verhaltensweisen in den Blick nimmt. Um die Kompetenzentwicklungen der Schülerinnen und Schüler in der zentralen Domäne Orthographie zu erheben, werden etappenspezifische Tests eingesetzt. Im Lesen fokussiert Etappe 4 die Entwicklung des Reading Engagement der Schülerinnen und Schüler. Ein dritter etappenspezifischer Schwerpunkt, der in diesem Kapitel vorgestellt wird, ist die Unterrichtsqualität.

Schlüsselwörter: Panelstudie · Orthographie · Unterrichtsqualität · Reading Engagement · Sekundarstufe I

14.1 Introduction: design of stage 4—starting cohorts 5 and 9

Theoretically, the National Educational Panel Study (NEPS) takes a life-course perspective (see Chap. 2, this volume). This orientation prompts a decisive shift in how educational researchers usually approach matters of schooling, skills, competence, and attainment, because this perspective redirects attention toward the process of education and competence development and links the changing social structure to the unfolding of human lives (see also Blossfeld et al. 2009).

Stage 4 follows the target persons through the course of secondary school up to their transitions to higher secondary education, vocational education and training, or direct entry into the labor market. In most federal states in Germany, students enter secondary education after Grade 4. They choose between different tracks or types of school, chiefly between the school types of *Hauptschule*, *Realschule*, *Gesamtschule*, and *Gymnasium*. Throughout lower secondary education, students can move upward or downward between school tracks, mainly depending on their school performance. The "downward

mobility" of students from the academically oriented school type to the lower or middle secondary school and the comprehensive school type is, however, much higher than the "upward mobility" (Baumert et al. 2003). Lower secondary education ends with Grade 9 or 10. Depending on their achievement, students may enter upper secondary school (*gymnasiale Oberstufe*), which is situated essentially in two school types, namely *Gymnasium* and *Gesamtschule*. Alternatively, they enter the vocational track or the labor market. NEPS stage 5 focuses on those who change into higher secondary school and NEPS stage 6 is concerned with those who leave institutionalized schooling in the academic school system (see Chaps. 15 and 16, this volume). To cover these transitions in detail, NEPS contains not only a starting cohort in Grade 5, but also one in Grade 9. Generally, students in both cohorts are being surveyed annually. However, in Grade 9 they are surveyed twice because students have to decide whether to stay at school or start a vocational education and training.

To ensure a consistent measurement of the development of competencies as well as a consistent survey program over the life-course perspective, NEPS has anchored a number of research perspectives within a general survey program represented by the five pillars of NEPS (see Chap. 1, this volume, as well as transferred to stage 4, Sect. 14.2). For students in lower secondary education, this general survey program is aligned in the survey program of stage 4 of NEPS. One research perspective, for instance, is school choice and how this relates to the competence development of students during the course of this stage of their educational careers. It will be of great interest to study, for example, why and how students change school tracks in lower secondary education and what causes the downward mobility that is so characteristic for the German education system.

In addition to the life-course perspective of the five pillars, it is especially important to consider the specifications of each educational stage. Therefore, the eight stages in NEPS ensure a stage-specific view on the research perspectives of the five pillars and add stage-specific research questions. In stage 4, this is a test in orthography and the focus on the development of the students' reading engagement. A third key aspect of stage 4 is the quality of instruction (see in detail Sect. 14.3.4).

The first point of measurement in NEPS stage 4 is in late autumn of 2010 for both starting cohorts in stage 4. The 5th-grade sample contains about 6,800 students in Germany; the 9th-grade sample, 13,500 (see, for further information on the sampling strategy, Chap. 4, this volume). Each wave of the panel study is preceded by a pilot study conducted in the previous year in order to test the procedures and the instruments as a whole.

Longitudinal research designs make it possible to address such questions and to draw causal inference (Blossfeld et al. 2009; Bos and Gröhlich 2009; Goy et al. 2010). In Germany, however, large-scale longitudinal studies in lower secondary school are scarce. The recent regional longitudinal study KESS (*Kompetenzen und Einstellungen von Schülerinnen und Schülern*), for example, provides insights into the functioning of secondary schools in Hamburg (Bos et al. 2009; Bos et al. 2010), and PARS (Panel Study at the Research School 'Education and Capabilities') sets out to provide evidence in North Rhine-Westphalia (Bos et al. in preparation). However, no national longitudinal study of student achievement with more than two observations in lower secondary school has been conducted up to now. In this respect, NEPS will provide a unique data source.

14.2 Main questions and general survey program of stage 4

To allow for a global view on the context and conditions that influence the development of competencies and educational careers, information is collected from the students themselves, their parents, their teachers, and the principals of the schools they are attending. In each wave, the students are tested in a number of domains and they complete a paper-and-pencil questionnaire. Furthermore, computer-assisted telephone interviews (CATI) with one parent of each target person are conducted to gain more information on the home context of the students. Additionally, class teachers, German teachers, mathematics teachers, and school principals are asked to provide information on the classroom and school context of the students in paper-and-pencil questionnaires.

14.2.1 Test domains and contents of the student questionnaires

One focus of NEPS is the measurement of competencies over the life course. Pillar 1 assesses domain-general and domain-specific cognitive competencies (German language, mathematical, and natural science competencies), meta-competencies, and social competencies (see Chap. 5, this volume) in both starting cohorts of stage 4. Especially in school, the measurement of the endowment and development of these competencies is central, because they correlate directly with productivity and the educational outcomes in school. These domains are supplemented by stage-specific measurement of orthographic competency in the starting cohort of Grade 5 (see Sect. 14.3.2). In the student questionnaires, information is collected on the students themselves. Important pieces of information are background characteristics such as sociodemographic basics, social origin (see Chap. 7, this volume), and migration background. Pillar 4 inquires more deeply into the migration history and background with questions about the three past generations. Beyond that, students with a native language other than German are asked specific questions to find out how they assess their knowledge and competencies in their first and second language and which languages they use in different situations (see Chap. 8, this volume).

NEPS pillar 2 focuses in stage 4 on information about formal and nonformal/informal learning environments (see Chap. 6, this volume). Concerning the formal learning environment, the main focus is on schooling (see also Sects. 14.2.3 and 14.2.4), whereas the assessment of nonformal/informal learning environments includes the family and activities in the students' leisure time. As nonformal/informal and formal learning environments are very much dependent on age, students in the fifth grade are asked about, for example, additional courses in school; and students in the ninth grade, about their participation in associations or work experience. The information on home learning environments for students in Grade 5 includes, for example, homework support and the transfer from elementary to secondary education (except in federal states with 6 years of elementary school). The survey program also takes into account questions on the students' perceptions of those changes.

NEPS pillar 3 concentrates on the prospective measurement of factors explaining educational decisions and social inequality in lower secondary education (see Chap. 7, this volume). One focus is the transmission of cultural capital from parents to students. Therefore, information on cultural activities as well as on reading behavior is collected (for

students and parents, see Sect. 14.2.2). In addition to the background of social inequality, pillar 3 is also interested in questions about the students' social capital, for example, the expectations of their parents, friends, and others about their educational achievement. Factors of special interest are those that lead to educational decisions in the tradition of rational choice theory. Hence, students will be asked, for example, whether they think that they can attain different educational degrees and what kind of benefits and costs they associate with different educational degrees.

Above and beyond migration background and language use, pillar 4 is interested in the integration and assimilation of the students with migration background not only in school but also in social life. Questions include, for example, in cooperation with pillar 3, the proportion of migrants in social networks and cultural habits. Furthermore, pillar 4 asks migrant students about their traditions, norms, and identity.

Items about satisfaction, subjective well-being, and health behavior are collected as nonmonetary returns by pillar 5 (see Chap. 9, this volume). The students are asked about their height and weight as basic information as well as information on their eating habits, for instance. In Grade 9, when the students are slightly older, there are also questions on fertility and family formation as well as on social and political participation.

Further questions in Grades 5 and 9 apply to personality traits, including the Big Five, self-concept, and self-esteem or general and topic-related interests. These psychological concepts are becoming more and more important in analyzing competence development and educational attainment in school (see Chap. 10, this volume).

As already mentioned, in addition to the life-course perspective of the pillars, it is important to consider the stage-specific situations in the life course of the students in the fifth and ninth grades. Hence, NEPS stage 4 focuses on specific processes. In Grade 5 there is a stage-specific test in orthography and a focus on reading engagement and quality of instruction. In contrast, for the ninth grade, the transition into higher secondary education, vocational education and training, or the labor market is of special interest. To gain a better understanding of the circumstances of this transition, stage 6 will ask students about their job-seeking strategies, career aspirations, and orientations.

14.2.2 Contents of the interviews with parents

The computer-assisted telephone interview (CATI) with one of the parents of the target person is crucial in order to gain more and valid information about the family context and to follow a multi-informant perspective at some points. In general, the interview is conducted with the parent who is responsible for the concerns of school.

The main aim is to collect basic information about the students' context in both cohorts: for instance, sociodemographics, household context, migration background, language use and proficiency of both students and parents, as well as the social background (education and occupation of both parents; see Chaps. 7 and 8, this volume). In view of the life-course perspective of NEPS, the collection of data on the school history of the students is also particularly vital. Therefore, information is gathered about each stage of schooling the student attends, beginning with their first ever day at school.

Moreover, additional and also more valid information from a partly multi-informant perspective is collected on the basis of the research program of the pillars. Pillar 2 is

again concerned with learning environments and their quality, for example, the amount and content of private tuition a student receives. Pillar 3 supplements the students' educational decisions by information on the parental considerations as well as their social and cultural capital. For this purpose, pillar 3, in cooperation with pillar 4, applies the "Position Generator" (Lin et al. 2001) in order to gain information on the network of the target person's family. NEPS pillar 4 surveys not only the assimilation and integration of the students themselves but also of their parents, for instance, the frequency of visits to the country of origin. Furthermore, in addition to the measurement of the household's income and wealth, pillar 5 concentrates on questions about the health of the students. Beyond that, there are also questions addressing concepts such as the assessment of social competencies of the students by their parents (see Chap. 10, this volume). Again, in order to focus on the specific situation in life, parents of 5th-grade students are asked more about schooling (stage 4), whereas parents of 9th-grade students give more information about their support at this important transition point (stage 6).

14.2.3 Contents of the teacher questionnaires

Three different types of questionnaires for teachers are used to obtain information in different areas and from different perspectives: (a) the general questionnaire for all teachers, (b) the class teacher questionnaire, and (c) the German teacher questionnaire. Class and/or German teachers will complete the general questionnaire along with their specific questionnaire.

The general questionnaire for all teachers covers typically relevant information. It contains basic sociodemographic data (pillar 3), data on the history of migration and native language (pillar 4), as well as data on their professional biography (developed by pillar 5). Furthermore, pillar 2 inquires into completed and planned educational training and collects information on pedagogical ideals and concepts.

The questionnaires for the 5th- and 9th-grade class teachers are almost identical. However, as the upcoming transition in Grade 9 is such an important change, 9th-grade teachers are asked additional questions on how they prepare their students for the transition to the vocational track (developed by stage 6). Moreover, both questionnaires collect information on classroom equipment as well as the gender-specific (pillar 2), social (pillar 3), and ethnic composition of the class (pillar 4).

The survey of German teachers is an important source of information for the specific research focus of stage 4. Items tap the quality of teaching German—specifically with regard to teaching orthography and instruction for reading engagement.

14.2.4 Contents of the questionnaires for principals

Whereas class teachers are asked to provide information on the composition of the class and room equipment, the principals are asked to provide such information on the entire school. Furthermore, information on the competition of the school with other schools in the regional context (pillar 5) is requested. Support programs for students with a history of migration as well as for students facing career entry are surveyed by pillar 4 and stage 6.

14.3 Stage-specific research questions: theoretical foundations and modes of assessment

14.3.1 Research focus of stage 4

The specific research focus of stage 4 is on the interrelated development of reading and orthography competencies over the course of lower secondary education and the transition to upper secondary education. These competencies are vitally important in this stage of the educational career, because they are the foundation for learning and communicating in all school subjects. The general theoretical perspective from which we regard reading and writing and their development is the concept of literacy. This concept emphasizes the development and the functional-pragmatic contextualization of specific competency domains in terms of different environments in which they are acquired (e.g., UNESCO 2004). In line with this characterization, stage 4 focuses on the development of literacy in reading and writing—competencies that enable individuals to understand and communicate ideas so that they can participate successfully in a literate society.

Reading competency is assessed within NEPS in the framework of pillar 1 (see Chap. 5, this volume). Next to reading, competency in orthography also influences the students' educational careers decisively (Schneider et al. 2008). Linguistic findings on graphematics have changed the view on orthography and orthography instruction in recent years. According to these findings, the aspect of norm fulfillment ceases to be of primary importance. In turn, the relation of orthography to other linguistic competencies is outlined. Learning orthography promotes linguistic awareness as well as reading competency and text competency (Blatt 2010; Eisenberg 1995; Hinney 1997; Schneider et al. 2008). In light of these studies, stage 4 of NEPS is using graphematically based tests to perform longitudinal assessments of orthographic competency as a stage-specific domain.

In accordance with the concept of literacy applied in many large-scale assessments of educational achievement, we regard reading and writing literacy as including not only the students' competencies in terms of achievement, but also their domain-related strategy knowledge, self-perceptions, motivations, and behaviors (see Chap. 10, this volume). In addition, we assess the quality of instruction as an aspect of schooling—the central formal learning environment during this stage of the educational career—and its impact on the domains of reading and orthography (see Chap. 6, this volume).

As a theoretical framework to relate the competencies to domain-specific cognitive, affective, and behavioral attributes of the target persons, we refer to an extended expectancy-value model (Eccles 1983, 1994). This model can also be regarded as a point of reference for the more specific analyses of the students' reading engagement (Guthrie and Wigfield 2000) that focus on the interrelatedness of different aspects of reading distinguished by the extended expectancy-value model. With school being the formal learning environment of specific relevance for acquiring reading and writing literacy and engagement, we further look specifically at the quality of instruction as part of the formal learning environment (see Sect. 14.3.4).

From the perspective of studying the development of reading and orthography competencies, we regard a number of student level variables that determine and mediate this development: domain-related strategies, self-concept, motivation, and behavior as well

as social interactions with fellow students, family, and peers. Such constructs and other personal traits are also considered in the general assessment framework of NEPS (see Chap. 10 for further information, this volume). In stage 4, these surveys will be expanded to investigate the more domain-specific variables in depth.

Numerous studies confirm that these variables correlate significantly with or are even predictors of achievement in both domains (see, for overviews on the domain of reading, Artelt et al. 2007; Möller and Schiefele 2004). Motivational predictors are of special relevance for educational research, because these constructs correlate substantially with reading achievement scores and are easier to promote through pedagogical intervention programs than, for example, the students' basic cognitive abilities or word decoding abilities (Schaffner and Schiefele 2007). One long-standing model for systematizing such predictors of achievement is provided by motivation theory. The expectancy-value model proposes that the individuals' choice of achievement tasks, their persistence on these tasks, their vigor in carrying them out, and their performance on them can be explained by their beliefs about how well they will do on the respective activity chosen, and the extent to which they value such activity (Atkinson 1957; Eccles 1983; Wigfield et al. 2009). Möller and Schiefele (2004) adapted Eccles' (1994) extended expectancy-value model to outline the motivational determinants of reading achievement. As a theoretical framework, such an extended expectancy-value model offers an adequate foundation for analyzing achievement predictors in our target domains of reading and, similary, orthography.

A model that allows us to combine the different student level variables with the components of formal learning environments is the comprehensive model of educational effectiveness by Creemers and Kyriakides (2008; see Fig. 1). The model does not capture the great diversity of formal and informal/nonformal learning environments described in Chap. 6 in this volume but targets on the most important formal learning stage 4, namely,

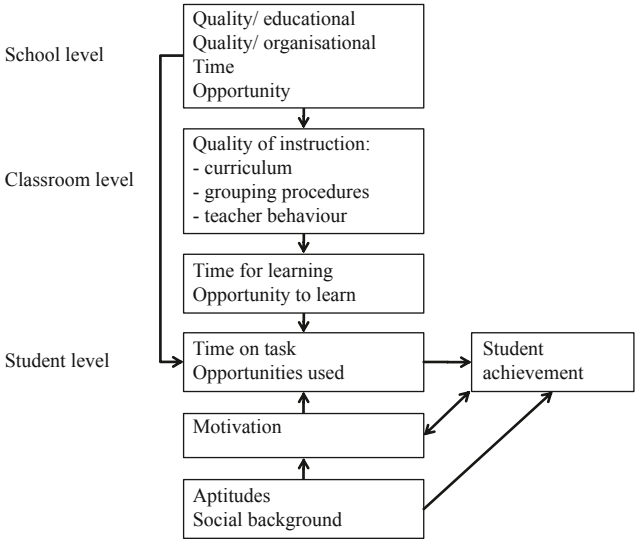

Fig. 1: The comprehensive model of educational effectiveness. (cf. Creemers and Kyriakides 2008, p. 39)

instruction in schools. It distinguishes between student, classroom, and school levels and is finally output oriented because the variables considered at the different levels are supposed to result in students' achievement. In order to combine the expectancy-value model with classroom and school variables, which are important for the development of students' literacy in lower secondary school, we apply this model to our assessments in stage 4. As stated above, the expectancy-value model considers the learning process as a function of students' beliefs about how well they will perform on a specific task and how they value such an activity. Consequently, the model highlights the student level. However, institutional settings also influence students' opportunities to learn and the amount of time spent learning, so that they also have an impact on the students' learning processes. Because NEPS focuses on following individual educational careers, the mechanisms between school and classroom variables are not the primary research interest. We focus on the impact of student and classroom variables on students' literacy.

14.3.2 Test instrument to assess orthographic competency

The current state of research reveals that a thorough analysis of the orthographic competency of students in secondary school has yet to be performed. Up to now, empirical results from cross-sectional studies at the end of the elementary school have shown that 4th-grade students still have problems with German orthography (Löffler and Meyer-Schepers 2005). Those problems seem to persist throughout secondary school and sometimes even intensify (Schneider et al. 2008). Additionally, the role of teaching concepts has not been considered in any of the former studies, and, on top of that, no theory-based framework of orthography has been applied to test construction.

Therefore, filling this gap in research is of vital importance, especially because in recent years, not only has there been a change in the educational view on orthography, but orthography has also become a focus of linguistic research. More recent linguistic results from the field of graphematics have pointed out that written language needs to be regarded as an autonomous system that has to be investigated independently before being related to spoken language. Beforehand, orthography was seen as dependent on spoken language and hence classified as unsystematic. In contrast, graphemic results stress the regularity of the core area of the German orthography which determines 90% of native writings. Hinney (1997) emphasizes that the field of didactics needs to consider these findings and redefine orthographic concepts by focusing on regularities first before concentrating on irregular spellings. This will enable students to not only master but also gain an insight into the German orthographic system (Eisenberg 1995). Recent studies have shown that a teaching concept based on graphemic findings is successful, especially for those students who are labeled as being disadvantaged due to social disparities (Pagel and Blatt 2010). This clearly demonstrates how linguistic results deeply impact the fields of educational research and didactics. Therefore, the results can be used to develop a theory-based framework for test construction. Table 1 details the five principles or dimensions according to the graphematics-based construct of orthography. Construct validity has been investigated in previous studies (Blatt et al. in press; Voss et al. 2007). In all, the dimensions correlate highly, although a multidimensional IRT model with five dimensions reveals a better model fit than a unidimensional model.

Table 1: Overview of orthographic principles and respective skills

Principles of orthography	Skills
Phonographic and syllabic principle (core area)	Understanding the corresponding syllabic structure of written and spoken words
Morphological principle (core area)	Understanding the structure of words in inflected and derived forms (morphological stability) Understanding inflectional morphemes
Peripheral area	Identifying exceptions in spelling Knowing the correct spelling of foreign words
Word formation principle	Knowing parts of speech and derivational morphemes (i.e., for compounding)
Syntactic principle	Knowing and using syntactic structures for capitalization

After outlining the framework used in the NEPS, we shall now present the test in more detail. It consists of a cloze test with 30 words and three full sentences with 40 words that have to be mastered in 25 minutes. The word material for the test consists mostly of words that have been used already in an earlier study (Blatt et al. in press). Additional words have been used in smaller samples before. All words are chosen to provide sufficient information on all subskills in order to meet the conditions for an adequate analysis. In accordance with the guidelines of the federal states for school content, nearly all the words for Grade 5 belong to the regular core area of orthography whereas peripheral spellings are used less frequently.

In order to assure objectivity during the survey, the test instructions and the words have been recorded by a professional speaker and are played back during the survey. Experience has shown that a twofold correction is useful in order to account for all student mistakes (Blatt et al. in press). The data is coded with a newly developed tool. This software codes the structural units of a word as being wrong or right before allocating them to the related subskill. This coding tool, which was developed in cooperation with the Leibniz Institute for Educational Research and Educational Information (DIPF), is a lot less time consuming than a manual coding process, and it also proves to be more objective.

The data analysis has different foci. It determines the orthographic competency of the students, examines quality criteria for the test, and analyzes the relationship between competency and influencing factors such as quality of instruction or background variables.

A multidimensional one-parameter IRT model is used to estimate item difficulties and students' abilities. Qualitative analyses of the spelling variations also give further information on the students' insights into the regularities of the orthography system. As the theoretical model consists of five dimensions, dimensionality will be analyzed as well. Model comparisons and correlations of the subskills determine whether this differentiation is useful or redundant and provide information on the construct validity of orthography.

As NEPS focuses mainly on the development of competence, the test is applied not only in Grade 5 but also in Grades 7 and 9. This is not only a methodological challenge in terms of linking tests but also a content-related one. In terms of content, the peripheral area is extended by adding, for example, more foreign words. Also, the number of struc-

tural units addressing the syntactic subskill will be increased. Additionally, punctuation will come into play. In order to implement these content-related changes, the test format will change slightly during the course of the panel study.

This longitudinal survey of orthographic competency in secondary school will deliver a wide range of new findings and conclusions. The interplay between questionnaires and tests allows us to examine the relationship of teaching and other factors to orthographic competency throughout Grades 5–9.

14.3.3 Reading engagement

Student engagement in learning is a relevant and well-documented predictor of academic achievement in general, and also in specific subject areas such as reading (Fredricks et al. 2004; Wigfield et al. 2008). Guthrie and Wigfield (2000) have proposed an engagement model of reading comprehension development stipulating that engagement in reading is a joint functioning of motivational processes and cognitive strategies during reading comprehension. In this perspective, highly engaged readers are both internally motivated and strategic, whereas less engaged readers show lower motivation and less use of strategies for comprehending text.

Current models of reading engagement include more components. Fredricks et al. (2004) proposed that engagement in learning is a tripartite concept including cognitive engagement (using high-level strategies to foster deep learning), behavioral engagement (actively performing academic learning tasks), and emotional engagement (enjoying academic tasks and expressing enthusiasm about learning). Based on this approach, Lutz et al. (2006) define reading engagement as the students' cognitive, affective, behavioral, and social involvement in reading activities with their teachers and classmates. This proposal adds a fourth dimension, social engagement. In line with earlier work on reading engagement (Guthrie and Wigfield 2000), Lutz et al. (2006) regard the exchange of interpretations of text and other ideas about reading with peers in a "community of literacy" as important social behaviors of students engaged in reading. These four dimensions are adopted for our analyses of reading engagement in stage 4 of NEPS.

Reading engagement is particularly relevant for research on reading and instruction, because it correlates highly with reading achievement (Guthrie 2008; Wigfield et al. 2008). Remarkably, reading engagement has been found to be a more important correlate of reading achievement than students' family background based on parents' education and income. The National Assessment of Educational Progress in the United States has shown that highly engaged readers have higher achievement scores than the less engaged at each of the three ages surveyed (9, 13, and 17 years). The same national data indicate that highly engaged readers from low SES families have higher achievement scores than less engaged readers from high SES backgrounds (Campbell et al. 1997; Guthrie et al. 2001). A reanalysis of PISA 2000 data employing an international reading engagement index confirms these results for 15-year-olds (Kirsch et al. 2002), and recent analyses based on PIRLS 2006 data with a nested-factor model of reading engagement reveal that the same holds true for national samples of 4th-graders in Germany and Sweden (Goy et al. 2009).

As Russell et al. (2005) emphasize with regard to engagement in school and in its different learning domains, there is a need for multidimensional, multilevel, longitudinal studies of engagement. In line with the reading engagement theory cited above, we define and assess reading engagement in stage 4 of NEPS as a multidimensional and dynamic construct with four dimensions. When compiling reading engagement items for NEPS, we chose a selection of variables on reading motivation and reading self-concept from the Habitual Reading Motivation Questionnaire (Möller and Bonerad 2007) and complemented these with additional questions on reading strategies, reading behaviors (time spent on reading, materials read), and social reading interactions. To explain the variance and development in reading engagement by variables on the classroom level, we shall use questions in the teacher and student questionnaires to survey the teachers' instructional practices with regard to reading engagement and the students' perceptions of these practices.

14.3.4 Quality of instruction

The diversity and quality of learning opportunities over the life course is part of the survey program of pillar 2 (see Chap. 6, this volume). The most important formal learning environment in stage 4 is the instruction students receive in schools. At first glance, syntheses and meta-analyses of studies on instruction might lead to the conclusion that instruction is well researched (Fraser et al. 1987; Scheerens and Bosker 1997; Seidel and Shavelson 2007; Wang et al. 1993). However, the findings from such reviews often do not agree, and the question which teaching variables can be attributed to students' literacy has yet to be answered satisfactorily in light of the great complexity of instruction. In their recent meta-analysis, Seidel and Shavelson (2007) reviewed studies carried out during the past decade. Only about 15 German studies were suitable for their analysis (i.e., they did not focus on students with learning disabilities and made at least some adjustment for students' preconditions). Consequently, there is a need to investigate instruction and its effect on students' literacy in depth.

Although the limitations of cross-sectional designs for drawing causal inferences are well known, most studies in the above-mentioned meta-analyses were cross-sectional. Particularly with respect to instruction, Rowan et al. (2002) have shown that it is important to be aware of this issue. Otherwise it is likely that the explanatory power of teaching variables remains underestimated or undiscovered (ibid.). In recent theories on formal learning, different school settings and teacher behavior in classrooms are related to student learning by asking how schools and teachers succeed in fostering students to become self-regulated learners (e.g., Boekaerts 1997). Therefore, we employ Bolhuis' (2003) model on the components of lifelong learning to operationalize instruction. Seidel and Shavelson (2007) adopted this model and developed it further for their meta-analysis (see Fig. 2). In contrast to the theoretical models from Scheerens and Bosker's (1997) previous meta-analysis, Bolhuis' model proves to be more applicable and useful for the analysis. It views learning as a self-regulated, lifelong, and multidimensional process. First, learning is considered to be domain-specific: Therefore, assessments focus on instruction in German-language classes and not on all the instruction students receive in different subjects. Furthermore, the model regards the time for learning: In the school context, this is

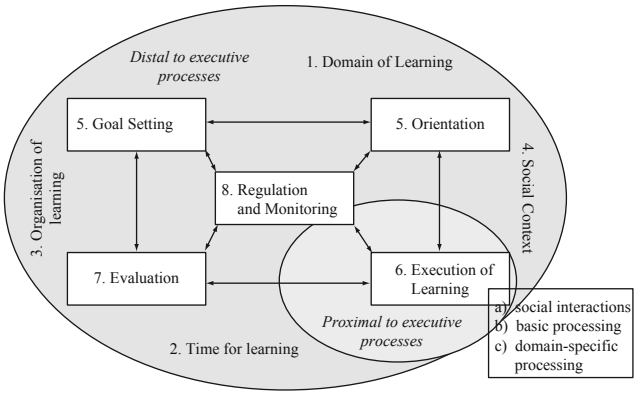

Fig. 2: Model of teaching and learning components. (cf. Seidel and Shavelson 2007, p. 461)

the number of lessons per week and the amount of homework. The social context (i.e., among peers and with the teacher) and the organization of learning are further dimensions that frame the learning process. The learning process itself is characterized by goal setting/orientation, ongoing evaluation and permanent regulation. Teachers set goals, encourage their students to make these goals their own, or to set their own goals. Making use of formative and summative assessments can help teachers to give specific feedback or support students. Finally, the actual learning process comprises specific methods of instruction, didactics, and the social setting (e.g., teacher-centered or student-centered instruction). The different dimensions can also be considered as subdimensions from the SSCO model (see Chap. 6, this volume) and therefore correspond with the general survey program from pillar 2. Next to the basic dimensions of instruction described above, the questionnaires also cover specific questions on teachers' attitudes and teaching behavior with respect to orthography and how they foster students' reading engagement.

To accommodate the great complexity of the metaconstruct instruction, both students and teachers will be surveyed. Research on instruction has shown clearly that different perspectives on instruction do not necessarily agree (e.g., Clausen 2002; Kunter and Baumert 2006). Analyses revealed, for instance, specific conceptual structures, with teachers elaborating on the use of tasks and methods, and students focusing on their teacher's support in personal and learning matters. These research insights have been used to construct the NEPS questionnaires so that they make use of the specific validity from different groups of raters.

Another crucial issue is the frequency of assessments. Instruction changes, because teachers adapt their behavior to the particular class; or classes have different teachers from one year to another. Therefore, instruction is surveyed annually. Such a tracking of German classes makes it possible to analyze the cumulative effect of instruction on students' literacy.

14.4 Conclusion

One major aim of the NEPS is to map individual educational tracks. This certainly is a major challenge. On the one hand, both tests and questionnaires have to be comparable throughout the course of the study, whereas, on the other hand, they need to be adequate for each target population.

For stage 4, there are only a few studies that provide sufficient information on tests and constructs for the samples being assessed. In addition, the age and skills of the target population have to be taken into consideration, because the students should not be overtested. For test development, this means, for example, that the tests must be oriented toward school-related content. For orthography, new content must be considered each school year. Therefore, the underlying framework for orthography has to be adjusted constantly.

In terms of time management, useful focal points have to be determined each year in order to provide all the information needed on secondary school within a limited testing time. Therefore, stage 4 needs to collect constructs and items from all pillars of the NEPS, check their suitability for the target population, and then provide a cohesive concept. All these steps need to be conducted while bearing in mind the comparability throughout all stages and the need for instruments that are attractive for the persons surveyed. Last but not least, statistical analyses need to be planned, and the longitudinal survey must be designed to gain a maximum insight into the life course of the target population.

In summary, the upcoming challenges require solid and close cooperation between all the pillars and the stages of the NEPS. The general study design certainly offers great opportunities for achieving this goal.

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